

PROJECT REPORT

ON

**“UNLOCKING INSIGHTS INTO THE GLOBAL AIR
TRANSPORTATION NETWORK WITH TABLEAU”**

BASED ON THE COURSE

**FUNDAMENTALS OF DATA ANALYTICS WITH
TABLEAU - SMARTBRIDGE**

DONE AND SUBMITTED BY

KANISHKA PA	bru001221bst010
BAVANI M	bru001221bst003
MOHAMMED FARISH F	Bru001221bst043
MANOJ KUMAR M	Bru001221bst042

TEAM ID – NM2023TMID2501

SUBMITTED TO

**NAAN MUDHALVAN – SMART INTERNZ DATA
ANALYTICS UPSKILL PROGRAMMING**



PROJECT REPORT

1.INTRODUCTION

1.1 OVERVIEW

The global air transportation network refers to the interconnected system of airlines, airports, and routes that enable the movement of passengers and cargo around the world. This network is essential for international travel and the global economy. It involves thousands of airports, numerous airlines, and an intricate web of flight routes that connect cities and countries. The network is continually evolving and expanding, with new routes and connections being established to meet the demands of travelers and trade. It plays a crucial role in connecting people, facilitating trade, and supporting the global tourism industry.

2.2 PURPOSE

Connectivity: It connects people, businesses, and nations, allowing for the rapid movement of individuals and goods across vast distances, promoting global trade, tourism, and cultural exchange.

Economic Impact: Air transportation is a significant driver of economic growth. It creates jobs, generates revenue for airlines and airports, and supports related industries like tourism, manufacturing, and logistics.

Efficiency: Air travel is one of the fastest modes of transportation, making it a preferred choice for time-sensitive cargo and passenger travel.

Globalization: It facilitates the globalization of businesses and markets by enabling companies to operate on a global scale, reaching customers and partners around the world.

Humanitarian Aid: Air transportation plays a vital role in delivering humanitarian aid, medical supplies, and relief personnel to areas affected by natural disasters, conflicts, or health crises.

Cultural Exchange: It promotes cultural exchange by allowing people to travel and experience different cultures, languages, and traditions.

Technological Advancements: The aviation industry drives innovation in technology, such as aircraft design, navigation systems, and safety protocols.

Environmental Considerations: While it offers many benefits, the industry also faces environmental challenges related to carbon emissions. Efforts are being made to develop more fuel-efficient and environmentally friendly technologies.

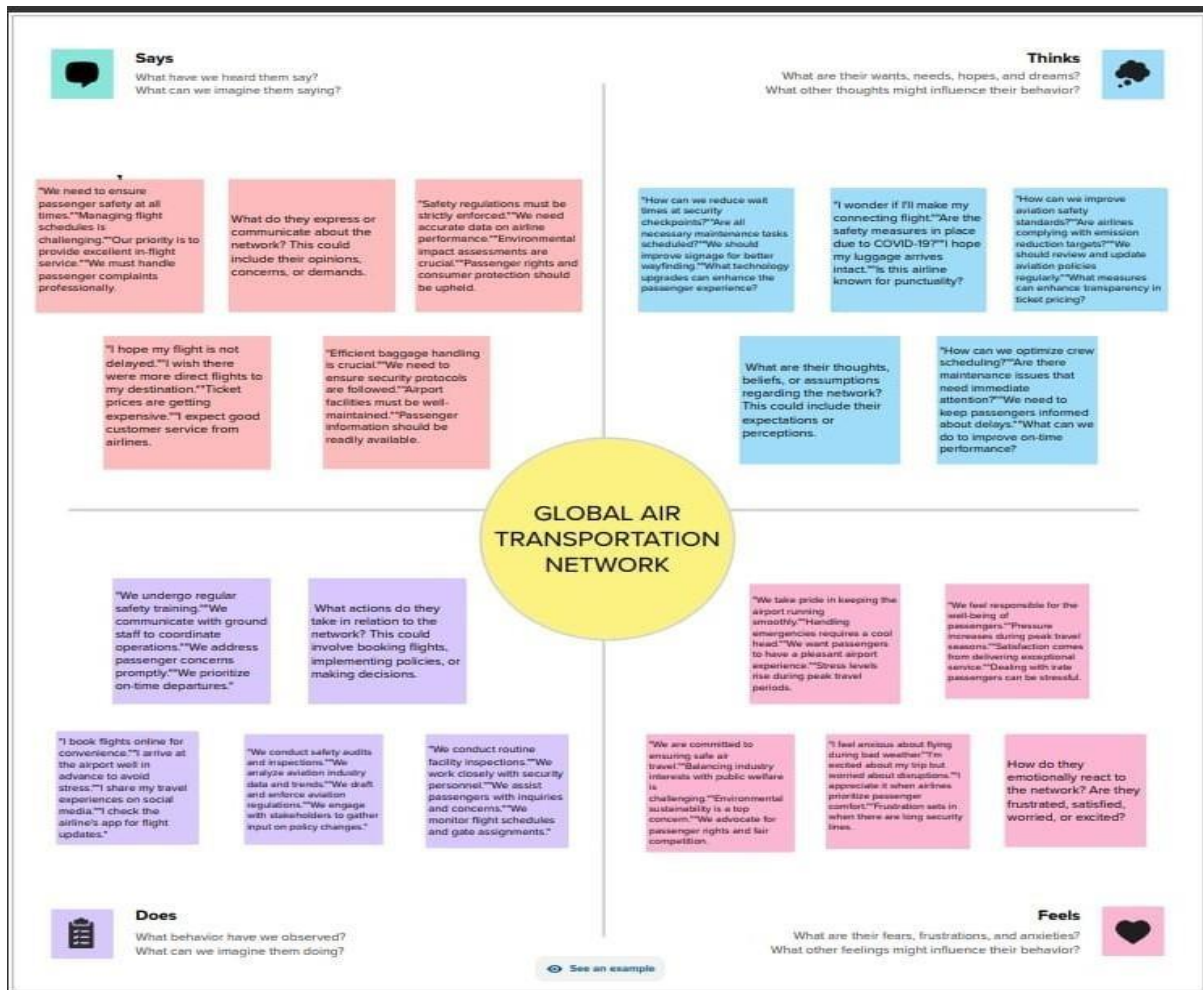
National Defense: Air transportation is crucial for national defense, allowing for the rapid deployment of military forces and equipment.

2. PROBLEM DEFINITION AND DESIGN THINKING

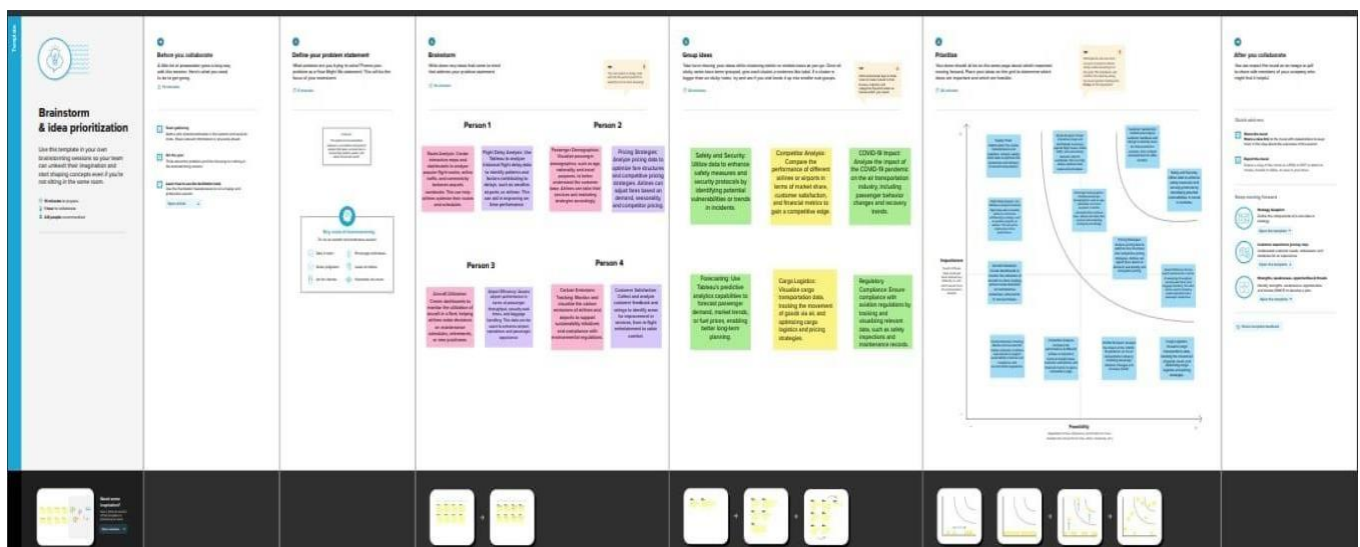
2.1 EMPATHY MAP

Empathize:

In the first stage, design thinkers seek to understand the problem from the perspective of the end-users. This involves conducting interviews, observations, and surveys to gain deep insights into the users' needs, behaviors, and challenges. The goal is to empathize with the people affected by the problem.

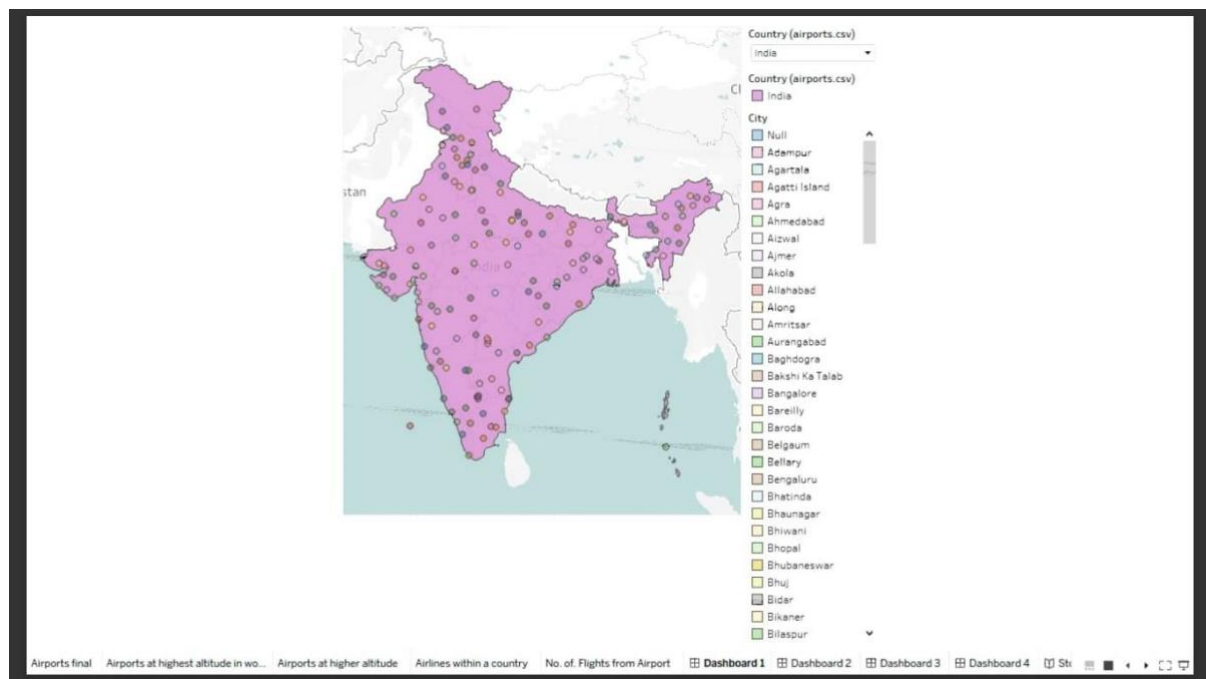


2.2 IDEATION AND BRAINSTORMING MAP



3.RESULT

RESULTS OF DASHBOARD VISUALIZATION



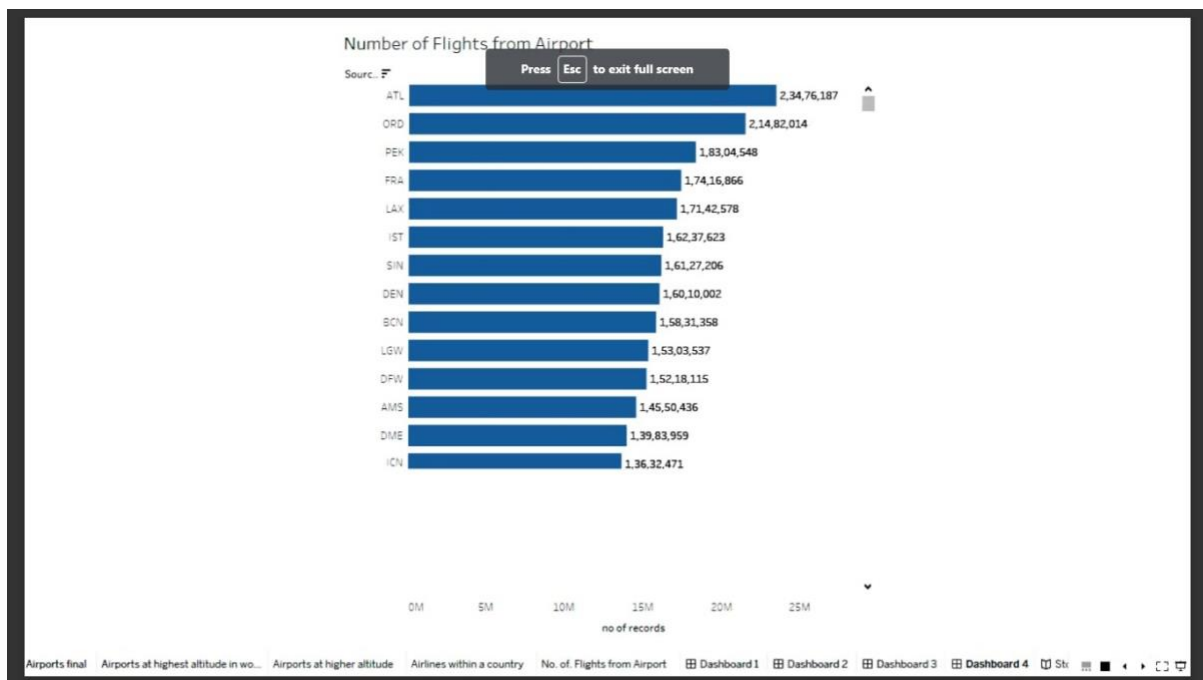
Airlines within a country				Active
Airline ID	Name	Icao	Callsign	
921	Air Greenland	GRL	GREENLAND	<input type="checkbox"/> (All) <input type="checkbox"/> N <input checked="" type="checkbox"/> Y
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3366	Maersk	Null	Null	<input type="checkbox"/> (All) <input type="checkbox"/> N <input checked="" type="checkbox"/> Y
4776	Sterling Airlines	SNB	STERLING	<input type="checkbox"/> (All) <input type="checkbox"/> N <input checked="" type="checkbox"/> Y
11856	Transavia Denmark	TDK	Null	<input type="checkbox"/> (All) <input type="checkbox"/> N <input checked="" type="checkbox"/> Y

Country
Denmark

Active
☒ Y

Next Sheet [→]

Airports final | Airports at highest altitude in wo... | Airports at higher altitude | Airlines within a country | No. of. Flights from Airport | Dashboard 1 | Dashboard 2 | Dashboard 3 | Dashboard 4 | St |



4. ADVANTAGES AND DISADVANTAGES

Advantages of the Global Air Transportation Network:

Speed and Efficiency: Air travel is one of the fastest modes of transportation, allowing for quick movement of passengers and goods, especially over long distances.

Global Connectivity: It connects cities and countries worldwide, making it easy for people to travel, trade, and conduct business on a global scale.

Economic Impact: The aviation industry generates significant economic benefits, including job creation, revenue for airlines and airports, and support for related industries.

Cultural Exchange: Air travel promotes cultural exchange by enabling people to explore different cultures, languages, and traditions.

Humanitarian Aid: Air transportation plays a crucial role in delivering humanitarian aid, medical supplies, and relief personnel to disaster-stricken or remote areas.

National Defense: It is essential for national defense, allowing for rapid deployment of military forces and equipment.

Disadvantages of the Global Air Transportation Network:

Environmental Impact: The aviation industry is a significant contributor to greenhouse gas emissions, leading to concerns about climate change. Efforts to reduce its environmental impact are ongoing.

Cost: Air travel can be expensive, particularly for long-haul or last-minute flights, making it less accessible to some individuals and businesses.

Security Concerns: Airports and airlines face security challenges, including the threat of terrorism, which necessitates strict security measures.

Infrastructure Congestion: Major airports can become congested, leading to delays and challenges in managing air traffic efficiently.

Noise Pollution: Airports and flight paths can create noise pollution in nearby residential areas, impacting the quality of life for residents.

Limited Accessibility: Air travel is not available to everyone, especially in remote or underserved regions where there may be limited access to airports.

Health Concerns: Health issues, such as the transmission of infectious diseases, have become a concern, as demonstrated during global health crises like the COVID-19 pandemic.

5.APPLICATIONS

The global air transportation network has a wide range of applications across various sectors. Here are some of the key applications:

Passenger Travel: Commercial air travel is perhaps the most common application, enabling individuals to travel for business, tourism, family visits, and other purposes.

Cargo and Logistics: Air transportation is vital for the rapid and efficient movement of goods, including perishable items, high-value products, and time-sensitive cargo.

Business and Trade: It facilitates international business and trade by allowing companies to transport products, conduct meetings, and establish global operations.

Tourism and Hospitality: Air travel is a cornerstone of the tourism and hospitality industry, making it possible for tourists to explore different destinations.

National Defense: Military forces use air transportation for troop deployment, strategic mobility, and aerial reconnaissance.

Humanitarian Aid: Air travel is crucial for delivering humanitarian aid, medical supplies, and relief personnel to disaster-stricken areas or regions in need.

Medical Services: Air ambulances and medical evacuation flights transport patients to medical facilities for specialized care, especially in remote or critical situations.

Science and Research: Scientists and researchers use air transportation to reach remote or inaccessible locations for fieldwork, data collection, and exploration.

Remote and Island Connectivity: Air travel is often the only practical means of connecting remote regions and islands to the rest of the world.

Search and Rescue: Aircraft are essential for search and rescue operations, helping locate missing persons or vessels in emergencies.

Environmental Monitoring: Aircraft are used for environmental research, monitoring climate change, and studying natural phenomena like wildfires.

Agriculture: Crop dusting and aerial spraying are common in agriculture for pest control and fertilization.

Space Exploration: Aircraft, such as modified planes and high-altitude balloons, play a role in testing technologies and conducting experiments related to space exploration.

Education and Training: Aviation schools and training centers use aircraft to train pilots and aviation professionals.

Entertainment and Sports: Airshows and aerial displays are a form of entertainment, while air travel supports sports events by transporting teams and fans.

These applications highlight the diverse and essential role of the global air transportation network in connecting people, businesses, and nations, and in supporting various industries and activities worldwide.

6.CONCLUSION

In conclusion, the global air transportation network is a complex and vital system that has transformed the way we connect with the world. It enables rapid passenger and cargo movement, fosters economic growth, and supports a wide range of industries and activities. While offering numerous advantages such as speed, global connectivity, and cultural exchange, it also faces challenges, including environmental concerns and security issues.

Efforts are continually underway to make air travel more sustainable and inclusive, addressing the disadvantages associated with it. The global air transportation network has become an integral part of our interconnected world, serving as a bridge that unites people, businesses, and nations, ultimately shaping the way we live, work, and interact on a global scale.

7. FUTURE SCOPES

The future scope of the global air transportation network is filled with both opportunities and challenges. Several key trends and developments are likely to shape the industry in the coming years:

Technological Advancements: Continued advancements in aircraft design, including the development of more fuel-efficient and environmentally friendly planes, will be a focus. Electric and hybrid propulsion systems, as well as supersonic travel, are areas of exploration.

Sustainability: The aviation industry is increasingly focused on reducing its environmental impact. This includes efforts to develop sustainable aviation fuels (SAFs), improve fuel efficiency, and reduce carbon emissions.

Digital Transformation: Enhanced digital technologies and data analytics will play a significant role in improving the efficiency of air travel, from ticket booking and airport operations to in-flight services.

Autonomous and Urban Air Mobility: The development of autonomous aircraft and urban air mobility (UAM) solutions is gaining momentum. These innovations could reshape urban transportation and reduce traffic congestion.

Space Travel: The commercial space travel industry is expanding, with companies like SpaceX and Blue Origin offering suborbital and orbital flights for civilians. This could open up new possibilities for point-to-point space travel in the future.

Airports of the Future: Airports are evolving to become smarter and more efficient with automated check-in, biometric security, and sustainable design.

Economic Growth: The demand for air travel is expected to continue growing as emerging economies expand and more people have access to air transportation.

Health and Safety: Public health considerations and passenger safety measures, especially in response to health crises like COVID-19, will influence how air travel operates in the future.

Regulatory Changes: Aviation regulations will adapt to new technologies and environmental concerns, affecting the industry's development.

Innovation in Passenger Experience: Airlines and aircraft manufacturers are investing in enhancing the passenger experience, with features like improved cabin design, entertainment, and connectivity.
Drones: Unmanned aerial vehicles (drones) are becoming more prevalent for various purposes, including cargo delivery, surveillance, and data collection.

Intermodal Transportation: The integration of air travel with other modes of transportation, such as high-speed rail and autonomous vehicles, can improve connectivity.

The future of the global air transportation network holds the promise of more sustainable, efficient, and accessible air travel. However, addressing environmental concerns, enhancing safety, and adapting to new technologies and passenger expectations will be ongoing challenges in shaping this future.

THANK YOU