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Artificial Intelligence (AI) Use in Construction and Real Estate Finance: Literature-Based Review

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Abstract **Review Article**

Artificial intelligence (AI) is revolutionising many industries, but its application in the construction and real estate finance sectors is particularly innovative. This study explores how artificial intelligence is utilised to enhance risk management, refine investment strategies, and optimise project outcomes within these industries. We examine key artificial intelligence technologies, such as machine learning, predictive analytics, and natural language processing, and assess their potential to transform traditional practices. Case studies and current breakthroughs demonstrate that artificial intelligence can mitigate the risks linked to project delays, cost overruns, and suboptimal decision-making in investment processes. Furthermore, the ramifications of these technologies for future practices are analysed, revealing a propensity for data-driven decision-making procedures that enhance both efficiency and profitability. It is crucial to examine the significant impact that artificial intelligence will exert on strategic management and operational efficiency as it becomes increasingly incorporated into organisational structures. This study aims to provide a comprehensive evaluation of the applications of artificial intelligence in the construction and real estate financing sectors, highlighting the importance of innovation in these critical industries.

Keywords: Artificial Intelligence, Construction Industry, Real Estate Financing, Risk Management, Predictive Analytics.

1. INTRODUCTION

The incorporation of Artificial Intelligence (AI) into construction and real estate finance marks a pivotal moment in the evolution of these sectors. In the construction sector, AI-driven applications, including machine learning, computer vision, robotics, and optimisation algorithms, are being increasingly utilised to enhance project management, improve the accuracy of cost estimation, and strengthen risk mitigation practices (Adebayo et al., 2025). These technologies enhance resource allocation, minimise inefficiencies, and improve project delivery outcomes (Martin, 2025). Systematic reviews in the field highlight AI's potential to enhance scheduling, mitigate cost overruns, and facilitate more effective decision-making processes. They also highlight its potential to accelerate the implementation of digital twins, autonomous systems, and sustainability-oriented construction practices (Adebayo et al., 2025). AI-enabled predictive analytics and risk assessment frameworks are reshaping the management of project uncertainty and cost escalation throughout the lifecycle of construction projects (Nenni et al., 2024).

The real estate and housing finance sectors are undergoing a technological transformation, with AI frequently utilised in conjunction with blockchain technologies to address persistent issues in valuation, credit risk assessment, and market forecasting (Owotemu & Ibaru, 2025). AI applications in this domain, including predictive analytics, computer vision, and generative AI, are enhancing valuation accuracy, improving loan servicing and credit scoring methods, and facilitating evidence-based urban planning and infrastructure development. These innovations enhance operational efficiency and contribute to affordability, accessibility, and sustainability in housing and real estate finance (Owotemu & Ibaru, 2025).

Artificial intelligence (AI) developments are radically changing project delivery, strategic planning, risk management, and investment choices, particularly in the building and real estate finance industries. AI methods, such as machine learning, predictive analytics, and computer vision, enhance data collection and analysis, facilitating real-time insights into trends and project performance. Automated project performance forecasting utilises time-series models, including ARIMA and LSTM. It incorporates external variables such as weather and resource availability, enabling project managers to anticipate deviations and respond proactively (Sadeghi, 2024).

AI-driven predictive analytics in construction have decreased project completion times by 20% and reduced cost overruns by 30% (Build-News, 2025). AI-driven risk prediction frameworks, utilising models such as Gradient Boosting or GBDT, have demonstrated enhanced accuracy in risk identification and management for infrastructure projects worldwide (Bauskar et al., 2024; Boamah et al., 2025). Machine learning significantly improves REIT price forecasting in real estate financing, particularly when combined with technical analysis indicators, and utilises genetic algorithms for portfolio optimisation (Habbab et al., 2025).

This paper analyses the influence of AI applications on risk management, investment strategies, and project optimisation within construction and real estate financing, as well as the ramifications of AI deployment on industry difficulties, utilising literature and case studies. This also addresses ethical implications and future trajectories, providing an overview of present AI integration.

1.1 Exploration of Artificial Intelligence (AI)

Artificial Intelligence (AI) simulates human cognitive functions through computational systems. These processes include learning, reasoning, and self-correction (Russell et al., 2021). Artificial Intelligence is categorised into two main types: narrow AI, intended for specific tasks, and general AI, capable of understanding and reasoning across various subjects (Kurzweil, 2005). Narrow AI in construction and real estate finance employs machine learning, natural language processing, and computer vision to analyse large datasets and identify patterns overlooked by humans. The construction sector employs ML models to forecast U.S. single-family housing starts based on GDP and income (Barker, 2021). Advanced ML algorithms such as Random Forest, XGBoost, and LightGBM are explored for property price prediction and decision-making in the UK (Mathotaarachchi, 2024). Transformer-based large language models (LLMs) enhance the efficiency of structured data extraction from real estate sales contracts, thereby reducing errors in contract analysis (Zhao & GAO, 2024). NLP methods in finance analyse unstructured data such as reports, news, and social media for forecasting, risk management, and portfolio decisions (Bozyiğit & Kılınç, 2022). This capacity is vital in construction and real estate financing, where predicting risks, costs, and investment returns is crucial. Natural language processing enables systems to comprehend and produce human language, enhancing communication and facilitating data retrieval from unstructured sources, such as contracts and reports (Davenport, 2018). Computer vision technologies enable machines to assess visual data, allowing for the evaluation of site conditions and real-time progress monitoring via image identification and analysis. The strategic use of AI in construction and real estate enhances efficiency, reduces errors, and supports better decision-making (Zhang et al., 2023).

1.2 AI Applications in Construction

Artificial intelligence (AI) advancements are transforming the construction industry through improved project optimisation, risk mitigation, and resource allocation efficiency. Machine learning predictive analytics enable project managers to foresee disruptions, such as adverse weather, labour shortages, or material cost fluctuations, by utilising historical project data to predict and mitigate costly setbacks (Adebayo et al., 2025; Datta et al., 2024). The integration of computer vision with drone technologies enables real-time surveillance and safety monitoring, thereby enhancing hazard detection and ensuring compliance with safety protocols (El-Abbasy, 2025; Girgin et al., 2025). AI enhances project scheduling by assessing resource availability, task interdependencies, and historical productivity trends, resulting in decreased downtime, better workforce utilisation, and reduced operational costs (Adebayo et al., 2025). AI-enhanced Building Information Modelling (BIM) systems are being developed to predict design inconsistencies, optimise material use, and enhance team collaboration, reducing error rates and expediting delivery timelines (Yang et al., 2025). These AI applications enhance efficiency, safety, and cost-effectiveness in the construction sector (Adebayo et al., 2025; El-Abbasy, 2025).

Furthermore, the design and implementation of construction projects are significantly enhanced by integrating artificial intelligence (AI) with Building Information Modelling (BIM). When combined, BIM and machine learning enable the early prediction of design changes, thereby enhancing decision-making speed and reducing the time and cost effects (Abdulfattah et al., 2025). This AI-BIM synergy enhances material efficiency, optimises resource use, and promotes collaboration among project stakeholders (Bagasi, 2025). AI applications in construction operations enhance productivity, improve safety, and reduce costs by utilising automated processes, predictive analytics, and real-time monitoring. The integration of AI and BIM signifies a significant technological advancement, enhancing precision, improving stakeholder coordination, and streamlining project delivery.

1.3 AI Applications in Real Estate Finance

Artificial intelligence (AI) has become a crucial tool in real estate finance, enabling investors, analysts, and financial institutions to improve investment strategies and optimise risk assessments. AI is notably applied in property valuation, where machine learning models, including explainable AI frameworks, leverage historical sales data, property attributes, and market dynamics to produce accurate and timely valuations that enhance investment decisions (Maselli & Nesticò, 2025; Topraklı, 2024). Multimodal machine learning techniques integrate diverse data sources, enhancing appraisal precision and interpretability (Huang et al., 2025).

Artificial intelligence (AI) is a transformative tool in real estate investment, enhancing market analysis and decision-making capabilities. Predictive analytics utilising economic indicators, housing market variables, and demographic data allow AI to improve property performance forecasts and identify emerging market opportunities (CBRE UK, 2024; Forbes Tech Council, 2024). AI systems utilising natural language processing (NLP) automate the review of financial and legal documents during due diligence, thereby accelerating transaction timelines and uncovering hidden risks in contracts and disclosures (Fowler-

White, 2025; Cutrì, 2025). Intelligent property management platforms utilise tenant data to model preferences and service demands, enhancing tenant satisfaction and maintaining occupancy rates. AI applications in facilities management enhance energy efficiency, space utilisation, and operational performance, aligning property management with sustainability and financial goals (UF Warrington, 2024). These developments suggest that AI is significantly altering valuation, investment strategy, due diligence, and property management in the real estate sector, ultimately impacting long-term financial performance.

1.4 Transforming Risk Management, Investment Strategies, and Project Optimization

Artificial intelligence (AI) is transforming risk management, investment strategies, and project optimisation in construction and real estate financing. AI-driven predictive analytics and data-mining techniques enable organisations to identify, assess, and mitigate risks in real time within risk management. This shift enhances precision and reduces human bias compared to traditional methods. Yazdi et al. (2024) highlight that AI tools, especially image-based and machine learning methods, enhance organisations' ability to predict risks and develop effective mitigation strategies. AI technologies are reshaping investment strategies. Machine learning algorithms can analyse large datasets, assess economic indicators, and predict market changes, providing investors with enhanced decision-making opportunities. Campbell and Koffi (2024) assert that AI-driven financial analytics improve predictive accuracy, minimising uncertainty and facilitating dynamic portfolio adjustments. This ability to make proactive decisions enhances profitability and bolsters resilience in volatile markets.

AI improves workflows, communication, and stakeholder engagement to optimise projects. According to Adebayo et al. (2025), AI in planning, scheduling, monitoring, and optimisation helps construction enterprises save costs, accelerate delivery, and improve sustainability. Construction managers can utilise AI-assisted project management systems to allocate resources effectively and enhance quality and stakeholder satisfaction. AI adoption necessitates both technological investment and cultural transformation within businesses. Adebayo et al. (2025) argue that data governance frameworks and openness are necessary to overcome resistance to change, governance challenges, and ethical considerations. Firms must promote data integrity and evidence-based decision-making to fully leverage AI in construction and real estate finance.

2. METHODOLOGY

This research employs a qualitative design based on literature review, case study analysis, and topic synthesis. The methodological framework is designed to critically analyse how Artificial Intelligence (AI) applications are reshaping the construction and real estate financing sectors, particularly in terms of risk management, investment strategies, and project optimisation.

First, a thorough literature review was conducted by examining peer-reviewed journals, industry white papers, and conference proceedings published between 2010 and 2023. Databases such as Scopus, Web of Science, and Google Scholar were utilised, employing keywords including AI in construction, AI in real estate finance, predictive analytics, and risk management in construction. More than 120 papers were identified through the search, and 39 of them were deemed extremely relevant due to their empirical data, methodological rigour, and industry applicability.

Secondly, case studies were selected from recorded industry implementations of AI in the building and real estate financing sectors. These initiatives encompass the integration of AI-augmented Building Information Modelling (BIM), predictive maintenance frameworks, automated valuation systems, and AI-facilitated investment decision-making platforms. Each case study was examined for the outcomes attained, problems faced, and the degree of operational transformation. A comparative examination was conducted to evaluate traditional techniques and AI-enhanced practices in both areas. The research elucidates quantifiable effects by analysing key performance measures, including project delays, cost overruns, investment precision, and risk mitigation efficacy.

The findings were ultimately categorised into three primary domains: (1) risk management and predictive capability, (2) enhancement of investment strategy, and (3) optimisation of projects and operations. An extensive discussion follows, analysing the ethical, practical, and cultural aspects relevant to the deployment of AI. This methodical methodology ensures that the research provides both theoretical insights and practical implications for stakeholders in the construction and real estate financing industries.

3. FINDINGS

3.1 Artificial Intelligence in Risk Management and Predictive Capability

Risk management remains a continual challenge in construction and real estate financing. Cost overruns, project delays, regulatory obstacles, and misguided investment choices persist. The results indicate that AI markedly improves forecasting precision and real-time oversight, therefore revolutionising conventional risk management structures.

3.1.1 Predictive Risk Analytics in the Construction Sector

The latest developments suggest that machine learning models can enhance risk management in construction by leveraging historical project data, including schedules, resource allocation, and environmental conditions, to proactively anticipate hazards. Cutting-edge predictive frameworks utilising gradient boosting and other algorithms reduce the risk of delays in large infrastructure projects, facilitate the anticipation of change orders, and enable prompt corrective actions (Nishat et al., 2025). The integration of computer vision and drones enables efficient monitoring of structural health, facilitating the rapid and accurate identification of flaws, such as cracks or damage, in civil infrastructure. These techniques

utilise deep learning, specifically convolutional neural networks, to analyse imagery from UAVs, achieving high accuracy in identifying structural anomalies (Munawar et al., 2021).

Research on vision-based monitoring systems for infrastructures demonstrates that computer vision techniques, including optical sensors, video analysis, and AI, allow for non-intrusive, continuous assessment of structural integrity, aiding in maintenance and risk mitigation (Ferraris, 2023). Few direct examples of AI-driven compliance monitoring in construction exist in ABS/AJG-ranked literature. However, larger studies in supply chain management and regulatory oversight demonstrate that natural language processing (NLP) can automate the analysis of documents, such as contracts, regulations, and standards, to identify potential compliance breaches. This enhances transparency and reduces the likelihood of legal issues (Aljohani, 2023).

These abilities reduce legal and financial risks while enhancing accountability and transparency in project management, aligning with the broader objectives of risk-aware, data-driven governance (Aljohani, 2023; Nishat et al., 2025). Machine learning in predictive analytics throughout the project lifecycle identifies new hazards and enables earlier interventions in construction by analysing past timelines, resource planning, and external factors such as weather (Egwim & Alaka, 2021). Gradient-boosting and ensemble models facilitate the prediction of delay risk and change orders in large projects, thereby enabling better planning (Alsulamy et al., 2025; Gondia et al., 2020). Vision-based monitoring integrating UAV/drone capture with deep learning can reliably detect faults and deviations in progress. This enhances structural integrity and reduces rework and schedule delays. Artificial intelligence aids in compliance oversight. Natural-language processing pipelines can read building codes, contracts, and safety standards, linking them to BIM data to automate the interpretation of requirements and generate alerts. Audits are simplified, reducing the risk of regulatory issues (Nuyts et al., 2024). Predictive ML for schedule risk, computer vision for condition/progress monitoring, and NLP-enabled compliance checking enhance project governance by increasing accountability and transparency, while also reducing the legal and financial risks associated with late detection of non-conformities (Egwim & Alaka, 2021; Nuyts et al., 2024).

3.1.2 Risk Evaluation in Real Estate Financing

Predictive modelling powered by AI is revolutionising risk assessment in real estate finance by providing more detailed evaluations of market exposure, collateral value, and borrower credit quality. In contrast to static, statement-driven methodologies, modern models integrate loan-level characteristics with high-frequency macroeconomic metrics and behavioural signals, encapsulating nonlinear interactions that enhance out-of-sample efficacy (Sadhwani et al., 2021; Lessmann et al., 2015). Data from extensive mortgage datasets demonstrate that machine learning can more efficiently model prepayment and default patterns, as well as the responsiveness of borrower behaviour to local economic conditions (Sadhwani et al., 2021). The implementation of these technologies has significant distributional and governance implications, as models can alter pricing and approval outcomes across different borrower groups, underscoring the need for transparent, explainable processes and oversight (Fuster et al., 2022; Lessmann et al., 2015). In addition to credit scoring, artificial intelligence significantly bolsters financial crime prevention: anomaly detection and associated machine learning methodologies consistently improve the recognition of atypical transactions and patterns associated with fraud, thereby fortifying institutional resilience (Bolton & Hand, 2002; Hilal, Gadsden, & Yawney, 2022; Ngai, Hu, Wong, Chen, & Sun, 2011). These developments indicate a more flexible, data-driven framework for decision-making in property financing that combines prediction accuracy with risk management and fraud prevention (Fuster et al., 2022; Sadhwani et al., 2021).

3. The potential role of AI in enhancing investment strategies

Artificial intelligence (AI) is transforming portfolio construction and securities analysis by integrating extensive and varied financial and textual datasets. This integration facilitates signal extraction and enhances allocation decisions, surpassing the capabilities of conventional econometric tools (GU, Kelly, & Xiu, 2020; Krauss, Do, & Huck, 2017; Kolm, Tütüncü, & Fabozzi, 2014). Studies in asset pricing and trading indicate that contemporary machine-learning models, particularly decision trees and neural networks, are capable of identifying nonlinear relationships among predictors, yielding economically significant outcomes relative to leading regression-based benchmarks (GU Et Al., 2020; Krauss et al., 2017).

3.2.1 Evaluation of Investments and Projections

Traditional methods depend on historical averages and linear factor models, whereas AI-driven predictive analytics leverage high-dimensional market, macroeconomic, and textual data to uncover complex patterns and predict medium- to long-term risks and returns (Gu et al., 2020). Textual analytics improve forecasting and risk assessment: a negative tone in firm-specific or media news predicts short-term return dynamics and earnings (Tetlock, 2007; Tetlock, Saar-Tsechansky, & Macskassy, 2008). Specialised finance dictionaries enhance tone measurement in disclosures (Loughran & McDonald, 2011), and “unusual” news assists in forecasting market stress and volatility (Glasserman & Mamaysky, 2019). Machine-learning algorithms in real estate, which utilise extensive data on properties and markets, have demonstrated enhanced capabilities in valuation and index construction relative to traditional methods, thereby facilitating more accurate estimations of commercial assets (Calainho, Minne, & Francke, 2024). The findings indicate that AI models incorporating macro data and sentiment are more effective in rapidly identifying emerging trends and mispricing than traditional methods (GU Et Al., 2020; Glasserman & Mamaysky, 2019).

3.2.2 Portfolio Optimisation

In portfolio optimisation, modern AI techniques facilitate adaptive, data-driven rebalancing and enable more agile allocation in response to changing market conditions.

Machine-learning-assisted allocation aims to enhance input stability and improve the risk–return trade-off, in contrast to classical mean–variance optimisation, which is susceptible to estimation errors (Kolm et al., 2014; DeMiguel, Garlappi, & Uppal, 2009). Empirical research demonstrates that non-linear learners enhance signal quality for cross-sectional stock selection, thereby enabling more effective diversification across assets and locations when combined with robust risk management (GU Et Al., 2020; Krauss et al., 2017). These AI-enabled methods facilitate improved, more adaptable, and robust decision-making regarding investment portfolios.

3.2.3 Risk Management and Due Diligence

Natural-language processing (NLP) improves due diligence workflows by extracting relevant signals from extensive disclosures, contracts, and filings, thus identifying red flags in governance, regulatory exposure, or competitive threats more effectively and consistently than manual review (Loughran & McDonald, 2011; Hoberg & Phillips, 2016). Text-based sentiment and measures of "unusualness" in news and calls can provide early indicators of volatility and risks particular to a company (Glasserman & Mamaysky, 2019; Tetlock et al., 2008). Political-risk indices at the firm level, derived from earnings-call transcripts, can quantify exposure to policy and geopolitical shocks that influence financing and investment decisions (Hassan, Hollander, van Lent, & Tahoun, 2019). These NLP tools collaborate to enhance the accuracy and speed of risk assessment in investment processes.

3.3 Artificial Intelligence in Project and Operational Optimisation

3.3.1 Scheduling of Construction Projects

AI-enabled schedulers use historical and real-time project data to identify resource bottlenecks, precedence risks, and productivity dynamics, thereby improving forecast accuracy and the robustness of plans in the face of uncertainty. Research in operations and project management demonstrates that machine-learning models, such as k-NN and gradient boosting, can outperform conventional earned-value and control heuristics in predicting duration and cost. These models offer earlier warnings of potential delays and enable more efficient corrective actions (Wauters & Vanhoucke, 2017; Narbaev et al., 2024; Santos et al., 2023). Artificial intelligence facilitates the coordination of multiple projects at the portfolio level by evaluating "what-if" scenarios, reallocating limited crews and equipment, and conducting stress tests on networks in response to emerging issues (Sánchez et al., 2023; Artigues et al., 2025). Data-driven, adaptive timetables demonstrate superior efficacy in managing disruptions, enhancing schedule predictability, and facilitating workforce planning in complex, multi-stakeholder contexts compared to static plans.

3.3.2 Enhancement of Building Information Modelling (BIM)

The integration of AI with BIM enhances design assurance and constructability. Learning systems identify clashes and design issues, elucidate potential causes, and propose solutions prior to site implementation, thereby reducing the probability of additional work (Abdirad & Dossick, 2021; Shen et al., 2023). AI-BIM enhances operations and maintenance post-design phase by acquiring structured asset data, integrating models with maintenance and energy systems, and facilitating predictive simulations of material and logistical flows. This contributes to cost efficiency and sustainability (Heaton & Parlikad, 2019; Shen et al., 2023). Artificial intelligence enhances updates and decision signals among teams, thereby improving the traditional benefits of Building Information Modelling (BIM) related to collaboration and real-time coordination (Azhar, 2011). Recent advancements in digital-twin and BIM pipelines significantly enhance energy modelling and life-cycle optimisation (Céspedes-Cubides et al., 2024). AI-BIM substantially contributes to the swift digital transformation of the sector.

3.3.3 Tenant and Facility Administration

AI analytics in operations integrates IoT telemetry with maintenance records to proactively identify potential issues in HVAC and other building systems, thereby reducing downtime and unplanned expenses (Chen et al., 2023; Mirnaghi & Haghighat, 2020). Learning-based controls contribute to decarbonisation and the reduction of operating costs by ensuring that equipment set-points align with occupancy and weather conditions (Maheepala et al., 2025). AI-driven assistants facilitate communication among tenants and streamline request management, thereby enhancing response times and service recovery when collaborating with human agents (Ranieri et al., 2024). In commercial real estate, effective property management and tenant satisfaction are closely linked to increased renewal intentions and advocacy, ultimately contributing to stable occupancy levels. Recent studies indicate a positive correlation between tenant satisfaction and lease renewal rates (Sanderson & Edwards, 2016; Hu, Palacios, & Kok, 2024).

3.4 Comparative Impact Evaluation

AI-enabled technologies outperform traditional methods in fundamental tasks within the construction, real estate financing, and related sectors. Basic duties include risk prediction, asset valuation, portfolio construction, and management of daily operations. Machine-learning algorithms enhance early warning signals for cost and schedule deviations in risk management, thereby strengthening compliance and anomaly/fraud monitoring systems. These models improve human oversight in procurement and project management (Lokanan, 2025; de Sousa et al., 2024; Muller, Muller, Kress, & Pesch, 2022). Research in real estate indicates notable advancements in price estimation and index construction (GU, Kelly, & Xiu, 2020; Calainho, Minne, & Francke, 2024; Ho, Ong, & Zheng, 2021; Lindenthal, 2021; Leow, Low, & Phoon, 2025). Financial research in investing and valuation demonstrates that machine learning algorithms provide a more comprehensive return-predictive framework than linear benchmarks. This results in improved predictions of expected returns and enhanced accuracy in asset pricing. In operations, PropTech and data-driven optimisation, including demand forecasting, dynamic scheduling, and tenant-experience

platforms, are associated with reduced waste, shorter cycle times, and increased tenant satisfaction. This is achieved by aligning resources with real-time indicators from buildings and markets (Goppinger, Dogru, & Boughaci, 2024; Tagliaro & Migliore, 2025). The evidence suggests that artificial intelligence functions as a general-purpose technology, significantly altering the efficiency, profitability, and sustainability of the construction and real estate finance value chain.

DISCUSSION

The findings suggest substantial implications for the construction and real estate financing sectors. The integration of AI presents several challenges, ethical issues, and cultural shifts that necessitate consideration. The use of AI presents ethical challenges related to data protection, transparency, and accountability. Construction and banking firms often rely on personal, financial, and geospatial data, which, if mismanaged, may result in privacy infringements. Furthermore, AI decision-making processes are sometimes opaque, commonly referred to as "Black-Box" models, making accountability difficult in cases of errors or bias. Biased training datasets in property valuation algorithms may inadvertently sustain socioeconomic disparities by undervaluing properties in specific neighbourhoods. This underscores the necessity for ethical AI frameworks that incorporate the principle of fairness, accountability, and transparency (FAT).

Despite its potential, the implementation of AI faces opposition within organisations. Construction firms have been reluctant to embrace digital technologies owing to entrenched old practices and insufficient digital literacy. Addressing this requires a cultural transformation, involving staff development, enhancing digital confidence, and demonstrating tangible benefits through pilot initiatives. Financial specialists may resist AI due to apprehensions that automation could replace human expertise. The results suggest that AI should be viewed as an augmentative tool rather than a replacement, enabling experts to focus on strategic, creative, and relational tasks.

Artificial intelligence systems require significant amounts of high-quality data. In construction, fragmented data sources, poor documentation, and insufficient system compatibility impede the effectiveness of AI. In real estate finance, unstructured data from contracts, leases, and legal documents remains a challenge, despite progress in natural language processing. To address these challenges, firms must establish robust data governance frameworks, standardise documentation protocols, and invest in interoperable technologies.

The findings shed light on potential advancements in AI applications: Implementing artificial intelligence could enhance energy efficiency in buildings, optimise material usage, and effectively monitor carbon emissions. This would help the sector achieve its global sustainability objectives. The integration of artificial intelligence and blockchain technology has the potential to enhance transparency in real estate transactions. In contrast, the incorporation of information technology may facilitate the monitoring of smart infrastructure. Artificial intelligence-enabled collaboration systems have the potential to transform stakeholder communication, thereby enhancing cooperation among architects, engineers, financiers, and regulators.

CONCLUSION

The applications of artificial intelligence in the construction and real estate financing industries offer a disruptive force that enhances risk management, refines investment strategies, and optimises project delivery. These are all areas in which the industries are now seeing significant growth. Businesses operating in these sectors can access data-driven insights by leveraging technologies powered by artificial intelligence. This enables them to make more informed decisions, streamline processes, and enhance their financial performance. Because several industries are still undergoing significant transformations, it is of the utmost importance for stakeholders to prioritise the adoption of artificial intelligence technologies while simultaneously fostering a culture of innovation and adaptation. If ethical issues and data governance are taken into account, then the use of artificial intelligence solutions will be carried out in a manner that is both responsible and efficient. The ongoing development of apps that utilise artificial intelligence will undoubtedly have a significant impact on the future of the construction industry, as well as the real estate finance and investment sectors. Throughout the landscape's ongoing development, this effect will pave the way for increased efficiency, improved performance, and sustainable growth.

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