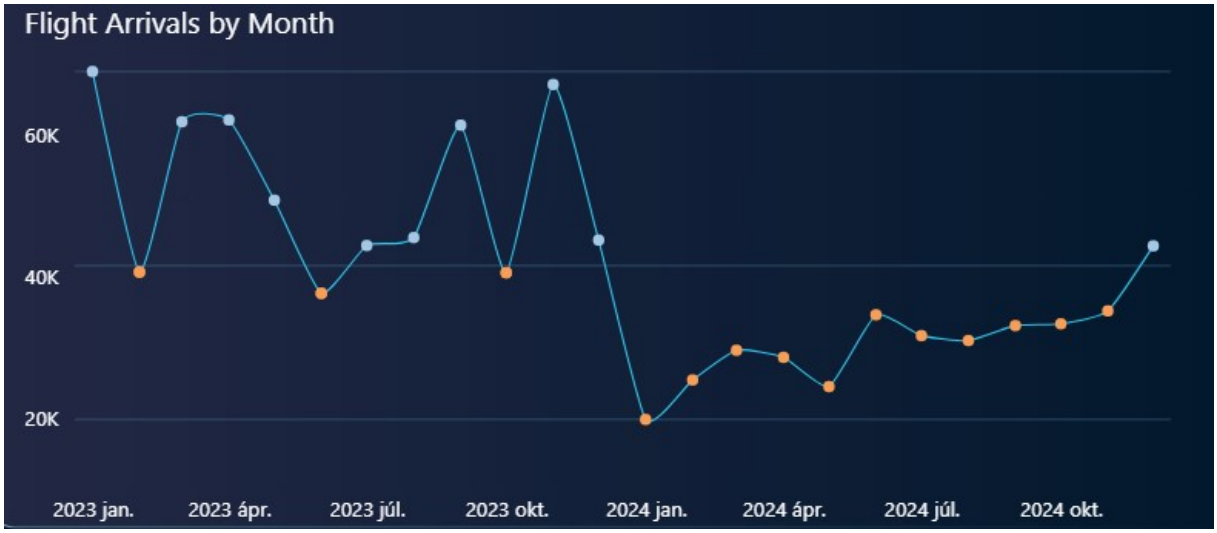
Introduction

- This report provides an in-depth **analysis of airline delays**, cancellations, and diversions across multiple airports and airlines.
- The dataset covers monthly flight arrivals, delay causes, and performance by airlines and airports.
- The objective is to identify the main drivers of delays, highlight performance differences between carriers, and uncover seasonal or operational patterns affecting punctuality.
- The dashboards have been designed in **Power BI**, allowing dynamic filtering and interactive comparisons.

Overall Flight Performance

- Out of nearly **1 million flight arrivals**, **82.9% were on time**, while **17.1% experienced delays**.
- A total of **170K flights were delayed**, with **9,643 cancellations** and **1,925 diversions**.
- Monthly trends reveal seasonal fluctuations, with higher peaks in late 2023 and early 2024, followed by a dip in early 2024.



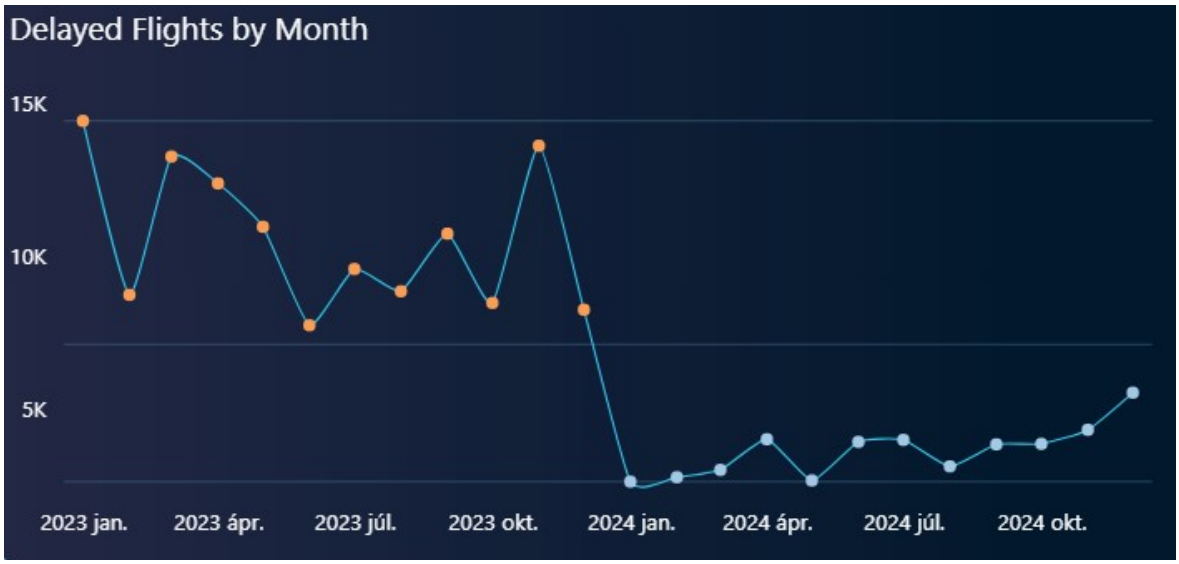
Reasons for Delays

- **Late Aircraft** (34%) is the leading cause of delays, followed closely by **Aviation Systems issues** (32%).
- **Carrier's Reasons** account for another 32%, while **Weather** (2.8%) and **Security Breaches** (0.3%) are relatively minor contributors.

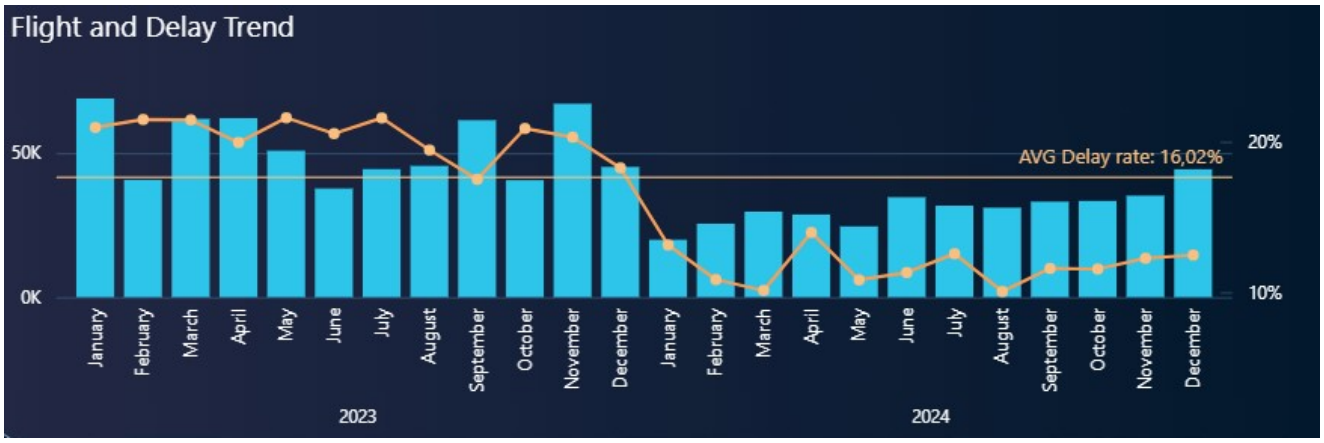
This shows that the majority of delays are **operational or technical** rather than external (like weather).

Delay Patterns Over Time

- Delay volumes were consistently high throughout 2023 but showed a **sharp decline at the start of 2024**, indicating possible operational improvements or reduced traffic.

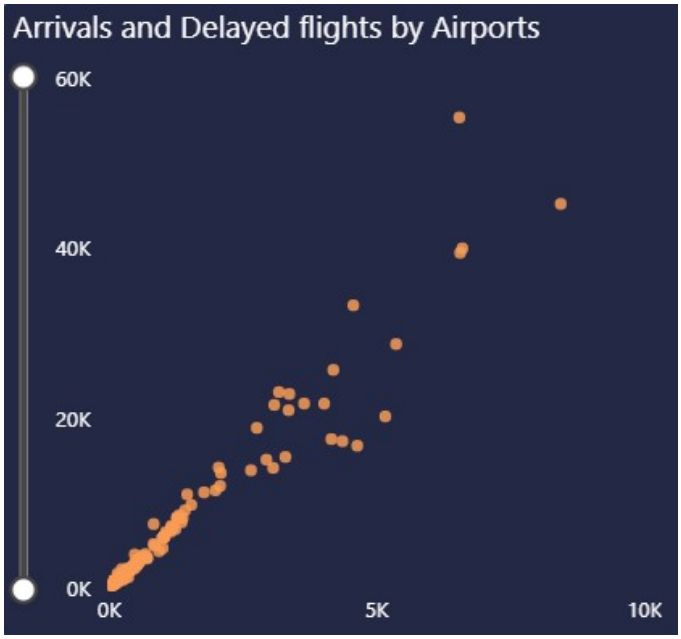


- Delay rates averaged around **16%**, but monthly figures varied, peaking in **summer and late autumn**—likely linked to peak travel seasons.



Airport-Level Insights

- Airports with higher flight volumes also show higher delays, reflecting traffic congestion as a key factor.



- The **Dallas/Fort Worth (DFW)** airport recorded the highest number of delays (8,448), followed by **Chicago O'Hare (ORD)** and **Denver (DEN)**.

- Major hubs dominate the list, underlining the challenge of maintaining punctuality in high-traffic airports.

Airline Performance

- **JetBlue Airways** had the highest delay rate at **28.6%**, followed by **ExpressJet (24%)** and **Mesa Airlines (20.8%)**.

- **Hawaiian Airlines** leads with only **9.9% delays**, followed by **Endeavor Air (12.9%)** and **Delta Airlines (14.4%)**.

Conclusion

- The analysis shows that while the **majority of flights (83%) are on time**, operational and technical factors such as **late aircraft and system issues** remain the dominant sources of delays.
- High-traffic airports like DFW, ORD, and DEN are particularly delay-prone, suggesting congestion management as a priority.
- Seasonal peaks indicate that delays intensify during **busy travel months**, reinforcing the importance of capacity planning.
- Going forward, reducing delays will require **improvements in airline operations, airport traffic management, and technical systems** rather than focusing solely on weather-related factors.