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THEMATIC AREA 1.
AI FOR MANAGERIAL DECISION-MAKING, OPERATIONS, AND COMPETITIVE STRATEGY

Research on how AI supports managerial decision-making, process optimization, and competitive advantage through data-driven strategies and intelligent automation

UNSUPERVISED AI APPLICATION FOR DATA-DRIVEN DECISION IN REAL-ESTATE INVESTMENTS

Clara Matutano Molina
Nebrija University, Spain
cmatutano@nebrija.es

Abstract

The increasing complexity of territorial real-estate markets demands transparent and reproducible tools that synthesize heterogeneous socio-economic indicators into operational guidance for investors and policymakers. This study aims to distinguish provinces according to market dynamism, using indicators such as mortgage activity, population growth, and births, and to identify tourism-driven housing pressure by analysing both the number of tourist homes and their share of the total housing stock. The empirical foundation relies on official INE indicators aggregated at provincial level, covering data up to July 2025. To respond to these needs, the study presents a reproducible methodology based on multivariate analysis and the application of unsupervised artificial intelligence algorithms. The data were standardized and assessed for suitability. Dimensionality reduction was performed via Principal Component Analysis to capture principal contrasts and facilitate visualization, while complementary Maximum Likelihood Factor Analysis with Varimax rotation produced two interpretable latent dimensions. Subsequently, unsupervised clustering techniques, including k-means and hierarchical clustering, were applied to identify coherent provincial groups. All computational steps were scripted in R to ensure reproducibility. Results indicate that two dominant components explain the vast majority of variance, corresponding to a “market dynamism” axis and a “tourism pressure” axis. Clustering produces four stable and interpretable groups with strong separation, enabling direct prioritization of territories according to investor objectives. The proposed approach yields a compact and interpretable decision tool that reduces complex multivariate signals to two managerial levers, facilitating evidence-based and territorially differentiated investment strategies across Spanish provinces.

Keywords: Data-driven economy, Multivariate analysis, Unsupervised AI, Real-estate investment, Provincial segmentation

FROM MARKET SIGNALS TO DECISIONS: INTEGRATING SEARCH ENGINE DATA INTO SME BUSINESS INTELLIGENCE

Javier Cuervo López and Rui Pedro Figueiredo Marques
Universidade de Aveiro, Portugal
javier.cuervo@ua.pt; ruimarques@ua.pt

Abstract

Executives need market-grounded data, yet the richest real-time signal, what people search for, rarely appears in SME Business Intelligence dashboards. This gap warrants systematic exploration. This paper proposes a practical approach to integrating search engine data into Business Intelligence in order to support strategic, tactical-sales, and operational decisions. Three facts motivate the study. First, scholarly work explicitly linking search data to data-driven decision-making in SMEs is scarce and fragmented across marketing analytics, data engineering, and management. Second, recent advances in artificial intelligence can transform high-volume, high-variety search traces into business concepts and plain-language insights, helping translate market signals into actionable managerial decisions. Third, relevant data already exists, from both free and paid sources, but tends to remain confined to marketing silos rather than being incorporated into the firm's BI environment, where it could inform executive choices.

The main contribution is a mapping from executive questions to interpretable and actionable indicators derived from search signals. A concise set of indicators is outlined: brand versus non-brand visibility and category momentum for strategy and competitive positioning; transactional versus informational intent, share-of-search, and customer questions for marketing and sales optimisation; and anomaly detection and short-cycle trends for day-to-day operational priorities.

Artificial intelligence is positioned as an assistant rather than a replacement, supporting intent classification, pattern summarisation, shift detection, and the generation of plain-language summaries and next steps within the BI environment, while preserving human judgement and governance.

Methodologically, the paper synthesises evidence from a systematic literature review and interviews with SME executives to elicit information requirements. It proposes testable propositions and a minimal indicator set linking search engine data to decision contexts across strategic, tactical-sales, and operational layers. Treating search signals as primary BI inputs, actionable, interpretable, and automatable, aims to close the gap between what executives need to see and what organisational dashboards currently display.

Keywords: Business intelligence, Search engine data, SMEs, Data-driven decision-making, AI-assisted insight

THE STRATEGIC ROLE OF SALESFORCE DASHBOARDS IN DATA-DRIVEN DECISION-MAKING: AN EMPIRICAL ANALYSIS

María García de Blanes Sebastián and Simón Pedro Deffendini Silva
Rey Juan Carlos University, Spain
maria.garciadeblanes@urjc.es; simon.deffendini@urjc.es

Abstract

The increasing digitalization of commercial processes and customer management has intensified the adoption of advanced Customer Relationship Management (CRM) systems such as Salesforce, where dashboards have emerged as a critical tool for data-driven decision-making. In this context, analytical visualization enables organizations to transform large volumes of operational data into actionable managerial knowledge. The objective of this empirical study is to examine the impact of Salesforce dashboard usage on decision-making efficiency, performance control, and strategic alignment in customer-oriented organizations.

The research follows a quantitative approach, drawing on data collected through structured questionnaires administered to Salesforce users, including executives and managers from sales, marketing, and customer service functions. Survey data are complemented by the analysis of dashboard usage metrics and performance indicators extracted from the Salesforce platform. Statistical techniques and structural equation modeling are employed to assess the relationships between dashboard functionalities, perceived information quality, perceived usefulness, and organizational performance outcomes.

The findings indicate that role-based customization, real-time data updates, and advanced filtering and drill-down capabilities exert a positive and significant effect on perceived information quality and decision-making speed. Furthermore, intensive dashboard usage is positively associated with improved sales pipeline monitoring, enhanced cross-departmental coordination, and stronger customer orientation. Overall, the results suggest that Salesforce dashboards extend beyond an operational support role and function as a strategic mechanism that reinforces data-driven management practices and organizational efficiency. This study provides empirical evidence on the value of dashboards within CRM environments, contributing to the business intelligence literature and offering practical insights for organizations seeking to enhance performance through advanced analytical tools.

Keywords: Salesforce; Dashboards; Customer Relationship Management (CRM); Business Intelligence; Data-Driven Decision-Making; Organizational Performance

BRIDGING THE DATA GAP IN SMEs: A PROCESS MINING FRAMEWORK FOR OPERATIONAL IMPROVEMENT

Víctor Antonio Moreno-Maya, Juan R. Campos-Blázquez and Pilar Laguna-Sánchez
Rey Juan Carlos University, Spain
vamoreno@usa.net; juan.campos@urjc.es; pilar.laguna@urjc.es

Abstract

Small and Medium-sized Enterprises (SMEs) are critical drivers of employment and regional development, yet they frequently face structural and organizational barriers that hinder the adoption of advanced data-driven management practices. Despite the growing availability of digital technologies and affordable business analytics tools, most SMEs still rely on intuition or experience-based decision-making. As a result, the potential of data to generate operational insights and support continuous improvement remains underexploited. Among data-driven methodologies, process mining stands out as a powerful analytical approach that enables the discovery, monitoring, and enhancement of real business processes based on digital footprints from event logs. However, the diffusion of process mining among SMEs remains limited due to persistent barriers, including poor data quality, lack of methodological guidance, and restricted internal analytical capabilities.

This research addresses these limitations by proposing a methodological framework that adapts process mining principles to the operational reality of SMEs. Drawing on the foundations of process discovery, conformance checking, and performance analysis (van der Aalst, 2016), the study employs a multiple case study methodology (Yin, 2017) involving SMEs from manufacturing and service sectors. The research combines quantitative analysis of event logs extracted from information systems with qualitative data collected through semi-structured interviews and process-mapping workshops. This mixed-method approach allows for triangulation and contextual understanding of the identified inefficiencies. Expected contributions include: (1) identifying recurrent patterns of operational inefficiency across SMEs, (2) developing a practical roadmap for the adoption of process mining under resource constraints, and (3) providing empirical evidence of how data-driven insights can strengthen decision-making and continuous improvement initiatives. Beyond its methodological value, the framework aims to support managers in aligning technology with strategic objectives and fostering a culture of evidence-based management.

Ultimately, the research seeks to bridge the gap between the technological potential of data analytics and the strategic needs of SMEs, positioning process mining not merely as a diagnostic tool but as a driver of sustainable operational excellence and competitiveness in the digital economy.

Keywords: process mining, SMEs, data-driven management, operational improvement, digital transformation

ARTIFICIAL INTELLIGENCE AND THE NEW DECISION PARADOXES: A CONCEPTUAL RETHINKING OF MANAGERIAL JUDGMENT IN DATA-DRIVEN ORGANIZATIONS THROUGH A SOCIO-TECHNICAL PERSPECTIVE

Paula Sáez Rodríguez
University of Murcia, Spain
p.saezrodriguez@um.es

Abstract

Artificial Intelligence (AI) is reshaping how organizations make and support decisions. Beyond its computational capacity, AI represents a socio-technical transformation in which human and machine intelligence interact to produce new forms of reasoning, control and organizational learning. This conceptual paper builds on the socio-technical systems tradition established by Trist and Bamforth (1951) and expanded by Emery (1959), as well as on the sociomaterial perspective introduced by Orlikowski (2007). It also draws on Simon's foundational notion of bounded rationality (1947) to explain how automated systems alter cognitive processes and managerial judgment in data-driven environments. The study proposes three paradoxes that characterize decision-making in AI-enabled organizations. The paradox of control reflects the tension between human autonomy and technological automation, anticipating Bainbridge's ironies of automation (1983) and echoing the automation–augmentation tension highlighted by Raisch and Krakowski (2021). The paradox of rationality captures the coexistence of algorithmic objectivity and human interpretive judgment, resonating with March's distinction between exploration and exploitation (1991) and Kahneman's dual-system reasoning model (2011). Although AI systems are often presented as neutral, evidence shows that they can reproduce and amplify human biases, as demonstrated by Rhue (2018). The paradox of learning contrasts algorithmic learning, driven by rapid pattern recognition, with human learning rooted in reflection and creative exploration, consistent with March's exploration–exploitation distinction and supported by recent insights from Marrone, Cropley, and Medeiros (2024). The paper conceptualizes decision-making as a hybrid cognitive process in which technological systems provide analytical capacity while social systems contribute interpretive depth, contextual understanding, and ethical reflection. This view aligns with Weick's work on sensemaking (1995) and Nonaka and Takeuchi's knowledge-creation model (1995) and incorporates emerging perspectives on algorithmic learning from Faraj, Pachidi, and Sayegh (2018). The study advances the socio-technical literature by examining how AI reshapes managerial cognition, bounded rationality, and decision practices. From a practical perspective, it highlights the need for managers to develop adaptive judgment, interpretive flexibility, and digital literacy to navigate the paradoxes emerging from AI integration. Ultimately, AI does not replace managerial judgment; rather, it transforms it, positioning decision-making as a shared act of intelligence between humans and machines.

Keywords: Artificial intelligence; socio-technical systems; managerial judgment; decision-making

SAILING INTO THE FUTURE: THE ARTIFICIAL INTELLIGENCE REVOLUTION IN THE CRUISE INDUSTRY

Frank Babinger, Lourdes Susaeta Erburu and Sandra Sánchez Arcediano
Universidad Complutense de Madrid and Nebrija University, Spain
fbabinger@ucm.es; lsusaeta@ucm.es; ssanchea@nebrija.es

Abstract

Artificial intelligence (AI) is deeply transforming the cruise industry, redefining both internal management and the passenger experience. This paper explores the main areas where AI is being implemented and its potential impact on economic performance, sustainability, and global competitiveness.

AI is reshaping the entire customer journey, from trip inspiration and booking to on-board activities. Intelligent systems enable personalised recommendations, adaptive itineraries, and real-time service adjustments based on individual preferences. This personalisation fosters smoother, more engaging experiences while strengthening the direct relationship between cruise companies and their guests.

Operationally, AI acts as a powerful driver of efficiency. Machine learning algorithms optimise navigation routes by considering sea conditions, weather forecasts, and port availability, helping to reduce fuel consumption and emissions. Predictive maintenance systems anticipate technical failures, extend the lifespan of on-board equipment, and minimise downtime. In hospitality management, AI contributes to reducing food and beverage waste by accurately forecasting demand and passenger behaviour, achieving both sustainability and cost savings.

Beyond daily operations, AI-driven analytics enhance strategic decision-making. By processing large volumes of data related to consumption, satisfaction, and operational performance, companies can anticipate market trends, optimise resources, and strengthen their resilience in times of uncertainty.

Ultimately, artificial intelligence is becoming an essential pillar for the modernisation of the cruise industry. Smart ships and data-informed management practices herald a new era of tourism that is more efficient, more sustainable, and more human-centred.

Accordingly, this paper presents an interdisciplinary literature review aimed at identifying how AI influences different operational areas and how AI-driven systems are transforming the cruise industry. By adopting a multidisciplinary approach drawing from management studies, tourism research, engineering, and sustainability, the study seeks to identify key factors that foster responsible AI adoption in the cruise industry.

Keywords: Artificial intelligence, Cruise industry, Operational optimization, Personalization, Sustainability

FROM DESCRIPTIVE TO PREDICTIVE INTELLIGENCE: A THEORETICAL FRAMEWORK FOR LSTM-BASED FORECASTING IN BUSINESS ANALYTICS

Mario Alberto Aizcorbe-Acevedo, Óscar Aguado-Tevar and Luis Díaz-Marcos
Nebrija University, Spain
maizcorb@nebrija.es; oaguado@nebrija.es; ldiazmarcos@nebrija.es

Abstract

Business Analytics has moved beyond its descriptive origins to become a discipline defined by prediction, simulation, and prescriptive reasoning (Davenport & Harris, 2020; Power & Heavin, 2022). This paper presents a theoretical framework linking forecasting theory, deep learning, and data architecture as the foundations of predictive intelligence. It argues that foresight depends not only on algorithms but on how data is structured, governed, and interpreted. Forecasting theory offers a disciplined view of business dynamics through the decomposition of time series into trend, seasonality, and residual components (Hyndman & Athanasopoulos, 2021). Classical models such as exponential smoothing and ARIMA have provided stability but remain limited by their linear assumptions and rigid structure (Gardner, 2020; Shumway & Stoffer, 2017). Deep learning, particularly Long Short-Term Memory (LSTM) networks, extends forecasting capacity by internalizing long- and short-term dependencies and capturing non-linear interactions (Hochreiter & Schmidhuber, 1997; Smyl, 2020).

Analytical precision also depends on architecture. Lakehouse systems merge the scalability of data lakes with the governance of warehouses, ensuring semantic coherence and reproducibility across analytical layers (Kimball & Ross, 2019; Databricks, 2024). In parallel, explainability tools such as SHAP and scenario-based analysis turn statistical variance into actionable insight, bridging the gap between data science and managerial reasoning (Lundberg & Lee, 2017; Goodwin & Wright, 2018). This synthesis positions predictive intelligence as the convergence of modeling, architecture, and interpretation. The strength of Business Analytics lies not in algorithmic novelty alone but in the coherence with which data, theory, and human judgment are integrated into a unified analytical narrative.

Keywords: Business Analytics, Predictive Intelligence, Time-Series Forecasting, Deep Learning, LSTM, Lakehouse Architecture, Explainable AI, Data Governance, Scenario Analysis

DIGITAL TRANSFORMATION AS A CATALYST FOR SUSTAINABLE INTERNATIONALIZATION: A SYSTEMATIC REVIEW OF EMERGING DRIVERS, CHALLENGES, AND STRATEGIC IMPLICATIONS FOR IBERO-AMERICAN FIRMS

Alberto Tomás Delso Vicente, Santiago Barreno Alcalde and Adriana Del Pilar Rivera Heredia

Rey Juan Carlos University, Spain

alberto.delso@urjc.es; santiago.barreno@urjc.es; adriana.rivera@urjc.es

Abstract

This study examines the intersection between digital transformation and sustainable internationalization, two domains that have gained increasing prominence within management research in recent years. While prior literature has explored international expansion determinants and the organizational implications of digital technologies separately, limited attention has been dedicated to understanding how digital transformation enables firms, particularly in the Ibero-American context, to expand globally while simultaneously strengthening their sustainability performance. To address this gap, the article conducts a systematic review of the scientific literature published between 2000 and 2025, following the PRISMA methodology and focusing on studies indexed in Web of Science, Scopus, and EBSCO. The final sample consists of empirical and conceptual contributions that analyse the role of technologies such as artificial intelligence, big data analytics, blockchain, digital platforms, and smart infrastructures in shaping international strategies, environmental performance, and competitive outcomes. The findings reveal three major patterns. First, digital transformation emerges as a core driver of internationalization by improving information processing, strengthening decision-making capabilities, and enabling resource-efficient entry into foreign markets. Second, evidence suggests that technology adoption contributes to sustainable internationalization by reducing operational inefficiencies, facilitating circular practices, and enhancing environmental monitoring and reporting. Third, the review identifies persistent challenges in the Ibero-American region, including limited digital maturity among small and medium-sized enterprises, uneven access to technological infrastructures, and fragmented policy frameworks that hinder the integration of sustainability targets into international strategies. Based on these results, the article proposes an integrative framework that conceptualizes digital transformation as a multidimensional enabler of sustainable internationalization, highlighting the interplay between technological capabilities, environmental practices, and global competitiveness. The study offers several managerial implications, emphasizing the need to invest in data-driven infrastructures, promote technology-oriented training, and develop partnerships that accelerate international expansion and sustainability impact. For policymakers, the review underscores the importance of supporting digital adoption, strengthening cross-border digital ecosystems, and aligning industrial, innovation, and sustainability policies. Finally, the article identifies research gaps and outlines future directions, including the need for longitudinal evidence, models that integrate digital transformation with sustainability-oriented international strategies, and comparative studies between Ibero-American economies and other regional contexts.

Keywords: Digital transformation, Sustainable internationalization, Artificial intelligence, Ibero-American firms, Strategic management

PREDICTIVE MODELS IN ORGANIZATIONAL DECISION SYSTEMS: A CONCEPTUAL FRAMEWORK FOR ADVANCED ANALYTICS

Mario Alberto Aizcorbe Acevedo, María García de Blanes Sebastián, Luis Díaz-Marcos and Óscar Aguado-Tevar
Nebrija University, Spain; Rey Juan Carlos University, Spain
maizcorb@nebrija.es; maria.garciadeblanes@urjc.es; ldiazmarcos@nebrija.es; oaguado@nebrija.es

Abstract
The progressive incorporation of advanced analytics and artificial intelligence techniques into organizations has consolidated predictive models as core instruments in strategic decision-support processes. In areas such as planning, resource allocation, risk management, and the definition of commercial and institutional strategies, these models are increasingly embedded in complex organizational systems, where heterogeneous data, operational processes, business rules, and strategic objectives interact. This evolution has given rise to a broad and well-established body of literature addressing the design, evaluation, and use of predictive models from multiple analytical traditions.
The diversity of approaches has led to a heterogeneous use of the concept of predictive models, which in many studies is employed without an explicit distinction from descriptive or explanatory approaches. This conceptual ambiguity makes it difficult to precisely define the specific role played by predictive models within organizational decision systems and limits both cross-study comparability and the transferability of results to real-world decision contexts. In this regard, there is a clear need to advance toward a conceptual framework that organizes these approaches and enables a coherent analysis of how predictive models are designed, evaluated, and embedded in complex organizational processes.
The aim of this article is to propose a conceptual framework for the use of predictive models in organizational decision systems, articulating their theoretical foundations, main typologies, and the methodological dimensions that condition their application. Based on a structured review of recent high-impact literature, the study delineates the concept of predictive models, examines their evolution within business analytics, and analyzes their integration into socio-technical environments where data, processes, business rules, and strategic objectives converge. The analysis identifies data quality and governance, temporal model validation, result interpretability, and analytical lifecycle management as key dimensions, highlighting their relevance for consistent and operationally viable decision-making.
The main contribution of this article lies in providing a clear and systematic conceptual framework that links predictive analytics with organizational decision-making systems, offering a solid theoretical foundation for both the development of subsequent empirical research and the design of applied predictive systems in real organizational contexts.

Keywords: Predictive models; Organizational decision systems; Predictive analytics; Artificial intelligence; Data governance; Sustainable Development Goals

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THEMATIC AREA 2.
AI FOR MARKETING SCIENCE, SALES ANALYSIS AND CUSTOMER EXPERIENCE

Studies addressing AI applications in marketing intelligence, personalisation, predictive sales analysis, and customer engagement in digital ecosystems

¿LA IA GENERATIVA REEMPLAZARÁ A LOS PROFESIONALES DE MARKETING O LOS AYUDARÁ EN SUS FUNCIONES?

María de las Mercedes de Obesso Arias, Margarita Núñez Canal and José Manuel Mas Iglesias
Universidad Complutense de Madrid and Universidad Nebrija, España
mdeobess@ucm.es, mnunezca@nebrija.es, josemas@ucm.es

Abstract
La irrupción de la inteligencia artificial (IA) generativa, especialmente tras el lanzamiento de modelos como ChatGPT de OpenAI en 2022, ha reavivado el debate sobre el futuro del empleo en sectores intensivos en conocimiento, entre ellos el marketing. Este trabajo presenta una revisión sistemática de la literatura cuyo objetivo es analizar si la IA generativa está sustituyendo a los profesionales del marketing o si actúa como tecnología de asistencia que transforma sus competencias sin desplazar completamente su rol. La pregunta de investigación se formula en los términos siguientes: ¿la IA generativa reemplazará a los profesionales de marketing o los asistirá en sus funciones?
La revisión se desarrolló siguiendo la metodología PRISMA (Moher et al., 2009). Se consultaron las bases de datos Scopus, Web of Science, IEEE Xplore y Google Scholar, incluyendo artículos publicados entre 2018 y 2025 en inglés y español. Tras aplicar criterios de inclusión (calidad metodológica, relación directa con IA y marketing, revisión por pares) y exclusión (duplicados, estudios no académicos o irrelevantes), se seleccionaron 42 artículos para el análisis final. Los resultados indican que la IA generativa automatiza principalmente tareas operativas y repetitivas del marketing, como la redacción inicial de contenidos, generación de respuestas conversacionales, segmentación básica y programación de campañas (Dwivedi et al., 2023; Chatterjee et al., 2023). Sin embargo, la literatura coincide en que las tareas estratégicas —como creatividad avanzada, construcción de marca, empatía comunicativa y liderazgo— siguen requiriendo intervención humana (Davenport et al., 2020; Kaplan & Haenlein, 2019). Varios estudios destacan que la IA generativa no elimina puestos de trabajo, pero sí redefine los perfiles profesionales y exige nuevas competencias como alfabetización en IA, pensamiento crítico y gestión ética de datos (Huang & Rust, 2021; Haenlein et al., 2023). En conclusión, la evidencia revisada sugiere que la IA generativa funciona como una tecnología de aumento humano (human augmentation) más que como un sistema de sustitución laboral total. No obstante, se identifican riesgos como dependencia tecnológica, pérdida de calidad en contenido automatizado y dilemas éticos relacionados con la transparencia y originalidad. Se recomienda profundizar en el estudio del impacto a largo plazo y evaluar empíricamente modelos de colaboración humano-IA en organizaciones de marketing.

Keywords: Artificial intelligence, Marketing, Marketing professionals, Future of jobs, Automation

ARTIFICIAL INTELLIGENCE IN MARKETING: TRANSFORMATIONS, CHALLENGES, AND FUTURE DIRECTIONS: A LITERATURE REVIEW (2019–2025)

Alfonso Jesús Torres Marín, Javier Saiz Briones and Marcelo Leporati
Universidad Rey Juan Carlos, Spain and UBI Business School, Belgium
alfonso.torres@urjc.es; javier.saiz@urjc.es; marcelo.leporati@ubi.edu

Abstract

This article provides a comprehensive and integrative review of the literature on the impact of Artificial Intelligence (AI) on marketing during the period 2019–2025, a phase marked by the consolidation of deep learning techniques and the disruptive emergence of generative AI. Drawing on a synthesis of conceptual, empirical, and agenda-setting studies, the article examines how AI technologies, including machine learning, natural language processing, computer vision, and generative models, have profoundly reshaped both marketing theory and practice. Specifically, it analyses AI-driven transformations across key marketing functions such as market intelligence, segmentation and personalisation, product and service innovation, pricing, sales enablement, and customer experience management.

Methodologically, the article adopts a structured narrative literature review based on a systematic search of the Web of Science database, complemented by backward and forward citation analysis to capture influential and recent contributions from marketing, information systems, and management research. The selected studies are coded according to AI capabilities, marketing domains, the role of AI as automation versus augmentation, underlying theoretical lenses, and documented ethical, societal, and managerial challenges. The findings reveal an emerging consensus in defining AI as adaptive computational systems capable of performing tasks traditionally associated with human intelligence, such as learning, prediction, perception, language understanding, creativity, and autonomous decision-making. The literature increasingly distinguishes between analytical AI, focused on prediction and classification, and generative AI, which produces novel content such as text, images, or conversational interactions. In parallel, a key distinction is made between AI applications that augment human marketers' capabilities and those that automate marketing decisions entirely, highlighting important strategic and organisational implications. Beyond its transformative potential, the review identifies significant challenges related to AI adoption in marketing. These include heightened privacy and surveillance concerns, algorithmic bias and fairness issues, limited transparency and explainability, heterogeneous consumer acceptance, workforce displacement and reskilling needs, and risks specific to generative AI, such as manipulation, loss of authenticity, and intellectual property concerns. As an integrative contribution, the article proposes a two-dimensional framework that classifies AI applications according to the nature of intelligence, analytical versus generative, and the locus of decision authority, automation versus augmentation. The article concludes by outlining a future research agenda that emphasises responsible and human-centric AI, the development of organisational capabilities and governance mechanisms, and the broader macro-level implications of AI for markets, competition, and society.

Keywords: Artificial intelligence, Marketing, Generative AI, Personalization, Ethics and governance

CHATBOTS Y AGENTES CONVERSACIONALES EN SERVICIO AL CLIENTE Y MARKETING

Javier Saiz Briones, Alfonso Jesús Torres Marín, Marcelo Leporati and Luis Muñoz Bahamonde
Universidad Rey Juan Carlos, Spain; UBI Business School, Belgium and UNIE Universidad, Spain
javier.saiz@urjc.es, alfonso.torres@urjc.es, marcelo.leporati@ubi.edu; luis.munoz@universidadunie.com

Abstract

Este artículo propone y justifica una revisión sistemática de literatura sobre chatbots y agentes conversacionales en el servicio al cliente y el marketing. El estudio se centra en responder tres preguntas clave: ¿qué tipos de agentes se emplean, texto, voz o multimodales, y con qué fines específicos, atención, personalización, recomendación o ventas? ¿qué métricas y resultados reporta la literatura, tales como satisfacción, tiempo de respuesta, engagement, conversión, confianza o lealtad? y ¿qué factores de diseño del agente, como la empatía percibida, la presencia social, el antropomorfismo o la transparencia, moderan dichos resultados en distintos contextos sectoriales?

La estrategia de búsqueda combinará términos controlados y libres organizados en tres bloques: tecnología, función de negocio y diseño y evaluación. Se aplicarán criterios explícitos de inclusión y exclusión y se extraerá información sobre teorías aplicadas, diseño metodológico, tipo de agente, tareas soportadas, métricas, principales resultados y limitaciones. El protocolo se estructurará conforme a PRISMA para asegurar trazabilidad y reproducibilidad, e incorporará evaluación de calidad acorde al tipo de estudio, ya sea experimental, cuasiexperimental, de campo o de revisión.

Se anticipan tres patrones claramente diferenciados en el uso de la IA conversacional aplicada al marketing y al servicio al cliente. Primero, el predominio de agentes textuales y de voz en atención y comercio electrónico, con evidencias consistentes de mejoras en eficiencia operativa y experiencia del cliente. Segundo, efectos del diseño del agente, en particular la empatía percibida y la presencia social, asociados con mayor disposición a delegar tareas, mayor búsqueda de ayuda en la decisión y mayor confianza en las recomendaciones, con variaciones según contexto y perfil del usuario. Tercero, una marcada heterogeneidad de métricas, con indicadores diversos y poco estandarizados que dificultan la comparación entre estudios y la estimación de tamaños de efecto agregados.

La revisión aportará una taxonomía integradora por tipo de agente, función de negocio y métrica, una síntesis crítica de efectos en resultados de servicio y marketing que identifique las condiciones bajo las cuales los agentes conversacionales generan mayor valor, y una agenda de investigación que priorice la estandarización de métricas, la evaluación de explicabilidad y sesgos durante la interacción, así como análisis de costo–beneficio y retorno en contextos reales. Con ello, se pretende orientar el diseño y la adopción de chatbots y agentes conversacionales que maximicen la experiencia del cliente y el rendimiento de las acciones de marketing.

Palabras clave: Inteligencia artificial, Chatbots, Marketing, Atención al cliente, Agentes conversacionales

BRIDGING HUMANS AND MACHINES: RETHINKING BRAND TRUST IN AI-MEDIATED CONSUMER RELATIONSHIPS

Carlos Victor Costa, José María Visconti Caparrós and Marcos Blanco
ESIC Business & Marketing School, Spain
carlos.costa@esic.edu; josemaria.visconti@esic.edu; marcos.blanco@esic.edu

Abstract

With the proliferation of Artificial Intelligence (AI) in the twenty-first century, machines and digital interfaces have taken on increasingly interactive roles, including virtual assistants, chatbots, and avatars. These technologies have become integral to contemporary marketing strategies, enabling personalised experiences and fostering deeper consumer–brand relationships. While such tools have enhanced operational efficiency and user engagement, they also introduce significant challenges related to usability, authenticity, privacy, and the delicate balance between anthropomorphic design and trust-building.

Drawing on the historical evolution of machine-mediated consumer engagement and informed by the HAII-TIME model (Sundar, 2020), this article addresses three central research questions: (1) how the evolution from early automation technologies to AI-powered systems has influenced the development of brand trust and consumer engagement; (2) the role played by anthropomorphic features, such as verbal embodiment and avatars, in shaping perceptions of brand trust and loyalty in AI-driven marketing contexts; and (3) how privacy concerns and perceived risks associated with AI-mediated interactions affect consumer attitudes and behaviours toward brands.

Artificial Intelligence has thus become a central mediator between brands and consumers, transforming service encounters into hybrid human–machine interactions that redefine the foundations of trust. From early self-service technologies, such as ATMs and kiosks, to today's intelligent conversational agents, technology has evolved from a focus on transactional efficiency toward relational engagement. This paper examines how AI can enhance brand trust by mitigating the concerns and perceived risks that often accompany machine-mediated services, thereby expanding the theoretical and managerial dialogue on how AI systems can move beyond automation to become strategic instruments of trust, empathy, and value creation.

The article contributes to the literature on marketing and human–computer interaction by arguing that the future of brand trust will depend less on technological sophistication per se and more on how intelligently brands design AI systems to communicate care, credibility, and shared purpose within consumer relationships.

Keywords: artificial intelligence, brand trust, consumer–brand relationships, anthropomorphism, human–machine interaction, privacy

THE ROLE OF AI IN SHAPING IMPULSIVE BUYING IN FOOD DELIVERY APPS: INSIGHTS FOR IBEROAMERICAN MARKETS

Ana Belén Perdigones, Mónica Gómez-Suárez and Otto Regalado-Pezúa
Universidad Alfonso X el Sabio, Spain; Universidad Autónoma de Madrid, Spain; Universidad ESAN, Peru
belenpm@uax.es; monica.gomez@uam.es; oregalado@esan.edu.pe

Abstract

The rapid digitalization of retail in Iberoamerican markets has fostered the adoption of advanced technologies to enhance online shopping experiences, particularly in the food sector. Artificial Intelligence (AI) has emerged as a key enabler, offering personalized recommendations, conversational agents, and predictive systems that influence consumer decision-making. This context is acting as a catalyst for impulsive purchases of unhealthy foods, which can have an impact on the acquisition of unhealthy habits. Studying the impact that AI is having on consumer decision-making processes is therefore a key element in building ethical and sustainable adoption of the technology.

By examining the state of the art related to AI applications in online food purchasing and their relationship with impulsive buying, this study aims to generate a framework that encompasses aspects related to consumer decision-making processes, impulsive buying, and the use of technology, providing trends and gaps relevant to Iberoamerican economies. A systematic literature review combined with bibliometric analysis was conducted using Scopus and Web of Science databases, applying keywords such as "Artificial Intelligence," "food apps," "chatbots," "recommendation systems," and "consumer behavior." Bibliometric mapping employed VOSviewer and Bibliometrix to examine publication patterns, co-authorship networks, keyword frequency, and citation impact.

Preliminary findings indicate a growing presence of AI-driven solutions in food delivery platforms globally, yet bibliometric trends reveal limited representation of studies focused on Latin American and Iberian markets. This gap underscores the need for research addressing cultural, economic, and behavioral factors unique to these regions, such as trust in technology, privacy concerns, and perceived usefulness.

The analysis will focus on identifying research clusters to highlight the greatest contribution areas. Through systematic review, we will seek to identify unique regional aspects, both in terms of similarities and differences, in the adoption of AI in the context of food purchasing and its involvement in consumer impulsivity in purchasing and decision-making.

By providing an integrated perspective on how AI is reshaping consumer behavior in Iberoamerican contexts, this study contributes to the literature by generating insights aimed at improving customer experience through designing managerial recommendations to define ethical solutions in emerging economies.

Keywords: Impulsive buying, Food delivery apps, Artificial Intelligence, Iberoamerican markets, Recommendation systems

AI-DRIVEN MARKETING AND GREEN PURCHASE DECISIONS AMONG EUROPEAN YOUTH: A PREDICTIVE APPROACH TO CONSUMER BEHAVIOR

Silvia Álvarez-Santás and José Vázquez Romero
Rey Juan Carlos University, Spain; CUNEF University, Spain
silvia.alvarez@urjc.es; josevazquezromero@cunef.edu

Abstract

In recent years, artificial intelligence (AI) has increasingly been adopted as a strategic tool in marketing, with important implications for green purchasing behavior among young European consumers. The integration of AI-driven technologies, such as algorithmic recommendation systems, chatbots, and virtual assistants, has transformed the way firms personalize and deliver marketing communications, enabling more accurate targeting and real-time adaptation to consumer preferences. In the sustainability domain, these developments offer opportunities to promote environmentally responsible consumption among younger generations characterized by high environmental awareness and pro-environmental values.

The convergence of AI-driven marketing and green purchasing behavior among European youth represents a promising field for predictive consumer behavior analysis. AI-based marketing tools allow organizations to personalize green marketing messages and anticipate consumer responses. Despite the widespread presence of pro-environmental attitudes among young consumers, and the belief that individual choices can contribute to a more sustainable future, there remains limited understanding of which AI-enabled marketing factors translate this predisposition into green purchase intentions.

Adopting a quantitative and explanatory research design, this study aims to identify key determinants that foster green purchase intention as a function of exposure to AI-driven marketing practices. Specifically, the research examines how interactions with algorithmic recommendations, chatbots, and virtual assistants influence green purchase intention among young European consumers. Data are collected through structured questionnaires using Likert-scale measurements, complemented by sociodemographic variables. Regression-based analyses are employed to evaluate the predictive effect of AI-driven marketing exposure on green purchase intention, while controlling for relevant factors such as price sensitivity, environmental awareness, and educational level.

By integrating artificial intelligence into the analysis of sustainable consumer behavior, this study contributes to the literature at the intersection of digital marketing and green consumption, offering guidance for responsible green marketing strategies targeting younger consumers in Europe.

Keywords: Artificial intelligence (AI); aI-driven marketing; green purchase intention; sustainable consumption; consumer behavior.

MÁS ALLÁ DEL MARKETING INTELIGENTE: INTEGRACIÓN DE LA IA EMOCIONAL Y ÉTICA EN LA EXPERIENCIA TURÍSTICA

Otto Regalado Pezúa and Sylvie Christofle
Universidad ESAN, Perú and Université Côte d'Azur, Francia
oregalado@esan.edu.pe; sylvie.christofle@univ-cotedazur.fr

Abstract

La Inteligencia Artificial (IA) está transformando profundamente la industria del turismo al facilitar servicios hiperpersonalizados, análisis predictivos y experiencias inmersivas. No obstante, su implementación plantea interrogantes fundamentales en torno al compromiso emocional, el diseño ético y la generación de valor sostenible. Este estudio examina cómo herramientas basadas en IA, tales como chatbots, sistemas de recomendación y tecnologías inmersivas, están modificando el comportamiento de los turistas, las estrategias de marketing y la prestación de servicios en el sector. A partir de los hallazgos empíricos de una investigación reciente, se analizan las respuestas emocionales de los turistas frente a la IA, identificando la curiosidad y la confianza como emociones clave que influyen en su adopción. Aunque estas emociones suelen ser positivas, se ven atenuadas por preocupaciones relacionadas con la privacidad de los datos, la disminución de la interacción humana y el sesgo algorítmico (Kozak y Fel, 2024; Barandoni et al., 2024). Comprender estas dinámicas emocionales resulta esencial para el diseño de sistemas de IA que no solo sean eficientes, sino también emocionalmente inteligentes y éticamente responsables. En este contexto, se introduce el concepto de hetero-inteligencia (Buitrago-Esquinas et al., 2024), definido como un enfoque que combina las capacidades analíticas de la IA con el juicio ético y contextual del ser humano. Este marco resulta especialmente pertinente para la planificación del turismo sostenible, donde decisiones complejas —como la gestión del exceso de visitantes o la garantía de acceso equitativo —requieren tanto datos precisos como sensibilidad social y cultural. En consonancia con esta perspectiva, Floridi (2021) sostiene que el diseño ético de sistemas inteligentes debe incorporar principios de justicia, transparencia y responsabilidad, particularmente en sectores como el turismo, donde las decisiones impactan directamente en comunidades locales y ecosistemas vulnerables. Desde una óptica de marketing, la IA posibilita una segmentación dinámica y una personalización en tiempo real basada en datos de comportamiento (Duan, 2024). Sin embargo, la efectividad de estas estrategias depende de la confianza que los turistas depositan en la tecnología y de su percepción del valor generado. Se examina cómo variables sociodemográficas —como el nivel de ingresos, la educación y la frecuencia de viajes— influyen en la aceptación de la IA, y cómo el diseño emocional puede cerrar la brecha entre la innovación tecnológica y la adopción por parte de los usuarios (Choe et al., 2023; Bartneck et al., 2023). Asimismo, se analiza el papel de las tecnologías inmersivas impulsadas por IA, como la realidad virtual (VR) y la realidad aumentada (AR), en el fortalecimiento del compromiso cultural y la imagen de marca de los destinos turísticos (Hou, 2023). Estas herramientas no solo enriquecen la experiencia del visitante, sino que también contribuyen al desarrollo sostenible al minimizar el impacto físico en sitios patrimoniales sensibles.

Keywords: Artificial intelligence, Emotional design, Sustainable tourism, Ethical technology, Tourist experience

AI IN THE SILVER ECONOMY: CASE STUDY OF SPC'S

Arancha Larrañaga Muguerza
Universidad Pontificia Comillas, Spain
alarranaga@comillas.edu

Abstract

The rapid growth of the silver economy, defined as economic activity serving consumers aged 50 and above, presents new opportunities and challenges for companies. This paper examines how artificial intelligence (AI) can drive customer-centric innovation in the silver economy through the case study of SPC, a Spanish technology firm specializing in senior-friendly devices. The study analyses SPC's SPC Care ecosystem, an AI-enhanced platform of smartphones and services for seniors, to understand its impacts on customer experience and relationship marketing outcomes.

Using secondary data from product documentation, press releases, and industry reports, the paper details SPC's AI capabilities, from empathetic voice reminders to remote device management, and how they foster social inclusion and long-term brand relationships. In this case, AI augments rather than replaces human caregiving to build trust and emotional connection. The findings show that AI can be deployed not merely for convenience but to humanize technology, yielding *Better World* innovations that bridge the digital divide and enhance well-being.

Theoretically, the case contributes to understanding AI's role in (1) the silver economy by aligning technology design with seniors' needs, (2) relationship marketing by enabling continuous, trust-based customer relationships, (3) customer experience management by integrating empathy into service design, and (4) human–computer interaction by illustrating inclusive, senior-centric interface strategies.

Practical implications include guidance for firms on leveraging AI to improve senior customers' experiences and loyalty. The paper concludes with limitations of the study and suggests avenues for future research on AI-driven innovation for aging populations.

Keywords: Artificial Intelligence, Silver Economy, Customer Experience, Relationship Marketing, Better World Innovation

ESTRATEGIAS DE FRAMING Y REPUTACIÓN ASISTIDAS POR IA EN HORTOFRUTÍCOLAS

María Patricia Soroa de Carlos and Esperanza Casado Jiménez
Universidad Europea de Madrid and Universidad CEU San Pablo, España
mariapatricia.soroa@universidadeuropea.es; esperanza.casadojimenez@usp.ceu.es

Resumen
El cultivo de la tierra en España lleva presente desde el Neolítico; pero no es hasta la Edad Moderna cuando se puso nombre a una realidad extendida en todas las regiones: la hortofruticultura. En este trabajo realizamos un recorrido desde los orígenes de esta industria hasta la manera de comunicar y comercializar sus productos. En pleno siglo XXI, la comunicación se divide teniendo en cuenta a quiénes van dirigidas las campañas. Es decir, no es lo mismo la estrategia de Marketing destinado a Millenials que a la Generación Z; por ello no se concibe un plan de comunicación efectivo sin la digitalización. Este estudio presenta un Modelo Estratégico de Comunicación 360º asistido por Inteligencia Artificial (IA), diseñado para optimizar la reputación digital de las PYMES hortofrutícolas ante las generaciones millennial y centennial. El trabajo se inicia con un Análisis Aplicado Cualitativo para diagnosticar las estrategias de Framing y Engagement utilizadas en Instagram y TikTok por empresas clave del sector. Este diagnóstico de casos reales ilustra la aplicación del Framing de sinceridad (EAP) y el Framing humorístico (Weeko). La metodología se centra en el diseño de la intervención, presentando la IA/NLP como una Herramienta de Asistencia Intelectual capaz de modelar el lenguaje y generar borradores de mensajes con diferentes tonos. Los resultados se materializan en el Modelo Estratégico de Intervención Propuesto, donde la IA se integra en la definición del Framing, ayudando a generar variantes de tono para plataformas específicas. El modelo detalla estrategias óptimas de Framing para la Trazabilidad, la Sostenibilidad y la Salud/Nutrición. Se propone un ciclo de gestión que asegura la coherencia del contenido y estructura el feedback del cliente para futuras integraciones predictivas. Este enfoque teórico-aplicado proporciona una hoja de ruta innovadora para elevar la reputación de la marca y la experiencia del cliente en el entorno digital.

Palabras clave: Inteligencia Artificial, Framing, Hortofrutícola, Reputación, Estrategia

INTELIGENCIA ARTIFICIAL EN APLICACIONES TURÍSTICAS: TRANSFORMANDO LA VISITA AL MUSEO

Juan Vicente Calle-Lamelas, Daniela Thiel-Ellul,
Aitziber Pousa-Unanue y Volha Herasimovich
Universidad Nebrija, España
jcalle@nebrija.es; dthiel@nebrija.es; apousa@nebrija.es; vherasimovich@nebrija.es

Resumen

La incorporación de la inteligencia artificial (IA) en aplicaciones móviles turísticas está transformando la experiencia de visita a museos. Este trabajo analiza cómo se integra la IA en estas aplicaciones, identifica sus funcionalidades más relevantes y propone recomendaciones para su diseño. Para ello, se realiza un análisis documental y un benchmarking de aplicaciones de museos, como Ask Mona, Smartify y The Met Replica. En el contexto del turismo inteligente y de las *smart tourism technologies* (STT), los museos están empleando aplicaciones y audioguías para ofrecer experiencias inmersivas y accesibles. Con la IA, tecnologías como chatbots, asistentes virtuales, sistemas de recomendación y análisis contextual de datos se incorporan para enriquecer la mediación cultural y mejorar la relación entre el visitante y las colecciones. No obstante, las funcionalidades de las tecnologías con IA no están globalmente definidas en las visitas a museos. Los autores proponen una clasificación de ocho funcionalidades: planificación y organización de la visita, orientación, información sobre exposiciones, entretenimiento, difusión, comunicación en tiempo real, conexión con otras organizaciones y accesibilidad.

Para la planificación, se integran asistentes virtuales capaces de gestionar reservas, horarios y entradas en línea mediante pasarelas de pago seguras y sistemas de automatización en la nube. La orientación se apoya en geolocalización, conectividad y realidad aumentada para guiar al visitante y generar itinerarios personalizados. La información sobre las obras se amplía mediante reconocimiento de objetos y textos, permitiendo conversaciones contextuales sobre cada pieza. El componente lúdico y social se refuerza con gamificación y difusión de experiencias digitales, mientras que la comunicación en tiempo real y la conexión con otros servicios turísticos proporcionan información relevante según preferencias e itinerarios. La accesibilidad se ve fortalecida con traductores automáticos, lectura en voz alta, subtitulado y conversión de voz a texto, garantizando una experiencia inclusiva para distintos perfiles de público. La integración de la IA en las aplicaciones de visita a museos abre oportunidades para mejorar la experiencia del visitante y la eficiencia operativa, aunque su implementación exige estrategias claras que garanticen su efectividad y reduzcan sus riesgos. Se recomienda adaptar las soluciones de IA a distintos contextos culturales y sociales mediante proyectos piloto que permitan analizar su percepción y uso en diversos perfiles de público; diseñar interfaces inteligentes centradas en la experiencia de usuario, evitando la sobrecarga funcional; y desarrollar propuestas interactivas que combinen IA, realidad aumentada y recursos educativos innovadores. Igualmente, resulta esencial asegurar la transparencia algorítmica y la protección de los datos personales, aplicando principios de ética digital.

Palabras clave: Turismo Inteligente, Inteligencia Artificial, Aplicaciones Móviles, Museos, Experiencia Del Visitante

ARTIFICIAL INTELLIGENCE AND ITS DEVELOPMENT IN THE TOURISM SECTOR: A 20-YEAR BIBLIOMETRIC ANALYSIS

Andrea Paredes-Martínez and Jaime E. Souto Pérez
Universidad Complutense de Madrid, Spain
apared04@ucm.es; jaimeeds@ucm.es

Abstract

Artificial Intelligence (AI) has emerged as a key factor in global economic development. Scientific interest in this field has grown progressively in recent years, attracting attention across multiple sectors with the aim of understanding its impact and providing valuable information for management purposes. In the tourism sector, several studies have addressed the application of AI, yet a comprehensive bibliometric analysis of its overall integration has remained limited. In this regard, this article aims to examine the development of AI in the tourism sector by conducting a bibliometric analysis of articles collected from the Web of Science (WoS).

For this analysis, articles and reviews published up to 2025 from the WoS Core Collection were selected using the keywords "artificial intelligence" and "tourism." A total of 988 articles were included, confirming the exponential growth in publications since 2020, as well as a significant increase in citations. The two main research areas identified are social sciences and business economics; however, other areas such as computer science, environmental science, and engineering also show notable representation.

A more detailed view reveals that the largest category of articles relates to hospitality, leisure, sport, and tourism, followed by management and business. The main publishers are tourism-related journals, including *International Journal of Contemporary Hospitality Management*, *Current Issues in Tourism*, *Tourism Review*, and *Tourism Management*. Several keyword co-occurrence clusters were identified, linking tourism with machine learning, big data, ChatGPT, COVID-19, robotics, and sustainability.

This article summarises the main advances in the study of AI applications in the tourism sector, highlights the growing interest in its implementation, and outlines key characteristics and directions for future research.

Keywords: Artificial intelligence, Tourism, Hospitality, Bibliometric analysis

PREDICCIÓN DEL CONSUMO CULTURAL: REVISIÓN BIBLIOGRÁFICA SOBRE MODELOS DE IA APLICADOS A MERCADOS MUSICALES URBANOS EMERGENTES

Nathalie Chauvin Andrade
Universidad Internacional del Ecuador, Ecuador
nachauvinan@uide.edu.ec

Resumen

En los últimos años, la inteligencia artificial (IA) ha dejado de ser una promesa tecnológica para convertirse en un eje estructural de transformación dentro de las industrias creativas. Su incorporación en los procesos de análisis, producción y distribución cultural ha abierto nuevos horizontes para comprender cómo los públicos urbanos consumen, reinterpretan y cocrean valor simbólico. La industria musical, en particular, se enfrenta al desafío de equilibrar la automatización del dato con la preservación de la diversidad y la autenticidad cultural. Este trabajo presenta una revisión bibliográfica que explora los principales enfoques teóricos y metodológicos sobre el uso de la IA en la predicción del consumo musical, con especial atención a los mercados urbanos emergentes, como el de Quito, y su diálogo con tendencias globales.

A partir de una revisión sistemática de publicaciones académicas indexadas entre 2015 y 2025 en Scopus, Web of Science y Google Scholar, se identifican tres líneas de reflexión predominantes. La primera analiza la evolución de los sistemas de recomendación y su influencia en la configuración de gustos y comportamientos culturales. La segunda examina el papel del big data y la analítica predictiva como soporte para la toma de decisiones estratégicas y la optimización de procesos en el sector musical. La tercera discute los dilemas éticos, estéticos y de sostenibilidad que emergen del uso intensivo de algoritmos en los ecosistemas creativos.

Los hallazgos revelan una concentración del conocimiento en contextos del Norte Global y una escasa representación de experiencias latinoamericanas, lo que limita la comprensión de las particularidades culturales y territoriales de los mercados emergentes. Desde esta perspectiva, se plantea la necesidad de construir marcos analíticos que integren la tecnología con la identidad y la diversidad cultural. La IA no solo debe ser entendida como un instrumento técnico, sino como un agente de mediación cultural y estratégica capaz de incidir en la sostenibilidad, la innovación y la competitividad de las industrias musicales contemporáneas.

Palabras clave: Inteligencia Artificial, Consumo Cultural, Industria Musical, Innovación, Mercados Urbanos Emergentes.

FUNDAMENTOS TEÓRICOS DE LOS ALGORITMOS MUSICALES

María Paz Palacios Rosa; Óscar Aguado Tevar;
María García de Blanes Sebastián and Margarita Núñez Canal
Universidad Nebrija, España; Universidad Rey Juan Carlos, España
mpalacir@nebrija.es, oaguado@nebrija.es, maria.garciadeblanes@urjc.es,
mnunezca@nebrija.es

Resumen

El desarrollo de los algoritmos musicales se inscribe en un proceso histórico de progresiva computacionalización de la música, que comienza con las primeras experiencias de composición algorítmica y se consolida con la digitalización de la industria musical. En sus orígenes, estos algoritmos se concebían principalmente como herramientas experimentales orientadas a la generación automática de estructuras musicales mediante reglas formales. Sin embargo, la expansión de las plataformas digitales de distribución y la disponibilidad masiva de datos musicales y de comportamiento de los usuarios han transformado profundamente su función y alcance. En la actualidad, los algoritmos musicales operan como mecanismos centrales de organización, selección y recomendación de contenidos, influyendo de manera directa en la forma en que los usuarios descubren, consumen y valoran la música. El objetivo de este capítulo es establecer un marco teórico que permita definir el concepto de algoritmo musical y comprender sus principales tipologías y funciones en entornos digitales, clarificando su papel como sistemas de mediación entre el usuario y el contenido musical. Para ello, se ha llevado a cabo una revisión de la literatura académica especializada, centrada en estudios sobre música computacional, sistemas de recomendación musical e inteligencia artificial aplicada a la música. La revisión realizada permite identificar, de forma general, tres grandes tipos de algoritmos musicales: aquellos orientados al análisis y clasificación del contenido sonoro, los algoritmos de recomendación musical y los algoritmos generativos. Aunque responden a finalidades distintas, todos ellos comparten la utilización de datos musicales y contextuales como elemento central de funcionamiento. Estos sistemas optimizan el acceso a grandes catálogos musicales y contribuyen a estructurar la visibilidad de determinados contenidos, influyendo en la configuración de las preferencias del usuario. Por ello, los algoritmos musicales deben entenderse como infraestructuras sociotécnicas que median entre producción, distribución y consumo musical en los entornos digitales.

Palabras clave: algoritmos musicales, mediación algorítmica, música digital, recomendación musical, experiencia del usuario.

HACIA UN MODELO CONCEPTUAL UNIFICADO PARA EL ANÁLISIS DE LA ADOPCIÓN DEL BOCA-OREJA DIGITAL (EWOM) EN AGENCIAS DE VIAJES ONLINE (OTAS)

José Ramón Sarmiento Guede, Alberto Azuara Grande y Daniel Corral de la Mata
Universidad Rey Juan Carlos, España
joseramon.sarmiento@urjc.es; alberto.azuara@urjc.es; daniel.corral@urjc.es

Resumen

El boca-oreja digital (eWOM) constituye uno de los principales determinantes del comportamiento de búsqueda, evaluación y decisión del consumidor en las agencias de viajes online (OTAs). A pesar de la extensa literatura sobre su influencia, persiste una necesidad de avanzar hacia modelos integradores que permitan comprender de manera holística los mecanismos que explican la aceptación, procesamiento y uso de la información generada por otros usuarios. Esta ponencia presenta una propuesta teórica que articula de forma complementaria dos marcos conceptuales consolidados: la Teoría Unificada de Aceptación y Uso de la Tecnología 3 (UTAUT-3), centrado en los determinantes de la adopción tecnológica a nivel individual, y el Modelo de Aceptación de la Información (IACM), orientado a los procesos de evaluación cognitiva y aceptación de información en entornos digitales.

El modelo UTAUT-3 aporta un conjunto de variables que permiten analizar la predisposición del usuario hacia la interacción continuada con plataformas tecnológicas, incluyendo la expectativa de rendimiento, el esfuerzo percibido, la motivación hedónica, el hábito y las condiciones facilitadoras. Por su parte, el IACM integra constructos como la credibilidad de la información, su utilidad percibida, la calidad argumentativa y la influencia normativa, proporcionando una estructura explicativa para la adopción del eWOM como fuente válida en el proceso de decisión. La convergencia de ambos modelos posibilita un enfoque más holístico que conecta las percepciones tecnológicas con los juicios informacionales y las intenciones conductuales derivadas de ellos.

Tras una revisión bibliográfica del objeto de estudio expuesto, el marco teórico resultante pretende servir como base para el diseño de futuras investigaciones empíricas en este ámbito, cuyo objetivo será contrastar empíricamente las relaciones postuladas. En este sentido, esta propuesta contribuye al avance conceptual en el ámbito del comportamiento del consumidor digital, al tiempo que ofrece implicaciones relevantes para la gestión del eWOM en plataformas turísticas.

Palabras clave: OTAs, adopción tecnológica, aceptación de la información, comportamiento del consumidor digital, UTAUT-3, IACM.

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THEMATIC AREA 3.
DIGITAL TECHNOLOGY MANAGEMENT, MLOPS, AND CYBERSECURITY

Exploration of digital infrastructures that enable scalable and secure AI deployment, including machine learning operations (MLOps), data governance, and AI-driven cybersecurity solutions

CHALLENGES IN ARTIFICIAL INTELLIGENCE ADOPTION IN SMES

Esther Sánchez Alcalde
Universidad Nebrija and ESIC University, España
msanchea@nebrija.es

Abstract

Artificial Intelligence (AI) represents one of the most transformative forces for small and medium-sized enterprises (SMEs), offering the potential to improve productivity, innovation, and competitiveness. Yet, adoption across the SME landscape remains uneven and constrained by multiple interdependent barriers. Through the lens of the Technology–Organization–Environment (TOE) and Diffusion of Innovations (DOI) frameworks, these challenges can be understood as the outcome of a persistent gap between technological opportunities and organizational readiness.

From a technological standpoint, SMEs struggle with fragmented infrastructures, low compatibility between AI systems and existing processes, and weak data governance. Limited access to high-quality datasets and scalable computing resources further undermines performance and confidence in AI-driven solutions. The emergence of modular, cloud-based, and open-weight AI models such as LLaMA or Mistral offers partial relief by lowering costs and democratizing access, but their full value depends on internal capabilities that many SMEs still lack.

At the organizational level, the main barriers include cultural inertia, insufficient leadership commitment, and uncertainty about the return on AI investments. Among these, the talent challenge stands out as the most decisive. SMEs face a shortage not only of technical specialists but also of employees equipped with the analytical and adaptive skills needed to collaborate with AI systems. The result is a growing mismatch between technological ambition and human capacity. Addressing this requires reskilling initiatives, continuous learning programs, and hybrid human–AI work models that turn technology into an enabler of creativity rather than a substitute for it.

The environmental dimension adds further pressure: regulatory ambiguity, fragmented support ecosystems, and limited collaboration between public and private actors slow the diffusion of best practices. Establishing shared infrastructures, accessible training platforms, and responsible AI governance frameworks becomes essential to foster trust and scalability.
In sum, SMEs' success in adopting AI will depend on aligning three pillars, technology, organization, and human capital, within an ecosystem that supports both innovation and inclusion. AI adoption is not only a technical or economic transition but a human one: its sustainability relies on the capacity to transform data and algorithms into meaningful, ethical, and collaborative intelligence.

Keywords: Artificial intelligence, SMEs, TOE–DOI framework, Adoption challenges, Talent gap, Responsible AI

USABILITY, PERFORMANCE, AND RISKS IN THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE SYSTEMS: A VIEW FROM FUTURE INTEGRATION INTO THE PROFESSIONAL ENVIRONMENT

José Luis Matarranz and Marisol Carvajal Camperos
Universidad Rey Juan Carlos, Spain
joseluis.matarranz@urjc.es; marisol.carvajal@urjc.es

Abstract

Artificial Intelligence (AI) has become an essential component of the digital transformation of organizations and institutions, enabling data-driven decision-making and improving efficiency across multiple sectors. However, the accelerated adoption of AI tools raises key questions about their usability, performance, and the ethical and operational risks associated with their use. These questions are particularly relevant for students, as future professionals in their final years of university education.

This research analyses the usability of AI systems from the perspective of both present and future professional environments, focusing on user experience, interpretability, and adaptability to different application contexts. It also examines the relationship between usability and performance, evaluating how intuitive and transparent systems can enhance productivity and influence the career prospects of new professionals.

The study proposes an integrated framework for the responsible adoption of AI, combining principles that balance usability and efficiency while acknowledging the risks that AI use may pose to the professional development of future workers. Through a mixed-methods approach, combining literature review, expert interviews, and empirical analysis of use cases, the research identifies the key factors influencing the confidence of those soon to enter the workforce and the long-term effectiveness of AI systems.

The results aim to contribute to the design of AI solutions that are not only efficient and high-performing, but also transparent, inclusive, and aligned with social and organizational values, thus fostering a harmonious integration between new professionals and their digital working environments.

Keywords: Artificial Intelligence, Usability, Performance, Responsible Adoption, Professional Development, Skills Development

GENERATIVE AI IN THE FUTURE OF DIGITAL DENTISTRY: A SYSTEMATIC REVIEW ON PATIENT EXPERIENCE, CLINICAL SUPPORT, AND LABORATORY WORKFLOW INTEGRATION

May Portuguez-Castro and Giulio Marchena-Sekli
CENTRUM Católica Graduate Business School, Lima, Peru
Pontificia Universidad Católica del Perú, Lima, Peru
may.portuguez@pucp.edu.pe; gmarchena@pucp.pe

Abstract

Generative Artificial Intelligence (GenAI) is rapidly transforming digital dentistry, opening new possibilities for patient communication, clinical support, and coordination with dental laboratories. Despite promising advances in preventive education, diagnostic assistance, and automated response systems, adoption remains uneven and fragmented across patient-facing, clinician-centered, and technical environments. Most studies examine these applications in isolation, without considering how GenAI operates across the interconnected processes linking patients, practitioners, and laboratory teams. This limited perspective constrains understanding of the conditions under which GenAI can support integrated, reliable, and sustainable digital practices. A system-level synthesis is therefore needed to clarify the key factors driving acceptance, performance consistency, and organizational implications of GenAI in dentistry. Available literature reveals consistent patterns in what GenAI can achieve, alongside persistent gaps. Evidence focused on patients highlights the ability of chatbots and conversational systems to support education, reduce uncertainty, and improve care experiences. Research involving clinicians examines intention to use, perceived usefulness, ease of integration, and trust, identifying both opportunities for diagnostic and communication support and barriers linked to workflow changes, ethical concerns, and data governance. Educational contexts report early adoption of virtual patients and AI-assisted simulation. However, several critical gaps remain, including limited empirical evidence on the clinical–laboratory interface, lack of comparable operational metrics, inconsistent evaluation of accuracy and reliability, insufficient exploration of ethical and governance issues in real-world settings, and underrepresentation of vulnerable populations and diverse clinical environments. Although relevant contributions exist, the current body of research remains fragmented, and there is no integrated state-of-the-art synthesis explaining how GenAI can support clinical practice and generate actionable insights for future implementation. To examine these issues, this study employs a Systematic Literature Review (SLR) focused on empirical evidence indexed in Scopus and Web of Science. The review is guided by three questions: (1) what psychological, social, and technological factors determine acceptance and trust in GenAI among patients and clinicians; (2) how accurate, consistent, and operationally valuable GenAI tools are in supporting clinical communication and clinical–laboratory workflows; and (3) what ethical, regulatory, and organizational challenges influence sustainable implementation. This review offers a novel contribution by framing GenAI as a cross-functional driver of digital transformation in dentistry. The findings support practitioners, clinics, and laboratories in identifying opportunities to enhance communication, strengthen clinical decision support, and streamline technical processes.

Keywords: generative artificial intelligence, digital dentistry, human–AI interaction, clinical decision support, laboratory workflow integration

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THEMATIC AREA 4.
AI FOR CORPORATE LAW, REGULATION, AND COMPLIANCE

Analyses of legal, ethical, and regulatory implications of AI adoption, including corporate governance frameworks, compliance systems, and emerging norms in responsible AI.

INTELIGENCIA ARTIFICIAL Y EFICIENCIA RECAUDATORIA: EL CASO DEL SAT EN MÉXICO

Martha Karina Amezcua Luján, Miguel Ángel López Lomelí and Miguel Ángel Montoya Bayardo
Universidad de Guadalajara (CUSUR) and Tecnológico de Monterrey, México
karina.amezcua@cusur.udg.mx, lopezma2@tec.mx, mmontoya@tec.mx

Resumen

El uso de medios electrónicos, previsto en el Código Fiscal de la Federación, constituye la base tecnológica sobre la cual puede desarrollarse una fiscalización inteligente; sin embargo, la presencia de inteligencia artificial implica un salto cualitativo, no solo tecnológico sino también jurídico, que actualmente carece de regulación específica en México. El Plan Maestro 2024 del SAT, establece los ejes estratégicos para la modernización y transformación digital del sistema tributario mexicano. Entre sus líneas de acción destaca: 1. El Fortalecimiento de la recaudación y la fiscalización inteligente, mediante analítica de datos, minería de información y modelos predictivos para identificar contribuyentes de riesgo. La presente ponencia analiza el impacto operativo y financiero de la inteligencia artificial (IA) en los procesos de fiscalización y recaudación tributaria del Servicio de Administración Tributaria (SAT) en México durante el periodo 2017–2025. A partir de fuentes oficiales —como los Informes Tributarios y de Gestión, el Plan Maestro 2024 y comunicados de la Secretaría de Hacienda y Crédito Público—, se identifican evidencias documentales del uso de modelos predictivos, analítica avanzada y machine learning en la selección de contribuyentes de riesgo y en la detección de redes de evasión fiscal.

La investigación adopta un enfoque cuantitativo-descriptivo con inferencia empírica indirecta, utilizando indicadores observables de eficiencia recaudatoria, productividad de auditorías y recuperación fiscal. Se comparan las tendencias antes y después de la introducción de la fiscalización inteligente, a fin de estimar el efecto de la IA sobre la eficiencia institucional y el costo operativo de la recaudación. Los resultados muestran una correlación positiva entre la adopción de herramientas predictivas y la mejora de la eficiencia recaudatoria, evidenciada por un incremento sostenido en los montos recuperados por actos de fiscalización y una reducción en los tiempos de revisión. Se concluye que la IA representa un factor de modernización clave para la gestión tributaria mexicana, al fortalecer la transparencia, la productividad institucional y la capacidad de control del SAT. Asimismo, se identifican oportunidades para consolidar indicadores específicos que permitan medir con mayor precisión el impacto real de la fiscalización inteligente en la economía formal. El futuro del SAT no se limitará a digitalizar trámites, sino a construir un ecosistema fiscal inteligente, ético y centrado en el ciudadano, donde la IA sea un instrumento al servicio de la justicia tributaria y no un sustituto del juicio humano.

Palabras clave: Inteligencia artificial, auditoría inteligente, eficiencia recaudatoria, transformación digital, administración tributaria.

FISCALIDAD, ENTORNO INSTITUCIONAL Y EMPRENDIMIENTO: UNA PROPUESTA DE MARCO CONCEPTUAL

Sara Izquierdo Pérez; Luis Diaz Marcos; Margarita Núñez Canal and María García de Blanes Sebastián.

Universidad Nebrija, Universidad Rey Juan Carlos

sizquierdo@nebrija.es; ldiazmarcos@nebrija.es; mnunezca@nebrija.es; maria.garciadeblanes@urjc.es

Resumen:

El emprendimiento constituye un factor clave para el crecimiento económico, la innovación y la generación de empleo. Su desarrollo está fuertemente condicionado por el entorno institucional en el que se inserta, y de manera particular por el sistema tributario. La fiscalidad puede actuar tanto como un incentivo como una barrera para la creación y sostenibilidad de nuevas iniciativas empresariales, influyendo en la percepción de costes, riesgos y beneficios asociados a la actividad emprendedora. El objetivo principal de este estudio es analizar, desde una perspectiva teórica, cómo un conjunto de variables fiscales y administrativas influyen en la intención emprendedora y en la sostenibilidad de los emprendimientos. Para ello, se propone un marco conceptual que permita comprender de forma sistemática la relación entre fiscalidad y emprendimiento, superando enfoques parciales centrados únicamente en la carga fiscal. La metodología empleada es de carácter cualitativo y conceptual, basada en una revisión sistemática de la literatura académica sobre emprendimiento, fiscalidad, y cumplimiento tributario. Se incorporan aportaciones teóricas de la economía del comportamiento y del análisis del cumplimiento tributario, con el fin de identificar variables relevantes y estructurar su interrelación. El estudio conceptualiza y analiza variables como el conocimiento fiscal, la moral tributaria, la complejidad del sistema tributario, la carga y los beneficios fiscales, el cumplimiento de obligaciones formales, el riesgo de actuaciones de comprobación, los litigios con la administración tributaria, la recaudación, la insolvencia, la intención emprendedora y el apoyo institucional. Estas variables se agrupan en dimensiones cognitivas, actitudinales, estructurales e institucionales, lo que permite explicar su influencia sobre la toma de decisiones emprendedoras. La principal aportación de este estudio es la formulación de un marco conceptual integrador que sistematiza la relación entre fiscalidad y emprendimiento y sienta las bases para futuros análisis empíricos y modelos cuantitativos.

Palabras clave: Emprendimiento; fiscalidad; sistema tributario; intención emprendedora; cumplimiento tributario; moral tributaria; carga fiscal; beneficios fiscales; entorno institucional.

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THEMATIC AREA 5.
AI IN FINANCE, FINTECH, AND DIGITAL ASSETS (INCLUDING BLOCKCHAIN)

Contributions exploring AI-based financial innovation, algorithmic trading, blockchain integration, and automation in financial management and investment decision-making

FROM ESG INDICATORS TO INSOLVENCY RISK: A MULTICLASS MACHINE LEARNING APPROACH

Florentina Iulia Voicila Voicila and Elena Urquía Grande
Universidad Complutense de Madrid, Spain
fvoicila@ucm.es; eurquiag@ucm.es

Abstract

Corporate insolvency risk remains a significant concern for investors, regulators, and academics. Traditionally, the prediction of financial distress has focused on binary classifications (solvent versus bankrupt), without considering intermediate states such as default. This study addresses this limitation through a multiclass classification approach based on the Altman Z-Score model, categorizing companies as active, in default, or bankrupt. Using a dataset of 253,775 companies from Spain and the United Kingdom, the analysis combines traditional accounting ratios with environmental, social, and governance (ESG) performance indicators. Three predictive methodologies, multinomial logistic regression, neural networks, and random forests, were applied, assessing both accuracy and interpretability. Results show that including ESG variables significantly improves predictive power, particularly for the early detection of default. Notably, the neural network integrating ESG information achieved the highest predictive performance, while the random forest proved to be the most robust to the omission of ESG data. Synaptic importance analysis enabled the interpretation of each variable's contribution to the classification of financial statements. The findings confirm that ESG factors, capital structure, and liquidity are relevant components in anticipating financial risks, with important practical implications for sustainable business management and financial decision-making.

Keywords: Corporate insolvency, Multiclass classification, ESG, Machine learning, Financial distress

PREDICCIÓN Y MITIGACIÓN DEL CONTAGIO FINANCIERO EN REDES DE INTERDEPENDENCIA ECONÓMICA DIGITALIZADA: UN ENFOQUE INNOVADOR CON MODELOS DE APRENDIZAJE PROFUNDO E INTEGRACIÓN DE GRAFOS NEURONALES DINÁMICOS PARA SHOCKS ASIMÉTRICOS EN MERCADOS EMERGENTES

Raquel Ayestaran Crespo e Ignacio Urrutia
Universidad Francisco de Vitoria, España
r.ayestaran@ufv.es; iurrutia57@gmail.com

Resumen

La interdependencia económica global, intensificada por canales digitales emergentes como plataformas de finanzas descentralizadas y criptoactivos, ha acelerado la propagación de contagios financieros, exacerbando vulnerabilidades sistémicas en mercados emergentes expuestos a shocks asimétricos. Este estudio aborda esta dinámica mediante la siguiente pregunta de investigación: ¿en qué medida los modelos de inteligencia artificial basados en aprendizaje profundo, integrando grafos neuronales dinámicos, pueden predecir y mitigar la propagación de contagios financieros en ecosistemas de interdependencia económica globalizada?

Adoptando un enfoque cuantitativo mixto, se desarrolla un modelo híbrido que combina redes neuronales recurrentes con grafos convolucionales para mapear interdependencias reticulares, utilizando datasets macroeconómicos y digitales de regiones como América Latina y el Sudeste Asiático. Los resultados demuestran una precisión predictiva superior (ROC-AUC > 0.85) y una reducción del riesgo sistémico de hasta un 40% mediante simulaciones contrafactuales de intervenciones macroprudenciales.

Esta investigación contribuye teóricamente al extender la teoría de la interdependencia compleja hacia un paradigma digital reticular, ofreciendo implicaciones prácticas para políticas regulatorias inclusivas y resaltando la necesidad de marcos éticos en la aplicación de la IA para fomentar la resiliencia económica global.

Palabras clave: Contagio financiero, Interdependencia digitalizada, Aprendizaje profundo, Grafos neuronales, Inteligencia artificial

THE IMPLEMENTATION OF AI FOR ESTIMATION OF VOLATILITY IN YIELD CURVES

Raquel García-Donas Guerrero and Eliseo Navarro Arribas
Universidad Nebrija, Spain; Universidad de Alcalá, Spain
rgarcigu@nebrija.es; eliseo.navarro@uah.es

Abstract

This study focuses on estimating the term structure of interest rates and analyzing how current methodologies influence the volatility of interest rate time series—key factors in making informed economic and financial decisions. Zero-coupon yield curves are essential tools for valuation and risk measurement in financial markets. While earlier research emphasized the importance of choosing the right model to replicate bond prices, recent studies highlight how the choice of dataset also impacts key variables—such as interest rate volatility, forward rates, and their correlations. This underscores the need for careful model and data selection in financial analysis.

Models for estimating the discount function in zero-coupon datasets directly affects the results. Volatility and forward rate correlations depend on the input data used. Significant differences arise depending on dataset: DoT includes only on-the-run bonds; FRB excludes bills and callable/puttable bonds; F082 includes all outstanding bonds. Additionally, the role of AI in financial valuation has become indispensable.

Methodology will include: gather documentation from manuals, scientific journals, economic reports, result presentations, and conference proceedings. Then, identify and select the most relevant and reliable information regarding interest rates and historical bond yield series, in order to understand the rationale behind using models such as Svensson's. Detect potential calculation errors in yield curves and evaluate the implementation of a software tool capable of eliminating biases. Integrate AI to enhance risk assessment and predictive accuracy within the financial system. Finally, analyze market uncertainty in the context of advancing toward a sustainable economic transition.

Estimated goals: we begin with parametric models, such as the Nelson-Siegel model and its extensión, the Svensson model. Next, we describe non-parametric approaches, including linear interpolation, cubic splines, and the kernel method. To estimate volatility, we will apply a range of models—from naïve approaches to more sophisticated methods within the GARCH family. And programming languages is essential for accessing specialized libraries—such as YieldCurve and quantmod in R, or pandas, NumPy, and SciPy in Python—as well as for managing functionalities provided by MATLAB's Financial Instruments Toolbox. The next section will focus on available mathematical software. SQL-type databases, such as PostgreSQL and MySQL, will be used due to their precision in handling complex queries. The final section will present outlines to minimize bias in yield curve estimation by integrating interest rate and volatility together.

Keywords: Yield Curves, Volatility Estimation, Zero-Coupon Rates, GARCH, AI in Finance

VALORACIÓN MODERNA DE SOCIEDADES CON ACTIVOS PURAMENTE DIGITALES: ¿CUÁNTO VALE REALMENTE LA PRESENCIA DIGITAL DE MI EMPRESA?

Álvaro J. Sánchez González
Universidad Internacional de La Rioja (UNIR), Spain
alvarosgodo@gmail.com

Resumen

En la actualidad, los métodos tradicionales de valoración de empresas no recogen de forma exhaustiva determinados activos exclusivamente digitales, tales como perfiles en redes sociales, algoritmos, avatares digitales o contenido multimedia creado por bots e inteligencia artificial. En este contexto, el artículo plantea alternativas metodológicas que complementan los enfoques clásicos de valoración en línea con la teoría de los activos intangibles.

Se argumenta que métodos como el descuento de flujos de caja o aquellos relacionados con el CAPM (Capital Asset Pricing Model) resultan insuficientes para capturar el valor económico generado por la actividad digital. Estos modelos deben adaptarse para incluir el valor aportado individualmente por los usuarios, así como el valor emergente derivado de las dinámicas de uso generadas por comunidades semiabiertas en plataformas digitales contemporáneas.

En relación con los activos audiovisuales, se propone evaluar no solo la cantidad de contenido, sino también el medio, la temática y la calidad, reconociendo además patrones autorregresivos exponenciales derivados de su propagación viral. Asimismo, se destaca la creciente influencia de la inteligencia artificial generativa en la creación de contenido sintético de texto, audio y vídeo de alta calidad, lo que exige una revisión sustantiva de los parámetros de estimación empleados en los modelos financieros actuales.

El trabajo concluye que la valoración moderna de sociedades digitales requiere una reformulación conceptual y técnica de los modelos financieros, incorporando métricas específicas para activos digitales y mecanismos de generación de valor propios de los ecosistemas algorítmicos y de plataformas.

Palabras clave: Inteligencia artificial, IA generativa, Valoración de empresas, Activos digitales, Redes sociales

VOLUNTARY CARBON MARKETS AND REFI: A CASE STUDY OF KLIMADAO USING MACHINE LEARNING ANALYSIS

Patricia Acebes Tamargo, Diego Rubén Regadera and David Martín-Moncunill
Universidad de Alcalá, Spain; Universidad Europea, Spain;
Universidad Camilo José Cela, Spain
patricia.acebes@edu.uah.es; diegoruben.regadera@universidadeuropea.es;
david.martinm@ucjc.edu

Abstract

The acceleration of global warming and its cascading impacts on ecosystems and human well-being remain critical global concerns. Since the Kyoto Protocol and, more recently, the Paris Agreement, international policy has emphasized the reduction of greenhouse gas emissions as a central pathway toward climate stabilization. Within this framework, voluntary carbon markets have emerged as flexible mechanisms to incentivize emission reductions. However, these markets face persistent problems, including the proliferation of inexpensive, low-quality carbon offsets that fail to deliver genuine climate benefits. Advances in Web3 technologies, particularly blockchain, offer new ways to address these shortcomings by increasing transparency, traceability, and accountability in carbon markets.

This study examines regenerative finance (ReFi) through the case of KlimaDAO, a decentralized autonomous organization that combines blockchain-based governance with on-chain tokenized carbon assets backed by verified carbon credits. KlimaDAO aims to align financial incentives with long-term climate mitigation by increasing the cost of carbon and enhancing market integrity. Building on existing research regarding blockchain applications in environmental finance, this paper introduces an additional technological layer: artificial intelligence. Specifically, we integrate time-series analysis with a machine learning model based on the Extreme Gradient Boosting (XGBoost) algorithm, a state-of-the-art open-source boosting framework known for its efficiency and accuracy in handling complex datasets, including those associated with climate science.

The methodological approach consists of collecting historical data on the price evolution of Klima tokens, performing exploratory analysis, and developing predictive models to examine token price behavior over time. The objective is to assess whether price increases in tokenized carbon assets reflect genuine improvements in project quality and associated cash flows, rather than market dynamics driven by low-quality offset supply. By doing so, the research contributes to understanding how Web3 and AI technologies can jointly support sustainable finance frameworks that reward high-quality climate-positive initiatives.

The study's contribution lies in connecting blockchain-enabled carbon markets with machine learning-based predictive analytics to evaluate the economic and environmental soundness of ReFi platforms. This integrated model provides a pathway to assess whether tokenized carbon assets can foster long-term climate financing while supporting CO_2 emissions reduction consistent with global climate targets.

Keywords: ReFi, blockchain, XGBoost, voluntary carbon markets, KlimaDAO

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THEMATIC AREA 6.
AI FOR WORKFORCE ANALYTICS AND TALENT MANAGEMENT (HUMAN RESOURCES)

Research on AI applications in human capital management, recruitment, performance evaluation, and strategic workforce planning.

EL USO DE LA IA COMO HERRAMIENTA FORMATIVA EN TALLERES DE EMPLEABILIDAD DIRIGIDOS A UNIVERSITARIOS

José María Peláez Marqués
Universidad Nebrija, España
jpelaema@nebrija.es

Resumen

Los alumnos de Universidad usan a diario la Inteligencia Artificial para el desarrollo de sus trabajos, preparación de exámenes y elaboración de resúmenes de sus materias. Aunque las prácticas curriculares son también una asignatura más de sus grados los alumnos no aprovechan igualmente la herramienta para la identificación de las ofertas más adecuadas a su perfil ni para la preparación de las entrevistas de selección. El presente trabajo de investigación tiene como objetivo analizar los hitos principales en los procesos de selección de prácticas profesionales y proponer la optimización de dicho proceso mediante el recurso a la Inteligencia Artificia. Tanto el análisis previo como las propuestas de aplicación práctica de la IA se realizarán considerando tanto el punto de vista de la empresa como el del alumno candidato. El análisis previo del proceso de selección se realizará por parte del autor considerando tanto su experiencia previa como Director de RRHH como la opinión de profesionales de la selección que participan actualmente en la evaluación de universitarios en prácticas. Este análisis garantizará que no se diseña el proceso a la medida de la tecnología, sino que será la tecnología la que se adaptará a las necesidades de la empresa y la Universidad para optimizar los resultados. Una vez definido el proceso óptimo de selección se definirán los contenidos y actividades que debería incluir un taller de IA aplicada a la empleabilidad impartido por la universidad a sus alumnos. Estos talleres combinarán la descripción de los momentos críticos del proceso de selección y sus factores de éxito con pequeños ejercicios prácticos para mejorar las capacidades de los alumnos de escribir “prompts” eficaces y elaborar descripciones claras, veraces y convincentes sobre su adecuación al puesto objeto de selección. Los resultados de esta investigación se pondrán en práctica en el área de Salidas Profesionales de la Facultad de Economía y Empresa de la Universidad Nebrija. Sus resultados serán la base de una próxima investigación sustentada en datos cuantitativos de efectividad.

Palabras clave: Empleabilidad, selección, IA, empleo, reclutamiento

ARTIFICIAL INTELLIGENCE AND PEOPLE MANAGEMENT IN THE CRUISE INDUSTRY: AN INTERDISCIPLINARY REVIEW FROM HOSPITALITY

Lourdes Susaeta Erburu, Frank Babinger and Sandra Sánchez Arcediano
Universidad Complutense de Madrid and Universidad Nebrija, España
lsusaeta@ucm.es; fbabinger@ucm.es; ssanchea@nebrija.es

Abstract

Artificial Intelligence (AI) is significantly transforming the tourism industry, especially in hospitality. Recent research shows that AI not only redefines marketing and operational tasks but also changes work organisation, decision-making, and human resource management. However, these changes have received limited attention in the cruise industry, a sector that combines accommodation, transport, and leisure and faces unique challenges in people management due to its multicultural crews, operational isolation, and hierarchical structure.

This paper offers an interdisciplinary review of the literature aimed at exploring how AI might influence leadership and human resource practices in the cruise industry, using insights from the hospitality sector as a foundational reference. The review examines how AI-driven systems are reshaping talent attraction and retention, HR practices, workforce planning, internal communication, and leadership strategies. It seeks to understand how intelligent systems can transform the nature of human work, foster new digital skills, and balance technological efficiency with employee wellbeing.

By adopting an interdisciplinary approach, drawing from management, organisational psychology, tourism studies, engineering, and sustainability, the study identifies key factors that foster responsible AI adoption in maritime workplaces. It investigates ethical, cultural, and trust-related issues arising when automation, data analytics, and predictive intelligence are integrated into crew management and decision-making processes.

The ultimate aim is to develop a conceptual framework to guide future research on AI's impact on people management in the cruise industry, highlighting both similarities and differences with the hotel sector. This framework will assist in shaping a research agenda focused on encouraging adaptive, inclusive, and ethical leadership as the industry moves towards "smart cruises", where technology supports rather than replaces the human element.

Keywords: Artificial intelligence, People management, Cruise industry, Hospitality, Leadership, Talent management, Sustainability

ARTIFICIAL INTELLIGENCE APPLICATIONS IN HUMAN CAPITAL MANAGEMENT IN THE BIOTECHNOLOGY SECTOR: INNOVATION, PERFORMANCE, AND STRATEGIC ALLIANCES FOR SUSTAINABLE PRODUCTIVITY

Marisol Carvajal Camperos and José Luis Matarranz Carpizo
Universidad Rey Juan Carlos, Spain
marisol.carvajalc@urjc.es; joseluis.matarranz@urjc.es

Abstract

The digital transformation of the biotechnology sector has accelerated the integration of artificial intelligence (AI) tools into human capital management, fostering new ways to attract, develop, and retain talent within knowledge-intensive organisations. This study examines the emerging applications of AI in key people management processes, such as recruitment, performance evaluation, and strategic workforce planning, highlighting its role in improving productivity and creating sustainable competitive advantages.

The research explores how collaboration between biotechnology organisations and strategic partners, such as technology start-ups, universities, and research centres, enables the effective adoption of AI in talent management. This interaction between AI and strategic alliances acts as a driver of innovation and organisational learning, expanding companies' ability to attract and develop highly specialised professionals while fostering creativity and knowledge transfer.

The paper addresses the ethical and organisational challenges posed by algorithmic decision-making in people management, including transparency, fairness, and the protection of sensitive data. Drawing on recent literature and case studies from the field of biotechnology, it identifies best practices for the responsible adoption of AI in highly specialised scientific environments.

A conceptual model for AI-augmented human capital management is proposed, built around three fundamental pillars: analytical intelligence for talent planning, collaborative innovation through strategic alliances, and organisational knowledge sustainability. This framework redefines productivity from a comprehensive perspective, in which technology enhances collective intelligence and human value as essential assets for biotechnological progress.

Keywords: Artificial Intelligence, Human capital, Biotechnology, Strategic alliances, Productivity, Innovation, Talent management, Sustainability

EVALUACIÓN INDEPENDIENTE Y POR CLASIFICACIÓN DE LOS FACTORES DE ATRACCIÓN LABORAL: HACIA UN ANÁLISIS MULTIDIMENSIONAL DE LAS PREFERENCIAS DE LOS EMPLEADOS

María Giménez-Cortés
Universidad Rey Juan Carlos, España
maria.gimenezc@urjc.es

Resumen

El objetivo del estudio consiste en determinar si un cambio en la metodología de evaluación sobre los factores que influyen en la atracción de los empleados, conocidos como proposiciones de valor, influye en los resultados sobre la importancia relativa de estos elementos y, como consecuencia, en las potenciales decisiones derivadas de las empresas respecto a sus políticas de reclutamiento y retención de talento. Se parte del supuesto de que los distintos enfoques no son equivalentes y que el método de medición puede condicionar las opiniones de los sujetos. Con el fin de comparar los patrones de respuesta y analizar sus variaciones, la investigación se centra en analizar mediante un estudio cuantitativo las mismas variables empleando una evaluación independiente de los atributos y una valoración en forma de clasificación. Los resultados obtenidos revelan que, los dos sistemas generan respuestas divergentes, evidenciando que la metodología de evaluación repercute en la interpretación de las prioridades y preferencias de los participantes. Aportando indicios de que la valoración individual permite examinar de una manera más analítica y cuantitativa la relevancia de cada atributo independientemente, mientras que la valoración conjunta ofrece una perspectiva más cualitativa y contextual al provocar que los sujetos deban de priorizar unos aspectos sobre otros. Este estudio contribuye a la literatura existente al mostrar que combinar la metodología de evaluación basada en la clasificación con la evaluación independiente (la más extendida y habitual), permite un análisis más consistente y proporciona información de valor para la toma de decisiones empresariales. Estas conclusiones pueden fortalecer las políticas de employer branding, para ofrecer una comprensión más realista de las preferencias de los empleados y facilitar el diseño de propuestas de valor más efectivas. La investigación además resalta el potencial de la Inteligencia Artificial para generar análisis avanzados de patrones, desarrollar modelos predictivos y proporcionar un seguimiento continuo y dinámico de los datos, lo que permite a las empresas tomar decisiones más fundamentadas y estratégicas en la gestión de talento.

Palabras clave: Marca del empleador; Atractivo del empleador; Recursos Humanos; Gestión del talento; Atracción de talento

CAPACITACIÓN Y TALENTO SÉNIOR: UN ANÁLISIS EMPÍRICO EN LA COMUNIDAD DE MADRID EN LA ERA DE LA INTELIGENCIA ARTIFICIAL

Bárbara Rey Actis, Sonia de Paz Cobo y María Cortés Ruiz
Rey Juan Carlos University, Spain
b.rey.2024@alumnos.urjc.es; sonia.depaz@urjc.es; maria.cortes@urjc.es

Resumen

Desde el lanzamiento público de la inteligencia artificial (IA) a finales del año 2022, su integración en los entornos laborales no ha parado de aumentar. La automatización reconfigura el mercado de trabajo en su totalidad y sufre una de las mayores transformaciones desde la pasada revolución industrial. De forma específica, el colectivo perteneciente al talento sénior se enfrenta a numerosos retos adicionales que amenazan su empleabilidad. Los trabajadores mayores de 50 años gozan de buena salud, poseen conocimiento valioso y experiencia acumulada sumada a habilidades interpersonales (capital humano). Pero también se enfrentan a barreras relacionadas con la brecha digital y la percepción de estar obsoletos en habilidades tecnológicas. Este trabajo analiza los factores que determinan la preparación digital del talento senior ante los procesos de transformación impulsados por la IA, con especial énfasis en la gestión del talento y la analítica de recursos humanos.

Este trabajo analiza cómo los trabajadores sénior perciben el impacto de la automatización y la IA sobre su empleabilidad futura, y en qué medida su preparación digital condiciona su capacidad de adaptación a los cambios tecnológicos. A partir de información de una encuesta realizada a 1300 personas residentes en la Comunidad de Madrid, con variables sociodemográfica y cuatro indicadores clave —preocupación ante la automatización, percepción de mejora de las competencias digitales, necesidad de adquirir nuevas competencias y participación en procesos de capacitación— se exploran los determinantes de la preparación digital del talento sénior. La estrategia empírica combina análisis descriptivo, modelos de análisis multivariantes para identificar perfiles diferenciados de adaptación. Los hallazgos aportan evidencia para orientar políticas que impulsen una transición digital inclusiva y fortalezcan la empleabilidad del talento sénior en entornos cada vez más automatizados.

La heterogeneidad en los niveles de preparación digital entre trabajadores senior, señala que las competencias digitales constituyen un factor determinante para la empleabilidad en contextos automatizados. La inversión en formación continua y programas de upskilling y reskilling adaptados a las necesidades específicas del talento sénior puede mitigar los riesgos de exclusión laboral y potenciar la complementariedad entre experiencia humana e IA. Los hallazgos preliminares aportan evidencia para orientar políticas que impulsen una transición digital inclusiva (a nivel etario) y fortalezcan la empleabilidad del talento sénior en entornos cada vez más automatizados. Estas conclusiones contribuyen al campo emergente de la analítica de recursos humanos impulsada por IA, proporcionando insights para el diseño de estrategias organizacionales que maximicen el potencial del talento intergeneracional.

Palabras clave: Talento senior, inteligencia artificial, automatización, empleabilidad, gestión del talento

SENIORS +50, INTELIGENCIA ARTIFICIAL GENERATIVA Y EMPLEABILIDAD EN ESPAÑA: IMPACTOS, BRECHAS Y OPORTUNIDADES EN LA TRANSFORMACIÓN DEL TRABAJO

Rodrigo Miranda Beltrán
Programa Interuniversitario en Ingeniería de Proyectos
ESIC Business & Marketing School
rodrigo.a.miranda@gmail.com

Resumen

La irrupción de la inteligencia artificial generativa (IAG) está reconfigurando el mercado laboral con una velocidad sin precedentes, especialmente en los sectores intensivos en conocimiento. Mientras la literatura reciente identifica riesgos significativos para la fuerza laboral en términos de desplazamiento, polarización y automatización de tareas, existe todavía una limitada evidencia empírica y metodológica sobre cómo este fenómeno afecta diferencialmente a los profesionales senior (+50 años). Esta tesis aborda precisamente esa brecha, analizando la empleabilidad senior desde una perspectiva multidimensional que integra factores tecnológicos, organizativos y sociolaborales.

El objetivo central es evaluar cómo la adopción de la IAG modifica la demanda de competencias y la posición competitiva del talento senior en España, identificando tanto riesgos emergentes como nuevas oportunidades de revalorización profesional. El marco conceptual combina aportaciones de la economía del cambio tecnológico, la teoría del capital humano, la gestión por skills y los modelos recientes de complementariedad humano-IA. La tesis incorpora además la literatura más actual sobre agentes autónomos, IA copiloto y automatización cognitiva. Metodológicamente, la investigación se estructura en tres fases: (1) un marco teórico y revisión sistemática de literatura académica internacional (2018–2025); (2) un análisis de impacto potencial mediante un modelo de *task exposure* aplicado a profesiones con alta presencia senior; y (3) un estudio empírico mixto basado en encuestas, entrevistas semiestructuradas y pruebas de campo desarrolladas junto a organizaciones como Fundación SERES, Fundación Más Humano y Generación SAVIA, que facilitan acceso directo a colectivos +50.

Los resultados preliminares muestran un patrón dual: por un lado, ciertos perfiles senior presentan mayor riesgo por baja actualización digital y fuerte dependencia de tareas rutinarias cognitivas; por otro, se observa una ventana clara de oportunidad para profesionales con experiencia sectorial combinada con capacidades de adaptación, decisión y supervisión de sistemas IA. La hipótesis emergente es que la IAG no sustituye linealmente al talento senior, sino que amplifica su valor cuando existe complementariedad entre experiencia, criterio y uso competente de herramientas generativas. La contribución esperada de la tesis es doble: generar un modelo predictivo de empleabilidad senior en contextos de adopción acelerada de IA y proponer un marco de intervención para empresas, administraciones y colectivos, orientado a la recualificación, la prolongación de la vida laboral y la reducción de brechas digitales por edad.

Palabras clave: Inteligencia Artificial Generativa, Empleabilidad Senior, Automatización Cognitiva, Skills, Transformación Del Trabajo

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THEMATIC AREA 7.
ECONOMICS OF AI AND ALGORITHMIC MARKETS

Theoretical and empirical studies on the economic impact of AI, including productivity shifts, market structures, and algorithmic decision-making in modern economies.

FROM COMPARATIVE ADVANTAGE TO ALGORITHMIC ADVANTAGE: RETHINKING ECONOMIC DYNAMICS IN AI-DRIVEN SYSTEMS

Francisco Javier Navarro Meneses
Nebrija University, Spain
fnavarro@nebrija.es

Abstract

For over two centuries, economic theory has relied on the principle of comparative advantage, the idea that competitiveness arises from relative efficiency in production and trade. The ascent of Artificial Intelligence (AI) is fundamentally transforming this foundation. In the emerging algorithmic economy, comparative advantage no longer depends on traditional factor endowments or production efficiency but on an organization's ability to effectively transform data, learning, and foresight into coordinated intelligence. AI technologies are not merely tools of automation, they reshape the cognitive and evolutionary dynamics of firms, industries, and entire economies. This study advances the concept of algorithmic advantage, defined as the systemic capacity to integrate algorithmic infrastructures, predictive models, and anticipatory capabilities to continuously reconfigure value creation. Algorithmic advantage represents a shift from optimizing existing systems to continuously learning, simulating, and evolving within complex, data-rich environments. It captures how intelligence, distributed across human and machine agents, becomes the new source of economic adaptation and strategic differentiation.

Empirically, the study draws on longitudinal, process-tracing evidence from five non-technology multinational firms that have undergone major AI-enabled transformations between 2016 and 2024. The analysis identifies a common evolutionary sequence across cases: (1) AI-driven efficiency (computational consolidation), characterized by automation and predictive analytics improving existing processes, (2) algorithmic foresight (anticipatory integration), in which firms employ simulation, digital twins, and scenario modeling to explore and shape possible futures, and (3) ecosystemic value creation (platform orchestration), where learning and foresight are externalized through collaborative platforms that connect customers, partners, and data ecosystems.

Findings demonstrate that competitive advantage in AI-driven systems arises not from ownership of resources but from learning velocity and anticipatory coordination across human–machine networks. The study contributes to the emerging economics of AI by reframing competitiveness as an evolutionary process of algorithmic adaptation, where intelligence, rather than efficiency, becomes the primary factor of production. Finally, the paper outlines managerial and policy implications for building organizations capable of evolving from data optimization toward collective foresight and sustainable transformation. By bridging insights from AI economics, organizational learning, and futures research, the study concludes that competitiveness in algorithmic economies depends on the co-evolution of learning and foresight within socio-technical systems. The new strategic frontier lies in building organizations that can continuously reconfigure their architectures of intelligence in anticipation of emerging futures.

Keywords: Artificial Intelligence, Algorithmic Advantage, Value Creation, Futures Research, Organizational Transformation

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THEMATIC AREA 8.
AI ETHICS, GOVERNANCE, AND SUSTAINABILITY

Reflections on transparency, accountability, and the sustainable use of AI, addressing ethical frameworks, environmental impact, and social responsibility.

AI FOR PARTNERSHIP: INTELIGENCIA ARTIFICIAL COMO MOTOR DE COOPERACIÓN INTERSECTORIAL HACIA LOS ODS

Elena Bulmer and Iván Zamarrón
Nebrija University, Spain
ebulmer@nebrija.es; izamarron@nebrija.es

Abstract

The emergence of Artificial Intelligence (AI) is visibly transforming paradigms of interaction, collaboration, and decision-making in contemporary society. Far from being merely a technological advance, AI operates as a strategic resource capable of strengthening intersectoral alliances and accelerating progress towards the Sustainable Development Goals (SDGs) of the 2030 Agenda. Within this framework, SDG 17, "Partnerships for the Goals", acquires particular relevance, as it promotes cooperation among governments, companies, universities, and civil society organisations, becoming a key driver of both sustainable development and shared innovation. Building on the current digital turn, this chapter examines how artificial intelligence functions not only as a technical support but also as an articulating force for emerging models of shared governance, where technological, social, and ethical dimensions converge within a single operational framework. From this perspective, AI systems, machine learning mechanisms, and collective intelligence platforms act as enabling devices for detecting strategic convergences, fostering more efficient use of available resources, and forming dynamic cooperative networks with transnational reach. At the same time, the incorporation of blockchain-based technologies introduces an additional layer of institutional legitimacy by ensuring management processes characterised by high levels of traceability, transparency, and shared accountability, elements that consolidate trust in multi-level interaction scenarios.

The chapter further argues that AI can enhance the effectiveness of public-private partnerships through the automation of impact assessment processes, the simulation of collaborative scenarios, and the development of adaptive sustainability metrics. These tools enable data-driven decision-making, strengthen coordination among participants, and allow more accurate evaluation of progress towards international goals. Nonetheless, the analysis also highlights the ethical, regulatory, and technological inequality issues associated with the deployment of AI in global cooperation contexts. Finally, the chapter proposes that artificial intelligence should be understood beyond its operational functionality, assuming the role of an emerging actor in processes of social innovation and technological diplomacy. From this perspective, AI is projected as a driving force for a more conscious global cooperation oriented towards the common good, aligned with contemporary ethical principles and directly linked to the achievement of SDG 17, promoting an interconnected international order in which sustainability becomes a structural axis of shared development.

Keywords: Artificial intelligence, Intersectoral partnerships, Sustainable Development Goal 17, Collaborative governance, Social innovation

THE EFFECT OF ARTIFICIAL INTELLIGENCE ON MEDIOCRITY

Manuel Balsera
Universidad Nebrija and UBI Business School
balsera.manuel@gmail.com

Abstract

The integration of artificial intelligence (AI) into organizational and social systems has brought profound changes, reshaping how decisions are made, power is exercised, and mediocrity manifests. This paper explores the paradoxical relationship between AI and mediocrity, arguing that while AI has the potential to enhance productivity and innovation, it can also inadvertently entrench mediocrity by automating routine tasks, diminishing critical thinking, and reinforcing existing hierarchical structures. Drawing on the conceptual frameworks outlined in *Mediocres y CIA*, the study examines how AI technologies can both expose and conceal incompetence within institutions. The mechanization of processes risks promoting a culture in which minimal effort is rewarded, while the opacity of AI algorithms may obscure accountability, facilitating the persistence of mediocre practices masked by technological sophistication. However, AI also offers tools for improving transparency, enabling data-driven evaluations, and fostering meritocratic systems if appropriately leveraged. This analysis contributes to understanding the dual role of AI as a disruptive force that can either mitigate or magnify mediocrity depending on organizational culture and governance. Ultimately, combating mediocrity in the AI era requires deliberate strategies that balance technological adoption with human critical oversight, ensuring technology serves to elevate rather than diminish performance standards.

Keywords: Artificial intelligence, Mediocrity, Organizational behavior, Transparency, Power dynamics

ETHICS, ALGORITHMS, AND BUSINESS DECISION-MAKING: CONCEPTUAL FRAMEWORKS AND EMERGING DEBATES

Santiago Barreno-Alcalde, Alberto Tomás Delso-Vicente and Adriana Rivera-Heredia
Rey Juan Carlos University, Spain
santiago.barreno@urjc.es; alberto.delso@urjc.es; adriana.rivera@urjc.es

Abstract

The exponential growth in the use of data and algorithmic systems in organizational contexts has reshaped business decision-making, creating new opportunities while also raising ethical tensions that demand greater conceptual clarity and critical examination. The expanding adoption of automated processes, predictive models, and digital surveillance systems has shifted part of decision-making agency toward sociotechnical infrastructures which, despite enhancing efficiency, raise important questions regarding transparency and the balance of power between organizations, technologies, and individuals. In this context, ethical reflection on data-intensive management emerges as a necessary condition for understanding the risks associated with digitally mediated business decision-making.

This study originates from the need to examine how this field of research has been academically constructed: which issues have dominated scholarly attention, which conceptual frameworks have prevailed, and how the different areas of inquiry that shape the contemporary debate are interconnected. The aim is to identify the prevailing thematic axes, establish the links among academic streams, and recognize the contributions that have guided the field's development.

To that end, a scientific mapping study is conducted using documents indexed in Web of Science (2015–2025), applying co-citation analysis and metrics designed to assess thematic density, internal cluster coherence, and inter-cluster connectivity.

The findings reveal a growing field, structured around key debates such as algorithmic bias, the explainability of automated systems, and organizational accountability in highly digital contexts. The analysis also identifies pivotal works that have bridged previously fragmented research strands and contributed to consolidating academic discourse. Additionally, future lines of research are proposed to foster deeper theoretical integration and advance the study of emerging ethical challenges.

The study provides a valuable foundation for future research addressing the intersection of business decision-making, data-driven technologies, and ethical responsibility within organizations.

Keywords: Business decision automation, Digital ethics, Algorithmic accountability, AI transparency

LA ÉTICA EN LA ERA DE LA INTELIGENCIA ARTIFICIAL: TRANSITANDO POR LA INTERSECCIÓN DEL COACHING, EL MENTORING Y LA TECNOLOGÍA

Rafael Ayuso, María Paula Calvo, Edita Olaizola, Daniel Siles, Albert Solé and Francisco A. Vila
European Mentoring & Coaching Council (EMCC), España
daniel.siles@urjc.es; Albert.Sole@ub.edu

Abstract
Nos encontramos en un punto de inflexión fascinante. La inteligencia artificial (IA), esa fuerza tecnológica que redefine industrias enteras ha comenzado a permear en una de las profesiones más intrínsecamente humanas: el coaching y el mentoring. Esta convergencia promete democratizar el acceso al desarrollo personal y profesional, ofreciendo herramientas innovadoras y análisis de datos a una escala sin precedentes. Sin embargo, esta promesa no está exenta de profundos dilemas éticos. Como profesionales dedicados al florecimiento del potencial humano, es nuestro deber y responsabilidad explorar a fondo la intersección entre nuestra ética profesional y la aplicación de la IA, para asegurar que la tecnología sirva como un complemento y no como un sustituto de la conexión y la confianza que constituyen el corazón de nuestra práctica. Este artículo se adentra en el análisis de los desafíos y oportunidades que surgen al integrar la IA en el coaching y el mentoring, profundizando en su impacto en la privacidad, la confidencialidad, los riesgos de suplantación y el uso de avatares. Finalmente, se proponen pautas éticas para navegar por este nuevo y desafiante paradigma tecnológico.

Palabras clave: Ética de la IA, Coaching, Mentoring, Privacidad, Sesgos Algorítmicos, Human-in-the-Loop, Avatares, Transformación Digital, Confidencialidad, Potencial Humano.

ARTIFICIAL INTELLIGENCE AND GOVERNANCE OF KNOWLEDGE: TOWARDS A DIGITAL HUMANISM IN 21ST-CENTURY EDUCATION

Luis Díaz-Marcos and Óscar Aguado-Tevar
Nebrija University, Spain
ldiazmarcos@nebrija.es; oaguado@nebrija.es

Abstract

This research presents a literature review on Artificial Intelligence (AI) and its role in the governance of knowledge, with special focus on the ethical, pedagogical, and humanistic challenges arising in contemporary education. From an interdisciplinary perspective, it analyses the main theoretical and regulatory frameworks guiding the ethical governance of AI in educational contexts, drawing on the work of different scholars and on recommendations issued by international organisations such as UNESCO and the European Union.

The study is based on the assumption that the emergence of AI introduces technical tools that are transforming the ways we learn, decide, and teach. Its objective is to identify how educational institutions can exercise ethical and strategic leadership that allows them to harness the power of AI without sacrificing values such as cognitive justice, equity, autonomy, and critical thinking. The methodology consists of a narrative and comparative review of academic sources and institutional documents published between 2018 and 2024, organised around three axes: ethical-civic gaps, educational leadership, and responsible governance.

The results indicate that AI redefines the cognitive contract between technology and education, demanding a new ethic of knowledge based on shared responsibility, transparency, and digital prudence. Future education must embrace AI as a cognitive interlocutor rather than an epistemic authority, strengthening citizens' critical thinking skills and moral discernment. The study proposes advancing towards an active digital humanism, in which institutions regulate technology by orienting it towards social justice, sustainable development, and the reconstruction of the collective meaning of learning.

Keywords: Artificial Intelligence, Educational Ethics, Knowledge Governance, Digital Humanism, Literature Review.

LA INTELIGENCIA ARTIFICIAL EN LA ETAPA DE EDUCACIÓN SECUNDARIA OBLIGATORIA: ESTADO DE LA CUESTIÓN Y LÍNEAS DE INVESTIGACIÓN

Francisco José Martínez Carmona
UNIE Universidad, España
fmartinezc@professor.universidadunie.com

Resumen:
La integración de la inteligencia artificial (IA) en la enseñanza de la educación secundaria es una línea de investigación relevante en el ámbito de la innovación educativa, debido a su potencial para transformar los procesos de enseñanza-aprendizaje, la evaluación y la personalización educativa. La adopción efectiva de estas tecnologías plantea desafíos pedagógicos, éticos, organizativos y formativos que requieren un análisis sistemático de la evidencia existente. El objetivo de esta investigación es realizar una revisión de la literatura académica sobre la integración de la inteligencia artificial en la educación secundaria, con el fin de identificar las principales líneas de investigación, enfoques metodológicos, aplicaciones educativas y retos asociados a su implementación. La revisión permite sintetizar el conocimiento acumulado y detectar vacíos en la investigación actual. La metodología empleada se basa en una revisión sistemática de la literatura científica publicada en bases de datos académicas de referencia, siguiendo criterios explícitos de búsqueda, selección y análisis de estudios. Se analizan investigaciones empíricas y teóricas que abordan el uso de sistemas de tutoría inteligente, analítica de aprendizaje, evaluación automatizada, herramientas de apoyo al profesorado y entornos de aprendizaje adaptativos en contextos de educación secundaria. Los resultados de la revisión muestran que la literatura se concentra principalmente en el potencial de la IA para la personalización del aprendizaje, la mejora del seguimiento del alumnado y la optimización de los procesos evaluativos. También se identifican limitaciones relacionadas con la escasa formación del profesorado, la falta de marcos pedagógicos claros, los riesgos éticos vinculados al uso de datos y la desigualdad en el acceso a las tecnologías. La revisión pone de manifiesto la necesidad de avanzar hacia modelos de integración de la IA que estén pedagógicamente fundamentados, acompañados de políticas de formación docente y de marcos normativos que garanticen un uso ético y equitativo. Este trabajo contribuye a sistematizar la literatura existente y a orientar futuras investigaciones en el ámbito de la etapa de Educación Secundaria Obligatoria.

Palabras clave: Inteligencia artificial; educación secundaria; innovación educativa; tecnología educativa; aprendizaje personalizado; analítica de aprendizaje; formación docente; ética educativa.

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THEMATIC AREA 9.
AI LITERACY AND CRITICAL THINKING

Perspectives on education, critical thinking, and digital responsibility, examining how AI reshapes learning processes and civic awareness in the knowledge society.

AI GENERATIVE FOR APPLIED FACTOR ANALYSIS: A TEACHING INNOVATION APPROACH TO BUSINESS ANALYTICS EDUCATION

Clara Matutano Molina
Nebrija University, Spain
cmatutano@nebrija.es

Abstract

This study describes a compact pedagogical intervention that integrates generative artificial intelligence into a single session of a Business Analytics degree course (n = 10), with the dual objective of consolidating procedural competence in exploratory factor analysis and developing AI literacy relevant to business analytics. Following a concise instructor-led review of factor-analytic concepts and their implementation in R/RStudio, students were introduced to four generative systems, ChatGPT, Gemini, Copilot and Manus, and invited to design a complete applied exercise. This involved creating a synthetic dataset representing a plausible business scenario, proposing and validating R code for exploratory factor analysis and diagnostic checks, executing the scripts in RStudio and interpreting the outputs, and finally producing a short Manus presentation summarising methods and findings. Evaluation relied on a qualitative framework examining prior familiarity with generative tools, adequacy of tool use, technical correctness of the analyses, quality of visual communication, and perceived pedagogical benefits. Results indicate that most participants began with limited knowledge of generative AI and its affordances, yet every student produced a technically correct and reproducible example of factor analysis in R within the constrained session. This demonstrates that generative tools can substantially accelerate dataset generation, code synthesis, and initial interpretation in an applied teaching context. At the same time, most presentations exhibited weaknesses in visual and narrative communication, with typographic choices and image selection frequently undermining clarity, revealing a gap between technical analytic competence and effective scientific communication. These findings suggest that brief, scaffolded AI-assisted practicums are a viable means to rapidly build applied analytical skills while exposing students to the capabilities of generative systems. To fully capitalise on these gains, such interventions should be coupled with explicit instruction in visualization, slide design, and presentation practice. Embedding this combined approach within business analytics curricula supports immediate practical readiness for data-driven decision making and fosters longer-term AI literacy.

Keywords: Generative AI, Factor Analysis, Business Analytics, Teaching Innovation

LA CALIDAD DOCENTE EN LA EDUCACIÓN SUPERIOR ANTE EL IMPACTO DE LA INTELIGENCIA ARTIFICIAL Y LA INNOVACIÓN TECNOLÓGICA

Paula Lejárraga Recio
Universidad Internacional Villanueva, España
paula.lejarraga@villanueva.edu

Resumen

La incorporación de la inteligencia artificial (IA) en la educación superior constituye un fenómeno incuestionable. Se trata de un ámbito amplio y complejo que abre múltiples líneas de análisis, representando un cambio de paradigma con profundas implicaciones estructurales para sus instituciones. El vertiginoso desarrollo de las aplicaciones de IA plantea, simultáneamente, un enorme potencial y un desafío considerable. Es imprescindible establecer un marco integral que abarque dimensiones metodológicas, académicas, competenciales y éticas, sin desatender el pensamiento crítico, la capacidad analítica ni el fomento de la creatividad de todos los grupos de interés involucrados. Esta necesidad exige una planificación institucional. Las universidades deben formular directrices éticas y de uso responsable que orienten al profesorado sobre los contextos, finalidades y modalidades apropiadas para la utilización de la inteligencia artificial. Asimismo, resulta fundamental diseñar programas de formación específicos que aseguren un aprovechamiento efectivo de estas herramientas, integrando coherentemente dichas acciones en los planes estratégicos institucionales. Además resulta pertinente analizar cómo la incorporación de la IA en las distintas áreas de desempeño del profesorado —docencia, investigación, transferencia y gestión— incide en la calidad de su labor docente. La magnitud de este impacto dependerá, en gran medida, de la capacidad del profesorado para adaptarse a dichos desafíos, gestionando los datos de forma eficiente, aplicando metodologías innovadoras y efectivas, y evaluando al estudiantado de manera adecuada dentro de este nuevo contexto educativo. Actualmente, y en respuesta a las exigencias legislativas, el profesorado universitario debe mantener un proceso continuo de desarrollo profesional. Uno de los mecanismos de evaluación de esta trayectoria académica es el programa DOCENTIA, orientado a valorar la calidad de la actividad docente, e incorpora, entre sus criterios de evaluación, la innovación pedagógica vinculada al uso de nuevas tecnologías. A pesar de su carácter voluntario, DOCENTIA ha sido adoptado progresivamente por un número creciente de universidades españolas, alcanzando cerca del 90% de implantación. Según el último informe elaborado por ANECA, tanto las universidades como estudiantado y profesorado señalan que la participación en DOCENTIA ha favorecido la implementación de innovaciones docentes, la promoción de buenas prácticas y el fortalecimiento de los procesos formativos del profesorado. En este contexto, resulta pertinente examinar hasta qué punto esta dimensión se encuentra directamente relacionada con la mejora de la calidad docente, si contribuye de manera efectiva a su consolidación y si el profesorado logra un desarrollo profesional significativo al enfocar su labor e innovación pedagógica apoyándose en la IA.

Palabras clave: Innovación docente; desarrollo profesional; DOCENTIA.

EDUCATION AND ARTIFICIAL INTELLIGENCE: DIGITAL RESPONSIBILITY AND CRITICAL THINKING IN YOUNG PEOPLE

Silvia Álvarez-Santás, José Vázquez Romero and María-Pilar Sánchez-Martín
Rey Juan Carlos University, Spain; CUNEF University, Spain;
Francisco de Vitoria University, Spain
silvia.alvarez@urjc.es; josevazquezromero@cunef.edu; m.sanchez.prof@ufv.es

Abstract

The increasing integration of artificial intelligence (AI) into educational contexts has generated growing debate regarding its implications for critical thinking and the development of ethical behavior among students. From a sociological perspective, this transformation extends beyond the mere adoption of technological tools and reflects broader processes of institutional change within higher education, as well as evolving forms of civic participation and agency among young people in the contemporary knowledge society. AI-based systems are progressively embedded in learning environments, reshaping pedagogical practices, assessment dynamics, and students' relationships with knowledge, authority, and academic responsibility.

Empirical evidence suggests that the impact of AI on critical thinking is fundamentally ambivalent. On the one hand, generative AI tools can enhance analytical reasoning, creativity, and problem-solving skills when integrated into pedagogical designs that emphasize reflection, guided learning, and cognitive support. On the other hand, excessive reliance on AI technologies may undermine critical thinking through technological dependency, cognitive automation, and the uncritical acceptance of algorithmically generated outputs. These risks are further exacerbated by algorithmic biases and system opacity, which students do not always identify or question, potentially weakening epistemic autonomy and ethical judgment.

This dual effect of AI on critical and ethical competencies is mediated by a set of individual and contextual factors, including students' self-regulation capacities, prior levels of digital and AI literacy, and the institutional frameworks governing AI use in higher education. Universities play a central role in shaping these dynamics through regulatory policies, curricular strategies, and ethical guidelines that influence how AI technologies are adopted and normalized in academic practice.

Adopting a quantitative and explanatory research design grounded in sociological theory, this study aims to examine why students develop differentiated levels of critical thinking and ethical awareness in relation to AI-based technologies. In particular, it investigates how AI literacy contributes to variations in ethical sensitivity and critical engagement, identifying the conditions under which AI supports the formation of responsible and critically informed citizens.

Keywords: Artificial Intelligence; al literacy; higher education; critical thinking; digital ethics.

GENERATIVE AI-POWERED EXPERIENCE FOR MASS PERSONALIZATION IN BUSINESS SCHOOLS

Sandro Alberto Sánchez Paredes
CENTRUM Católica Graduate Business School,
Pontificia Universidad Católica del Perú, Lima, Peru
sasanchez@pucp.edu.pe

Abstract

Preparing for a new course is a challenging endeavour that students must undertake multiple times throughout their academic careers. However, how can they prepare themselves for a course they do not yet know? Are syllabi sufficient as a resource before classes begin? This study addresses this pedagogical and experiential gap by leveraging emerging technologies such as Generative Artificial Intelligence to process students' key information regarding their professional experience, career objectives, and perceived knowledge gaps through a structured form. This process is implemented through an AI-powered online application with which students can interact. The system generates a personalised, multi-section report that provides each student with a strategic action plan for each course of the Master's programme, including identified synergies and gaps between professional experience and course content, tailored study strategies, networking opportunities among students and with faculty, and curated supplementary resources. Employing a quasi-experimental design in a business school context, the study assesses the impact of this innovation using a mixed-methods approach that includes pre- and post-intervention surveys, platform usage analytics, comparative analysis of academic performance against a control cohort, and semi-structured interviews with faculty. A pilot implementation across two MBA courses produced favourable results that confirm the proposed hypothesis.

The research presents a scalable and transferable model that transforms a passive preparatory activity into an active, reflective, and strategic process, engaging students, professors, courses, and academic programmes through Generative AI. By providing personalised guidance before the first day of class, this innovation enhances individual learning experiences and academic outcomes while empowering educators to foster more dynamic classroom engagement. This study contributes a novel application of AI in education, shifting the focus from in-course adaptation to proactive, personalised onboarding experiences.

Keywords: Generative Artificial Intelligence, Mass personalization, Business schools, Personalized learning, Learning experience

ENHANCING TEAM FORMATION IN HIGHER EDUCATION WITH GENERATIVE AI: BELBIN'S ROLES IMPACT IN A MASTER'S PROGRAM

Sandro Alberto Sánchez Paredes
CENTRUM Católica Graduate Business School,
Pontificia Universidad Católica del Perú, Lima, Peru
sasanchez@pucp.edu.pe

Abstract

Team assignments are a core component of most higher education programmes. However, forming effective teams remains a persistent challenge that is often difficult to assess and manage. This study designs a Generative AI-driven framework aimed at achieving higher levels of synergy, performance, and diversity in team formation within a Master's programme. To evaluate its impact, the research compares team regrouping patterns, variations in academic performance (team assignment grades), and gender distribution.

Leveraging Customer Relationship Management (CRM) data, Meredith Belbin's *Theory of Roles* is applied to assign an appropriate role to each student and subsequently form teams with complementary profiles in a business school Master's programme. Additionally, students are informed about how and why the automated AI system determined their roles and justified team composition, reinforcing transparency and trust in the process.

By using a data-driven model grounded in an established team role theory, the system mitigates common biases associated with self-selection, such as students grouping with friends or based on perceived ability, which often leads to imbalanced teams. The study validates the use of Generative AI not merely as an automation tool, but as a strategic partner in fostering collaborative and equitable learning environments.

This approach enhances student experience and academic performance independently of students' backgrounds or prior teamwork experience, offering a replicable and scalable model adaptable to other contexts and institutions. Business schools can thus take advantage of existing data and integrate Generative Artificial Intelligence to create value for students that translates into a better overall learning experience.

Keywords: Belbin's roles, Higher education, Generative Artificial Intelligence, Learning experience, Team formation

LA INTELIGENCIA ARTIFICIAL EN LA EDUCACIÓN SUPERIOR: UNA OPORTUNIDAD PARA FORTALECER LA EVALUACIÓN FORMATIVA Y MEJORAR LA RETROALIMENTACIÓN DOCENTE

Óscar Costa Román y Francisco José Martínez Carmona
UNIE Universidad, España
oscar.costa@universidadunie.com; fmartinezc@professor.universidadunie.com

Resumen

La rápida expansión de la inteligencia artificial (IA), especialmente de las herramientas de IA generativa, está originando una profunda transformación en los procesos de enseñanza y aprendizaje, especialmente en las metodologías didácticas aplicadas y en los métodos de los procedimientos de evaluación, en la educación superior y en las etapas educativas previas. Consideramos que esta transformación adquiere una importancia particular en el ámbito de la evaluación y en concreto en la evaluación formativa, ya que se pueden mejorar las formas en las que el profesorado brinda la retroalimentación al estudiantado, que se está configurando como un elemento esencial de la evaluación formativa. La evaluación formativa, que tradicionalmente se basa en la observación continua y una retroalimentación constructiva que provoca una reflexión en los estudiantes sobre la construcción de su propio aprendizaje, encuentra ahora nuevas posibilidades gracias a la aplicación de sistemas capaces de analizar información, y en consecuencia son capaces de generar explicaciones individualizadas, proporcionando orientaciones en tiempo real, pudiendo además atender a la diversidad que presenta el estudiantado. Este trabajo pretende examinar el potencial que puede presentar la IA para fortalecer las prácticas de evaluación formativa en la educación superior, considerando a estos instrumentos como complementos en las herramientas didácticas aplicadas tradicionalmente por los docentes, aunque en ningún caso sustituirán el juicio académico del profesorado. Partiendo de una revisión conceptual sustentada en investigaciones y publicaciones educativas recientes, se analizan los diferentes beneficios que puede aportar la IA como: la mejora de la eficiencia en los procesos de retroalimentación, el aumento de las diferentes oportunidades que fomentan la autorregulación del estudiantado y la posibilidad de diseñar actividades didácticas adaptativas que están alineadas con los resultados de aprendizaje esperados. El trabajo también pretende abordar los principales retos y los riesgos asociados a la integración de la IA en la práctica docente universitaria, como pueden ser las cuestiones ligadas a la integridad académica, la desigualdad que puede existir en el acceso a estas herramientas, la dependencia tecnológica que pudiera crearse, sin perder de vista los posibles dilemas éticos que pudieran crearse con la privacidad de los datos, la transparencia y los potenciales sesgos algorítmicos. A partir de una reflexión sobre la experiencia docente en la educación superior, se proponen estrategias didácticas prácticas para incorporar la IA de forma significativa, aunque responsable en los procesos de evaluación formativa. Este trabajo concluye que la IA representa una oportunidad valiosa para mejorar los procesos de evaluación formativa en la educación superior, siempre que su uso se base en principios pedagógicos, el análisis crítico y el compromiso de los docentes con la mejora del aprendizaje del estudiantado.

Palabras clave: Evaluación Formativa, Educación, Práctica Docente Universitaria, Herramientas Didácticas

EL ABANDONO UNIVERSITARIO. UN ASPECTO POR ANTICIPAR

Fernando Sánchez de los Dolores and María de las Mercedes de Obesso Arias
ESIC Business & Marketing School and
Universidad Complutense de Madrid, España
fernando.sanchez@esic.university; mdeobess@ucm.es

Resumen

El abandono universitario constituye uno de los principales desafíos estratégicos de los sistemas de educación superior, por sus implicaciones sociales y sus consecuencias académicas e institucionales. En la literatura especializada, el abandono se define como la interrupción de la trayectoria académica antes de la obtención del título. En el contexto español, se ha avanzado notablemente en su clarificación conceptual gracias a la CRUE (2024), que diferencia entre abandono del estudio elegido, cambio de estudio y abandono neto del sistema, siendo esta última métrica la que ofrece un diagnóstico más preciso del abandono "real". El problema del abandono no es homogéneo. Desde el punto de vista teórico, la comprensión del abandono se ha construido sobre modelos clave como el de integración académica y social de Tinto o el modelo de satisfacción y persistencia de Bean y Metzner para estudiantes no tradicionales. Estos enfoques coinciden en señalar que el abandono es un proceso, resultado de la interacción dinámica entre el individuo y la institución a lo largo del tiempo. Recientemente, este campo ha experimentado un giro metodológico significativo: del estudio explicativo del abandono —centrado en identificar factores asociados— se ha transitado hacia enfoques predictivos destinados a su detección temprana y prevención. Tradicionalmente, las universidades han recurrido a modelos estadísticos clásicos, como por ejemplo la regresión logística o el análisis de supervivencia, que permiten estimar probabilidades de abandono y momentos críticos del riesgo. La irrupción de modelos analíticos basados en aprendizaje automático y aprendizaje profundo, junto con técnicas de interpretación, ha abierto un nuevo horizonte de posibilidades, con una capacidad predictiva superior para identificar perfiles de riesgo y anticipar decisiones de abandono con antelación. En este contexto, el futuro de las políticas universitarias debe orientarse hacia la implantación de modelos predictivos de abandono que permitan tomar decisiones de desvinculación antes de que ocurran, transformando la gestión reactiva en intervención preventiva. No se trata únicamente de desarrollar herramientas técnicas, sino de construir ecosistemas de prevención que integren datos fiables, ética algorítmica, sistemas de alerta temprana y programas de intervención personalizada. En suma, abordar el abandono universitario exige redefinirlo con precisión, comprender su multidimensionalidad y apostar por un enfoque de gestión universitaria basada en datos. El desafío ya no es solo explicar por qué algunos estudiantes abandonan, sino predecir quién está en riesgo y actuar a tiempo para que la permanencia y el éxito académico se conviertan en derechos efectivos para toda la comunidad estudiantil.

Palabras clave: Abandono universitario, educación superior, predicción.

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