Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

TRANSFORMING AIRCRAFT PURCHASE MANAGEMENT WITH AI: OPPORTUNITIES, CHALLENGES, & FUTURE DIRECTIONS - A MINI REVIEW

Siti Zubaidah Mohd Ariffin[1*]
Norimah Rambeli@Ramli [2]
Wan Salmuni Wan Mustaffa[3]
Ahmad Mahmood[4]
Rafiduraida Abdul Rahman[5]
Hafizul Fahri Hanafi [6]
Hariyaty Abdul Wahi [7]

[1] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (zubaidah.ariffin@fpe.upsi.edu.my)
[2] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (norimah@fpe.upsi.edu.my)
[3]Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (wan.salmuni@fpe.upsi.edu.my)
[4] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (ahmad@fpe.upsi.edu.my)
[5] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (rafiduraida@fpe.upsi.edu.my)
[6] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (hafizul@meta.upsi.edu.my)
[7] Department of Business Management and Entrepreneurship, Faculty of Management and Economics, Universiti Pendidikan Sultan Idris, Proton City, Tanjong Malim, 35900, Perak Darul Ridzuan, Malaysia (hariyaty@fpe.upsi.edu.my)
*Corresponding author: zubaidah.ariffin@fpe.upsi.edu.my

Article history
Received date : 7-11-2025
Revised date : 8-11-2025
Accepted date : 24-12-2025
Published date : 30-12-2025

To cite this document:
SitiZubaidah, M.A., Norimah, R., Mustafa, W.S.W., Mahmood, A., Abdul Rahman, R., Hanafi, H.F., and Wahid, H.A (2025). Transforming Aircraft Purchase Management With AI: Opportunities, Challenges, & Future – A Mini Review. *Journal of Islamic, Social, Economics and Development (JISED),* 10 (79), 793 – 806.

Abstract: *This mini review, Transforming Aircraft Purchase Management with AI: Opportunities, Challenges, and Future Directions, aims to critically examine the role of artificial intelligence (AI) in optimizing aircraft purchase management. Given the financial, operational, and strategic significance of fleet acquisition, the review explores AI's potential to enhance predictive accuracy, risk assessment, supplier evaluation, and decision-making, while also identifying limitations, controversies, and research gaps.*

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Keywords: *aircraft; acquisition; management; aircraft purchase management; artificial intelligence; purchase decision.*

Introduction

Due to surging fuel costs, developing regulations, and increasing environmental concerns, the global aviation industry must demonstrate operational efficiency and cost effectiveness, and improve the use of data (Park, 2020). One of the most complex and capital-oriented decisions in the industry is the purchase management of aircraft, which considers cost, efficiency, safety, financing, maintenance and performance over time (Yang and Lee,2020; Gomaa,2023). The decision-making processes have predominantly relied on expert opinion, market projections, and manual calculations, but with the advancements in artificial intelligence (AI), there is interest in the use of AI to facilitate decision-making, improve predictive results, and automate procurement processes (Shamsuddoha et al.,2025).

This mini review, Transforming Aircraft Purchase Management with AI: opportunities, challenges, and future directions, discusses the integration of AI within the scope of aircraft acquisition and fleet management (Kabashkin et al.,2025). Predictive analytics, risk evaluation, and supply chain management optimization demonstrate AI's capabilities within and across industries (Samuels,2025). However, the specialization of the aircraft purchase context limited application integration (Far Eastern Federal University et al., 2020). There are several critical and unanswered questions. How much of an improvement over traditional forecasting methods will AI provide in lifecycle cost analysis (Olawumi & Oladapo, 2025)? How does a machine learning risk assessment compare to an expert-driven assessment in terms of reliability (Al-Hussaini et al., 2024)? And finally, what could be the ethical, legal, and financial implications that are likely to emerge from a reliance on AI for high stake decision making (Malladhi, 2023). The role of artificial intelligence seemed to be a thought-provoking topic, especially in discussions related to high-risk procurement decision-making (Liu et al., 2023). While some view the significant function of AI as advantageous to AI users's proficent evaluation, offering a robust data-based reasoning (Kastrup et al., 2025), others indicated the precarious issues of algorithmic imperviousness, preferential data, and the vulnerability of blind faith in computerized or programmed suggestions (Yıldız, 2025). These competing perspectives necessitate the prerequisite for a well-structured synthesis, through the available and current empirical literature, taking into consideration of the current advancement in the context of aircraft purchase decision making (Akbaba, 2023).

Literature Review

The scope of this review encompasses three principal thematic domains:

1. **Opportunities** — wherein AI demonstrates distinct advantages in forecasting, cost–benefit analysis, and risk management;
2. **Challenges** — encompassing technical limitations, regulatory impediments, and ethical considerations;
3. **Future Directions** — highlighting prospective pathways for advancing research, fostering innovation, and enabling broader adoption within the industry.

This paper serves to steer scholars, aviation experts and airline industry enthusiasts to secure an informed and educated comprehension of the current state of integrating AI into aircraft purchase management. It is especially timely given the sequences of high profile disastrous mishaps, from Flight 610 Lion Air with 189 fatalities in 2018 (Paul et al., 2023),

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Flight 302 Ethiopian Airlines in 2019 with 157 fatalities (Jester & Dolan, 2024), to Flight 1282 Alaska Airlines, involving a 737-9 Max (Apambila et al., 2025), to name a few, leading to the loss of confidence among stakeholders of airlines, grappling with the justifications and reasonings in aircraft purchase decision making. This review serves to map the current state of knowledge, identifying key gaps and outlining future strategies.

Incorporation of artificial intelligence (AI) in the management of aircraft procurement offers weighty prospects to improve effectiveness, moderate expenses, and refine decision-making processes (Yang et al., 2023). The automation of work processes, namely requests for quotations (RFQs), administrating orders, and harmonising communication with suppliers, can be suggestively shorten with the use of AI, giving rise to improved productivity (Liyanaarachchi et al., 2023). This approach allows for more focused and calculated tasks (Stek et al., 2025). On the same line, projections of inventory and distinguishability of the perfected supply chain can be attained through AI-manoeuvred predictive analytics by appraising historical data, market movements, and maintenance schedules (Adedoyin Tolulope Oyewole et al., 2024). The concerns of surplus inventory and inaccessibility can be better managed through enhanced decisions in purchasing and acquisitions (Sulismawati & Nuryana, 2024). Furthermore, management of risk and objectivity of decision making can be fortified through AI-steered verification of legal understanding and supplier selection, and AI strengthens risk management during supplier selection and contract negotiations by spotting hidden weaknesses like financial instability and operational issues. This leads to stronger and more cost-effective procurement strategies (Keskin et al., 2025).

AI has great potential to change things (Pourmohammadreza et al., 2025). However, it also brings significant challenges to aircraft procurement management (Zhang et al., 2021). This is especially true regarding data accuracy, system integration, and meeting regulations (Ajmal et al., 2025). If the data is incorrect or poorly synchronized, it can lead to misleading results. This highlights the importance of the saying “garbage in, garbage out” (Moharrak & Mogaji, 2025). Creating strong data pipelines requires a lot of engineering skill to ensure reliability (Zhang & Safari, 2017). Adoption is made harder by data privacy concerns and the need to follow aviation regulations (Talib et al., 2025), which require strong safeguards to reduce risks.

Looking ahead, fully integrated AI platforms are likely to develop. These platforms will use real-time optimization (Ficili et al., 2025) and custom models tailored for procurement processes (Santos et al., 2025). New features, like predictive inventory management and better maintenance, repair, and operations (MRO) scheduling (Kabashin et al., 2025), can promote sustainable innovation while addressing long-standing problems in the aviation sector (Trane et al., 2025).

Methods

A comprehensive literature search was conducted using Scopus and Google Scholar. Boolean search used: ("aircraft" OR "airplane" OR "aviation" OR "plane") AND ("purchase" OR "acquisition" OR "procurement" OR "buying") AND ("management" OR "administration" OR "oversight" OR "control") AND ("artificial intelligence" OR "ai" OR "machine learning" OR "deep learning") AND ("decision making" OR "analysis" OR "optimization" OR "evaluation"). Artificial learning, aircraft, aviation, acquisition, and management were utilized to collect relevant articles. Various types of articles, including original research, systematic reviews, meta-analyses, and case studies, were considered for this mini review. Date of search: 25

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

August 2025. Below, we provide the inclusion and exclusion criteria for studies in this review article.

Inclusion Criteria

- Studies discussing challenges, opportunities, and future directions of AI in aircraft purchase management.
- Studies focusing on the application of AI technologies such as machine learning, NLP, optimization algorithms, and digital twins in procurement decision-making.
- Studies analyzing the strengths, limitations, and potential applications of AI in high-stakes procurement within the airline industry.
- Studies published in English.

Exclusion Criteria

- Studies published in languages other than English were excluded.
- Studies that discussed aircraft purchase management without explicit reference to artificial intelligence (AI) or related technologies were excluded.
- Grey literature, including conference abstracts, unpublished reports, and non-peer-reviewed sources, was excluded to ensure the quality and reliability of the review findings.

Results and Discussion

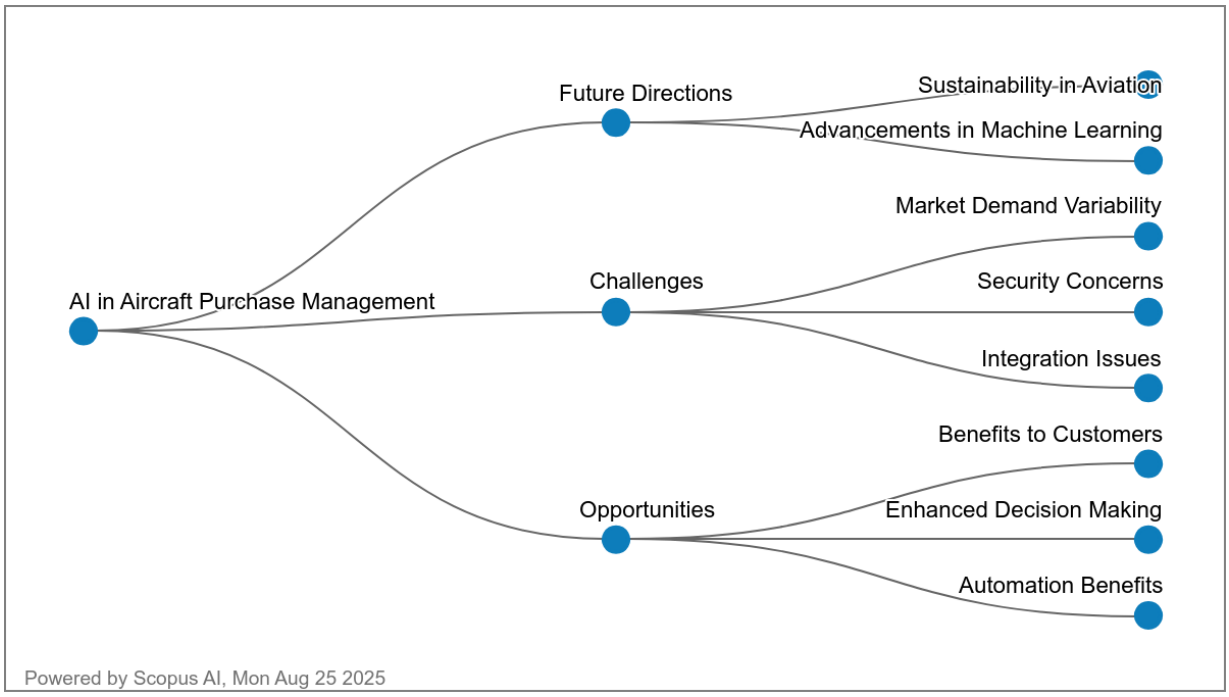

Figure: AI in Aircraft Purchase Management Generated By Scopys AI Analyser

Current Status of AI in Aircraft Purchase Management based on Challenges

According to Geske et al. (2025), artificial intelligence (AI) is becoming an important tool in managing aircraft purchases. This is also one of the biggest and most expensive decisions in the airline industry (Deveci et al., 2025). Historically, acquisitions have relied on financial modeling, expert judgment, and market projections (Alvi et al., 2025), but these approaches often overlook the volatility of aviation markets and the growing demand for sustainability (Wilfred, 2025). AI can analyze complex datasets that go beyond human abilities. It has the

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

potential to improve lifecycle cost analysis, optimize purchase timing, strengthen supplier evaluations, and boost predictive accuracy (Riad et al., 2025, Sarumi & Heider, 2024). Key technologies include machine learning for forecasting demand and maintenance costs, natural language processing for analyzing contracts and regulatory documents, optimization algorithms for multi-criteria decision-making, and digital twins for simulating procurement scenarios (Abdulla & Baryannis, 2024).

Fleet planning, negotiating with suppliers, and predicting residual value are some of the initial uses of AI (Wyrembek et al., 2025). Some airlines are testing AI-driven models to time purchases. Leasing companies are using AI to predict asset depreciation (Lie et al., 2025). However, adoption is still low due to issues like poor data quality, algorithmic bias, lack of transparency in "black box" systems, high implementation costs, and regulatory uncertainty (Cheong, 2024). A major issue in the discussion is how much AI should support or partially replace human expertise in high-stakes procurement. This raises concerns about accountability and over-reliance (Lopez, 2025). Future directions suggest a shift towards explainable AI frameworks, standardized methods (Trivedi et al., 2024), the inclusion of sustainability metrics, and potential links with blockchain to improve transparency (AlZoubi, 2025). Even though AI procurement case studies are beginning to be used in aviation management training, the entire industry is still slow to adopt them (Kirwan, 2024). AI offers significant opportunities for improving the efficiency, transparency, and sustainability of aircraft procurement management (Hassan et al., 2024). However, realizing this potential requires more research, clearer regulations, and careful integration with human expertise (Sinha & Lee, 2024).

Current Status of AI in Aircraft Purchase Management based on Opportunities

Managing aircraft acquisitions is a challenging task in the airline industry. It demands significant resources and has major effects on finances, operations, and long-term strategy (Kabashkin & Shoshin, 2024). Traditionally, this process relies on expert judgment, historical forecasts, and financial modeling. However, decision-making often faces issues due to the volatility of aviation markets, changing regulations, and growing demands for sustainability (Almasi & Bagherian, 2025).

Artificial intelligence (AI) is becoming a powerful tool (Florida & Alcazar, 2024) to tackle these issues. It can improve predictive accuracy, optimize procurement timing, and provide data-driven insights (Zong & Guan, 2025). Future trends suggest that we will see integrated systems that combine predictive analytics, risk simulations, and sustainability metrics. There is also an increasing focus on explainable AI frameworks to build trust, along with blockchain-enabled procurement for more transparency (Saidu et al., 2025).

However, discussions continue about finding the right balance between automation and human oversight, especially for important decisions (Holzinger et al, 2025). The advantages of AI include better demand forecasting, lifecycle cost analysis, supplier evaluation, and financial risk modeling (Pham & Bris, 2025). Yet, challenges persist regarding data quality, algorithmic bias, limited interpretability, high implementation costs, and uncertainty around regulations (Goktas & Grzybowski, 2025).

Key technologies driving this shift include machine learning for forecasting and risk prediction, natural language processing for analyzing contracts and regulatory texts (Altundag & Wynn, 2024), optimization algorithms for multi-criteria decision-making (Bagci & Kartal, 2024), and digital twins for testing procurement strategies under changing market conditions (Moenck et

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

al., 2024). Practical applications are emerging in fleet planning, supplier negotiations, and residual value prediction. Airlines are piloting AI models for purchase timing, while leasing companies are using them for asset depreciation forecasting (Liu et al., 2025). Despite these advances, industry-wide adoption remains limited due to organizational resistance and unclear regulations (Kirwan, 2024). Importantly, aviation management education is starting to include AI procurement scenarios. This will prepare future leaders for decision-making in AI-driven environments (Kumar & Shrivastava, 2025). In conclusion, AI offers a strong opportunity to change aircraft purchase management into a more open, efficient, and sustainable process (Kabahkin & Perekrestov, 2024). However, to unlock its full potential, we need clear regulations, standardized frameworks, understandable models, and careful integration with human expertise (Mirakhori & Niazi, 2025).

Current Status of AI in Aircraft Purchase Management based on Future Directions

Aircraft purchase management is one of the most crucial decisions in the airline industry. It has long-term financial and operational impacts (Agrawal, 2025). This process traditionally relies on expert judgment, market trends, and financial modeling. However, it now faces challenges from market volatility, changing regulations, and sustainability pressures (Seker, 2025). Artificial intelligence (AI) has become a promising tool to improve predictive accuracy, optimize procurement timing, and enhance decision-making (Hao & Demir, 2025). Future developments focus on creating integrated and explainable AI systems that combine cost forecasting with environmental metrics. There is also potential for using blockchain to improve transparency in procurement (Balkan & Akyuz, 2025).

However, there are ongoing debates about how much automation should replace human oversight. Concerns about trust, accountability, and adapting to regulations persist (Rajendra & Thuraisingham, 2025). The benefits of AI include better demand forecasting, lifecycle cost analysis, supplier evaluation, and financial risk modeling. These improvements can lead to greater efficiency and less uncertainty (Miller et al., 2024). Still, adoption is slow due to issues like poor data quality, algorithmic bias, lack of clarity in “black box” models, high implementation costs, and unclear regulatory frameworks (Nastoska et al., 2025).

The management of aircraft purchases may be fundamentally changed by AI, driven by machine learning for predictive analytics, natural language processing for understanding complex contracts and regulations (Altundag & Wynn, 2024), optimization algorithms for complex decisions, and digital twins to simulate procurement strategies (Moghaddam & Karimzadeh, 2025). Early uses are emerging, with airlines using AI for better fleet planning and purchase timing, while leasing companies apply it to project asset depreciation and residual value (Mohamed, 2025).

However, widespread adoption is still limited due to organizational resistance and high costs, even as aviation management programs evolve to prepare future leaders (Talib et al., 2025). Ultimately, while AI has great potential to make procurement more efficient, transparent, and sustainable (Moghadasnian & Rajol, 2025), achieving this depends on developing explainable AI frameworks, setting clear regulatory standards, and ensuring careful integration that supports rather than replaces human expertise (Akhtar et al., 2024).

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

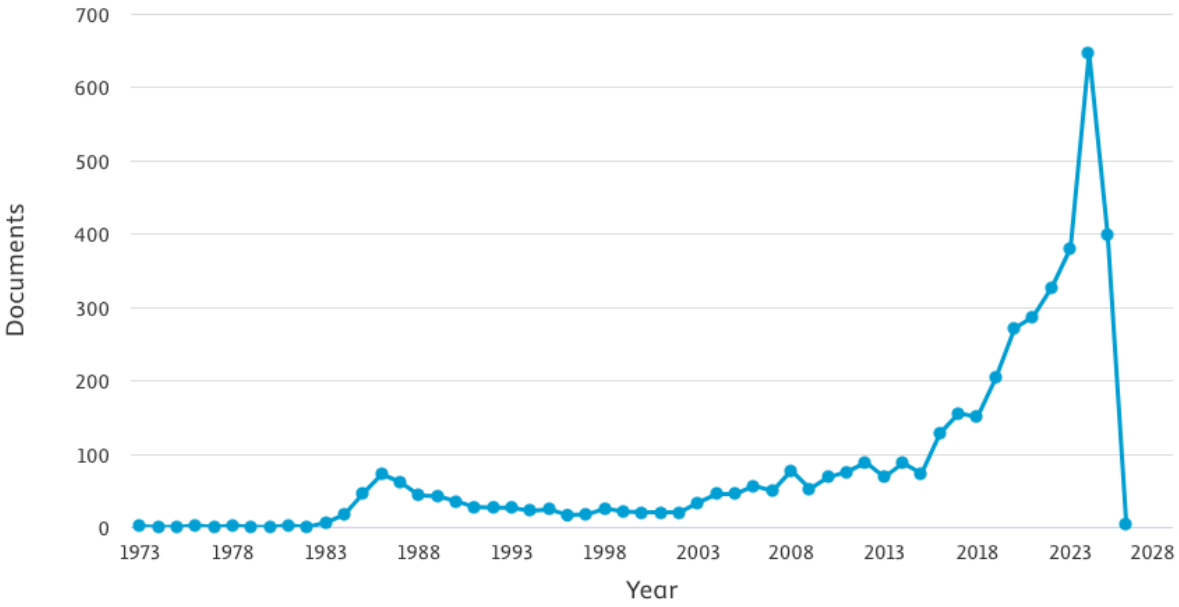

Table 1: Most Recent Research Article on Transforming Aircraft Purchase Management with AI

Authors	Year	Contribution Area
Xu Z.; Tian H.; Zeng Z.; Zhang L.; Zhang Y.; Li H.; Zhang Z.; Liu Y.	2025	Proposed a photonic accelerator using nonlinear optoelectronic oscillators to speed up reinforcement learning; demonstrated applications in multi-armed bandit problems and gaming AI.
Liang Y.; Wei L.; Song Y.; Yang Z.	2025	Developed a distribution line inspection framework with UAVs using multi-scale information augmentation and ensemble learning for defect detection.
WCCIS 2024 (Conference Proceedings)	2026	Collected research papers on computer and information security, including AI applications in commercial aircraft processes, robo-advisors, and anomaly detection.
Bakirci M.	2025	Evaluated low-power YOLO object detectors for real-time monitoring in resource-constrained UAVs, balancing speed, accuracy, and efficiency.
Ting-Ting Z.; Yan C.; Ren-zhi D.; Tao C.; Yan L.; Kai-Ge Z.; Ai-Guo S.; Yu-Shi L.	2025	Introduced a multi-agent reinforcement learning framework for UAV cluster autonomous decision-making under communication constraints.
Zhang T.; Han L.; Wang K.; Duan C.	2025	Proposed 1dRCBLnet, a hybrid acoustic-based fault diagnosis method for heterogeneous UAVs, improving diagnostic accuracy with multi-domain features.

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Khan A.; Majumdar D.; Mondal B.	2025	Applied NLP and BERT models for sentiment analysis of airline-related reviews, emphasizing the role of emojis and emoticons for improved accuracy.
Kazim M.; Azzam R.; Burger R.; Wehbe Y.; Zweiri Y.; Seneviratne L.; Werghi N.	2026	Analyzed UAS for precipitation enhancement, covering advancements, challenges, and prospects of UAV-based cloud seeding operations.
Garvanova M.; Garvanov I.; Borissova D.	2026	Examined regulatory compliance challenges of UAVs, highlighting gaps in legislation, air traffic management, and integration with manned systems.
Hasan T.; Tasnim S.	2025	Proposed an explainable AI-based intrusion detection system using GAN-generated synthetic data and XAI tools (SHAP, LIME) for IoT device security.

Conclusion

This mini review shows that artificial intelligence (AI) presents new opportunities for managing aircraft purchases. It can improve predictive accuracy, optimize procurement timing, strengthen supplier evaluation, and enhance lifecycle cost analysis. The review points out clear opportunities such as AI-driven forecasting, risk modeling, and supply chain optimization. These improvements can make procurement more efficient, transparent, and sustainable. However, several challenges still exist, including poor data quality, algorithmic bias, the opacity of "black box" systems, high implementation costs, and regulatory uncertainties. These issues are made worse by ongoing discussions about the right balance between automation and human expertise in important procurement decisions. This brings up concerns about trust, accountability, and ethical responsibility.

Looking ahead, future directions include developing explainable AI frameworks, integrating sustainability and ESG metrics, and adopting standardized methodologies for industry-wide use. Despite early successes in fleet planning, supplier negotiations, and predicting residual value, adoption remains low due to resistance within organizations and unclear regulations. To overcome these obstacles, future research should focus on case studies across different industries, regulatory frameworks that ensure responsibility, and educational initiatives to prepare aviation managers for environments where AI is part of procurement. By tackling these challenges and taking advantage of the identified opportunities, AI could significantly change aircraft purchase management to become more data-driven, resilient, and prepared for the future.

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

References

Abdulla, A., & Baryannis, G. (2024). A hybrid multi-criteria decision-making and machine learning approach for explainable supplier selection. *Supply Chain Analytics*, *7*, 100074.https://doi.org/10.1016/j.sca.2024.100074

Adedoyin Tolulope Oyewole, Chinwe Chinazo Okoye, Onyeka Chrisanctus Ofodile, & Emuesiri Ejairu. (2024). Reviewing predictive analytics in supply chain management: Applications and benefits. *World Journal of Advanced Research and Reviews*, *21*(3), 568–574. https://doi.org/10.30574/wjarr.2024.21.3.0673

Agrawal, A. (2024). Empirical analysis of fleet commonality strategy's impact on the operating performance of the Indian aviation sector. *Transportation Research Record*, *2678*(10), 803-818. https://doi.org/10.1177/03611981241235230

Ajmal, C. S., Yerram, S., Abishek, V., Nizam, V. P. M., Aglave, G., Patnam, J. D., Raghuvanshi, R. S., & Srivastava, S. (2025). Innovative approaches in regulatory affairs: Leveraging artificial intelligence and machine learning for efficient compliance and decision-making. *The AAPS Journal*, *27*(1), 22. https://doi.org/10.1208/s12248-024-01006-5

Akbaba, A. (2023). Modelling for fuel policy in low visibility operations in airline operations management. *Pressacademia*, 1. https://doi.org/10.17261/Pressacademia.2023.1801

Akhtar, M. A. K., Kumar, M., & Nayyar, A. (2024). Socially responsible applications of explainable AI. In *Towards Ethical and Socially Responsible Explainable AI: Challenges and Opportunities* (pp. 261-350). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-66489-2_9

Al-Hussaini, I., White, B., Varmeziar, A., Mehra, N., Sanchez, M., Lee, J., DeGroote, N. P., Miller, T. P., & Mitchell, C. S. (2024). An interpretable machine learning framework for rare disease: A case study to stratify infection risk in pediatric leukemia. *Journal of Clinical Medicine*, *13*(6), 1788. https://doi.org/10.3390/jcm13061788

Almasi, M., & Bagherian, M. (2025). Airline pricing: an uncertain programming approach. *OPSEARCH*, 1-28. https://doi.org/10.1007/s12597-025-00998-8

Altundag, A., & Wynn, M. (2024). Advanced analytics and data management in the procurement function: an aviation industry case study. *Electronics*, *13*(8), 1554. https://doi.org/10.3390/electronics13081554

Alzoubi, M. M. (2025). Investigating the synergy of Blockchain and AI: enhancing security, efficiency, and transparency. *Journal of Cyber Security Technology*, *9*(3), 227-255. https://doi.org/10.1080/23742917.2024.2374594

Alvi, J., Arif, I., & Nizam, K. (2024). Advancing financial resiliene: A systematic review of default prediction models and future directions in credit risk management. Heliyon. 10(21). https://doi.org/10.1016/j.heliyon.2024.e39770

Apambila, D. S., Laadi, J. A., Asare, M. N. Y., & Edema, C. (2025). The Impact of Crisis History and Media Framing on Customers Perception in Business Management: A Study of Boeing. *Metamorphosis*, *24*(1), 90-104. https://doi.org/10.1177/09726225251316631

Arigbabu, A. T., Olaniyi, O. O., Adigwe, C. S., Adebiyi, O. O., & Ajayi, S. A. (2024). Data governance in ai - enabled healthcare systems: A case of the project nightingale. *Asian Journal of Research in Computer Science*, *17*(5), 85–107. https://doi.org/10.9734/ajrcos/2024/v17i5441

Bağcı, B., & Kartal, M. (2024). A combined multi criteria model for aircraft selection problem in airlines. *Journal of Air Transport Management*, *116*, 102566. https://doi.org/10.1016/j.jairtraman.2024.102566

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Balkan, D., & Akyuz, G. A. (2025). Artificial intelligence (AI) and machine learning (ML) in procurement and purchasing decision-support (DS): a taxonomic literature review and research opportunities. *Artificial Intelligence Review*, *58*(11), 1-36. https://doi.org/10.1007/s10462-025-11336-1

Cheong, B. C. (2024). Transparency and accountability in AI systems: safeguarding wellbeing in the age of algorithmic decision-making. *Frontiers in Human Dynamics*, *6*, 1421273. https://doi.org/10.3389/fhumd.2024.1421273

Deveci, M., Rodríguez, R. M., Labella, Á., & Ciftci, M. E. (2025). A decision support system for reducing the strategic risk in the schedule building process for network carrier airline operations. *Annals of Operations Research*, *348*(2), 899-935. https://doi.org/10.1007/s10479-022-04999-4

Far Eastern Federal University, Karpets, O. V., Andreev, A. A., & Far Eastern Federal University. (2020). Analysis of the diversified and the highly specialized enterprises' financial stability. *Scientific Review: Theory and Practice*, *10*(6), 1097–1105. https://doi.org/10.35679/2226-0226-2020-10-6-1097-1105

Ficili, I., Giacobbe, M., Tricomi, G., & Puliafito, A. (2025). From sensors to data intelligence: Leveraging IoT, cloud, and edge computing with AI. *Sensors*, *25*(6), 1763. https://doi.org/10.3390/s25061763

Florido-Benítez, L., & del Alcázar Martínez, B. (2024). The Disruptive Use of Artificial Intelligence (AI) Will Considerably Enhance the Tourism and Air Transport Industries. *Electronics*, *14*(1), 16. https://doi.org/10.3390/electronics14010016

Geske, A. M., Herold, D. M., & Kummer, S. (2025). Using sustainable technology to drive efficiency: Artificial intelligence as an information broker for advancing airline operations management. *Sustainable Technology and Entrepreneurship*, 100111. https://doi.org/10.1016/j.stae.2025.100111

Goktas, P., & Grzybowski, A. (2025). Shaping the future of healthcare: ethical clinical challenges and pathways to trustworthy AI. *Journal of Clinical Medicine*, *14*(5), 1605. https://doi.org/10.3390/jcm14051605

Gomaa, A. H. (2023). Improving supply chain management using lean six sigma: A case study. *International Journal of Applied and Physical Sciences*, *9*. https://doi.org/10.20469/ijaps.9.50002

Hassan, K., Thakur, A. K., Singh, G., Singh, J., Gupta, L. R., & Singh, R. (2024). Application of artificial intelligence in aerospace engineering and its future directions: A systematic quantitative literature review. *Archives of Computational Methods in Engineering*, *31*(7), 4031-4086. https://doi.org/10.1007/s11831-024-10105-7

Hao, X., & Demir, E. (2025). Artificial intelligence in supply chain management: enablers and constraints in pre-development, deployment, and post-development stages. *Production Planning & Control*, *36*(6), 748-770.

Holzinger, A., Zatloukal, K., & Müller, H. (2025). Is human oversight to AI systems still possible?. *New Biotechnology*, *85*, 59-62. https://doi.org/10.1016/j.nbt.2024.12.003

Jester, N., & Dolan, E. (2024). Arms, aviation, and apologies: mapping the Boeing social media response to the 2019 Ethiopian Airlines crash. *Critical Studies on Security*, *12*(1), 2-17. https://doi.org/10.1080/21624887.2023.2267328

Jøsang, A. (2024). Governance and Information Security Management. In *Cybersecurity: Technology and Governance* (pp. 377-403). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-68483-8_18

Kabashkin, I., Perekrestov, V., & Pivovar, M. (2025). Ai-driven fault detection and maintenance optimization for aviation technical support systems. *Processes*, *13*(3), 666. https://doi.org/10.3390/pr13030666

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Kabashkin, I., & Perekrestov, V. (2024). Ecosystem of aviation maintenance: transition from aircraft health monitoring to health management based on IoT and AI synergy. *Applied Sciences*, *14*(11), 4394. https://doi.org/10.1080/09537287.2024.2302482

Kabashkin, I., & Shoshin, L. (2024). Artificial intelligence of things as new paradigm in aviation health monitoring systems. *Future Internet*, *16*(8), 276. https://doi.org/10.3390/fi16080276

Kastrup, T., Grant, M., & Nilsson, F. (2025). Practical and theoretical judgment in data-driven financial due diligence. *Accounting, Auditing & Accountability Journal*, *38*(3), 879–907. https://doi.org/10.1108/AAAJ-11-2022-6167

Keskin, M. H., Koray, M., Kaya, E., Fidan, M. M., & Söğüt, M. Z. (2025). Additive manufacturing for remedying supply chain disruptions and building resilient and sustainable logistics support systems. *Sustainability*, *17*(6), 2783.
https://doi.org/10.3390/su17062783

Kirwan, B. (2024). The impact of artificial intelligence on future aviation safety culture. *Future Transportation*, *4*(2), 349-379. https://doi.org/10.3390/futuretransp4020018

Kumar, N., & Shrivastava, A. (2025). The artificial intelligence (AI) revolution: Evolving business decision-making in the digital age. *Business Information Review*, *42*(3), 183-196. https://doi.org/10.1177/02663821251364069

Liu, Y., Ziatdinov, M. A., Vasudevan, R. K., & Kalinin, S. V. (2023). Explainability and human intervention in autonomous scanning probe microscopy. *Patterns*, *4*(11), 100858. https://doi.org/10.1016/j.patter.2023.100858

Liu, M., Guan, J., Lam, C. C., Lau, Y. Y., & Hong, F. (2025). Macao's Potential to Participate in Aircraft Financial Leasing Between China and Portuguese-Speaking Countries. *Journal of China Tourism Research*, *21*(2), 552-579. https://doi.org/10.1080/19388160.2024.2364204

Liyanaarachchi, N. N., Weng, J., & Akasaka, S. (2023). A review of literature on engineer-to-order production systems. *Asian J. of Management Science and Applications*, *1*(1), 10057337. https://doi.org/10.1504/AJMSA.2023.10057337

Lopes, G. P. (2025). Bias in adjudication and the promise of AI: Challenges to procedural fairness. *Law, Technology and Humans*, *7*(1), 47-67. https://search.informit.org/doi/10.3316/informit.T2025052200005991867720913

Malladhi, A. (2023a). Transforming information extraction: Ai and machine learning in optical character recognition systems and applications across industries. *International Journal of Computer Trends and Technology*, *71*(4), 81–90. https://doi.org/10.14445/22312803/IJCTT-V71I4P110

Malladhi, A. (2023b). Transforming information extraction: Ai and machine learning in optical character recognition systems and applications across industries. *International Journal of Computer Trends and Technology*, *71*(4), 81–90. https://doi.org/10.14445/22312803/IJCTT-V71I4P110

Miller, T., Durlik, I., Kostecka, E., Łobodzińska, A., & Matuszak, M. (2024). The Emerging Role of Artificial Intelligence in Enhancing Energy Efficiency and Reducing GHG Emissions in Transport Systems. *Energies*, *17*(24), 6271. https://doi.org/10.3390/en17246271

Mintz, S. M., & Miller, W. F. (2025). The Story of Boeing's Failed Corporate Culture: Putting Profits Ahead of Safety. *CPA Journal*, *95*.

Mirakhori, F., & Niazi, S. K. (2025). Harnessing the AI/ML in drug and biological products discovery and development: the regulatory perspective. *Pharmaceuticals*, *18*(1), 47. https://doi.org/10.3390/ph18010047

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Moenck, K., Rath, J. E., Koch, J., Wendt, A., Kalscheuer, F., Schüppstuhl, T., & Schoepflin, D. (2024). Digital twins in aircraft production and MRO: challenges and opportunities. *CEAS Aeronautical Journal*, *15*(4), 1051-1067. https://doi.org/10.1007/s13272-024-00740-y

Mohamed, H. (2025). AI-Driven Financial Modelling for Airline Profitability and Cost Reduction. *Journal of Airline Operations and Aviation Management*, *4*(1), 58-73. https://doi.org/10.64799/jaoam.V4.I1.5

Moghaddam, G. K., & Karimzadeh, M. (2025). AI-Driven Digital Transformation and Sustainable Logistics: Innovations in Global Supply Chain Management. https://doi.org/10.21203/rs.3.rs-6086101/v1

Moghadasnian, S., & Rajol, M. (2025). Artificial Intelligence in Airline Business Management A Paradigm Shift in the Industry. *Journal of Business Data Science Research*, *4*(01), 6-12.
https://www.researchgate.net/publication/392270838_Artificial_Intelligence_in_Airline_Business_Management_A_Paradigm_Shift_in_the_Industry

Moharrak, M., & Mogaji, E. (2025). Generative AI in banking: Empirical insights on integration, challenges and opportunities in a regulated industry. *International Journal of Bank Marketing*, *43*(4), 871–896. https://doi.org/10.1108/IJBM-08-2024-0490

Nastoska, A., Jancheska, B., Rizinski, M., & Trajanov, D. (2025). Evaluating Trustworthiness in AI: Risks, Metrics, and Applications Across Industries. *Electronics*, *14*(13), 2717. https://doi.org/10.3390/electronics14132717

Olawumi, M. A., & Oladapo, B. I. (2025). AI-driven predictive models for sustainability. *Journal of Environmental Management*, *373*, 123472. https://doi.org/10.1016/j.jenvman.2024.123472

Paul, S., Cruz, E., Dutta, A., Bhaumik, A., Blasch, E., Agha, G., ... & Varela, C. (2023). Formal verification of safety-critical aerospace systems. *IEEE Aerospace and Electronic Systems Magazine*, *38*(5), 72-88. https://doi.org/10.1109/MAES.2023.3238378

Park, J.-S. (2020). A review of the MDP before the integration of lawyers and adjacent legal organizations—Proposal for the unification of legal organizations in Korea -. *Legal Theory & Practice Review*, *8*(3), 31–56. https://doi.org/10.30833/LTPR.2020.08.8.3.31

Pham, H., & Bris, P. (2025). AI in Supply Chain: Techniques, Applications, Real-World Cases and Benefits under SCOR Framework. *Operations and Supply Chain Management: An International Journal*, *18*(2), 300-316. http://doi.org/10.31387/oscm0610474

Pourmohammadreza, N., Jesri, Z. S. H., & Kamran, M. A. (2025). A review of discount policies in supplier selection: Trends, opportunities, and challenges. *IEEE Access*, *13*, 43028–43055. https://doi.org/10.1109/ACCESS.2025.3547051

Rajendra, J. B., & Thuraisingam, A. S. (2025). The role of explainability and human intervention in AI decisions: jurisdictional and regulatory aspects. *Information & Communications Technology Law*, 1-32. https://doi.org/10.1080/13600834.2025.2537514

Riad, M., Naimi, M., & Okar, C. (2024). Enhancing supply chain resilience through artificial intelligence: developing a comprehensive conceptual framework for AI implementation and supply chain optimization. *Logistics*, *8*(4), 111. https://doi.org/10.3390/logistics8040111

Samuels, A. (2025). Examining the integration of artificial intelligence in supply chain management from Industry 4.0 to 6.0: A systematic literature review. *Frontiers in Artificial Intelligence*, *7*, 1477044. https://doi.org/10.3389/frai.2024.1477044

Saidu, Y., Shuhidan, S. M., Aliyu, D. A., Aziz, I. A., & Adamu, S. (2025). Convergence of blockchain, IoT, and AI for enhanced traceability systems: A comprehensive review. *IEEE Access*. https://doi.org/10.1109/ACCESS.2025.3528035

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

Sarumi, O. A., & Heider, D. (2024). Large language models and their applications in bioinformatics. *Computational and Structural Biotechnology Journal*, *23*, 3498-3505. https://doi.org/10.1016/j.csbj.2024.09.031

Santos, S., Santos, V., & Mamede, H. S. (2025). Rebooting Procurement Processes: Leveraging the Synergy of RPA and BPM for Optimized Efficiency. *Electronics*, *14*(13), 2694. https://doi.org/10.3390/electronics14132694

Seker, S. (2025). Evaluation of agile attributes for low-cost carriers to achieve sustainable development using an integrated MCDM approach. *Management Decision*, *63*(4), 1229-1261. https://doi.org/10.1108/MD-10-2023-1896

Shamsuddoha, M., Khan, E. A., Chowdhury, M. M. H., & Nasir, T. (2025). Revolutionizing supply chains: Unleashing the power of ai-driven intelligent automation and real-time information flow. *Information*, *16*(1), 26. https://doi.org/10.3390/info16010026

Sinha, S., & Lee, Y. M. (2024). Challenges with developing and deploying AI models and applications in industrial systems. *Discover Artificial Intelligence*, *4*(1), 55. https://doi.org/10.1007/s44163-024-00151-2

Stek, K., Picaud-Bello, K., Koch, V., & Johnsen, T. (2025). Rethinking purchasing and supply management education for sustainability and innovation challenges: Crafting a future-ready competency-based curriculum design. *Journal of Purchasing and Supply Management*, *31*(2), 100974. https://doi.org/10.1016/j.pursup.2024.100974

Sulismawati, S., & Nuryana, I. (2024). Determinant factors of electric bicycle purchase decisions: Evidence from indonesia. *IQTISHADUNA: Jurnal Ilmiah Ekonomi Kita*, *13*(2), 201–216. https://doi.org/10.46367/iqtishaduna.v13i2.2008

Talib, M. A., Nasir, Q., Dakalbab, F., & Saud, H. (2025). Future Aviation Jobs: The Role of Technology in Shaping Skills and Competencies. *Journal of Open Innovation: Technology, Market, and Complexity*, 100517. https://doi.org/10.1016/j.joitmc.2025.100517

Trane, M., Marelli, L., Pollo, R., & Lombardi, P. (2025). On Eight Structural Conditions Hampering Urban Green Transitions in the EU. *Urban Science*, *9*(9), 340. https://doi.org/10.3390/urbansci9090340

Trivedi, C., Bhattacharya, P., Prasad, V. K., Patel, V., Singh, A., Tanwar, S., ... & Sharma, G. (2024). Explainable AI for industry 5.0: vision, architecture, and potential directions. *IEEE Open Journal of Industry Applications*, *5*, 177-208. https://doi.org/10.1109/OJIA.2024.3399057

Tufan, C., Çiğdem, Ş., Kılıç, Y., & Sayar, G. (2024). Agility and resilience in supply chains: Investigating their roles in enhancing financial performance. *Sustainability*, *16*(17), 7842. https://doi.org/10.3390/su16177842

Wilfred, V., Prasad, M. R., & Prakash, S. K. J. (2025). From runway to success: Unravelling business transformation approaches in India's aviation industry. *Case Studies on Transport Policy*, *19*, 101370. https://doi.org/10.1016/j.cstp.2025.101370

Wyrembek, M., Baryannis, G., & Brintrup, A. (2025). Causal machine learning for supply chain risk prediction and intervention planning. *International Journal of Production Research*, 1-20. https://doi.org/10.1080/00207543.2025.2458121

Yang, C.-H., & Lee, K.-C. (2020). Developing a strategy map for forensic accounting with fraud risk management: An integrated balanced scorecard-based decision model. *Evaluation and Program Planning*, *80*, 101780. https://doi.org/10.1016/j.evalprogplan.2020.101780

Yang, L., Ma, Z., Gan, Q., Zhang, Q., Li, P., & Cao, C. (2023). Enhanced operational performance of PEM fuel cells with Porous-Carbon catalyst support: A multiscale

Volume: 10 Issues: 79 Special Issue [December, 2025] pp. 793 – 806
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107962

modeling approach. *Energy Conversion and Management*, *281*, 116858. https://doi.org/10.1016/j.enconman.2023.116858

Yıldız, E. (2025). Ai–augmented psychosocial interventions: A bibliometric review and implications for nursing. *Journal of Psychosocial Nursing and Mental Health Services*, *63*(6), 11–22. https://doi.org/10.3928/02793695-20250214-01

Zhang, X., Chen, T., Feng, Y., & Yu, Y. (2021). A data sharing scheme based on blockchain system and attribute-based encryption. *2021 The 3rd International Conference on Blockchain Technology*, 195–202. https://doi.org/10.1145/3460537.3460559

Zong, Z., & Guan, Y. (2025). AI-driven intelligent data analytics and predictive analysis in Industry 4.0: Transforming knowledge, innovation, and efficiency. *Journal of the Knowledge Economy*, *16*(1), 864-903. https://doi.org/10.1007/s13132-024-02001-z