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## ANALYSIS OF THE LATEST DATA NEED FOR STRATEGIC PLANNING AND DEVELOPMENTS IN AVIATION

## АНАЛІЗ АКТУАЛЬНИХ ДАНИХ, НЕОБХІДНИХ ДЛЯ СТРАТЕГІЧНОГО ПЛАНУВАННЯ ТА РОЗВИТКУ АВІАЦІЙНОЇ ГАЛУЗІ

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The article is devoted to the analysis of current data necessary for strategic planning and development of the aviation industry. The main processes of strategic planning of the aviation industry are analyzed, which include: definition of goals and strategies; market analysis and competitiveness; financial planning; organizational structure and analysis of personnel management; technical development; risk management. The uniqueness of this study is justified by the latest data on the development of the world market of the aviation industry, which is confirmation of the importance of all presented processes necessary for strategic planning and development of the aviation industry. It was determined the list of the latest data needed for strategic planning and developments in aviation would be based on: the analysis latest data needed for strategic planning and development of aviation use; market trends and forecast; regulatory updates; competitor analysis; technological advancements; financial performance metrics; environmental impact assessments. The research concludes how to use the latest data for strategic planning in the following processes: making investment decisions, resource planning, and risk management, analysis of passenger flow data and market demand, flight schedules, receive information about delays and cancellations; combine multiple data sets such as schedules, status, and booking data, to get a unique 360-degree view of the air travel landscape; interdepartmental cooperation; security based on access; global analysis of competitors; analysis of all flights worldwide. Analysis of the current statistics of the aviation industry has proved that the rapid change of factors such as market competition, changes in the global economy, technological innovation and regulation, which were previously more stable, necessitates a rapid response and revision of strategic plans for the development of the aviation industry. It is proved that only a constant analysis of the latest strategic planning data can help airlines adapt to these changes, predict future trends and develop sustainable development strategies.

**Keywords:** strategic planning, aviation industry development, latest data, global market, global development.

Стаття присвячена аналізу актуальних даних, необхідних для стратегічного планування та розвитку авіаційної галузі. Проаналізовані основні процеси стратегічного планування авіаційної галузі до яких належать: визначення цілей і стратегій; аналіз ринку та конкурентоспроможності; фінансове планування; організаційна структура та аналіз управління персоналом; технічні розробка; управління ризиками. Проаналізовано основні поточні стратегічні плани та напрацювання у сфері авіації. Аналіз поточної статистики авіаційної галузі довів, що швидка зміна таких факторів, як ринкова конкуренція, зміни у світовій економіці, технологічні інновації

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та регулювання, які раніше були більш стабільними, зумовлює необхідність швидкого реагування та перегляду стратегічних планів розвитку авіаційної галузі. Доведено, що лише постійний аналіз останніх даних стратегічного планування може допомогти авіакомпаніям адаптуватися до цих змін, прогнозувати майбутні тенденції та розробляти стратегії сталого розвитку.

**Ключові слова:** стратегічне планування, розвиток авіаційної галузі, актуальні дані, світовий ринок, глобальний розвиток.

**The formulation of the problem.** Given the fact that the aviation industry is global in character, its development is linked to several strategic factors such as geopolitics, economics, technology, and ecology [2]. The study of these factors allows strategic plans to be adapted to changing conditions in the global arena. Figure 1 presents the main elements of strategic planning in the air transport industry including:

Defining goals and strategies: this is an important stage where the company sets its goals and develops strategies to achieve these goals. For example, it could be an increase in market share or flight routes extension.

Market and competitiveness analysis: this includes the study of air transport demand and competition with other carriers, as well as an assessment of current and potential market opportunities.

3. Financial planning: the development of financial plans to provide the necessary capital for the implementation of strategic objectives.

4. Organizational structure and personnel management: includes defining the right company structure that supports its strategic objectives, as well as developing motivation and management systems to maintain staff effectiveness.

5. Technical development: includes investment in new technology, fleet renewal, or other infrastructure projects.

6. Risk management: Risk assessment and development of appropriate strategies to reduce potential negative effects.

All that processes are key elements in strategic planning in the aviation industry and help companies make informed decisions to achieve their business goals.

**Analysis of recent research and publications.** The global nature of air transport requires continuous strategic planning and data analysis to be able to adapt to changes in the world market. Analysis of the process of strategic planning of the aviation industry was done by scientists like John M. Bryson [3], Herbert Baum [4], Stefan Auerbach [4], Mike Broun [5], and others. Formulation of the purposes of the article.

**Highlighting previously unsolved parts of the general problem.** The aviation industry is a complex structure, consisting of a large number of elements that are linked, and these links are often global. The system requires clear strategic plans for its development to function effectively. Previously, these plans were longer term because all processes were more stable and therefore did not need to be revised so often. The situation has changed a lot today. The air transport planning depends on a huge number of factors, among which are fluctuations in fuel prices, periodic crises, wars, and terrorist attacks. All these factors radically affect all the processes that occur in the aviation industry, which in turn causes the need for constant revision of strategic plans for the development of the aviation industry based on the latest data.

**Formulation of the problem.** Air transport is a complex and dynamic industry that faces various challenges, such as changes in the global economy, market competition, technological innovation, and regulation. Analyzing the latest data in strategic planning can help airlines adapt to these changes, predict future trends and develop sustainable development strategies.

**Presentation of the main research material.** The latest data needed for strategic planning and developments in aviation would include:

1. *Market trends and forecast:* Understanding the current market trends, passenger traffic forecasts, and emerging travel patterns can help in making informed decisions about route expansions, fleet management, and capacity planning.

To better understand this segment, let's analyze the impact of the avaiatransportation market using the analysis of the top 20 countries to travel in August 2024 presented in Table 1.

Based on the analysis results, we see that the top 3 popular destinations are, Spain-United Kingdom, Mexico-USA, Mexico-USA, and which is related to the seasonality of transportation, due to the holiday period.

2. *Regulatory updates:* Staying updated on the latest regulations, policies, and industry standards is crucial for compliance and operational planning [8].



**Figure 1. The main elements of strategic planning in air transport**

Regulatory updates in the aviation industry play a crucial role in ensuring safety, security, and efficiency. Two main areas of regulatory updates in aviation include:

- **Safety Regulations:** Aviation safety regulations are regularly updated to incorporate advancements in technology, best practices, and lessons learned from incidents and accidents. These updates cover various aspects such as aircraft design and manufacturing standards, maintenance procedures, pilot training requirements, air traffic control protocols, and airport operations.

- **Security Regulations:** With the evolving threat landscape, security regulations in aviation are continually revised to enhance the protection of passengers, crew members, aircraft, airports, and airspace from potential security risks. This includes measures related to passenger screening processes, cargo security protocols, cybersecurity for air traffic management systems, and airport perimeter security.

These regulatory updates are typically overseen by national civil aviation authorities or international organizations such as the International Civil Aviation Organization (ICAO) to ensure harmonization across borders and adherence to global standards.

Adherence to these regulations is mandatory for airlines and other stakeholders within the aviation industry to maintain operational permissions and ensure safe and secure air travel worldwide.

- 3. **Competitor analysis:** Analyzing the strategies of competitors, their market share, customer satisfaction levels, pricing models, and service offerings can provide valuable insights for competitive positioning.

We all regularly hear about new plane bookings in the region, new flight routes and airline openings, we probably do not fully appreciate the region's growth rate since the beginning of the century. But the following two points clearly show how fast this growth has been (Figure 2).

- In 2000, the Middle East was the seventh-largest region in the world, with 70 million places annually. This year, the increase is expected to be 257 million seats, which will be linked to South Asia, where the Indian domestic market dominates.

- Since 2000, the Annual Average Growth Rate (AAGR) has been 6.8%, twice as high as the global figure. If measured by the available kilometers of places (ASK) because of usually longer sectors and wide capacity, managed from the region, the coefficient of AAGR increases to a little more than 9%. Of course, this regional average hides a number of winners and losers.

- Although the two markets – the UAE and Saudi Arabia – are dominant, their market structures are very different. In Saudi Arabia, 45% (33.6 million) seats are for domestic transport, while the UAE market has 100% international capacity. Together, these two markets of

Table 1

Top 20 countries to travel in August 2024 [6]

Rank	Destination	Number of seats	Rank	Destination	Number of seats
1	Spain-United Kingdom	5,646,150	11	Franca-Spain	1,949.631
2	Mexico-USA	3,771,477	12	Russian Federation-Turkiye	1,899,754
3	Mexico-USA	3,604,282	13	China-Japan	1,860.625
4	Germany-Spain	3,404,893	14	Italy-United Kingdom	1,833.529
5	Germany-Turkiye	2,725,111	15	China-Korea Republic	1.718.561
6	United Kingdom-USA	2,508,107	16	Turkiye-United Kingdom	1,715,639
7	Italy-Spain	2,492,088	17	Germany-Italy	1,702,156
8	Japan-Korea Republic	2,440,344	18	China-Thailand	1,670.415
9	India-United Arab Emirates	2,245,045	19	Germany-Greece	1,600,987
10	Greece- United Kingdom	1,980,935	20	France-Iyaly	1,541,098

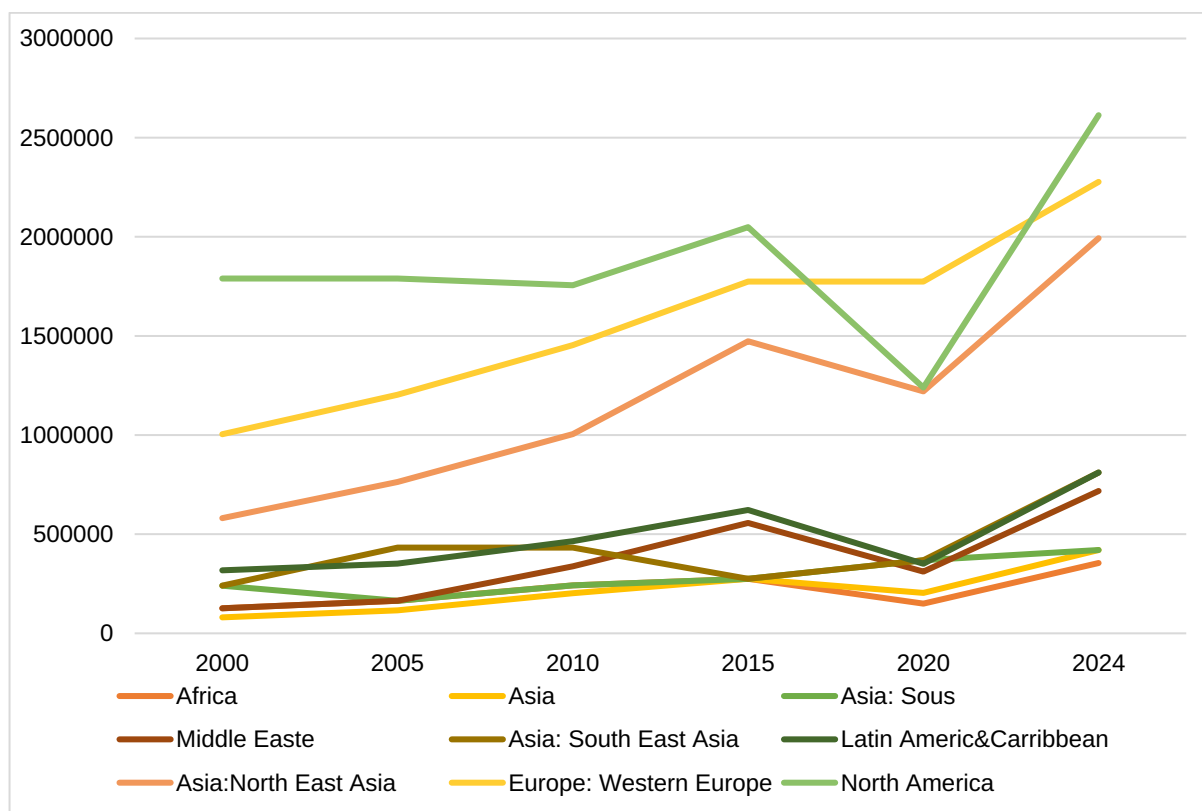


Figure 2. Available Seat Kilometer by Region, 2000–2024 year [6]

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the countries account for 61% of all aviation capacity in the region and while Qatar is third, the first three are responsible for almost three quarters of all capacities in the region. Not surprisingly, given the size of the three largest

markets and their investment in the aviation sector, AAGR rates are still higher than the region’s average; Qatar leads with a very strong 12.5%, which means a potential doubling of capacity every six years. The sustainability of

such growth in the future is an interesting aspect that should be considered in the light of market developments.

– It should also be noted that the 2030 vision is already developed, which represents one of the most exciting and expensive economic transformation projects in the world. According to this concept will be able to invest more than 12.4 trillion Saudi rials (about 3.3 trillion US dollars) in a global project to create an ambitious, prosperous society, which, through a series of transformational programs, places Saudi Arabia as the key commercial and cultural center in the Middle East. Such ambitions in Saudi Arabia cannot be achieved without radical changes in the aviation market. Plans to achieve these goals are already well developed, in line with larger infrastructure investments in major cities where airport projects are only one element.

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4. *Technological advancements:* Keeping abreast of the latest technological developments in aircraft manufacturing, air traffic management systems, fuel efficiency technologies, and digital passenger experience enhancements is essential for strategic investments in modernization.

An example of a key element of the digital passenger experience is the assessment of the technological innovation on board. Figure 3 shows the degree of digitization of the datasheet.

The 2023 report of Passenger IT Insights Report by SITA emphasizes that most users prefer digital booking. 92% of passengers prefer this method of transportation. These figures prove the effectiveness of this particular method of digitalization of passenger services.

In addition, one of the most important elements of this segment is the introduction of technology with the use of artificial intelligence (AI) [1]. The main influence of AI will be based on:

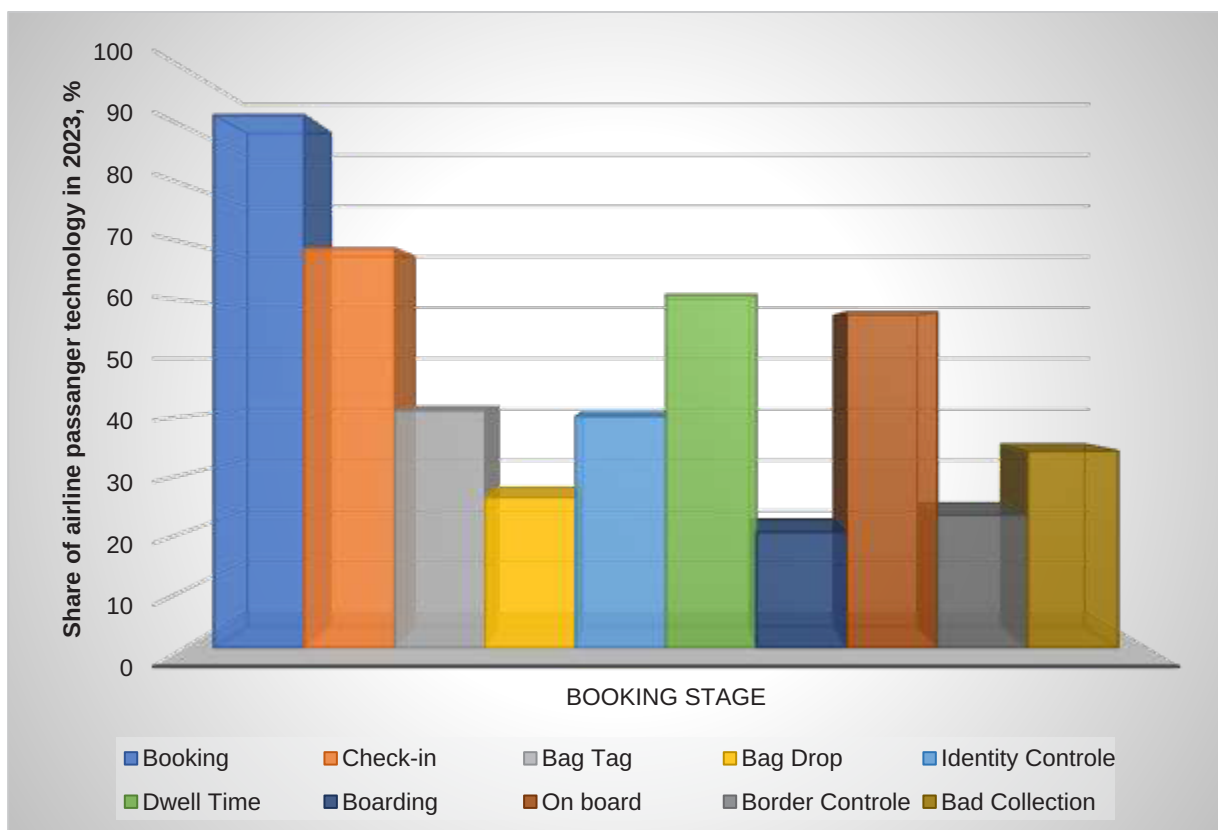


Figure 3. The 2023 report of Passenger IT Insights Report by SITA [7]



– enhanced Safety – AI can improve safety in air transport by analyzing vast amounts of data to identify potential safety risks, predict maintenance needs, and optimize flight paths to avoid hazards.

– operational Efficiency – AI can optimize flight schedules, reduce fuel consumption through more efficient route planning, and streamline airport operations to minimize delays and improve overall efficiency.

– passenger experience – AI-powered technologies can personalize the passenger experience by offering tailored travel recommendations, providing real-time updates on flight statuses, and improving customer service through chatbots and virtual assistants.

– maintenance optimization – AI can analyze aircraft performance data to predict maintenance needs proactively, reducing downtime and increasing aircraft availability; air traffic management – AI can enhance air traffic management systems by optimizing airspace usage, improving traffic flow management, and enabling autonomous decision-making processes for more efficient operations.

Overall, AI has the potential to revolutionize various aspects of air transport by enhancing safety, efficiency, passenger experience, and operational effectiveness.

5. *Financial performance metrics*: Financial performance analytics helps airlines save costs, maintain profitability and make informed business choices.

Monitoring key financial indicators such as revenue per available seat mile (RASM), cost per available seat mile (CASM), load factors, profitability by routes or segments helps in assessing business performance and making necessary adjustments to financial strategies.

Financial performance metrics are crucial for analyzing the financial health and efficiency of companies operating in the aviation industry. Some key financial performance metrics specific to the aviation sector include:

1) Revenue Passenger Kilometers (RPK): This metric measures the total distance traveled by paying passengers and is a key indicator of an airline's passenger traffic.

2) Available Seat Kilometers (ASK): ASK represents the total passenger-carrying capacity available to generate revenue, indicating an airline's capacity utilization.

3) Load Factor: Calculated as  $RPK/ASK$ , load factor measures the percentage of available seating capacity that is filled with passengers, reflecting operational efficiency.

4) Revenue per Available Seat Mile (RASM): RASM evaluates an airline's ability to generate revenue from each seat flown for one mile, providing insights into pricing strategies and customer demand.

5) Cost per Available Seat Mile (CASM): CASM assesses the operating costs incurred by an airline for each seat flown for one mile, aiding

6. *Environmental impact assessments*: Understanding environmental regulations related to emissions control measures like carbon offsetting requirements or sustainable aviation fuels adoption is crucial for long-term sustainability planning.

Environmental impact assessments are an important aspect of strategic planning and development in aviation. They involve the evaluation of potential environmental effects that aviation operations may have on the surrounding ecosystem, air quality, climate change, and noise pollution.

Some of the key data needed for environmental impact assessments in aviation include:

– Emissions data: This includes greenhouse gas emissions, particulate matter, nitrogen oxides, and other pollutants emitted by aircraft engines during flight operations.

– Fuel consumption data: Understanding the fuel consumption patterns across different routes and fleet types helps in assessing the overall carbon footprint of an airline's operations.

– Noise pollution levels: Data on noise levels generated by aircraft during takeoff, landing, and taxiing can help in assessing community impacts and implementing noise abatement measures.

– Air quality monitoring: Data related to air quality around airports is essential for evaluating the impact of aviation activities on local air pollution levels.

– Regulatory compliance requirements: Understanding regulatory standards related to emissions control measures such as carbon offsetting requirements or sustainable aviation fuels adoption is crucial for ensuring compliance with environmental regulations.

By analyzing these types of data, airlines can develop sustainability strategies focused on reducing their environmental footprint through fuel efficiency initiatives, fleet modernization with more environmentally friendly aircraft, and exploring alternative propulsion technologies like electric or hybrid-electric aircraft. Additionally, this information can also aid in shaping public policy initiatives within the industry to mitigate environmental impacts effectively.

By leveraging these types of data sources along with advanced analytics tools to derive actionable insights from them can significantly enhance a company's strategic decision-making processes within the aviation industry.

**Conclusions from the research.** Strategic planning and analysis of current data plays a key role in the development of the aviation industry for several reasons:

- Prediction and adaptation to change: Strategic planning helps airlines anticipate changes in the market, such as new technologies, competition or customer requirements, and prepare for them in advance.

- Maximize resource efficiency: Through strategic planning, airlines can determine the optimal allocation of their resources to achieve maximum efficiency and profit.

- Development of competitive advantages: Strategic process-oriented companies are able to create unique products and services that will help them stand out from the competition.

- Adapting to changes in the economy: Strategic planning will help companies respond

well to economic fluctuations and maintain stability in difficult times.

- Innovation: Strategic planning promotes innovation in the aviation industry, which can lead to improvements in technology, flight safety, environmental sustainability, and passenger comfort.

- Risk management: Analysis of current data helps to identify potential risks for the business of airlines and develop strategies to reduce or manage them.

- Choosing the best marketing strategies: Analysis of consumer preferences data allows companies to create targeted marketing campaigns and offers that match market demand.

- Staff development: Strategic plans include human resource development, which helps to attract professional staff and provide them with the conditions for professional growth.

Overall, successful strategic planning, using latest data, is vital to the competitiveness of the aviation industry and its ability to adapt to rapidly changing conditions in the global market.

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