

# **Flight Delays** **Analysis Report**

Insights & Strategies

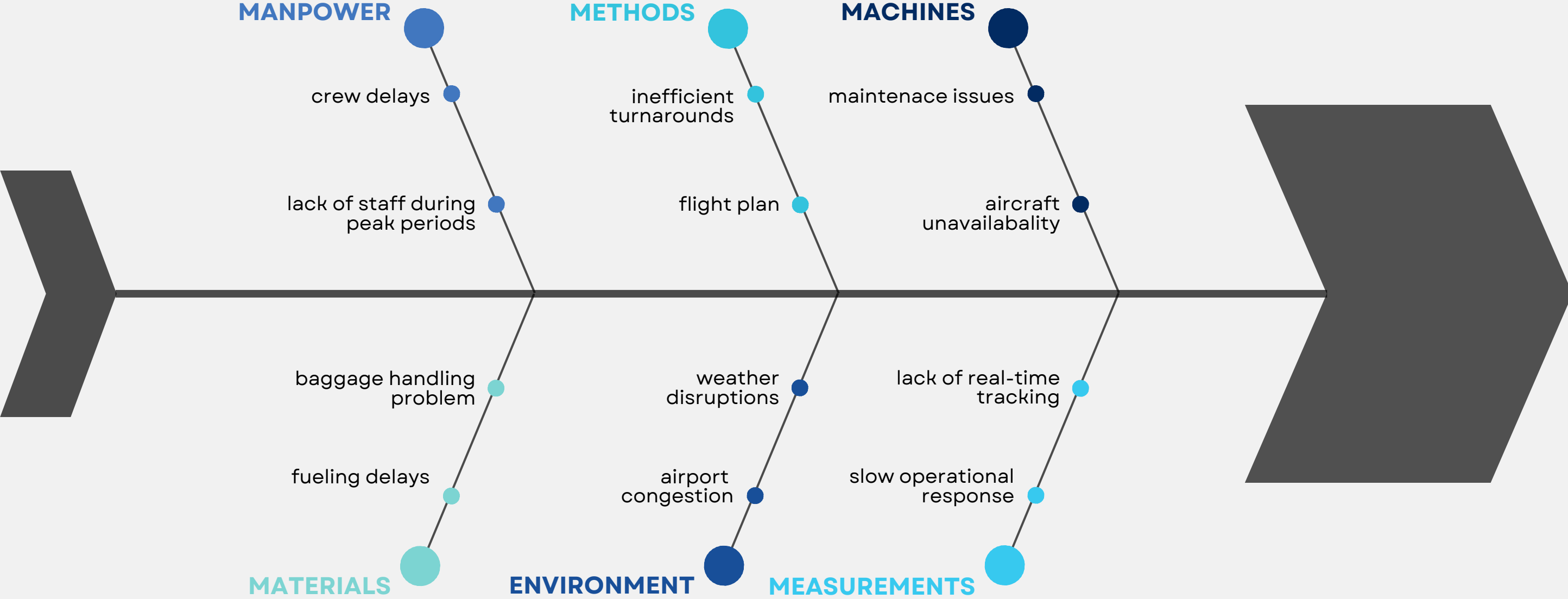
# INTRODUCTION

This report presents an in-depth analysis of flight delays across the United States based on a large dataset of domestic flights. The objective was to identify trends, understand root causes, and provide actionable recommendations to reduce delays and improve overall passenger satisfaction.

The dataset contains over 1 million flight records with key variables such as delay time, departure/arrival information, airline, airport, and causes of delay.

# **Root Cause Analysis**

# FISHBONE DIAGRAM



# PORTER'S FIVE FORCES

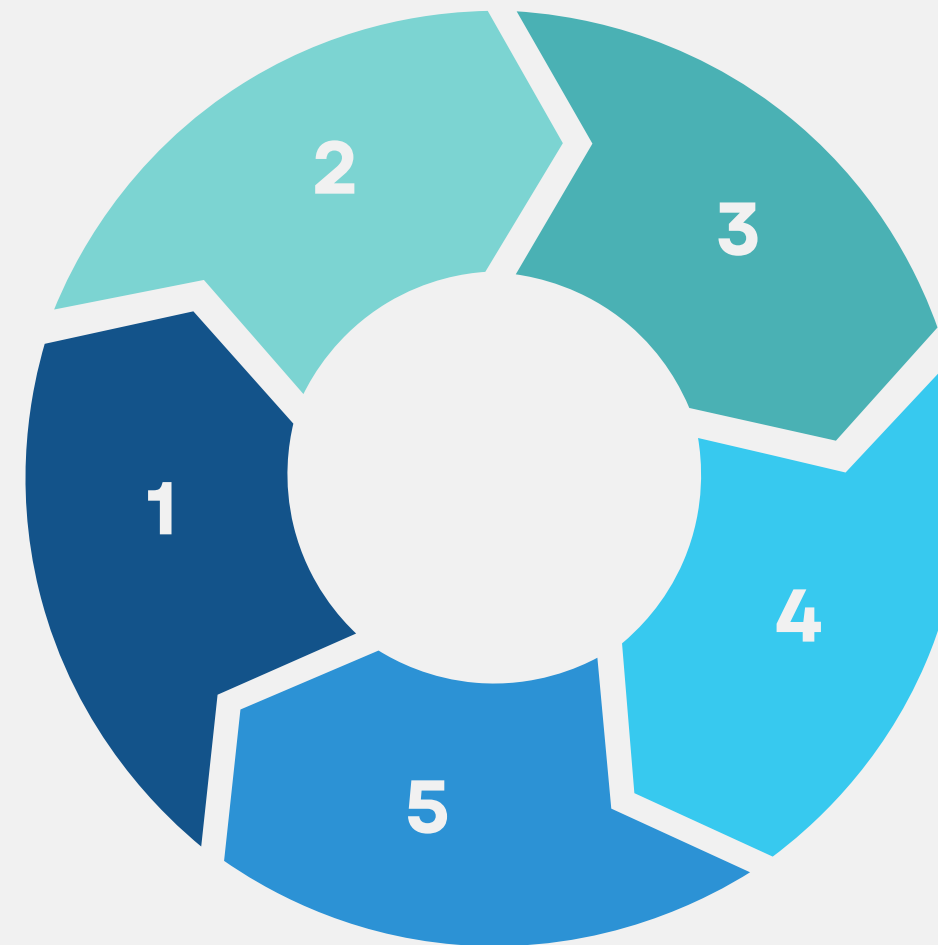
Airline Industry

## 2. Bargaining Power of Customers

**High** – Passengers can easily switch to other airlines, especially if delays happen often.

## 1. Threat of New Entrants

**Low** – Starting an airline requires huge investments and strict regulations, so new competitors are rare.



## 3. Bargaining Power of Suppliers

**Medium** – There are only a few suppliers for aircraft and fuel, which gives them some power.

## 4. Threat of Substitutes

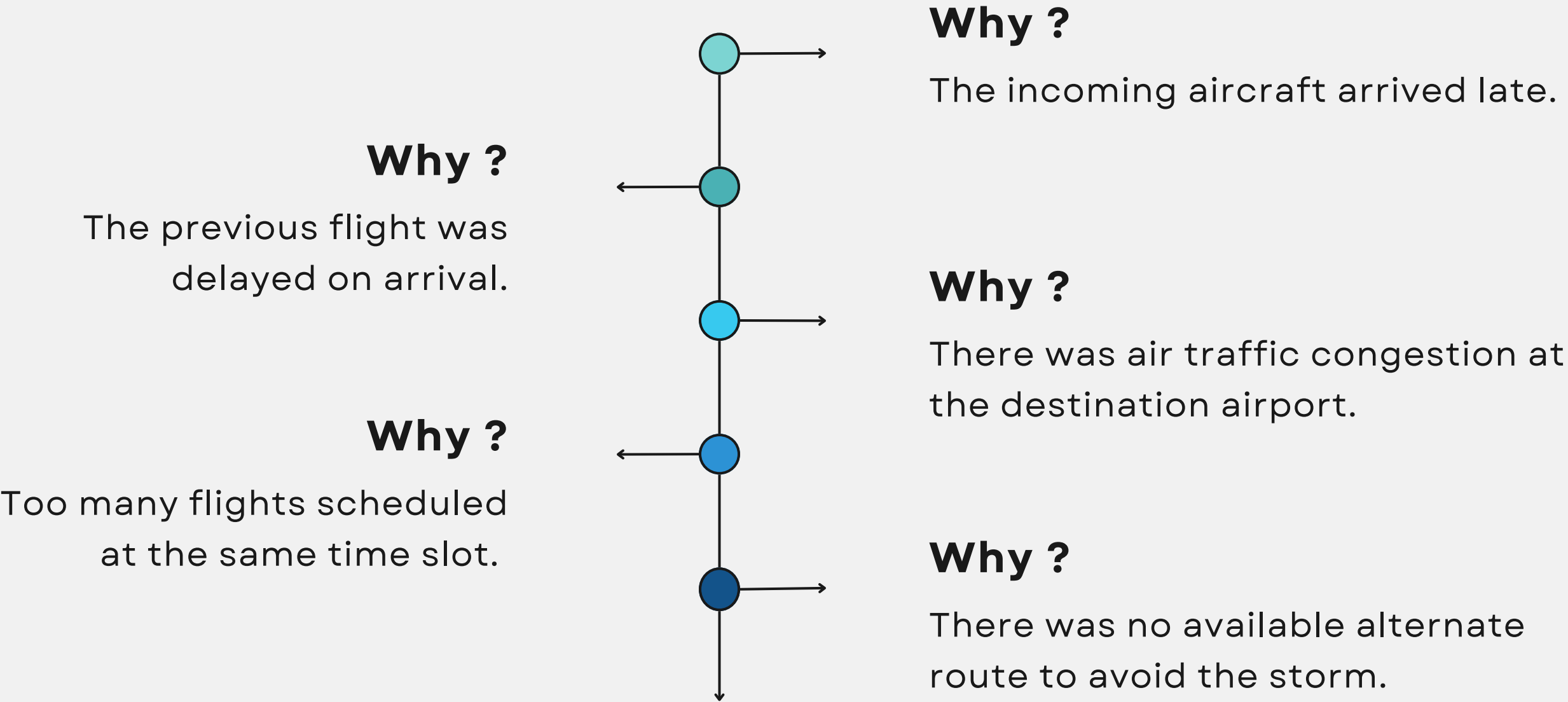
**Medium** – Trains and remote meetings are becoming alternatives, especially for short or business trips.

## 5. Competitive Rivalry

**Very High** – Airlines constantly compete, and being on time is a major factor for customer choice.

# 5 WHYS

**Problem :** Flight departure was delayed



# PESTLE ANALYSIS

U.S. Flight Delays

## Economic

Fuel prices, Inflation,  
Economic downturn

## Technological

AI, Automation,  
Predictive tools

## Environmental

Extreme weather,  
Environmental pressure



## Political

Strict aviation regulations,  
Government support



## Social

Passenger expectations,  
Travel habits



## Legal

Safety rules,  
Refund obligations



# **Strategic Frameworks**



# SWOT ANALYSIS

INTERNAL

HELPFUL

## STRENGTHS

- modern fleet for many carriers
- strong domestic coverage

## OPPORTUNITIES

- use of AI for predictions
- data-driven optimization
- deploy stand-by aircraft

EXTERNAL

HARMFUL

## WEAKNESS

- high rate of delayed flights (especially departures)
- lack of real-time tracking
- poor performance

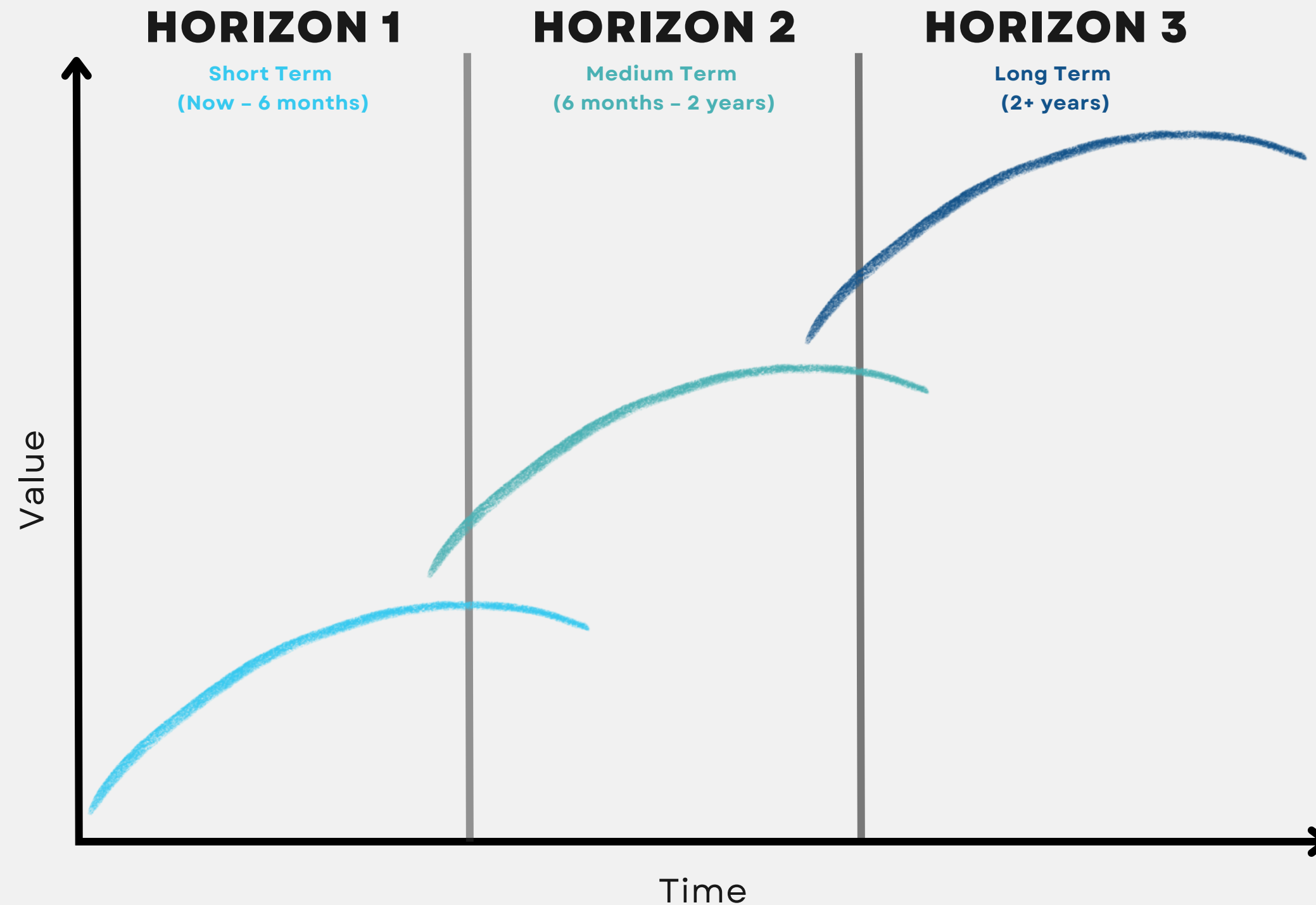
## THREATS

- losing customers trust
- rise of competition from high-speed rail



# THREE HORIZONS FRAMEWORKS

Flight Delay Reduction Strategy



## LONG TERM

- Invest in AI for real-time delay prediction
- Develop automated alert and recovery systems

## MEDIUM TERM

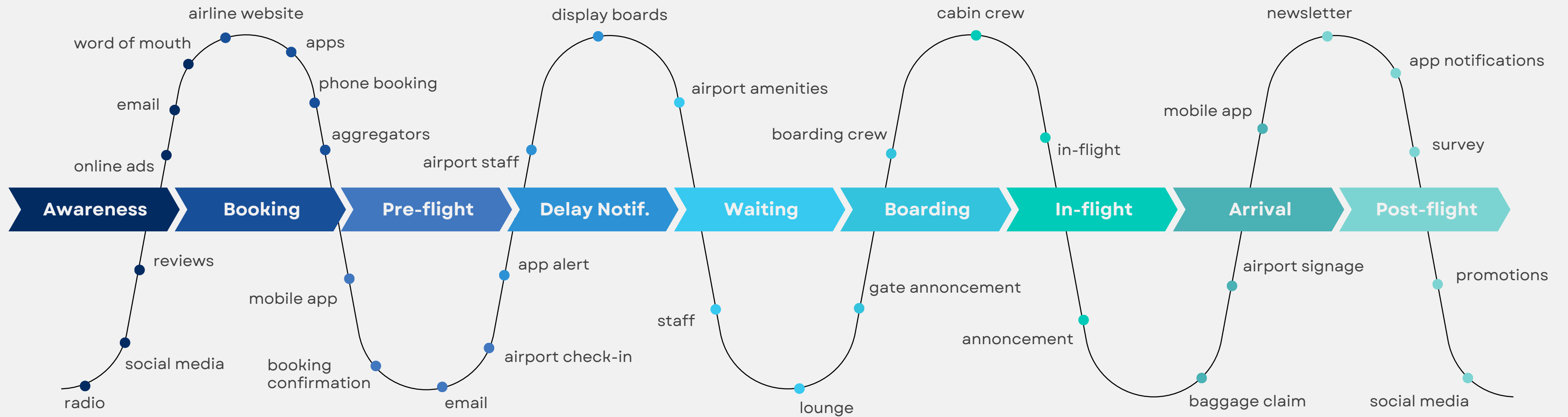
- Implement advanced weather forecasting tools
- Improve crew and maintenance planning

## SHORT TERM

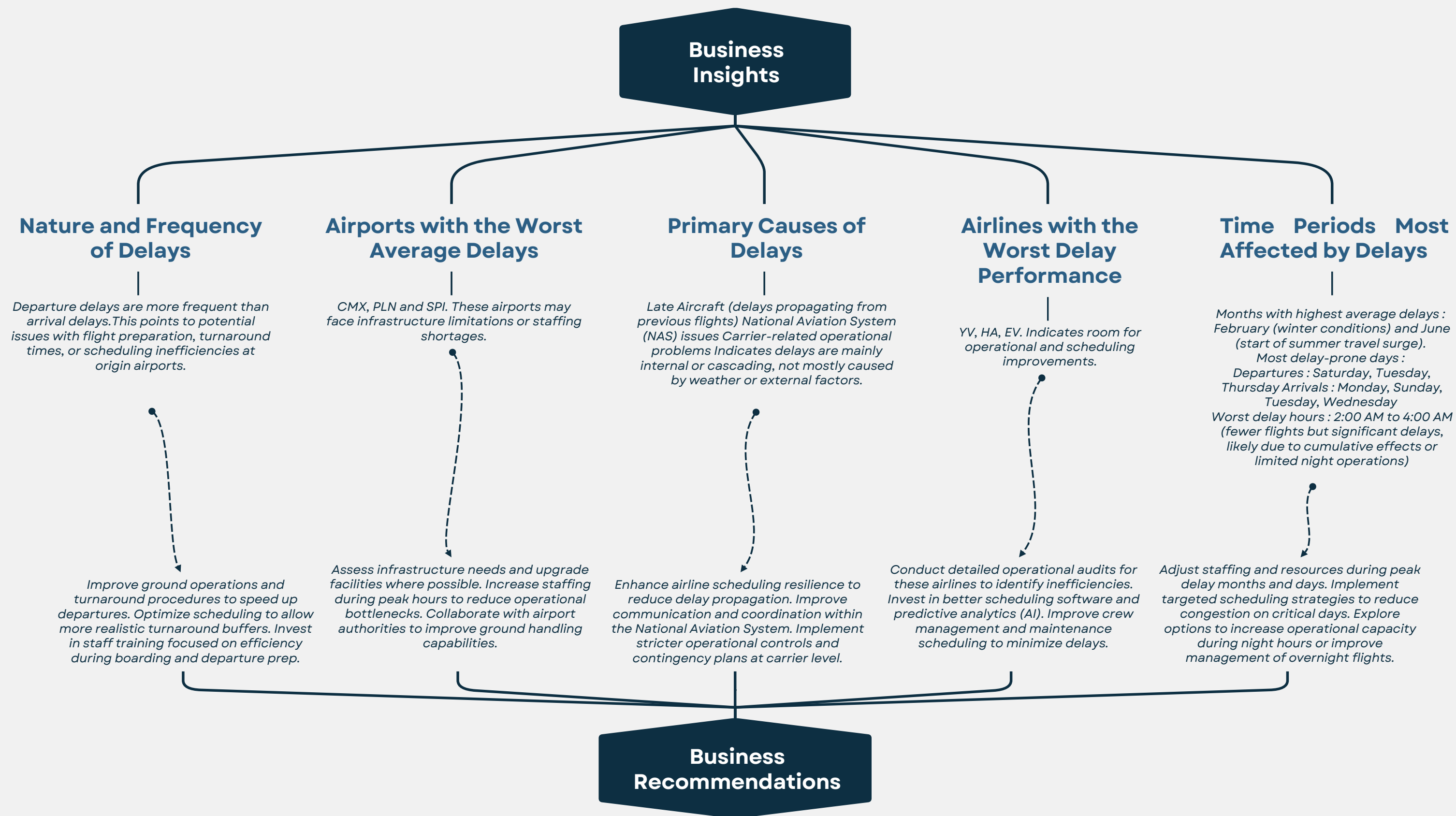
- Optimize aircraft rotation schedules
- Increase ground staff during peak hours

# CUSTOMER JOURNEY MAP

## Flight Delay Experience



# BUSINESS INSIGHTS & RECOMMENDATIONS



# CONCLUSION

Flight delays significantly impact customer satisfaction and operational efficiency. Through data-driven analysis and strategic tools, this report identifies the major causes of delays and outlines actionable solutions. By addressing the root causes and prioritizing key investments, airlines can improve punctuality, reduce costs, and enhance their competitive advantage.

# REFERENCES

## **Dataset Used**

- Source : Kaggle
- Dataset Name : Airlines Delay
- URL : <https://www.kaggle.com/datasets/giovamata/airlinedelaycauses/data>

## **Tools Used**

- Microsoft Excel

## **Author**

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