

# GLOBAL AIR TRANSPORTATION NETWORK

## 1. INTRODUCTION

### 1.1 Overview

- The global air transportation network is a complex system connecting cities, countries, and continents through a vast network of airports, airlines, and flight routes. It enables the movement of people and goods across the world, fostering economic growth, tourism, and cultural exchange.
- At its core, this network comprises thousands of airports, ranging from small regional hubs to major international terminals. Airlines operate a wide array of aircraft, catering to various distances and passenger capacities. Flight routes crisscross the globe, connecting distant locations and making air travel accessible to millions.
- The network's efficiency relies on intricate scheduling, advanced technology, and international collaboration. Airlines coordinate flight timings to optimize connections, while air traffic control systems ensure safe travel by managing airspace and guiding planes during takeoff, landing, and flight.

### 1.2 Purpose

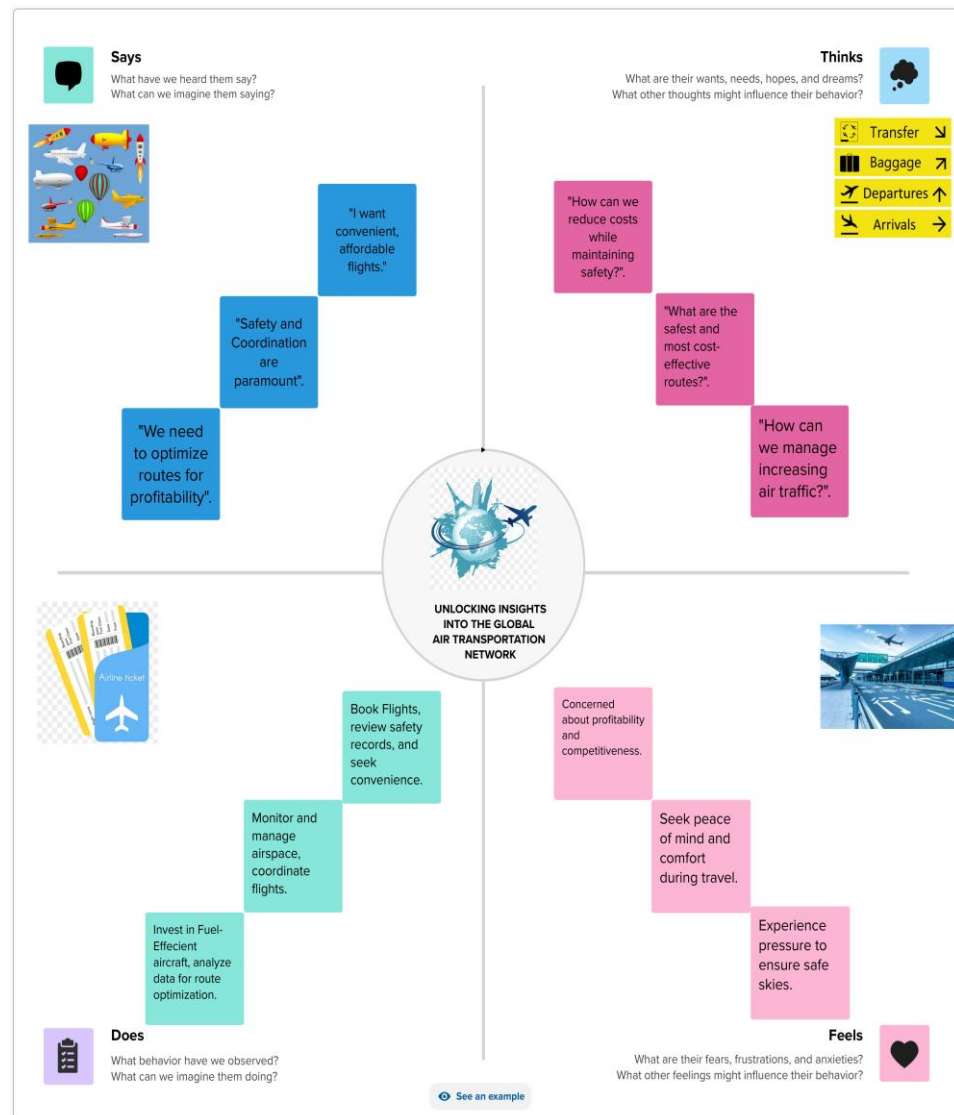
- Global Connectivity: Air travel facilitates easy and rapid connectivity between different regions and countries, fostering global business, trade, and cultural exchanges.
- Economic Growth: It stimulates economic growth by creating jobs, supporting tourism, and boosting local economies through spending by travelers and aviation-related businesses.
- Emergency Response: Air transport plays a critical role in disaster relief and emergency response efforts, enabling swift movement of personnel, supplies, and medical aid to affected areas.

# GLOBAL AIR TRANSPORTATION NETWORK

## 2. Problem Definition & Design Thinking

### 2.1 Empathy Map

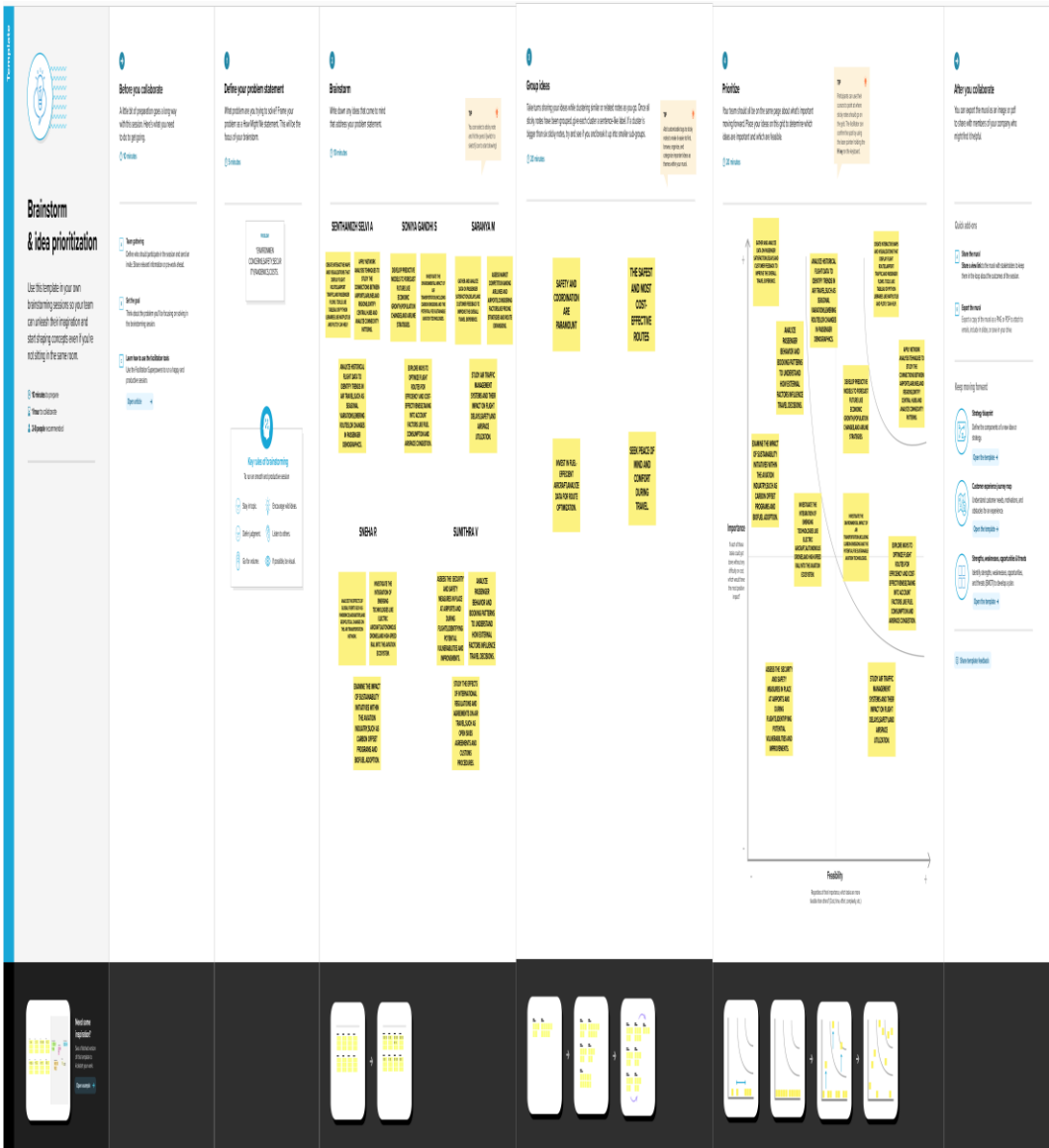
An empathy map is a visual representation that helps teams understand and empathize with the thoughts, feelings, and behaviors of a specific user or customer. It typically consists of a simple diagram divided into sections representing different aspects of the user's experience, such as what the user hears, sees, thinks, feels, and does.



# GLOBAL AIR TRANSPORTATION NETWORK

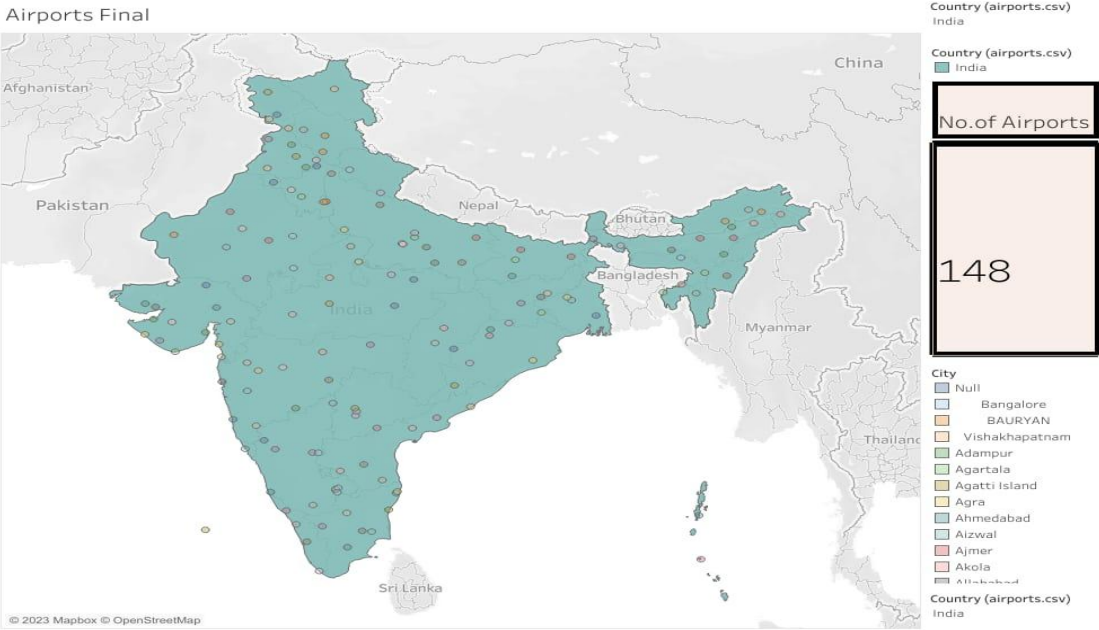
## 2.2 Ideation & Brainstorming Map

Brainstorming is a creative problem-solving technique that involves generating a large number of ideas in a group setting. It encourages participants to express their thoughts and suggestions freely and without criticism. The primary goal of brainstorming is to stimulate creative thinking, foster collaboration, and generate innovative solutions to specific problems or challenges.



# GLOBAL AIR TRANSPORTATION NETWORK

## 3. RESULT



Airlines within a Country				
Airline ID	Name	Icao	Call sign	
921	Air Greenland	GRL	GREENLAND	<input checked="" type="checkbox"/>
1781	Cimber Air	CIM	CIMBER	<input checked="" type="checkbox"/>
1954	DAT Danish Air Transport	DTR	DANISH	<input checked="" type="checkbox"/>
3366	Maersk	Null	Null	<input checked="" type="checkbox"/>
4776	Sterling Airlines	SNB	STERLING	<input checked="" type="checkbox"/>
11856	Transavia Denmark	TDK	Null	<input checked="" type="checkbox"/>
17115	Copenhagen Express	CX0	Copex	<input checked="" type="checkbox"/>

Country  
Denmark

Active  
☐ N  
☒ Y

Active  
☒ Y

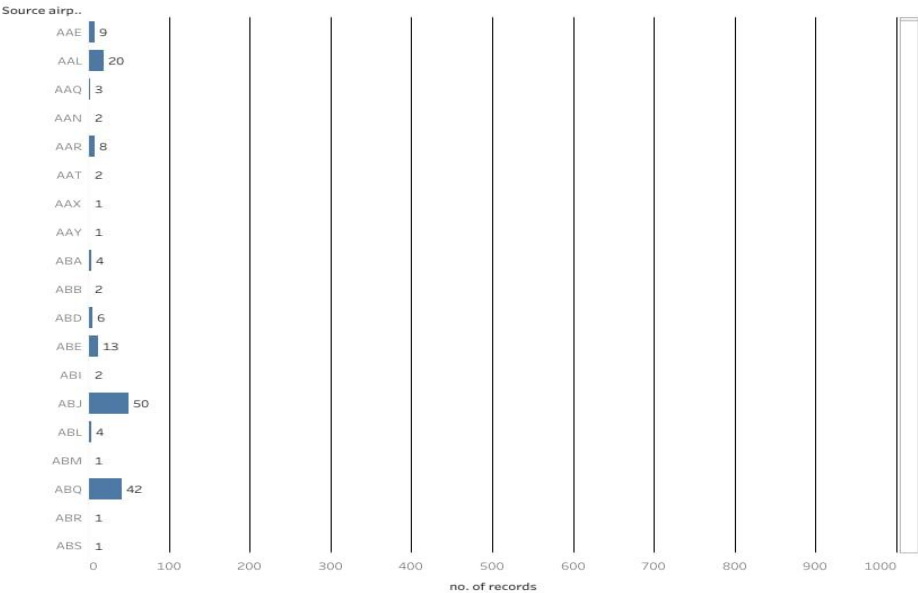
# GLOBAL AIR TRANSPORTATION NETWORK

Airports at Higher Altitude within a Country				
Index no.	Airport Name	City	ICAO (airports.csv)	
1	Tomanggong Airport	Tomanggong	WBKM	26
	Tawau Airport	Tawau	WBKW	57
	Sultan Mahmud Airport	Kuala Terengganu	WMKN	21

Country (airports.csv)  
Malaysia

Airports at Highest Altitude in World		
Airport Name	City	ICAO (airports.csv)
Yushu Batang Airport	Yushu	ZYLS
Kangding Airport	Kangding	ZUKD
Daocheng Yading Airport	Daocheng	ZUDC
Qamdo Bangda Airport	Bangda	ZUBD
Ngari Gunsa Airport	Shiquanhe	ZUAL
Golog Maqin Airport	Golog	ZLGL
Inca Manco Capac International Airport	Juliaca	SPJL
Capitan Nicolas Rojas Airport	Potosi	SLPO
El Alto International Airport	La Paz	SLLP
Copacabana Airport	Copacabana	SLCC

Numbers of Flights from Airport



# GLOBAL AIR TRANSPORTATION NETWORK

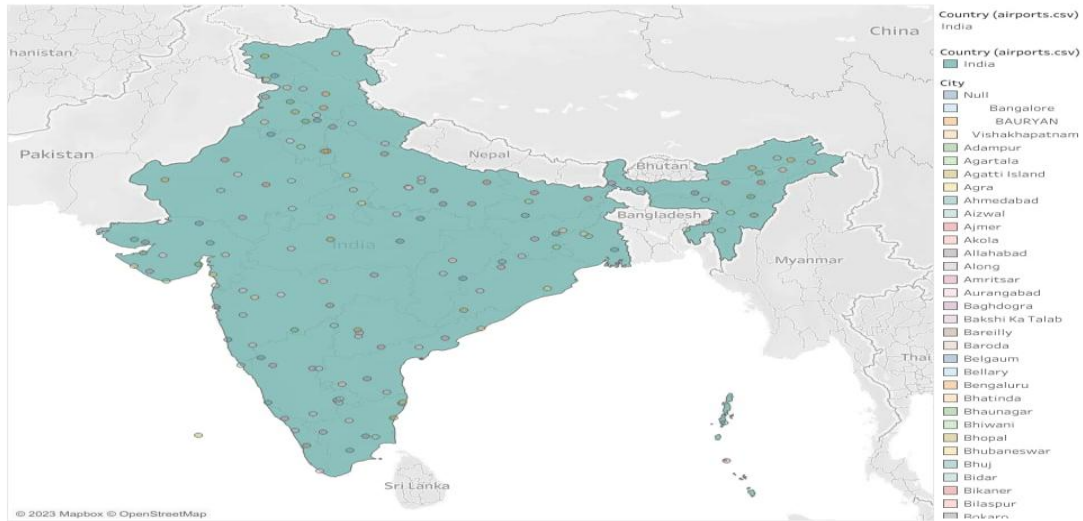
## Global Air Transportation Network

World Map showing countries with details of Airports.

Table showing list of all Airlines within the country.

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

Bar Graphs showing countries with max No. of Airports & No. of Flights from Airports.










## Global Air Transportation Network

World Map showing countries with details of Airports.

Table showing list of all Airlines within the country.

Table showing Airports which are at Highest Altitude in the world and 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	Callsgn	
921	Air Greenland	GRL	GREENLAND	
1781	Cimber Air	CIM	CIMBER	
1954	DAT Danish Air Transport	DTR	DANISH	
3366	Maersk	Null	Null	
4776	Sterling Airlines	SNB	STERLING	
11856	Transavia Denmark	TDK	Null	
17115	Copenhagen Express	CX0	Copex	

Country  
Denmark

Active

<input type="checkbox"/>	N
<input checked="" type="checkbox"/>	Y

Active  
☒ Y

# GLOBAL AIR TRANSPORTATION NETWORK

## Global Air Transportation Network

World Map showing countries with details of Airports.

Table showing list of all Airlines within the country.

Table showing Airports which are at Highest Altitude in the world and 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.	Airport Name	City	ICAO (airports.csv)	
1	Tomanggong Airport	Tomanggong	WBKM	26
	Tawau Airport	Tawau	WBKW	57
	Sultan Mahmud Airport	Kuala Terengganu	WMKN	21

Country (airports.csv)  
Malaysia

Airports at Highest Altitude in World		
Airport Name	City	ICAO (airports.csv)
Yushu Batang Airport	Yushu	ZYLS
Kangding Airport	Kangding	ZUKD
Daocheng Yading Airport	Daocheng	ZUDC
Qamdo Bangda Airport	Bangda	ZUBD
Ngari Gunsa Airport	Shiquanhe	ZUAL
Golog Maqin Airport	Golog	ZLGL
Inca Manco Capac International Airport	Juliaca	SPJL
Capitan Nicolas Rojas Airport	Potosi	SLPO
El Alto International Airport	La Paz	SLLP
Copacabana Airport	Copacabana	SLCC

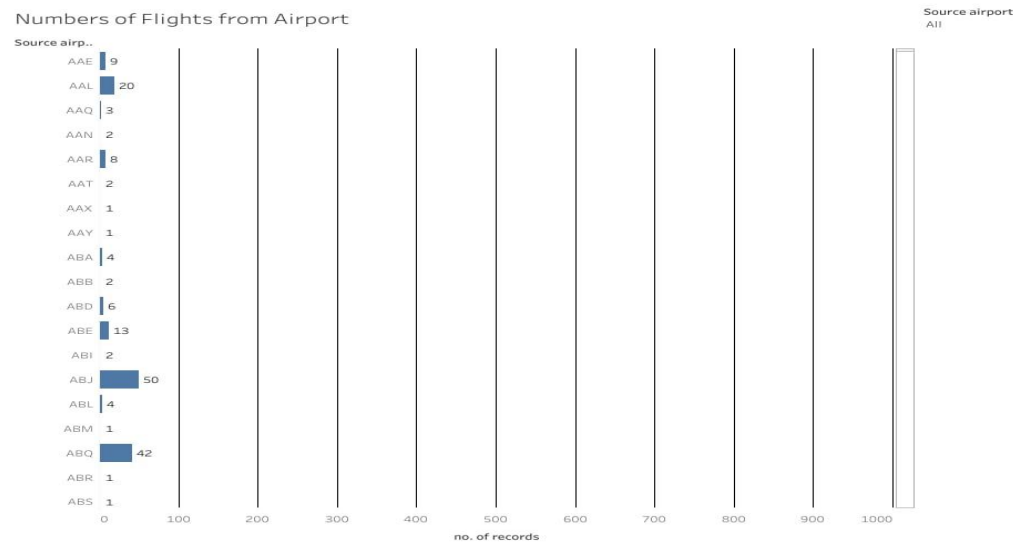
## Global Air Transportation Network

World Map showing countries with details of Airports.

Table showing list of all Airlines within the country.

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

Bar Graphs showing countries with max No. of Airports & No. of Flights from Airports.



# GLOBAL AIR TRANSPORTATION NETWORK

## 4. ADVANTAGES & DISADVANTAGES

### ADVANTAGES:

- **Efficiency:** Air travel allows for swift transportation of people and goods across long distances, saving time compared to other modes of transportation.
- **Global Connectivity:** Air networks connect remote locations, fostering global communication, trade, and cultural exchange.
- **Economic Impact:** Air transportation supports economies by creating jobs, stimulating tourism, and facilitating international trade.
- **Emergency Response:** Air transport enables rapid response to natural disasters and humanitarian crises, delivering aid and relief supplies quickly.
- **Technological Advancements:** The aviation industry drives innovation in aircraft design, fuel efficiency, and safety technologies.

### DISADVANTAGES:

- **Environmental Impact:** Air travel contributes significantly to greenhouse gas emissions, leading to climate change and environmental degradation.
- **Safety Concerns:** While air travel is generally safe, accidents and incidents can have severe consequences due to the high number of passengers involved.
- **High Costs:** Air travel can be expensive, limiting accessibility for some individuals and communities, especially in developing countries.
- **Congestion and Delays:** Busy air routes often experience congestion and delays, leading to inconvenience for passengers and increased operational costs for airlines.
- **Dependency and Vulnerability:** Heavy reliance on air transport makes economies vulnerable to disruptions such as natural disasters, political unrest, or pandemics, as seen during the COVID-19 pandemic.
- **Noise Pollution:** Airports and aircraft contribute to noise pollution, affecting nearby communities and wildlife habitats.



# GLOBAL AIR TRANSPORTATION NETWORK

## 5. APPLICATIONS

- **Business and Commerce:** Facilitates international trade and enables companies to connect with global markets. Businesses can transport goods quickly and efficiently across continents.
- **Tourism and Travel:** Makes worldwide travel accessible, fostering tourism, cultural exchange, and understanding among nations. It contributes significantly to the global economy through tourism revenue.
- **Humanitarian Aid and Disaster Relief:** Provides rapid response during disasters, delivering essential supplies, medical aid, and personnel to affected regions. Air transportation plays a vital role in humanitarian efforts worldwide.
- **Medical Emergencies:** Enables swift transport of patients requiring specialized medical treatments, organ transplants, or emergency medical assistance. Medical evacuation flights save lives in critical situations.
- **Scientific Research:** Supports field research, exploration, and collaborations between scientists and researchers across the globe. Scientists can travel quickly to conduct experiments, attend conferences, and share knowledge.

## 6. CONCLUSION

The global air transportation network is a complex and interconnected system that plays a vital role in the modern world. It facilitates international trade, tourism, and cultural exchange. As technology continues to advance, the network is likely to become even more efficient and accessible, connecting people and businesses across the globe. However, challenges such as environmental concerns and geopolitical tensions will need to be addressed to ensure the sustainable growth and stability of the global air transportation network.

# GLOBAL AIR TRANSPORTATION NETWORK