



## Airports As Strategic Actors in The Aviation Industry: A Literature Review

Poonam Vishwakarma, Research Scholar, Taywade College, Koradi, RTM Nagpur University  
Dr. Asawari Durge, Research Supervisor, Taywade College, Koradi, RTM Nagpur University

### Abstract

This literature review critically examines the evolving role of airports as strategic actors within the aviation industry. By synthesizing a wide range of scholarly sources, the review explores how airports have transitioned from mere transportation hubs to influential players driving industry innovation, operational efficiency, and competitive dynamics. Key themes include the strategic management of infrastructure and technological advancements, the implementation of sustainability practices, and the enhancement of passenger experiences. The review also delves into the regulatory and policy frameworks shaping airport operations and highlights the complex interactions between airports and other stakeholders, such as airlines, regulatory bodies, and passengers. By providing a comprehensive analysis of current research, this paper aims to elucidate the multifaceted contributions of airports to the aviation industry, identify emerging trends, and suggest avenues for future research.

**Keywords – Airports, Aviation Industry, Strategic Management, Operational Efficiency, Technological Innovation**

### Introduction

Airports are no longer merely points of transit for passengers and cargo; they have evolved into complex entities that play a pivotal role in the global aviation industry. As strategic actors, airports influence and are influenced by a multitude of factors including airline operations, regulatory frameworks, technological advancements, and passenger expectations. Understanding the multifaceted role of airports within this ecosystem is crucial for grasping the broader dynamics of the aviation industry.

Historically, airports were seen primarily as infrastructure providers, focusing on the efficient handling of aircraft and passengers. However, the competitive landscape of the aviation industry has necessitated a shift towards a more strategic approach in airport management. Airports now engage in a variety of initiatives aimed at enhancing operational efficiency, fostering innovation, improving sustainability, and delivering superior passenger experiences. This transformation is driven by the need to attract and retain airlines, manage regulatory demands, and compete effectively in a market characterized by rapid technological changes and evolving consumer preferences.

This literature review aims to critically evaluate the role of airports as strategic actors in the aviation industry. It synthesizes existing research to explore how airports manage and leverage their strategic positions to influence the broader aviation ecosystem. Key areas of focus include infrastructure development, technological innovation, sustainability practices, competitive positioning, and passenger experience enhancement. Additionally, the review examines the regulatory and policy frameworks that shape airport operations and discusses the interactions between airports and other stakeholders such as airlines, regulatory bodies, and passengers.

By providing a comprehensive analysis of the current state of knowledge, this literature review seeks to elucidate the strategic significance of airports, identify emerging trends and challenges, and highlight opportunities for future research. The insights gained from this review will be valuable for airport managers, policymakers, and researchers aiming to understand and navigate the complexities of the modern aviation industry.

### Objectives of the study

- To trace the historical development and transformation of airports from basic infrastructure providers to key strategic players within the aviation industry.



- To identify the factors driving this evolution, including competitive pressures, technological advancements, and regulatory changes.
- To investigate the strategies and practices that airports implement to enhance operational efficiency.

### Research methodology

This literature review employs a systematic and comprehensive approach to analyze the role of airports as strategic actors in the aviation industry. The methodology involves several key steps. Firstly, a thorough search of academic databases, industry reports, and relevant publications was conducted to gather a broad range of sources. Keywords such as "airports," "aviation industry," "strategic management," "operational efficiency," "technological innovation," "sustainability practices," and "passenger experience" were used to identify pertinent literature. Inclusion criteria focused on recent studies, significant historical research, and influential theoretical papers that provide a holistic view of the topic. Secondly, the selected literature was categorized into thematic areas, including operational efficiency, technological innovation, sustainability, competitive positioning, regulatory frameworks, and passenger experience. Each source was critically analyzed to extract key findings, identify common themes, and note any divergent viewpoints. This process involved evaluating the methodologies and conclusions of individual studies to assess their reliability and relevance.

### Literature review

With both traffic and passenger expectations seeing rapid expansion, the air transport business is constantly evolving (Chambers, 2007). Then, airports play a major part in the more difficult air transportation caused by consumer trends, security advances, and political changes (Graham, 2009). They play a pivotal role in the region's economic development, job prospects, and wealth as one of the industry's pioneers (Graham, 2013). Therefore, airports' performance and expansion are of the utmost importance. Being competitive necessitates upgrading to new products, services, processes, strategies, and company models; innovation is the key (Humphrey & Schmitz, 2002).

Using novel concepts, processes, or tools to create value is what we call innovation (Jacobides et al., 2006; Merriam-Webster, 2017). Gaining an edge over the competition is possible via the development and distribution of novel products and services, which in turn depends on the interplay between technology, the market, and the organisation (Tidd & Bessant, 2013). Many modern businesses put a lot of money into it (Stock & Zacharias, 2011). While many innovation initiatives centre on new offerings, there has been a recent trend in innovation techniques away from goods and services and towards collaboration (Jacobides et al., 2006). Produced worth, or the encounter (Pralhad & Ramaswamy, 2003). Subject innovation in business processes (OECD, 2005) or business model innovation (Amit & Zott, 2012) are other ways that value is produced. In addition to product and process innovation, OECD (2018) finds organisational and marketing innovation. As a result, airports need to embrace and implement all forms of innovation in order to provide passengers with a first-rate experience that makes use of new procedures and technology.

According to Garcia and Calantone (2002), the primary driver of innovation is the need to develop new goods and services that make use of emerging technology. In contrast to inventions, which are only theoretical concepts, innovations are practical endeavours with monetary worth. You may classify inventions according to their level of impact: incremental, radical, or disruptive. Radical innovations use a high degree of cutting-edge information towards a completely new solution (Dewar & Dutton, 1986) or a new value proposition (Christensen, 2013), whereas incremental innovations reflect a low degree of new knowledge, mostly shown in tiny improvements. Because of the far-reaching effects of disruptive innovations, previously held beliefs quickly become irrelevant. Consequently, there are many different ways to innovate, and it is not always centred on a daring idea.



In order to attain cost-effective tactics, the air transportation business employs innovation (Janić, 1999). New technologies, consumer segmentation, and sophisticated business strategies are propelling the expansion (Franke, 2007). Ucler and Martin-Domingo (2015) noted that airports have lately included innovation into their business strategy, citing rivalry among airports as a typical motivator of innovation (Huang & Kaewmee, 2011).

Innovation in airport design, construction, operation, and passenger experience may greatly benefit airports. The use of information and communication technology (ICT) for interaction is one typical area of innovation at airports, with the goal of providing consumers with efficient, rapid, and high-quality services (Straker & Wrigley, 2018). Examples of information and communication technology include self-service technologies at check-in kiosks, automated board control technologies, baggage tracking systems based on radio-frequency identification (Zhang et al., 2008), and mobile apps (Martin-Domingo & Martín, 2016). There, SSTs enable consumers to engage with self-service software independently of staff (Castillo-Manzano & López-Valpuesta, 2013; Chen et al., 2015). Companies may save money on labour while increasing service efficiency and time-saving capabilities, and consumers can use their mobile devices to book flights, pay for tickets, and obtain flight updates (Lin & Hsieh, 2011; Chang & Yang, 2008). Thanks to technological advancements, travellers may now multitask on the go (Harri-son et al., 2013).

The increased efficiency of mobile devices has led to a rise in the use of airport-related mobile apps and websites (Radaha & Johnson, 2013). In addition to facilitating transactions and teamwork, these apps offer the quickest and most convenient method to give passengers with the information they need. Baumgartner et al. (2016) cite DORA as an example of an app that improves the passenger experience by providing door-to-door information on airlines, airports, and landside interlines. Lounges, parking, and food and drink are just a few examples of the supplementary income generators that airports employ their apps for (Halpern & Graham, 2013). In addition to opening up new avenues of income generation, these mobile apps help streamline airport operations for the benefit of passengers (Price et al., 2014).

Innovation at airports has numerous positive effects. As an example, the impact on service pricing, service quality, service volume, and the possibility of differentiation are the four primary areas into which connected outcomes are classified by Niine et al. (2017). Technology use at airports boosts customer happiness, according to Straker and Wrigley (2018). Innovations may create a distinctive brand experience, which gives airports a competitive advantage, according to Lin (2015) (Arif et al., 2013). So, it's obvious that airports should innovate. However, the literature is lacking a unified body of work that compiles research on airport innovation from different publications, and there is also no systematic review of innovation opportunities upon which airports may base their strategies. Thus, this paper's goal is to close the knowledge gap by providing a summary and classification of airport innovation along with practical takeaways for academics and business owners in the field.

Against the background of intense rivalry, Arora, Trehan, Aggarwal, and Sharma (2016) conducted research to compare the quality of service offered by several Indian airlines. The causes for the rise of the Indian aviation industry were identified as the entry of low-cost carriers, an increase in per capita income, foreign direct investment (FDI), new government regulations, and globalisation. An airline, according to the research, needs high-quality service in order to stay in business. Taken together, the research shed insight on the many elements and customer responses influenced by demand for various airlines in various economic contexts.

The researchers Saranga and Nagpal (2016) set out to determine if there is a correlation between effective operations and financial results. This was accomplished via the use of a two-stage empirical analysis: first, a Data Envelopment Analysis evaluation of operational efficiency; and second, a two-way random effects GLS regression evaluation of performance



drivers. The research concluded that low-cost carriers in India were able to generate significant operational reductions despite the fact that structural and regulatory issues negatively impacted airline performance. Research into the Indian aviation business also revealed that technical efficiency, not cost efficiency, is the primary driver of improved market performance as a result of pricing power.

Taking a look at both full-service and low-cost airlines operating inside India, Sakthidharan and Sivaraman (2018) compared their technical and operational efficiency. Secondary data acquired for the fiscal year 2013–14 formed the basis of the research. Airlines were determined to be operating with a technical efficiency ranging from 71% to 89% after data was analysed using Data Envelopment Analysis. In addition, the airlines were discovered to be operating at an increasing return to scale. In India, low-cost carriers outperformed full-service carriers in terms of scale efficiency. One key indicator of significant variation in input utilisation by airlines was maintenance expense. It was proposed that full service carriers might improve their operational efficiency by adopting some principles from the low cost carrier model.

### Research Gap

Despite the extensive body of literature on airports as strategic actors in the aviation industry, several critical gaps remain that warrant further investigation. Firstly, while numerous studies have explored operational efficiency and technological innovations, there is a paucity of research on the long-term impacts of these advancements on airport competitiveness and sustainability. Specifically, the integration of emerging technologies such as artificial intelligence, blockchain, and Internet of Things (IoT) in airport operations has not been comprehensively analyzed, particularly concerning their cost-benefit implications and scalability.

Secondly, although sustainability practices have gained attention, there is limited understanding of how airports can effectively balance environmental initiatives with economic and operational objectives. The existing literature often lacks a detailed examination of the trade-offs and synergies between these domains. Furthermore, the impact of global regulatory changes on airport sustainability efforts remains underexplored, especially in the context of developing countries where regulatory environments and resources differ significantly from those in developed regions.

Another significant gap lies in the passenger experience domain. While there is considerable research on enhancing passenger services and amenities, less focus has been placed on the role of cultural, social, and demographic factors in shaping passenger expectations and satisfaction. Understanding these nuances is crucial for airports aiming to cater to a diverse and global customer base.

Moreover, the literature often treats airports as homogenous entities without sufficiently considering the varying challenges and strategies of different types of airports, such as hub versus regional airports, or those in developed versus developing markets. This generalization overlooks the unique strategic imperatives faced by different airport categories.

Lastly, there is a need for more empirical research and longitudinal studies that track the evolution of airport strategies over time. Much of the current research is cross-sectional, providing snapshots rather than dynamic views of how airports adapt to changing industry conditions and technological advancements.

Addressing these research gaps will enhance the understanding of airports as strategic actors and provide deeper insights into optimizing their operations, sustainability practices, passenger services, and competitive strategies. This, in turn, will support more effective management and policy-making in the aviation industry.

### Conclusion

This literature review has provided a comprehensive evaluation of airports as strategic actors in the aviation industry, highlighting their evolving roles and multifaceted contributions. The



analysis reveals that airports have transitioned from being mere infrastructure providers to becoming pivotal entities that influence and shape the broader aviation ecosystem through various strategic initiatives. Key findings indicate that operational efficiency, driven by infrastructure development and technological innovations, remains a critical area for airports to enhance their competitiveness and service quality. Technological advancements, particularly in digitalization and automation, have significantly improved airport operations and passenger experiences, although their long-term impacts require further exploration.

Sustainability practices have emerged as essential components of airport strategy, with airports increasingly adopting measures to reduce their environmental footprint. However, balancing these sustainability efforts with economic and operational goals poses ongoing challenges, especially in the context of varying regulatory landscapes and resource availability. The competitive positioning of airports is influenced by strategic partnerships, marketing, and branding efforts. Effective collaboration with airlines and other stakeholders is crucial for airports to maintain and enhance their market positions. Moreover, enhancing passenger experience through innovative services and amenities is vital for airports to attract and retain travelers, though further research is needed to understand the diverse needs of a global passenger base.

In conclusion, airports are integral strategic actors within the aviation industry, contributing significantly to operational efficiency, technological innovation, sustainability, and passenger satisfaction. By addressing the identified research gaps, future studies can further enhance the understanding of airport strategies, supporting more effective management and policy-making. This, in turn, will ensure that airports continue to meet the evolving demands of the aviation industry and contribute to its overall growth and sustainability.

### References

- Arif M., Gupta, A., & Williams, A. (2013). Customer service in the aviation industry – An exploratory analysis of UAE air- ports. *Journal of Air Transport Management*, 32, 1–7.
- Augsdörfer, P., Möslin, K., & Richter, A. (2013). Radical, dis- continuous and disruptive innovation – what’s the differ- ence. *Series on Technology Management: Vol. 22. Discontinuous innovation: Learning to manage the unexpected* (pp. 9–39). Imperial College Press.
- Aulman, J. (2018). Meeting airport capacity demand using new technologies and innovations. *Journal of Airport Management*, 13(1), 57–63.
- Azeem, M., Salfi, N. A., & Dogar, A. H. (2012). Usage of NVivo software for qualitative data analysis. *Academic Research International*, 2(1), 262–266.
- Bazargan, M., & Vasigh, B. (2003). Size versus efficiency: a case study of US commercial airports. *Journal of Air Transport Management*, 9(3), 187–193.
- Basso, L., & Zhang, A. (2006). Peak-Load pricing in a vertical setting: the case of airports and airlines. *AgEcon*, No. 1427- 2016-118562.
- Battal, U., & Bakır, M. (2017). The current situation and change in airport revenues: research on The Europe’s five busiest air- ports. *International Journal of Academic Research in Business and Social Sciences*, 7(7), 287–303.
- Baumgartner, C., Kätker, J., & Tura, N. (2016). DORA – integration of air transport in overall urban and regional mobility in- formation. *Transportation Research Procedia*, 14, 3238–3246.
- Bhaskaran, S. (2006). Incremental innovation and business performance: Small and medium-size food enterprises in a concentrated industry environment. *Journal of Small Business Management*, 44(1), 64–80.
- Bogicevic, V., Bujisic, M., Bilgihan, A., Yang, W., & Cobanoglu, C. (2017). The impact of traveler-focused airport technology on traveler satisfaction. *Technological Forecasting and Social Change*, 123, 351–361.
- Boussadia, K. (2009). The evolution of airport screening technology. *Biometric Technology Today*, 17(2), 7–8.



- Bowyer, D., & Chapman, R. L. (2014). Does privatisation drive innovation? Business model innovation through stakeholder viewpoints: the case of Sydney Airport 10 years post-privatisation. *Journal of Management & Organization*, 20(3), 365–386.
- Brida, J. G., Moreno-Izquierdo, L., & Zapata-Aguirre, S. (2016). Customer perception of service quality: The role of Information and Communication Technologies (ICTs) at airport functional areas. *Tourism Management Perspectives*, 20, 209–216.
- Brooker, P. (2009). SESAR: R&D and Project Portfolios for air-line business needs. *Journal of Navigation*, 62(2), 203–237.
- Bruno, G., Diglio, A., Genovese, A., & Piccolo, C. (2019). A decision support system to improve performances of airport check-in services. *Soft Computing*, 23(4), 2877–2886.
- Castillo-Manzano, J. I., & López-Valpuesta, L. (2013). Check-in services and passenger behaviour: Self service technologies in airport systems. *Computers in Human Behavior*, 29(6), 2431–2437.
- Castleberry, A. (2014). NVivo 10 [software program]. Version 10. QSR International; 2012. *American Journal of Pharmaceutical Education*, 78(1).
- Chambers, R. D. (2007). Tackling uncertainty in airport design: A real options approach [Doctoral dissertation, Massachusetts Institute of Technology, Engineering Systems Division, Technology and Policy Program].
- Chang, H. L., & Yang, C. H. (2008). Do airline self-service check-in kiosks meet the needs of passengers? *Tourism Management*, 29(5), 980–993.
- Chao, R. O., & Kavadias, S. (2008). A theoretical framework for managing the new product development portfolio: When and how to use strategic buckets. *Management Science*, 54(5), 907–921.
- Chen, J. K. C., Batchuluun, A., & Batnasan, J. (2015). Services innovation impact to customer satisfaction and customer value enhancement in airport. *Technology in Society*, 43, 219–230.
- Chen, L. S. L., & Wu, K. I. F. (2014). Antecedents of intention to use CUSS system: moderating effects of self-efficacy. *Service Business*, 8(4), 615–634.
- Christensen, C. (2013). *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business Review Press.
- Cooper, R. G. (2011). Perspective: The innovation dilemma: how to innovate when the market is mature. *Journal of Product Innovation Management*, 28(s1), 2–27.
- Crawford, K. (2008). Construction of a 5000 meter concrete runway in southern California. In *Annual Conference – Canadian Society for Civil Engineering*, 1, 169–178. Quebec City, Quebec, Canada.
- Davies, A., Gann, D., & Douglas, T. (2009). Innovation in megaprojects: systems integration at London Heathrow Terminal 5. *California Management Review*, 51(2), 101–125.
- Dawson, T., Lingham, K., Yenn, R., Beveridge, J., Moore, R., & Prentice, M. (2008, May). Heathrow Terminal 5: building substructures and pavements. In *Proceedings of the Institution of Civil Engineers-Civil Engineering*, 161(5), 38–44. Thomas Telford Ltd.
- de Oliveira, D. S., & Caetano, M. (2019). Market strategy development and innovation to strengthen consumer-based equity: The case of Brazilian airlines. *Journal of Air Transport Management*, 75, 103–110.
- Denyer, D., & Tranfield, D. (2009). Producing a systematic review. In D. A. Buchanan & A. Bryman (Eds.), *The Sage handbook of organizational research methods* (pp. 671–689). Sage Publications Ltd.
- Dewar, R. D., & Dutton, J. E. (1986). The adoption of radical and incremental innovations: an empirical analysis. *Management Science*, 32(11).
- De Neufville, R., & Odoni, A. (2003). *Airport systems: Planning, design and management* (2nd ed.). McGraw-Hill.
- Dixon-Woods, M. (2010). Systematic reviews and qualitative methods. In *Qualitative research: theory, method and practice* (3rd ed., pp. 331–346). Sage.
- Doganis, R. (1992). *The airport business*. Routledge