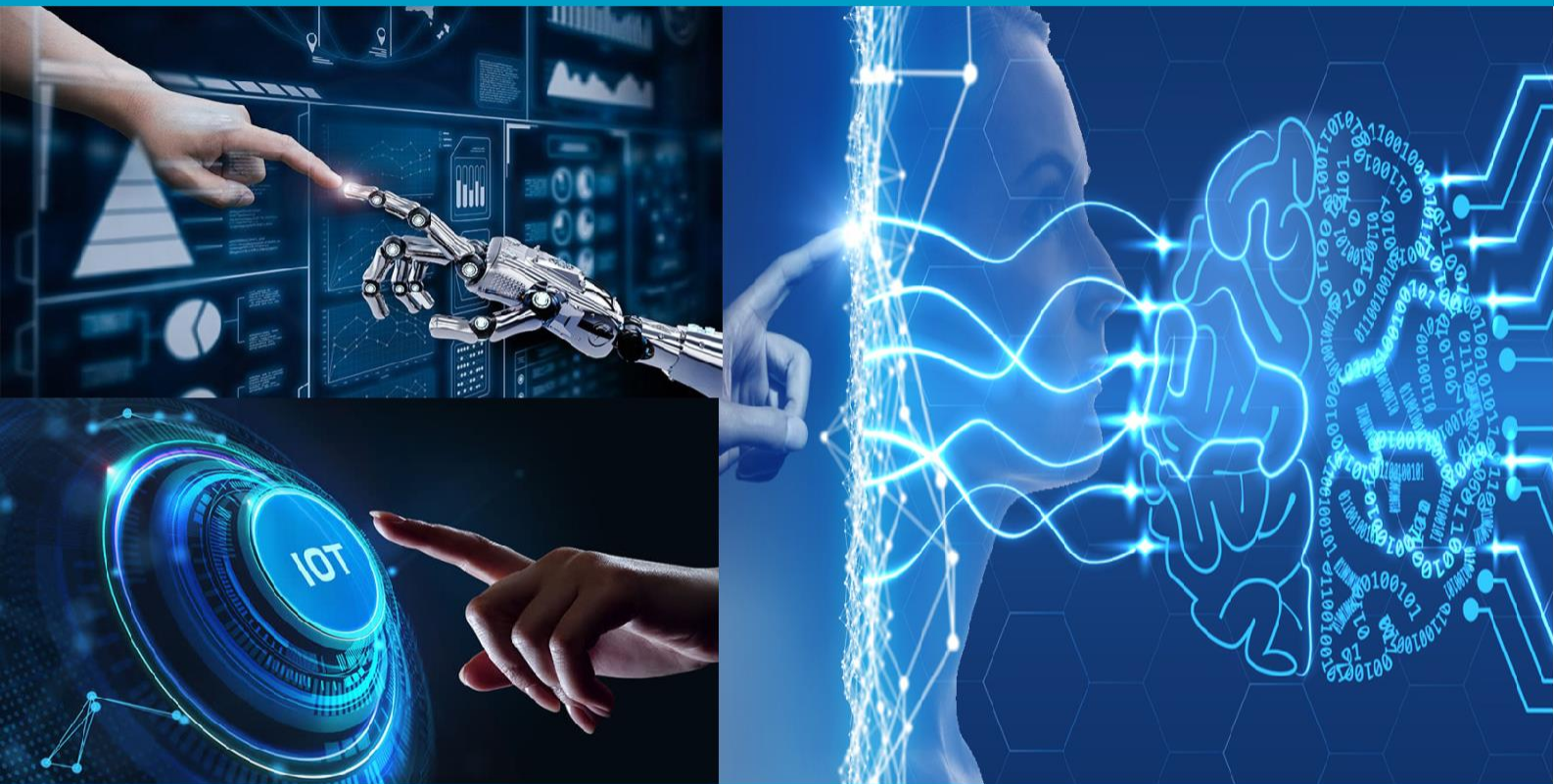




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AI Revolution in Aviation: Transforming Travel with Self Baggage Handling

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ABSTRACT: The purpose of this study is to investigate how travelers see artificial intelligence (AI) in aviation. To determine passenger awareness, comfort levels, and recommended functionality for AI apps at airports, a study was carried out. The results show that travelers are usually open to using AI for jobs like self-service baggage handling, real-time flight updates, and airport navigation that increase efficiency and information availability. Still, there are security worries about self-service platforms and people who would rather deal with difficult problems directly from people. According to the research, resolving security concerns, putting a human-centered approach into practice, and concentrating on features where travelers are most responsive are necessary for the effective integration of AI in aviation. Prospective avenues for investigation encompass an expanded scope of artificial intelligence applications, personnel concerns, moral ramifications, and enduring social effects. By comprehending the traveler Through gaining new insights and carrying out more study, interested parties may use AI to make air travel safer, more informative, and more effective for everyone.

KEYWORDS: Artificial Intelligence (AI) in aviation, Passenger perception of AI, Traveler comfort with AI, Self-service baggage handling, Real-time flight updates, Airport navigation

I. INTRODUCTION

Air travel has become necessary but annoying, with difficulties such as long lines and delays. Artificial intelligence (AI) is set to transform the industry, making flying easier and more pleasant. This article examines three ways AI is affecting aviation: Self-service baggage handling using Artificial Intelligence. The rapid development of AI is fundamentally altering aviation. From flight planning to maintenance, AI is used in almost every area. To operate effectively in an AI-driven sector, the next generation of aviation professionals must be equipped with new skills and knowledge.

II. LITERATURE REVIEW

The aviation industry is undergoing a significant transformation driven by the integration of Artificial Intelligence (AI). The use of artificial intelligence (AI) technology is about to bring about a dramatic change in the aviation sector. Artificial Intelligence possesses the capability to optimize airport procedures, boost productivity, and elevate the traveler experience (Abduljabbar et al., 2019; Nikitas et al., 2020). However, a thorough grasp of passenger perceptions, the effect on airport employees, ethical issues, and long-term social repercussions is necessary for the successful adoption of AI.

Passenger Perceptions of AI in Aviation

Research already conducted examines how passengers feel about AI applications in aircraft. Surveys were used in a study by (Nikitas et al. 2020) to determine how comfortable and aware passengers were of self-service luggage handling technologies. Even though the majority of respondents knew how to use the technology, worries about lost bags and security remained. Similar to this, a Likert scale was used in (Nikitas et al. 2019) research to determine passenger preferences for several aspects of the airport experience. The top priority was found to be short check-in lines, indicating a desire for efficiency. The high importance placed on real-time features like as luggage monitoring and flight delay alerts suggests that passengers appreciate having information and control over their travel experience. These research show how interested passengers are in AI features that increase productivity and facilitate information

access. Still, there are security worries and a desire for face-to-face communication when dealing with complicated matters like luggage claim or flight modifications (Mahesh, 2020). According to (Mahesh et al. 2020), these results highlight the necessity of integrating AI in aviation with a human-centered strategy, where AI enhances human engagement for activities requiring complex communication or problem-solving.

Impact of AI on Airport Staff:

The influence of AI on the tasks and responsibilities of airport staff is still not well understood, despite an increase in research on passenger impressions. Automation-related job displacement is a possible worry (Nikitas et al., 2020). According to research by Mahesh et al. (2021), AI can supplement current staff responsibilities, especially in repetitive jobs. To find ways to retrain and upskill airport employees to cope in a workplace that is increasingly AI-integrated, further research is necessary. Furthermore, researching the partnership between humans and AI can streamline staff workflows and airport operations, guaranteeing a seamless transition (Mahesh et al., 2021).

RESEARCH OBJECTIVES:

- To assess the efficiency advantages connected with automated baggage handling in comparison to conventional techniques in order to determine the efficacy of self-baggage handling systems. Additionally, the study will evaluate how these solutions affect customer experience by minimizing luggage loss and shortening check-in times.
- To understand passenger concerns regarding AI implementation in aviation (e.g., security risks, job displacement, lack of human interaction).

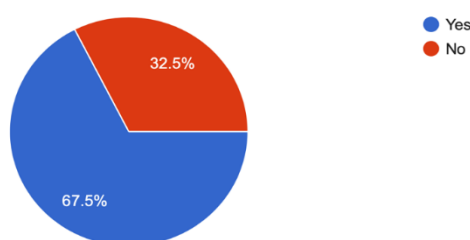
III. RESEARCH METHODOLOGY

Surveys are a major component of current AI research in aviation. Future work on this topic points to a more thorough methodology. A more comprehensive understanding of passenger preferences and AI trust may be obtained through larger, more diverse survey sample sizes and in-depth interviews. This can direct the development of AI that enhances rather than replaces human capabilities by pointing out areas where human contact is still essential.

IV. DATA ANALYSIS AND INTERPRETATION

Have you heard of self-baggage handling systems, where you drop off your bag and it's automatically sorted and transported?

80 responses



Self-Serve Systems for Handling Bags: Eighty-three percent of the respondents had experience with self-service luggage handling technologies. A majority of those who were familiar with the system (68.8%) said they felt at ease utilizing it to check in more quickly. On the other hand, worries about missing luggage (53.8%) and security (40.5%) were apparent.

Features of the Airport Experience Are Important: Passengers rated short check-in lineups as the most significant feature (average rating of 4.38). Receiving updates on flight delays (average rating of 4.05) and following the status of luggage in real-time (4.13) were both highly rated.

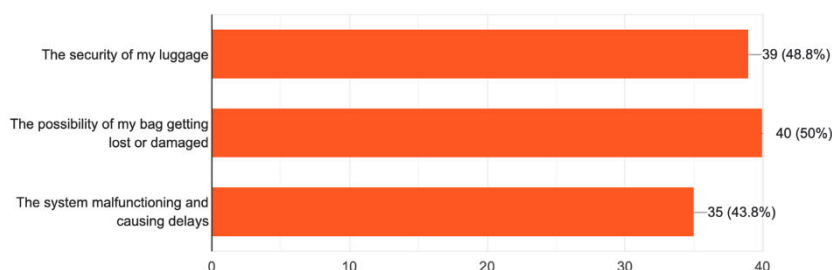
If you answered yes to question 2, would you be comfortable using a self-baggage handling system?

80 responses



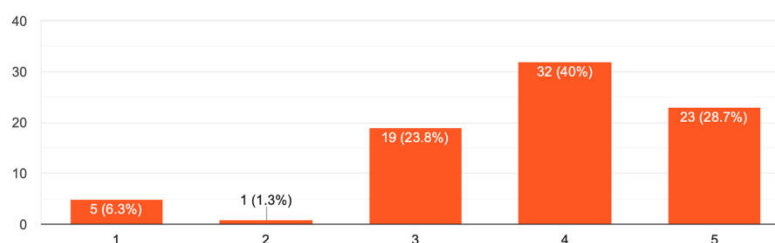
What concerns you most about self-baggage handling systems ?

80 responses



How important are the following features in your airport experience. Short check-in lines, Knowing the status of my luggage in real-time, Receiving updates on flight delays or changes

80 responses



Travelers' Comfort Levels with AI and Their Preferences for Human Contact:

Self-service baggage handling: Although most people feel at ease utilizing self-service technologies to check in more quickly, 31.3% of people would rather have human help. Information and navigation: It was shown that a significant preference (61.9%) existed for AI help with locating the gate and traversing the airport. However, a sizable percentage (42.3%) would prefer to speak with a person when addressing inquiries regarding flights or baggage claims.

V. FINDINGS

- Passengers are generally aware of AI technologies in aviation and show interest in using them for faster check-in, real-time information updates, and easier airport navigation.
- While many are comfortable with self-service baggage handling for efficiency, security concerns and worries about lost luggage persist.
- Passengers prioritize features that improve efficiency and information access, such as short check-in lines, real-time luggage tracking, and flight delay updates.
- While AI is seen as valuable for specific tasks like navigation and flight information, human interaction remains preferred for complex issues requiring personalized attention.

- Improved Airport Efficiency: AI-powered self-service baggage handling and check-in systems can streamline processes, reducing wait times and congestion.
- Enhanced Passenger Experience: AI-powered navigation tools and real-time information updates can empower passengers and reduce travel anxiety.
- Targeted AI Implementation: Focusing on functionalities like navigation and flight information where passengers are most receptive can drive user adoption.
- Focus on Security and Transparency: Addressing security concerns through robust protocols and clear communication about AI systems can build trust.

VI. CONCLUSION

Though additional study is required to maximize its application, AI has the potential to completely transform aviation. For efficient jobs, passengers are receptive to AI; yet, for complex difficulties, they prefer human interaction. To better understand passenger preferences and AI trust, future studies should employ in-depth interviews and broader surveys. Furthermore, it is imperative to conduct a study on how AI will affect rules, technical integration, and airport staff. The use of AI in luggage handling has increased security and efficiency, but issues with data privacy and technology integration still exist. For airports to get the most out of AI, these obstacles must be addressed. The long-term social repercussions of AI in aviation, such as those on the environment, accessibility, and employment displacement, also require further study.

REFERENCES

1. Kashyap, R. Artificial Intelligence Systems in Aviation. In Cases on Modern Computer Systems in Aviation; Shmelova, T., Ed.; IGI Global: Hershey, PA, USA, 2019; pp. 1–26.
2. Yang, C.; Huang, C. Natural Language Processing (NLP) in Aviation Safety: Systematic Review of Research and Outlook into the Future. *Aerospace* 2023, 10, 600.
3. Bartolini, N., Coletta, A., Maselli, G., & Piva, M. (2020, June). DRUBER: A trustable decentralized drone-based delivery system. In Proceedings of the 6th ACM Workshop on Micro Aerial Vehicle Networks, Systems, and Applications (pp. 1-6).
4. Charlemaine A. Abas, M., & D. Cerna, P. (2017) Design and Development of Microcontroller Remote Controlled Airport Luggage Cart. *International Transaction of Electrical and Computer Engineers System*, 4(2) 49-54.
5. Chen, H., Hu, Z., & Solak, S. (2021). Improved delivery policies for future drone-based delivery systems. *European Journal of Operational Research*, 294(3), 1181-1201.
6. De Neufville, R. (1994). The baggage system at Denver: prospects and lessons. *Journal of Air Transport Management*, 1(4), 229-236.
7. Di Puglia Pugliese, L., Gusing F., & Macrina, G. (2020) Using drones for parcels delivery process. *Procedia Manufacturing*, 42, 488-497.
8. *Artificial Intelligence in Aviation: New Professionals for New Technologies*. (n.d.). <https://www.researchgate.net>. Retrieved March 27, 2024, from https://www.researchgate.net/publication/374985143_Artificial_Intelligence_in_Aviation_New_Professionals_for_New_Technologies.
9. Ferretti, P., & Richardson, G. (2023, September 11). *Transforming travel: The AI revolution in airport passenger experiences*. Maddyness UK. <https://www.maddyness.com/uk/2023/10/04/transforming-travel-the-ai-revolution-in-airport-passenger-experiences/>
10. *AI REVOLUTIONIZING AIRPORT OPERATIONS: ENHANCING PASSENGER AND BAGGAGE HANDLING FOR EFFICIENCY AND BETTER CUSTOMER EXPERIENCE* | *EPRA International Journal of Multidisciplinary Research (IJMR)*. (n.d.). <https://eprajournals.com/IJMR/article/12158/abstract>
11. I., & I. (2024, February 29). *AI Revolution in Aviation: Shaping the Future of Air Travel*. Symphony Solutions. <https://symphony-solutions.com/insights/ai-in-aviation>.



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