

# **UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK**

-A DETAILED REPORT



**BY TEAM:**

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## **TEAM MEMBERS**

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## INTRODUCTION

- **Air transport as the system consists of three main subsystems—airport, airlines, and ATC/ATM (Air traffic Control/Management). The airports as the ground-based infrastructure consist of airside and landside area**
- ***The air transport system generally includes airports, ATC (air traffic control) system, and airlines.***
- ***The airports represent the ground part of the system's infrastructure handling the aircraft operated by different airlines transporting passengers and freight/cargo shipments.***
- ***The organized and controlled airspace between airports represents the air part of the system's infrastructure Air transport is an important enabler to achieving economic growth and development.***
- ***Air transport facilitates integration into the global economy and provides vital connectivity on a national, regional, and international scale.***
- ***It helps generate trade, promote tourism, and create employment opportunities. The World Bank has financed aviation-related projects for over sixty years***
- ***Today, the WBG remains actively engaged in every region on projects related to air transport policy and regulation, safety, infrastructure rehabilitation, institutional strengthening, and capacity building.***



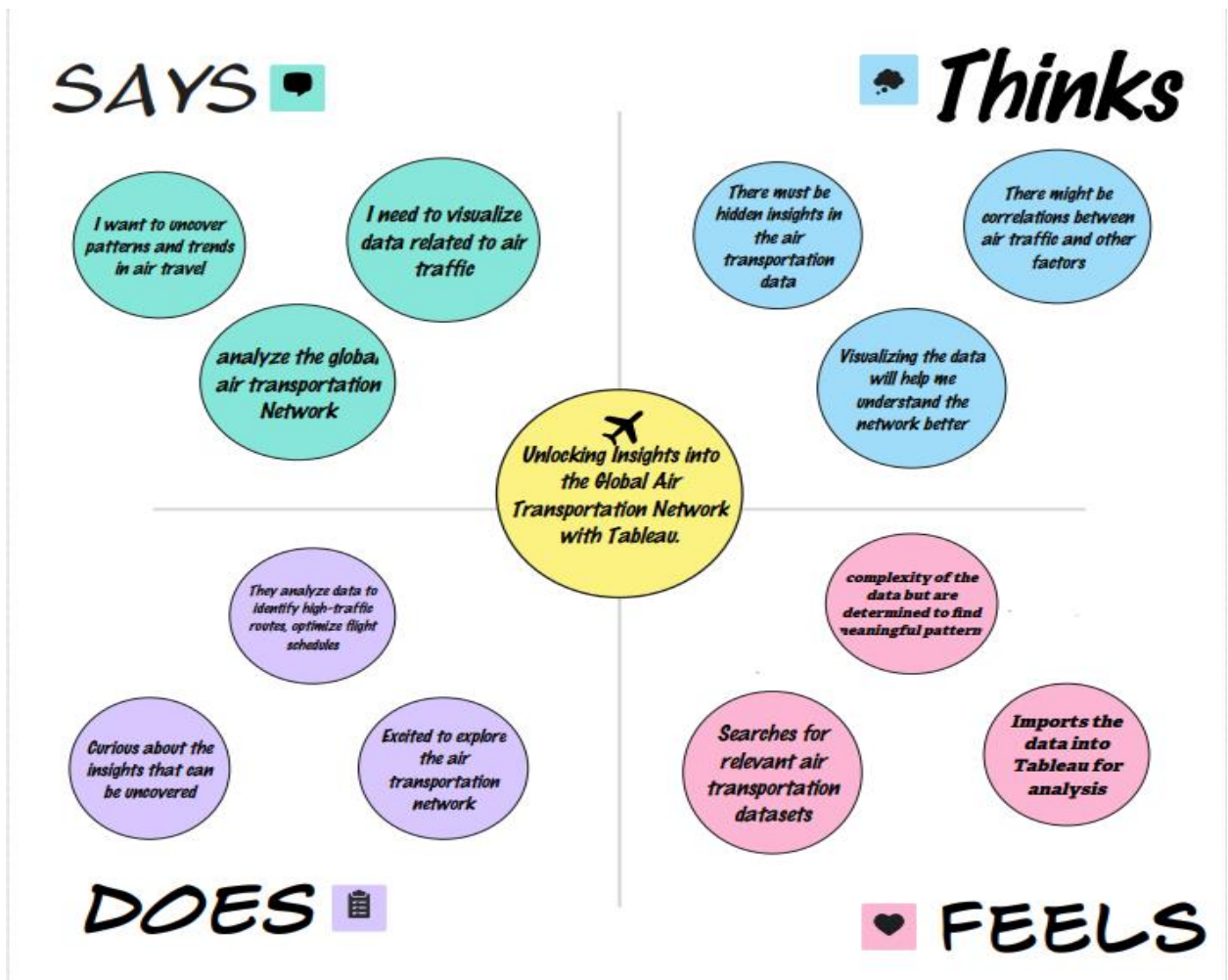
## **PURPOSE:**

- + Air transport is one of the fastest modes of public transport which connects international boundaries.**
- + Air transport allows people from different countries to cross international boundaries and travel other countries for personal, business, medical, and tourism purposes.**

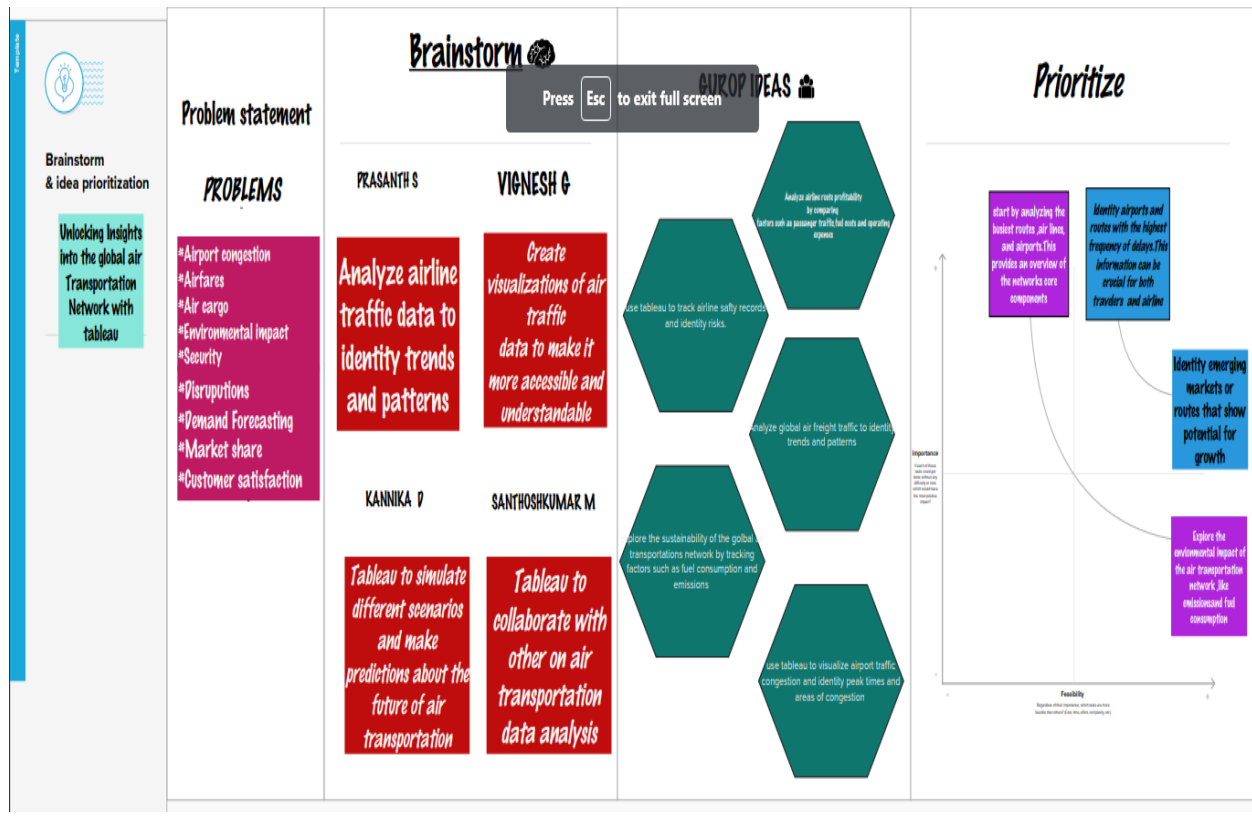
## **PROBLEM UNDERSTANDING:**

- + Congestion: Major airports and airspace congestion can lead to delays and increased travel times for passengers and cargo.**
- + Environmental Impact: The aviation industry contributes to carbon emissions and climate change, leading to calls for more sustainable practices**
- + Costs: Airlines face fluctuating fuel prices and operational costs, which can impact ticket prices and profitability**
- + Health Crises: Events like pandemics can disrupt global air travel, as seen with COVID-19.**
- + Global Political Relations: Geo-political tensions can impact air travel routes and access to certain regions.**

# EMPATHY MAP



# IDEATION OF BRAIN STORMING MAP



## **RESULT:**

***THE STORY IS CONTAINING 19 SEGEMENTS***

- 1. WORLD MAP SHOWING DETAILS OF ALL AIRPORTS  
WITHIN A COUNTRY**
- 2. NUMBER OF AIRPORTS WITHIN THE COUNTRY**
- 3. AIRPORTS AT HIGHER ALTITUDE WITHIN A COUNTRY**
- 4. AIRPORTS AT HIGHER ALTITUDE IN THE WORLD**
- 5. AIRLINES WITHIN A COUNTRY**
- 6. NUMBER OF FLIGHTS FROM AIRPORT**
- 7. DASHBOARD**
- 8. STORY**
- 9. CONCLUSION**
- 10. FUTURE SCOPE**

# DASHBOARD 1

## World map showing details of all Airports within a Country



## DASHBOARD 2

No  
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22

Number  
of Air-  
ports. The  
data is  
filtered  
on Coun-  
try (airpo  
rts.csv),  
which  
keeps Afg  
hanistan.



## DASHBOARD 3

### Airports at Higher altitude within a country

#### Airport at Higher altitude within a Country

index no	Name (airports.csv)	City	ICAO (airpo..	
1	Zyryanka Airport	Zyryanka	UESU	140
	Zweibrücken Airport	Zweibruecken	EDRZ	1,132
	Zvishavane Airport	Zvishavane	FVSH	3,012

Sum of Altitude broken down by index no, Name (airports.csv), City and ICAO (airports.csv). The data is filtered on Country (airports.csv) and top n. The Country (airports.csv) filter keeps 237 of 237 members. The top n filter keeps True.

# DASHBOARD 4

## AIRPORTS AT HIGHER ALTITUDE IN THE WORLD

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

Sum of Altitude broken down by Name (airports.csv), City and ICAO (airports.csv). The view is filtered on ICAO (airports.csv), which has multiple members selected.

# DASHBOARD 5

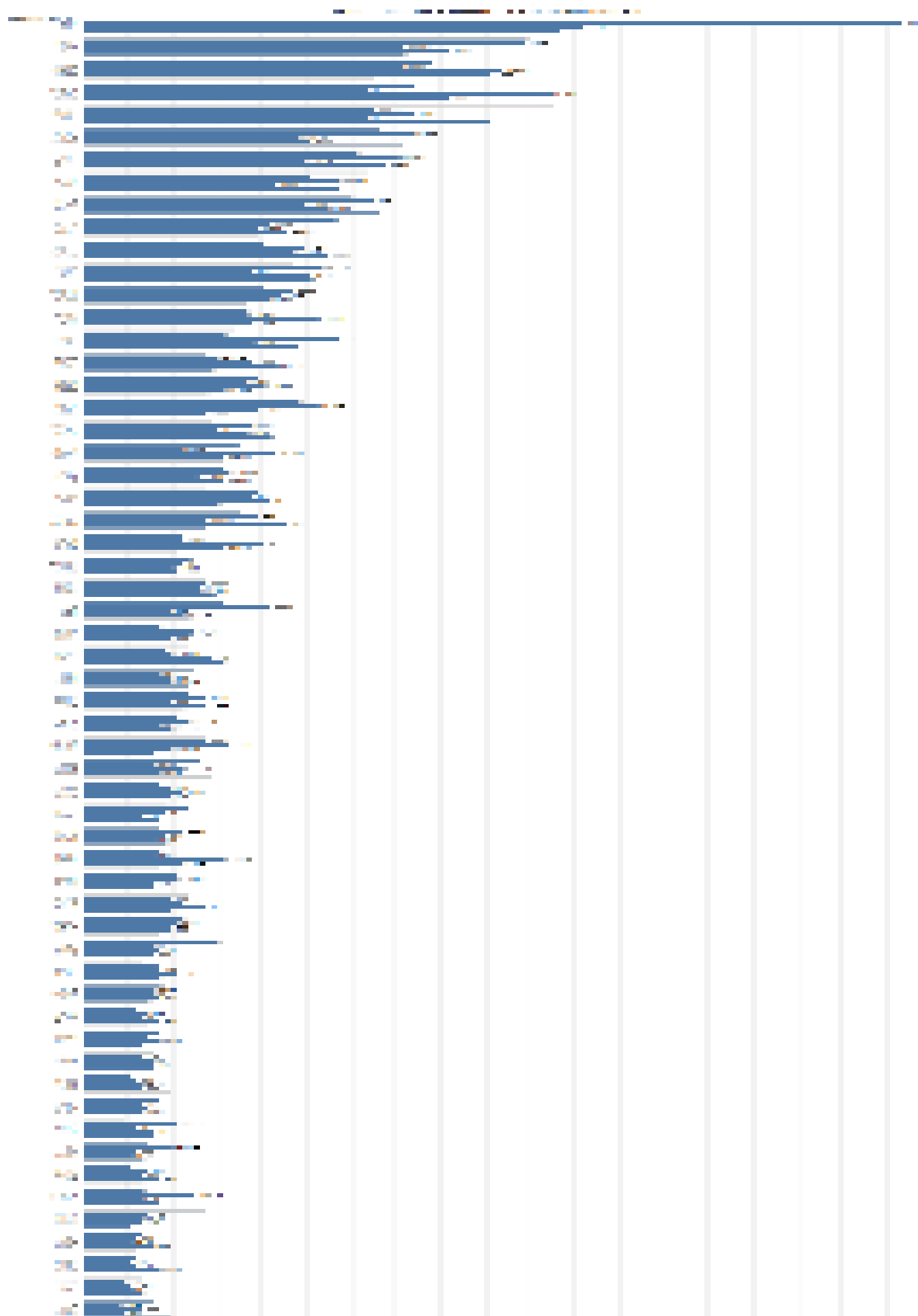
Airlines within a country					Active
Airline ID	Name	Icao	Callsign		
218	Air India Limited	AIC	AIRINDIA		Y
241	Air Sahara	RSH	SAHARA		Y
569	Air India Express	AXB	EXPRESS INDIA		Y
1026	Alliance Air	LLR	ALLIED		N
1370	Blue Dart Aviation	BDA	BLUE DART		N
2001	Deccan Aviation	DKN	DECCAN		N
2575	Go Air	GOW	GOAIR		Y
2634	Gujarat Airways	GUJ	GUJARATAIR		N
2850	IndiGo Airlines	IGO	IFLY		Y
2851	India International Airways	IIL	INDIA INTER		N
2852	Indian Air Force	IFC	INDIAN AIRFORCE		N
2853	Indian Airlines	IAC	INDAIR		Y
3000	Jet Airways	JAI	JET AIRWAYS		Y
3142	Kingfisher Airlines	KFR	KINGFISHER		Y
3907	Paramount Airways	PMW	PARAWAY		Y
3918	Pawan Hans	PHE	PAWAN HANS		N
4375	Spicejet	SEJ	SPICEJET		Y
13105	Air India Regional	\N	ALLIED		Y
13106	MDLR Airlines	\N	MDLR		Y
13107	Jagson Airlines	JGN	JAGSON		Y
13905	Skyline nepc	\N	Null		N
16327	Indya Airline Group	IG1	Indya1		Y
16362	OCEAN AIR CARGO	IXO	Null		Y
16738	NEPC Airlines	\N	Null		N
16901	12 North	N12	12N		Y
19451	Air Costa	\N	Null		Y
20264	Air Vistara	VTI	Null		Y
20286	Air Pegasus	PPL	Null		Y
21270	Air Carnival	\N	Null		Y

Active (color) broken down by Airline ID, Name, Icao and Callsign. The data is filtered on Country, which keeps India. The view is filtered on Active, which keeps multiple members.



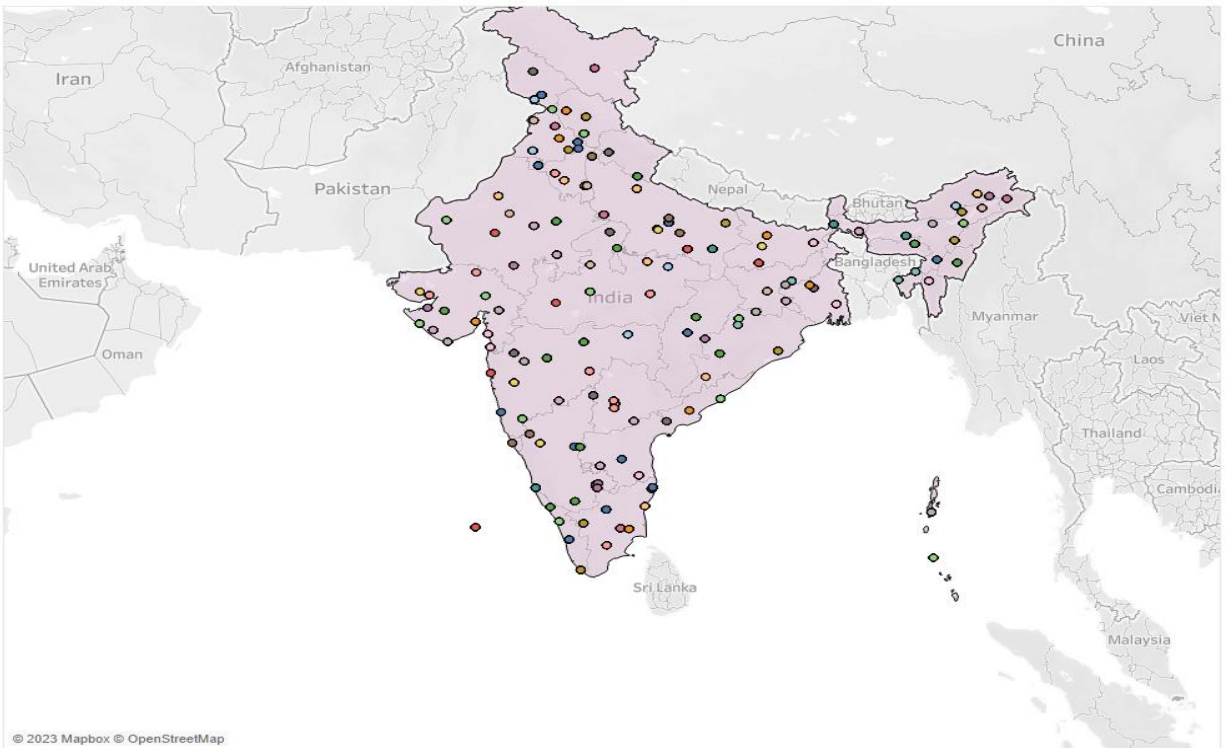
## **DASHBOARD 3**

**Number of flights from airport**



# STORY 1

**Number of airports Within The Country**



# STORY 2

No  
of  
Air  
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22

Country (airports.csv)  
Afghanistan

Highlight Number of Airp..  
No items highlighted

STORY 3

Global Air Transportation Network

Number of airports Within The Country	No of Airports	Airport at Higher altitude within a Country,Airports at H..	Number of Flights From Airports	Airlines within a country
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Airport at Higher altitude within a Country

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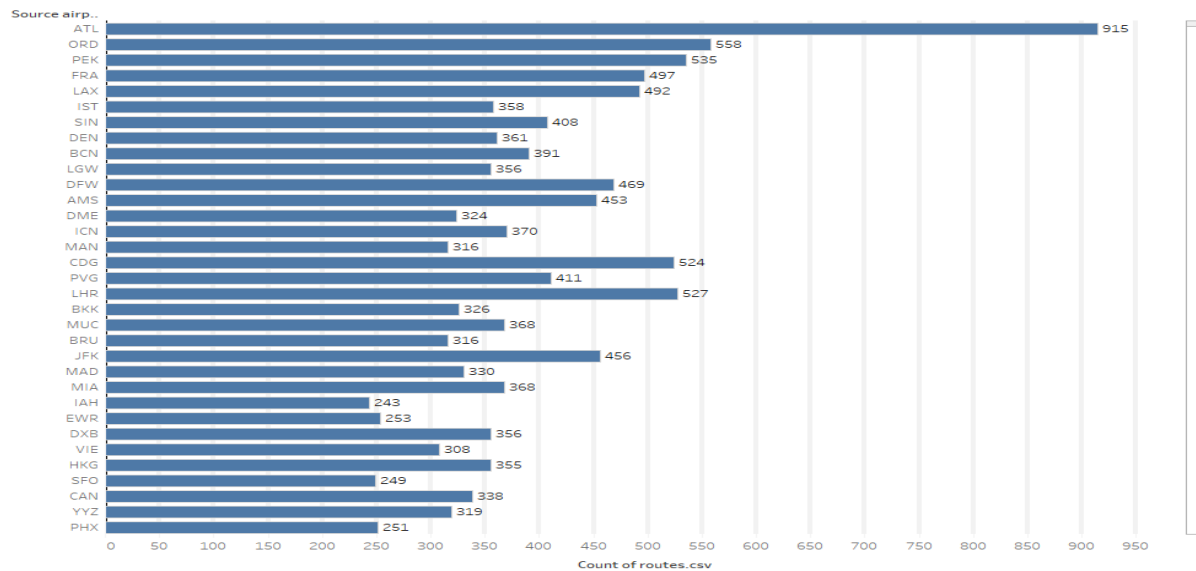


## STORY 4

### Global Air Transportation Network

Number of airports Within The Country	No of Airports	Airport at Higher altitude within a Country,Airports at H..	Number of Flights From Airports	Airlines within a country
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#### Number of Flights From Airports



STORY 5

Global Air Transportation Network

Number of airports Within The Country	No of Airports	Airport at Higher altitude within a Country,Airports at H..	Number of Flights From Airports	Airlines within a country
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Airlines within a country				
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3142	Kingfisher Airlines	KFR	KINGFISHER	
3907	Paramount Airways	PMW	PARAWAY	
3918	Pawan Hans	PHE	PAWAN HANS	

Active

☒ N

☒ Y

Country

India

Active

☒ N

☒ Y

# ADVANTAGES AND DISADVANTAGES OF AIR TRANSPORTATION NETWORK



## Advantages of Air Transport

### **1. High Speed**

*Air is the type of freight capable of traveling long distances in short periods of time. This makes this model an optimum choice if the client has an urgent need to ship a product or if their freight demands **special standards of protection** or acclimation. It is the quickest transport mode and is therefore ideal for long-distance transport of goods. It takes less time.*

### **2. Fast Service**

*Air transportation offers convenient, reliable and fast services of transport. It is considered the cheapest way to ship peregrinated goods. It offers a standard, convenient, reliable and fast service.*

### **3. Send almost everywhere your freight**

*In regions that are not readily accessible to other modes of transport, air transport is considered to be the only means of transport. Open to all regions, irrespective of land interference. A vast network of airlines covering nearly the whole globe is available for many airlines. This ensures that the package can be sent almost anywhere.*

### **4. High Standard of Security**

*High standard of protection with a low risk of robbery and injury. Shipping by air has a high degree of security since airport safety restrictions on cargo are strictly enforced. Tightly controlled airport controls also minimise cargo theft and loss.*

### **5. Natural Route**

*An aircraft can fly to any location without seeing any natural obstacles or barriers. Since customs formalities are easily compiled. It eliminates the need for more time to seek clearance. Air travel is used for relief operations during earthquakes, floods, accidents, and famines.*



## **DISADVANTAGES OF AIR TRANSPORT**

### **1. Risky**

*Air travel is the riskiest mode of transport, since there can be considerable losses to goods, customer and crews as a result of a minor crash. Compared to other means of travel, the risks of collisions are higher.*

### **2. Cost**

***Air travel is considered to be the most expensive means of transportation. The cost of maintaining aircraft is higher and the costs for the building of aerodromes and avions are much higher. That's why air travel is so expensive that it gets beyond ordinary people's grasp.***



### ***3. Some Product Limitation***

***There is a whole variety of materials not suitable for such products, from explosives, gases, batteries, fired solids and liquids, which cannot be shipped by air to name but a few.***

### ***4. Capacity for Small Carriage***

***The aircraft have no room and therefore are not ideal for carriage of voluminous and cheaper materials. As is seen for rails, the load volume cannot be raised.***

### ***5. Enormous investment***

***Air travel calls for enormous spending in aerodrome building and servicing. It also calls for professional, qualified and qualified staff that need a significant investment.***

## **CONCLUSION**

Air transport means that goods can be transported anywhere in the world quickly and reliably. Unlike sea or road transport, the air transport service does not have barriers, or if they do, they are found in extreme weather conditions or in the trade agreements between countries.

For those businesses that sell valuable or perishable products in the international market, air transport is the best option to be able to transport your merchandise in the shortest possible time.



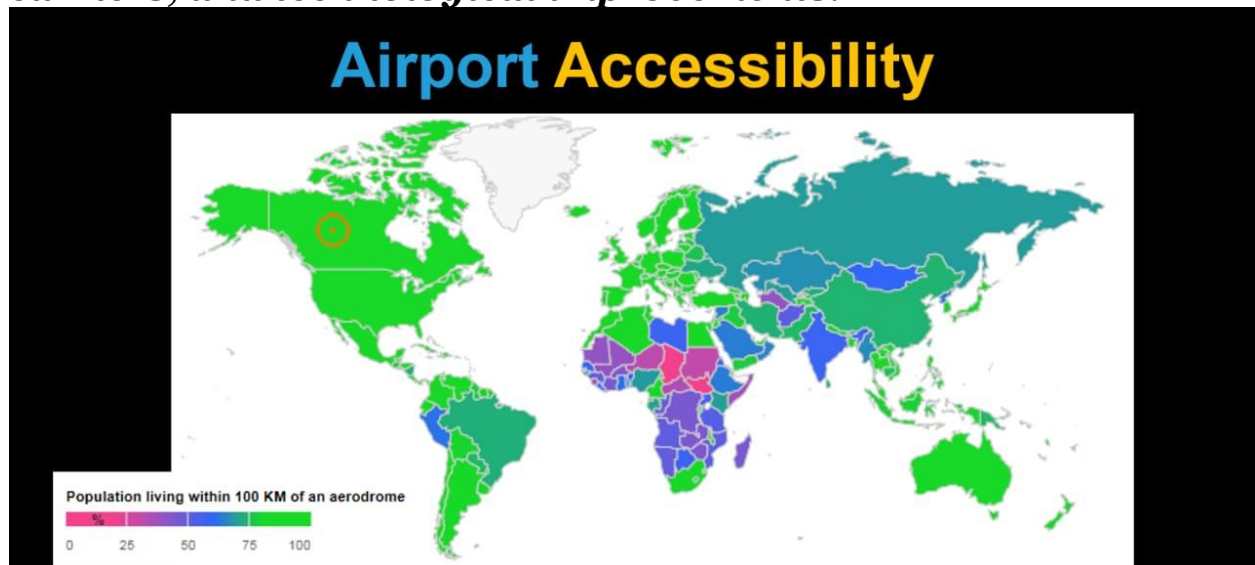
## FUTURE SCOPE



***The industry has a number of domestic and international airlines, as well as a large network of airports. The future of the aviation industry in India is likely to see continued growth and expansion, driven by factors such as a growing middle class, increased tourism, and government policies supporting the industry.***

***main pillars that uphold the aviation industry as a whole: commercial, general, and military aviation.***

*globalization, rising incomes, the expansion of low-cost carriers, and technological improvements.*



## APPENDIX

*Emerging technologies are reshaping with robotics, artificial intelligence, the internet of things, unmanned aircraft systems and the push for hybrid and electric airplanes – just to name a few. Alternative fuels can significantly change the current scenario of aviation in support of the environmental protection.*



*The worldwide air transportation network is a critical infrastructure with high impact on mobility, trade and economy. Another examples are the air transport systems of a country or a country's own air transport company.*

