SINGLE-TYPE VS. MIXED FLEET - COMPARING ADVANTAGES AND DISADVANTAGES FOR AIRLINES

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Summary. This article examines the matter of fleet management in an airline. It defines different types of airlines including their characteristics and especially analyses the benefits and risks associated with the use of one type or one manufacturer of aircraft by airlines with different business models and strategies in the commercial passenger air transport market. The aim is to provide an overview of the pros and cons structured in four main categories: operational, economic, organisational and technical.

Keywords: airline; single-type fleet; mixed fleet; airlines, low-cost airlines, full-service airlines

1. INTRODUCTION

In today's globalised world, air transport is one of the most widespread modes of transport, whether for passengers or goods. For this reason, it has become the focus of interest for various airlines and other organisations that are running their businesses in this field. The spectrum of such entities is very wide and varied, as are the means by which such entities achieve their business objectives.

The dynamic growth of air transport in recent years is a significant feature of air transport in comparison with other modes of transport. Air transport improves the spatial and time connectivity of distant destinations on a global scale. It is becoming an increasingly affordable option for a wide range of the population, due to liberalisation, price reductions due to cost efficiencies in airline alliances, but also, for example, the expansion of low-cost airlines into the aviation market.

The airlines that operate aircraft for the transport of passengers or cargo, i.e. provide air transport services, have a significant position in the air transport market. Air carriers play a major role worldwide in the economies of nation states and therefore in the global economy. This was also evident during the coronavirus pandemic, when a number of states intervened to provide state subsidies to these carriers [7]. Air carriers must consider a variety of decisions at the strategic, tactical and operational levels. Strategic decisions include fleet decisions, i.e. the types of aircraft that are to be used to serve the market.

2. BUSINESS MODELS AND STRATEGIES IN AIR TRANSPORT

Air carriers are therefore making strategic decisions with long-term implications for many years ahead and thus they are the ones who have to react very flexibly to current and future trends and shape their forecasts and business models within them. The airline industry is one of the most dynamic sectors of the global economy and carriers' business models have undergone a significant transformation in recent years. Market liberalisation, digitalisation, changes in passenger preferences and environmental challenges are important factors that have influenced these changes. Today, air carriers operate on the basis of different business models, dominated by traditional network carriers (full-service carriers - FSCs) and low-cost carriers (LCCs), each model associated with different strategies in terms of operations, pricing, customer service and geographical coverage. [11].

According to the study by [12], airline business models can be divided into three main categories: network carriers, low-cost airlines, and hybrid models that combine elements of each and transfer the characteristics of network and low-cost airlines into a compromise business model. Network carriers

(e.g. Lufthansa, British Airways) typically rely on hub-and-spoke networks, a wide range of services and often operate long-haul flights. In contrast, low-cost carriers (e.g. Ryanair, Wizz Air) use a point-to-point model with an emphasis on maximum efficiency and low costs.

It is also interesting to evaluate in terms of regional differences in business strategies. While Europe and North America are dominated by low-cost airlines, in Asia there is a growing number of so-called super app carriers (e.g. AirAsia) that combine air travel with broader digital services platforms in one mobile app [5]. As a study by Hamid states, these models increase customer loyalty and allow carriers to generate revenue beyond the flight itself. The use of big data enables dynamic pricing, capacity optimization and improved operational efficiency [10].

Similarly, sustainability issues are becoming an important strategic element. For example, carriers such as KLM and SAS are investing in SAF fuels or CO2 offset programmes. A study [3] identified that environmentally oriented strategies increase brand value and contribute to long-term customer loyalty. In addition, after the COVID-19 pandemic, airlines had to adjust their business strategies - reducing fleets, cancelling unprofitable routes, but also investing more in direct flights and flexible fares. According to [8] the crisis was a catalyst for accelerating digitalization, cost restructuring and changes in customer communication.

3. SINGLE-TYPE FLEET VS. MIXED FLEET

In air transport, the decision between a single-type fleet and a mixed fleet is one of the key strategic decisions for any carrier. Single-type fleet means that the airline operates only one type of aircraft (e.g. only Airbus A320 or only Boeing 737). In contrast, a multi-type fleet includes several different aircraft types, often with different capacity, range and technology specifications. Both approaches have their specificities, advantages and disadvantages, which significantly affect operating costs, flexibility and safety management.

This issue is determined by the air transport market and its nature. The air transport market has a number of specificities, including the existence of different types of aircraft used for transport within it. Each airline then has a choice between one type of aircraft or several types of aircraft. The interest of all airlines is to maximise their profits, which also implies the need to make optimum use of their fleet of aircraft. There are a number of different costs associated with a fleet of aircraft. These can be influenced by the approach to fleet management [6].

A study by Atay confirmed that there is a correlation between aircraft fleet standardisation and airline operating revenues, confirming the importance of decision making in this area [1].

Examples of airlines using a multi-type fleet include American Airlines, Delta Air Lines, China Southern Airlines, Korean Air, Turkish Airlines [15]. For example, the Brazilian airline Azul uses a mixed fleet of aircraft, which has made it the market leader in the Brazilian air transport market. Diversifying its fleet by using different aircraft types has enabled it to outperform its competitors. From January to April 2021, the company's domestic market share rose to 40%. The company's multi-aircraft fleet has brought greater flexibility [17].

Closely related to the issue is the existence of the so-called family of aircraft, which are offered by almost all aircraft manufacturers and which show a high degree of conformity. A significant advantage is when an aircraft family offers a compliance rate of approximately 90 %, then benefits are generated in the form of:

- The same aircraft family means that a pilot can fly any aircraft belonging to that family.
- A high degree of commonality allows a pilot to fly a different type of aircraft by simply completing difference training.
- The qualification allows the pilot to fly any type of aircraft within the same family [4]

Operating a mixed fleet of aircraft can be beneficial to airlines in that it creates sub-fleets of aircraft, thereby avoiding the typical risks of a single fleet of aircraft. This approach is advantageous, for example, when an airline serves both short and long-haul routes, so that it can choose the appropriate aircraft type to serve a given distance. The reason for the use of a mixed fleet may also be due to the production capacity of the aircraft manufacturers. Both Boeing and Airbus are currently unable to

produce new aircraft in sufficient numbers, which then causes problems for airlines. Delays in aircraft deliveries are a complication, but the use of a variety of more commercially available aircraft models eliminates this shortfall. The operation of a multi-type fleet is often driven by airlines' interest in minimising the risk associated with a high dependency on a single manufacturer, as well as the interest in maximising the benefits offered by different aircraft types [14].

4. OPERATIONAL, ECONOMIC, ORGANISATIONAL AND TECHNICAL ASPECTS

This section identifies and characterizes the individual specifics of single-type vs. mixed fleet in the operational, economic, organizational and technical areas.

4.1. Operational factors

The operational aspects of the aircraft fleet are mainly related to the operation of individual aircraft. Aircraft maintenance is the most important category. Aircraft maintenance is an activity that is carried out with the aim of keeping the product in a fault-free condition for a period of time specified by the technical specifications. It is one of the basic servicing processes of any operation.

The intention of aircraft maintenance is to ensure high flight reliability, to ensure the required technical condition of aircraft, to achieve the specified parameters of aircraft for maintaining airworthiness or to ensure the prevention of malfunctions. In basic terms, maintenance can be divided into planned and unplanned maintenance. Planned maintenance is a set of activities to keep the product in a trouble-free condition by performing systematic inspections, replacing product parts, adjustments, tests, etc. Unscheduled maintenance focuses on restoring operational reliability by immediately correcting faults that have occurred [13].

The single-type fleet allows mechanics and technicians to focus on the maintenance of one specific aircraft model, leading to deeper knowledge and greater expertise. This makes maintenance more efficient and repairs take less time, minimising disruption to operations and increasing aircraft availability [20]. In the context of single-type fleet maintenance, airlines still purchase one type of tools, one type of supplies and one type of maintenance tools, which allows to generate economies of scale (larger purchase volumes are related to the possibility of obtaining a price advantage) [18]. The operation of aircraft is closely linked to the question of the suitability of a particular type of aircraft for certain flight distances. For a fleet consisting of only one type of aircraft, there is often a situation where the capacity of the aircraft does not match the needs of certain routes. Airlines thus lose the flexibility to adjust capacity according to actual changes in demand [17].

When comparing the operational aspects of single-type and multi-type fleets, it can be said that single-type fleets offer the possibility of savings in maintenance. On the other hand, the operation of a multi-type fleet generally complicates and increases maintenance costs.

4.2. Economic factors

The single-type fleet brings significant savings, which are positively reflected in the airline's economic results. The main benefits include lower acquisition and operating costs for aircraft, as the company can plan more efficiently for the purchase and maintenance of machines and spare parts. Another crucial factor is the reduction in staff training and training costs, as crews and technicians specialise in only one type of aircraft, which simplifies processes and reduces the risk of staff departures associated with the need for retraining.

Ryanair's example shows that, if processes are set up correctly, significant cost reductions can be achieved. Ryanair operates almost exclusively Boeing 737 aircraft, which simplifies maintenance and reduces crew training costs. The same approach is used by easyJet, which reports that a single-type fleet can lead to cost reductions of up to 10%. Further savings come from optimised crew scheduling and more efficient aircraft utilisation, which increases the company's flexibility in deploying aircraft on different routes [18].

With a single-type fleet, pilots have a deeper understanding of the performance characteristics of a particular machine type, allowing them to better optimise operations and maximise the fuel efficiency of a given aircraft. This knowledge leads to a more efficient use of fuel during different phases of flight, as pilots know more precisely how to react to different operational situations and how to adapt the flight profile to save fuel [18].

The purchase price of the aircraft is an important economic factor, and the financing options for the purchase of the entire fleet also play a significant role. Airlines ordering large numbers of the same type of aircraft often receive significant discounts from manufacturers or more favourable financial terms, such as discounted loans or additional services as part of a package. In this way, they can optimise their investment costs and improve the overall economic efficiency of their operations [14].

4.3. Organizational factors

Aviation personnel have a key influence on the safety of air traffic. Approximately 80% of aviation accidents are caused by human factors [16]. This is why the organisational aspects of the aircraft fleet are mainly related to the use of human resources within the airline operations or flight organisation, etc. For this reason, it is an essential duty of every airline to ensure that all flight staff are adequately trained to perform their duties. The operation of a single-type fleet greatly simplifies this process and reduces the associated costs, since the training of crews and technical staff is focused on only one type of aircraft. This makes training more efficient, less time-consuming and overall more economical [18].

A single-type fleet of aircraft greatly simplifies the airline's organizational processes, especially in the area of crew shift planning. All pilots and cabin crew who are trained on one aircraft type can be flexibly deployed on any route within the company, eliminating the need for complex assignment of staff according to their experience with different aircraft types.

This approach improves the efficiency of shift planning, enables faster response to changes in operations and helps reduce the administrative burden and costs associated with personnel management. If an airline operates only one type of aircraft and its competitors use a different type, it becomes more difficult for competitors to attract experienced staff, especially pilots. Switching to another carrier would require investment in retraining for the new type of aircraft, a time and cost consuming process. This reduces the risk of key staff leaving and at the same time increases the stability of staff within the company [14].

In terms of cabin configuration, a single aircraft type allows for optimised seating arrangements and thus passenger capacity. For example, airlines can use slim and lightweight seats (slim seats), which allow more rows of seats to be installed without significantly reducing comfort. This means the possibility of increasing the number of passengers carried per flight and therefore the profitability of the operation. Optimisation of seat layout and spacing allows maximum use of available cabin space and adapting capacity to current demand, which is crucial for efficient revenue management [4].

4.4. Technical factors

From a technical point of view, decisions on the fleet mix are influenced by a number of parameters that are directly related to aircraft operations. The key technical specifications that play a role in the selection of a suitable aircraft type include, in particular:

- expected number of passengers carried
- the required passenger cabin equipment,
- the weight and dimensions of the cargo to be carried,
- estimated average flight times,
- required cruising speeds,
- the expected dimensions and load capacity of the RWY and taxiways of the airports served,
- expected flight conditions for the selection of instrumentation,
- safety, operational reliability and technological requirements,
- availability of service and spares throughout the expected life of the aircraft

Each type of aircraft has its own specific technical limitations and characteristics. If an airline acquires a fleet consisting of only one type of aircraft, it loses the ability to vary the technical parameters according to the current needs - it is limited only by what the type of aircraft allows. Other important factors include, for example, passenger satisfaction, which includes their perception of comfort, cabin noise levels, the quality of the in-flight entertainment system and other aspects that affect the overall flight experience [4].

The risk associated with a single-type fleet was evident, for example, in 2023 when hundreds of Airbus A320neo aircraft had to be grounded due to technical problems with the Pratt & Whitney PW1100G engines. Inspections and repairs were necessary due to the discovery of microscopic cracks in the engine's high-pressure turbine discs, caused by a defect in the powdered metal used. Operators who relied exclusively on this type of aircraft and engine were forced to shut down a significant part of their fleet, with a major impact on their operational capacity and economic performance [15]. For example, Wizz Air has had up to 40-50 aircraft grounded for a long time, with all the aircraft not expected to return to service until 2027 [19]. These cases show that a single-type fleet is more vulnerable to mass shutdowns in the case of design defects, technical or regulatory problems, and potential delays in the delivery of spare parts or complete aircraft. Such a situation can severely limit an airline's ability to respond flexibly to operational disruptions and means increased business risk in the event of systemic problems with a particular aircraft type or its key components.

5. A CATEGORISED OVERVIEW OF THE BENEFITS AND RISKS OF A SINGLE-TYPE FLEET

This chapter presents in a clear manner the benefits and risks of a single fleet, a single aircraft manufacturer fleet or a fleet composed of aircraft from different manufacturers for selected types of airlines in terms of business strategy, as identified and characterised above. The benefits are presented in Table 1 below.

Table 1 Overview of the benefits of single-type fleet, mixed fleet and multi-manufacturer fleet

Fleet & Business Model	Operational benefits	Economic benefits	Organisational benefits	Technical benefits
Single-type fleet	Easy and simply accessible training and maintenance thanks to a single type, easier operational planning.	Negotiating advantage with suppliers due to purchasing amount, lower logistics costs.	Consistent processes, simple organisation of operations.	Standardization of spare parts, easier training of technical staff, uniform maintenance system.
Mixed fleet, one manufacturer	Possibility to optimize routes for different types of traffic according to aircraft performances.	Possibility of better utilisation of aircraft according to seasonality and types of routes.	Flexibility in the utilization of personnel across types of the same manufacturer, use of common training infrastructure.	The similarity of the systems enables efficient service and support, easier integration of new versions into operations.
Mixed fleet, more than one manufacturer	High operational flexibility - optimal type can be fitted for specific routes.	Diversification of suppliers reduces dependence on the pricing policy of one manufacturer.	Redundancy in training and licensing increases resilience to staff shortfalls.	Broader technology base, access to innovation from multiple manufacturers, ability to select the best technical solutions for specific needs.

As can be seen from the table, the single-type fleet brings a high degree of standardization that facilitates training, maintenance and operational planning, reduces logistics and operational costs, and enables efficient process management through a single technical backbone. In contrast, a multi-type fleet from a single manufacturer provides greater operational flexibility by allowing better matching of aircraft type to a specific route, while maintaining the benefits of a common training and service infrastructure through technology compatibility. The greatest operational diversity is offered by a multi-manufacturer fleet, which allows aircraft to be precisely matched to the specific needs of different routes, reduces dependence on single suppliers, encourages technological innovation through access to different design schools, and increases resilience to outages through redundancy in licensing and training.

An overview of the operational, economic, organisational and technical risks is presented in Table 2 below.

Table 2 Overview of the risks of single-type fleet, mixed fleet and multi-manufacturer fleet

Fleet & Business Model	Operational risks	Economic risks	Organisational risks	Technical risks
Single-type fleet	Lack of spare parts, unsuitability of aircraft type for certain routes, lack of aircraft on the market in case of capacity increases.	Dependence on one manufacturer or spare parts supplier (pricing, customs and exchange rate risks).	The aircraft has to be used on unsuitable routes. Modifying the seating configuration to increase capacity will undermine the principle of single type interoperability.	Insufficient payload, insufficient equipment, potential unavailability of technical support, risk of type grounding, excessive aircraft failure
Mixed fleet, one manufacturer	Complexity of maintenance planning, lack of spare parts	Dependence on one manufacturer or spare parts supplier (pricing, customs and exchange rate risks).	Need to train personnel for different types, lack of personnel licensed for specific aircraft type,	Risk of confusion of procedures and aircraft units. Possible shared technical weaknesses across types from one manufacturer.
Mixed fleet, more than one manufacturer	The complicated coordination of maintenance and logistics, Low operational flexibility and interoperability.	Significantly higher maintenance and staff training costs. Buying smaller numbers of aircraft reduces savings of scale.	Risk of loss of operational continuity to another type. Flight crew divided into different types. Duplicate licences. More challenging integration of new technologies and procedures on multiple aircraft types..	Risk of confusion of procedures and aircraft units. Incompatibility of systems and interfaces and therefore the need for service equipment to support parallel maintenance processes for multiple aircraft types from different manufacturers.

In the analysis of the risks associated with different fleet options and business models, it is therefore clear that the main risks associated with the choice of fleet in air transport vary according to its structure. For single-type fleets, the key issue is the dependence on a single manufacturer, which implies price and currency risks, as well as operational constraints if the aircraft type does not suit all routes. A multi-type fleet from a single manufacturer complicates maintenance and requires staff training for different types. Multi-manufacturer fleets carry the most risks - they significantly increase costs, reduce flexibility, complicate logistics and introduce technical problems with incompatible systems and interfaces.

5. CONCLUSION

In conclusion, the single-type fleet of an air carrier is significantly more efficient in terms of operations, mainly due to economies of scale in maintenance, crew training and spare parts storage. This approach allows airlines to reduce pilot training costs as there is no need to train for multiple aircraft types. An example of such a strategy is Ryanair, which uses almost exclusively Boeing 737 aircraft, minimising operational complexity and maximising efficiency. A single-type fleet is also simpler to maintain and plan operations but carries significant operational risks such as lack of spare parts, unsuitability of aircraft type for certain routes and limited options for increasing capacity. Economic risks include a high dependence on a single manufacturer or supplier, which carries price, tariff and currency risks. Organisationally, interference with cabin configuration can be problematic, which undermines the idea of standardisation and its benefits. The technical risks are insufficient load capacity, common failure rates or limited availability of technical support.

A mixed fleet with a single manufacturer brings operational complications in the sense of complex maintenance and repeated dependence on a single supplier. Organisations face the need to train staff for different types and shortages, while technical risks include the risk of component confusion as well as possible shared design weaknesses across types.

Most complex is the operation of a multi-manufacturer fleet, which significantly increases maintenance and training costs, reduces operational flexibility, and introduces difficulties with technology integration. Organisationally, there is a risk of loss of continuity, fragmentation of personnel and complexity in transitions between types. Technical risks result in incompatibility of systems, the need to operate parallel technical processes and increased likelihood of confusion due to differences in design between manufacturers. On the other hand, a multi-type fleet allows airlines to match supply to demand - for example, by deploying smaller aircraft on less busy routes and larger aircraft on busier routes. Such a model increases business flexibility and profitability in diverse markets, but at the cost of higher costs and more complex operational management.

The decision between single-type and mixed fleets often depends on the carrier's business model. Low-cost carriers tend to opt for single-type fleets due to their low operational requirements, while traditional carriers such as Lufthansa or Air France use mixed fleets for short, medium and long-haul services. This decision is also influenced by international regulations on aircraft safety and compatibility at airports. Empirical data support the claim that a single fleet reduces costs by around 5-15% compared to a mixed fleet under the same operating conditions, but for large airlines, fleet diversification can also increase revenues through a wider range of services and greater capacity flexibility.

References

Journals:

[1] ATAY, Metehan, EROĞLU, Yunus and ULUSAM SECKINER, Serap. Does fleet standardization matter on profitability and financial policy response of airlines during COVID-19 pandemics in the U.S? *EURO Journal on Transportation and Logistics*. 1 January 2022. Vol. 11, p. 100088. DOI 10.1016/j.ejtl.2022.100088.

[2] BYRNES, Kenneth P., RHOADES, Dawna L., WILLIAMS, Michael J., ARNAUD, Anke U. and SCHNEIDER, Andrew H. The effect of a safety crisis on safety culture and safety climate: The resilience of a flight training organization during COVID-19. *Transport Policy*. 1 March 2022. Vol. 117, p. 181–191. DOI 10.1016/j.tranpol.2021.11.009.

[3] GALHOZ, Inês, RAMOS, Ricardo Filipe and BISCAIA, Rui. Airline environmental sustainability actions and CSR impact on customer behavior. *Research in Transportation Business & Management*. March 2024. Vol. 53, p. 101111. DOI 10.1016/j.rtbm.2024.101111.

[4] GÜNTUT, Cem and GÖKDALAY, Meriç. Aircraft Selection Decision Support Model for Fleet Planning of the Low Cost Airlines. *Eskişehir Osmangazi Üniversitesi İktisadi ve İdari Bilimler Dergisi*. 1 August 2023. Vol. 18, no. 2, p. 460–478. DOI 10.17153/oguiibf.1253980.

[5] HASSELWANDER, Marc. Digital platforms' growth strategies and the rise of super apps. *Heliyon*. 15 March 2024. Vol. 10, no. 5, p. e25856. DOI 10.1016/j.heliyon.2024.e25856.

[6] MAHMOOD, Hafiz Tahir, BHATTI, Ihsan Ahmed and HUSSAIN, Tasweer. Quality Enhancement through Hybrid Skill Management Concept for Multi-Type Aircraft Fleet. *Mehran University Research Journal of Engineering and Technology*. 1 July 2018. Vol. 37, no. 3, p. 581–594. DOI 10.22581/muet1982.1803.12
[7] PETROV, Petar. State Aid and COVID-19: *European State Aid Law Quarterly*. 2021. Vol. 20, no. 4, p. 461–478. DOI 10.21552/estal/2021/4/3.
[8] RAJEE OLAGANATHAN. Impact of COVID-19 on airline industry and strategic plan for its recovery with special reference to data analytics technology. *Global Journal of Engineering and Technology Advances*. 30 April 2021. Vol. 7, no. 1, p. 033–046. DOI 10.30574/gjeta.2021.7.1.0050.

Books:

[9] BIEGER, Thomas and WITTMER, Andreas. Airline Strategy: From Network Management to Business Models. In : WITTMER, Andreas, BIEGER, Thomas and MÜLLER, Roland (eds.), *Aviation Systems: Management of the Integrated Aviation Value Chain*. Online. Berlin, Heidelberg : Springer, 2011. p. 77–102. [Accessed 7 May 2025]. ISBN 978-3-642-20080-9.
[10] HAMID, Azahar and CHIK, Rita Zaharah Wan. Brand Stretching and Digitalisation Strategy: Low-Cost Carrier Airline Surviving the Covid-19 Pandemic. In : *Corporate Branding in Logistics and Transportation*. Routledge, 2024. ISBN 978-1-003-35688-2.
[11] KANKAEW, Kannapat (ed.). *Global Air Transport Management and Reshaping Business Models for the New Era*. . Hershey, Pennsylvania (701 E. Chocolate Avenue, Hershey, Pennsylvania, 17033, USA) : IGI Global, 2022. ISBN 978-1-6684-4615-7.
[12] WITTMER, Andreas, BIEGER, Thomas and MÜLLER, Roland (eds.). *Aviation Systems: Management of the Integrated Aviation Value Chain*. Online. Berlin, Heidelberg : Springer, 2011. [Accessed 7 May 2025]. ISBN 978-3-642-20079-3.
[13] ŽIHLA, Zdeněk. *Etapy života letadel*. Praha: Vysoká škola obchodní v Praze, 2011. ISBN 978-80-86841-15-1.

Web sites:

[14] BERESNEVIČIUS, Rytis. What Are The Main Advantages & Disadvantages Of Mixed Narrowbody Fleets For Airlines? *Simple Flying*. Online. 2 December 2023. [Accessed 7 May 2025]. Available from: https://simpleflying.com/mixed-narrowbody-fleets-advantages-disadvantages-guide/
[15] BERESNEVIČIUS, Rytis. What's The Latest With The PW1100G Airbus A320neo Groundings? *Simple Flying*. Online. 25 November 2024. [Accessed 7 May 2025]. Available from: https://simpleflying.com/airbus-a320neo-pw1100g-groundings-update/
[16] FIRM, Husain Law. 8 Aviation Accidents Caused by Human Factors. *Husain Law and Associates Truck Accident Lawyers*. Online. 14 August 2023. [Accessed 7 May 2025]. Available from: https://hlalawfirm.com/8-aviation-accidents-caused-by-human-factors/
[17] LOPES, Fernando. (1) Fleet Flexibility: The Winning Solution | LinkedIn. Online. [Accessed 7 May 2025]. Available from: https://www.linkedin.com/pulse/fleet-flexibility-winning-solution-fernando-lopes/
[18] MEMON, Dr Omar. 5 Key Advantages Of Single-Type Fleets For Low-Cost Carriers. *Simple Flying*. Online. 12 September 2023. [Accessed 7 May 2025]. Available from: https://simpleflying.com/single-type-fleets-low-cost-carrier-advantages-list/.
[19] OČADLÝ, Vojtěch. AirBaltic zruší tisíce letů, důvodem je zdlouhavá údržba motorů Pratt & Whitney. *Zdopravy.cz*. Online. 2 January 2025. [Accessed 7 May 2025]. Available from: https://zdopravy.cz/airbaltic-zrusi-tisice-letu-duvodem-je-zdlouhava-udrzba-motoru-pratt-whitney-232125/Škrty se dotknou více jak 67 tisíc cestujících.
[20] POSEY, David. (1) The Advantages of Operating a Single-Type Fleet for Private Jet Operators | LinkedIn. Online. [Accessed 7 May 2025]. Available from: https://www.linkedin.com/pulse/advantages-operating-single-type-fleet-private-jet-david/

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