

Unlocking Insights into Global Air Transportation Network

With Tableau

PROJECT REPORT

1 INTRODUCTION

1.1 Overview

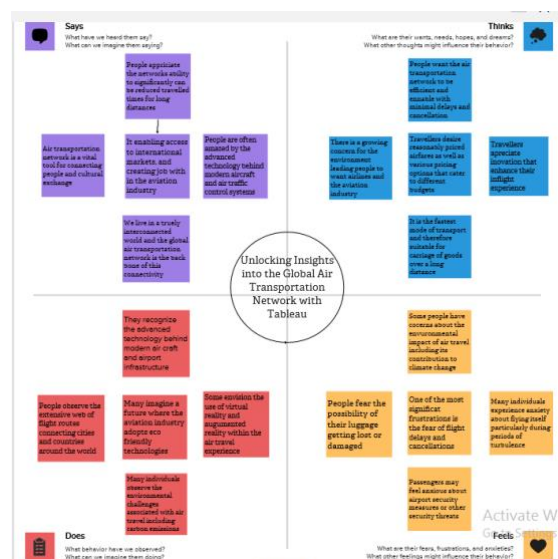
Unlocking insights into the global air transportation network with Tableau empowers stakeholders to visualize and analyze vast volumes of data, enabling informed decision-making and streamlined operations. By leveraging Tableau's data visualization capabilities, the aviation industry gains valuable insights into route optimization, passenger behaviors, and operational efficiency, driving improvements and innovations in air travel.

1.2 Purpose

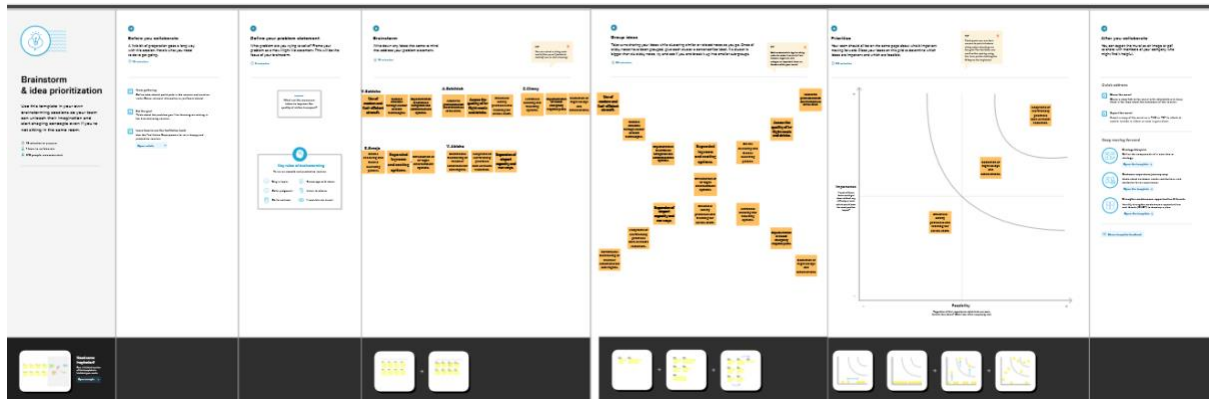
- Enhancing safety protocols and practices based on historical data and incident analysis.
- Protecting sensitive passenger and operational data through robust security measures.
- Predictive maintenance based on data analytics, reducing downtime and enhancing safety

2 Problem Definition & Design Thinking

2.1 Empathy Map



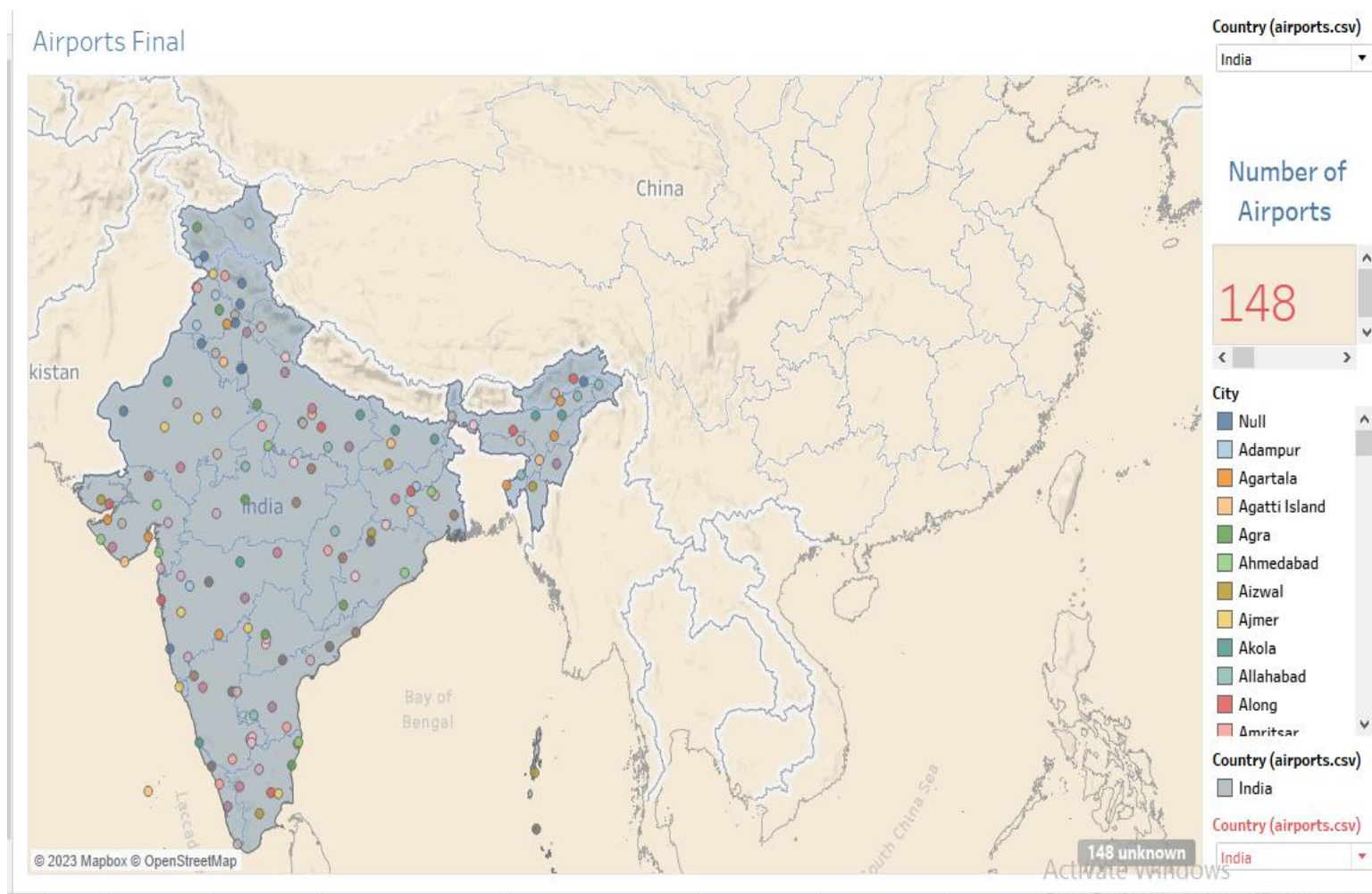
2.2 Ideation & Brain Storming Map



3 RESULT

3.1 Data Model

3.1.1 Dash Board 1



3.1.2 Dash Board 2

Airlines within a Country				
Airline ID	Name	Icao	Callsign	
12	611897 Alberta Limited	THD	DONUT	
17	Aero Aviation Centre Ltd.	AAD	SUNRISE	
36	Angus Aviation	AAZ	ANGUS	
44	Alberta Citylink	ABK	ALBERTA CITYLINK	
61	Air Charters	ACX	PARAIR	
82	Avion Taxi	ADQ	AIR DATA	
85	Air Dorval	ADT	AIR DORVAL	
87	Advance Air Charters	ADV	ADVANCE	
91	Air Southwest Ltd.	ASW	AIRSOUTHWEST	
107	Air Alma	AAJ	AIR ALMA	
126	Air Fecteau	AFH	PECTO	
134	Air Brasd'or	BRL	BRASD'OR	
135	Air 500	BRM	BOOMERANG	
140	Air Caledonia	ACM	WEST CAL	
152	Air Sandy	SNY	AIR SANDY	
166	Algoma Airways	AGG	ALGOMA	
201	Air Integra	AII	INTEGRA	
212	Air Baffin	BFF	AIR BAFFIN	

Active

☒ (All)
 ☒ N
 ☒ Y

Country

Canada

No.of Airlines

323

Active

☒ Y
 ☒ N

Country

Canada

3.1.3 Dash Board 3

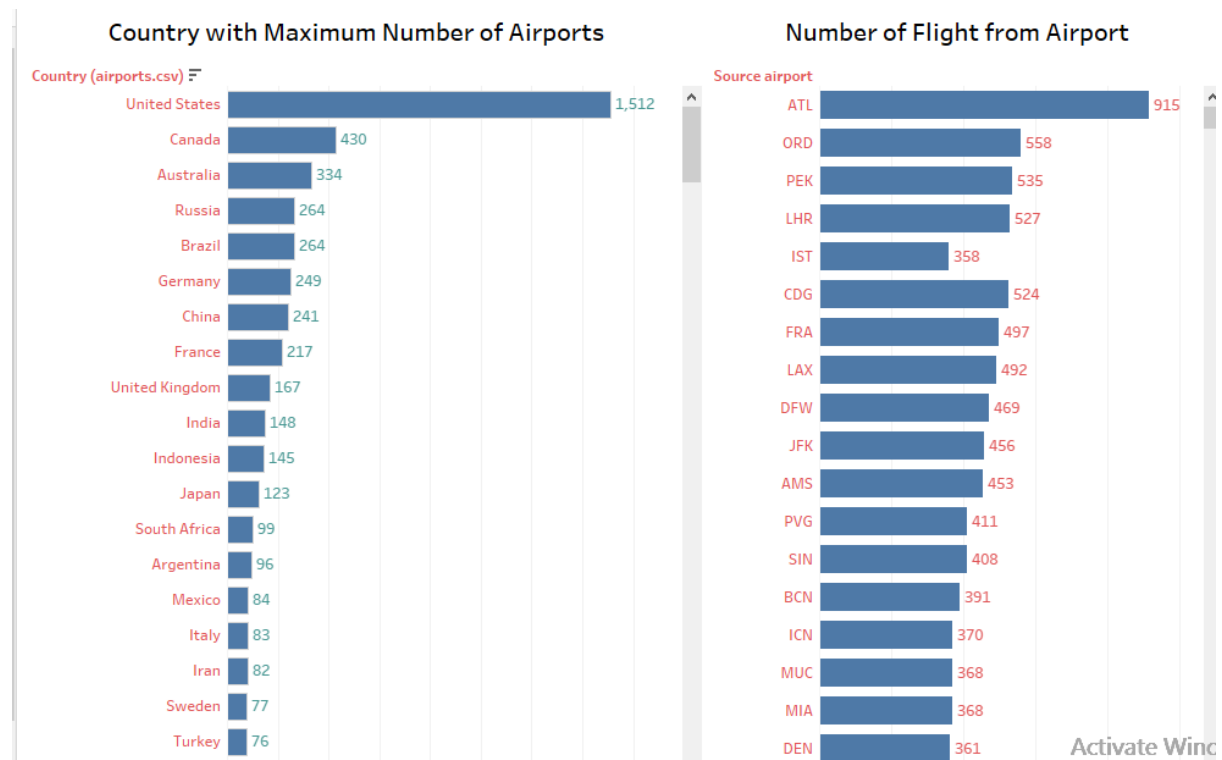
Airports at Higher Altitude within a Country				
index no	Name (air..	City	ICAO (airports.csv)	
1	Bamiyan Airport	Bamyan	OABN	8,367
2	Chakcharan Airport	Chaghcharan	OACC	7,383
3	Sharana Airstrip	Sharona	OASA	7,340

Country (airports.csv)
Afghanistan

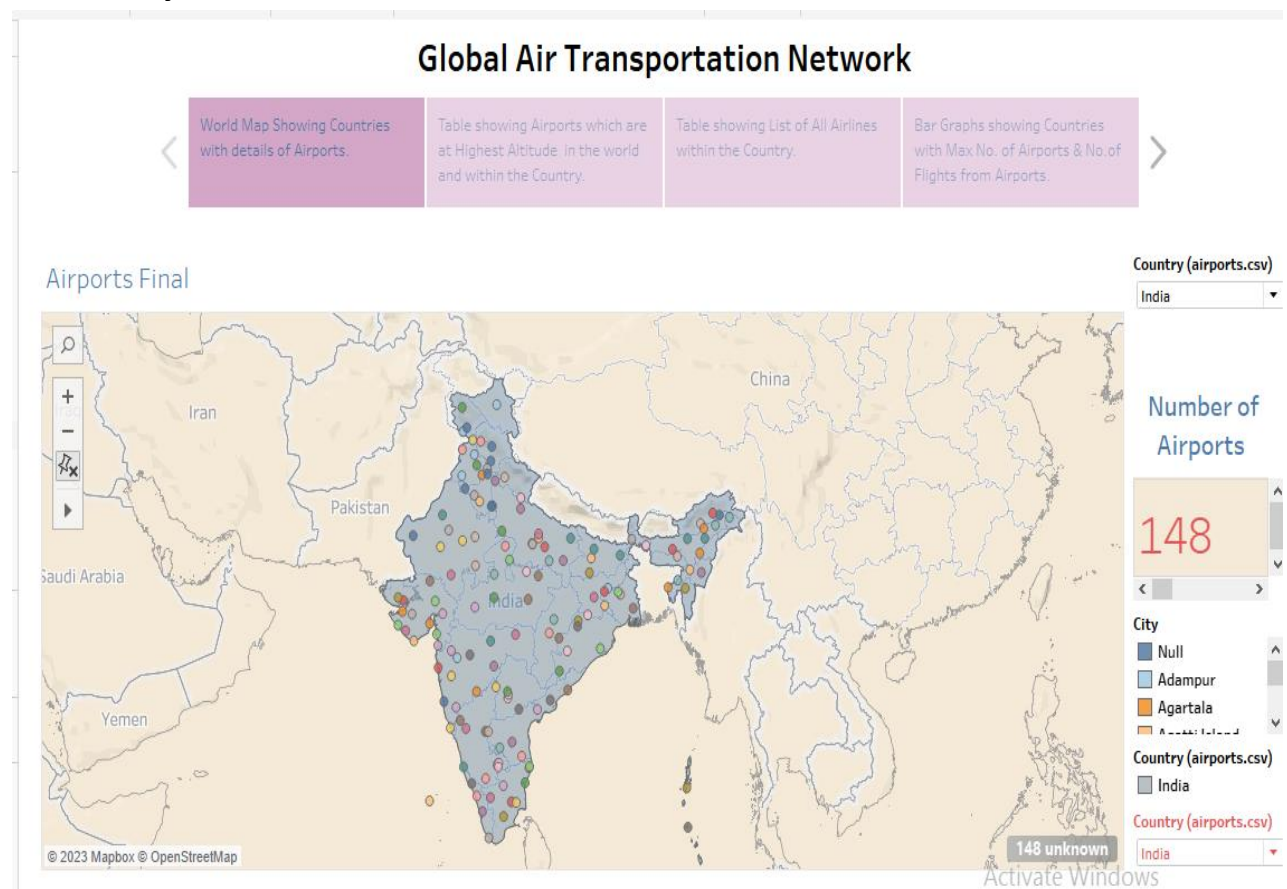
Airports at Highest Altitude in World			
Name (airports.csv)	City	ICAO (ai..	
Capitan Nicolas Roj..	Potosi	SLPO	12,913
Copacabana Airport	Copacabana	SLCC	12,591
Daocheng Yading Ai..	Daocheng	ZUDC	14,472
El Alto Internationa..	La Paz	SLLP	13,355
Golog Maqin Airport	Golog	ZLGL	12,426
Inca Manco Capac I..	Juliaca	SPJL	12,552
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gunsa Airport	Shiquanhe	ZUAL	14,022
Qamdo Bangda Air..	Bangda	ZUBD	14,219
Yushu Batang Airpo..	Yushu	ZYLS	12,816

Activate Windows

3.1.4 Dash Board 4



3.1.5 Story



Global Air Transportation Network

<

World Map Showing Countries with details of Airports.

Table showing Airports which are at Highest Altitude in the world and within the Country.

Table showing List of All Airlines within the Country.

Bar Graphs showing Countries with Max No. of Airports & No. of Flights from Airports.

>

Airports at Higher Altitude within a Country

index no	Name (air..	City	ICAO (airports.csv)	
1	Bamiyan Airport	Bamiyan	OABN	8,367
2	Chakcharan Airport	Chaghcharan	OACC	7,383
3	Sharana Airstrip	Sharona	OASA	7,340

Country (airports.csv)

Afghanistan

Airports at Highest Altitude in World

Name (airports.csv)	City	ICAO (ai..	
Capitan Nicolas Roj..	Potosi	SLPO	12,913
Copacabana Airport	Copacabana	SLCC	12,591
Daocheng Yading Ai..	Daocheng	ZUDC	14,472
El Alto Internationa..	La Paz	SLLP	13,355
Golog Maqin Airport	Golog	ZLGL	12,426
Inca Manco Capac I..	Juliaca	SPJL	12,552
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gunsa Airport	Shiquanhe	ZUAL	14,022
Qamdo Bangda Air..	Bangda	ZUBD	14,219
Yushu Batang Airpo..	Yushu	ZYLS	12,816

Activate Windows

Global Air Transportation Network

<

World Map Showing Countries with details of Airports.

Table showing Airports which are at Highest Altitude in the world and within the Country.

Table showing List of All Airlines within the Country.

Bar Graphs showing Countries with Max No. of Airports & No. of Flights from Airports.

>

Airlines within a Country

Airline ID	Name	Icao	Callsign	
12	611897 Alberta Limited	THD	DONUT	
17	Aero Aviation Centre Ltd.	AAD	SUNRISE	
36	Angus Aviation	AAZ	ANGUS	
44	Alberta Citylink	ABK	ALBERTA CITYLINK	
61	Air Charters	ACX	PARAIR	
82	Avion Taxi	ADQ	AIR DATA	
85	Air Dorval	ADT	AIR DORVAL	
87	Advance Air Charters	ADV	ADVANCE	
91	Air Southwest Ltd.	ASW	AIRSOUTHWEST	
107	Air Alma	AAJ	AIR ALMA	
126	Air Fecteau	AFH	PECTO	
134	Air Brasd'or	BRL	BRASD'OR	
135	Air 500	BRM	BOOMERANG	

Active

- ☒ (All)
☒ N
☒ Y

Country

Canada

No. of
Airlines

323

Active

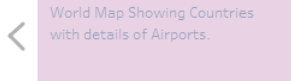
☒ Y
☒ N

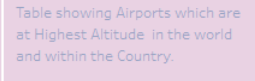
Country


Canada

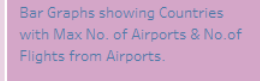
Activate Windows

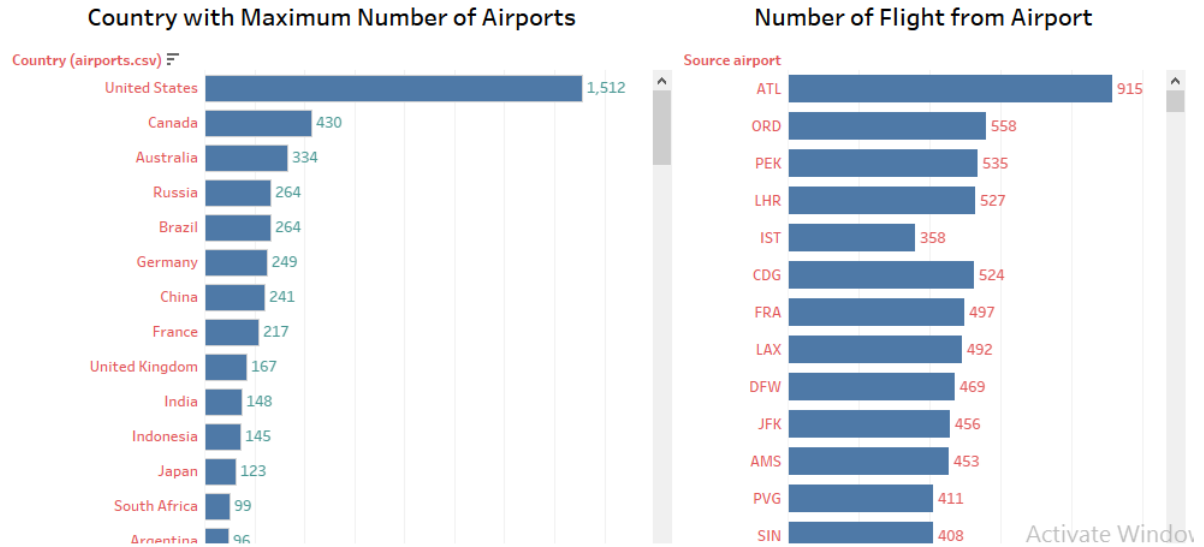
Global Air Transportation Network











4 ADVANTAGES & DISADVANTAGES

4.1 Advantages

- Connect multiple data sources for a comprehensive view of the network.
- Identify opportunities to reduce costs, such as fuel efficiency improvements.
- Optimize the allocation of aircraft and personnel.
- Track safety and security data in real-time.
- Integrate weather data for operational insights.

4.2 Disadvantages

- Maintenance and updates can cause system downtime.
- Analyzing vast datasets may require robust hardware.
- Inaccurate or incomplete data can lead to incorrect conclusions.
- Compliance with data privacy regulations can be complex.
- Licensing costs can be prohibitive for smaller organizations

5 APPLICATIONS

- ❖ Analyzing historical data to optimize flight routes for fuel efficiency, cost savings, and reduced travel time.
- ❖ Providing data-driven reports and insights to attract investors and stakeholders.
- ❖ Conducting market research for expansion into new regions.

- ❖ Ensuring that flights and routes are evenly distributed to maximize revenue.
- ❖ Evaluating the feasibility and cost-effectiveness of leasing aircraft.

6 CONCLUSION

Enhance passenger experiences through customer insights and data-driven improvements. It contribute to environmental sustainability by reducing the environmental impact of air travel. It respond to crises effectively and plan for operational resilience and expand into new markets and grow strategically.

7 FUTURE SCOPE

- ❖ Enhanced capabilities for regulatory compliance, reporting, and audit trails will be developed to streamline compliance processes.
- ❖ Improved real-time data integration and analytics will become even more critical in responding to dynamic situations, such as weather events or security issues.
- ❖ As airlines expand into new markets, Tableau will assist in navigating international regulations and market dynamics.