Unlocking Insights Into The Global Air Transportation Network With Tableau

1. Introduction

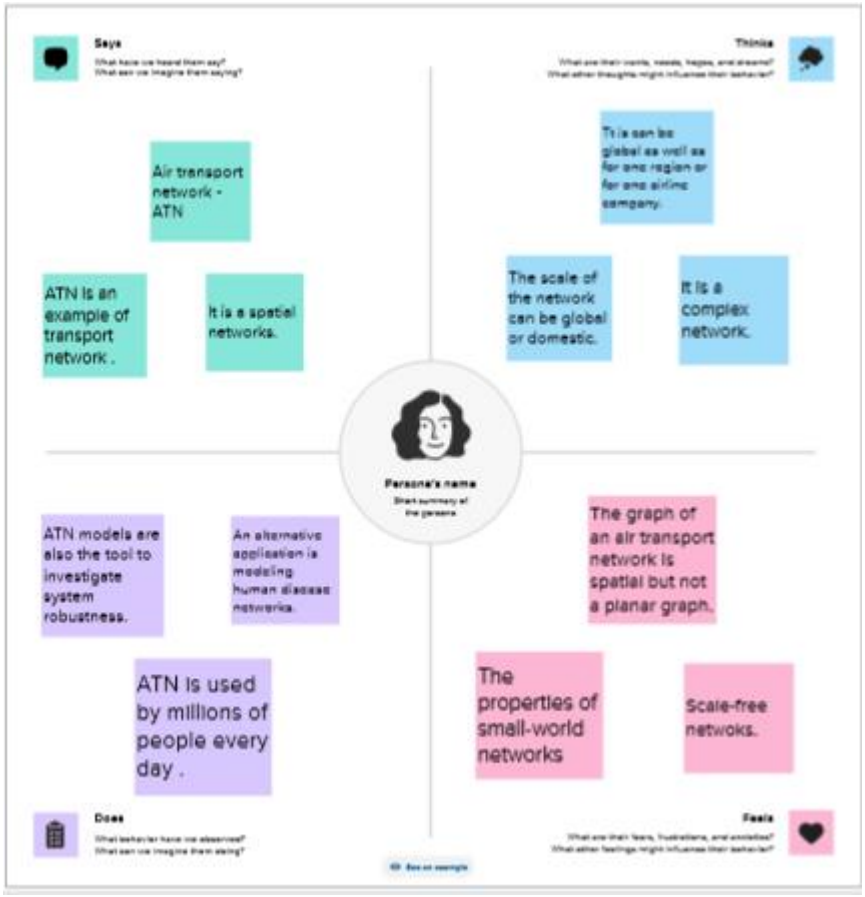
The air transport system generally includes airports, etc (air traffic control) system, and airlines. The airports represent the ground part of the system's infrastructure handling the aircraft operated by different airlines transporting passengers and freight/cargo shipments.

The world wide transportation network is a critical infrastructure with a 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. The importance of air transport lies in its ability as an economic engine to generate and support jobs, strengthen trade and connectivity between people and countries, promote tourism and connect remote communities.**

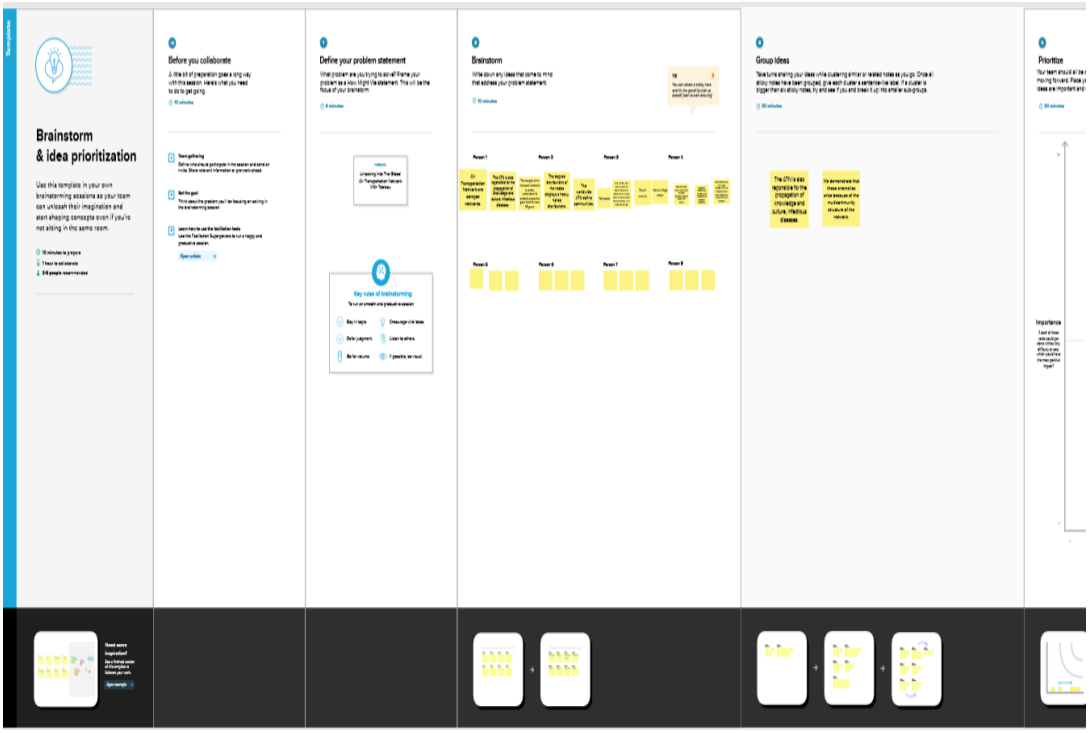
This Global Air Transportation Network dataset is a comprehensive collection of information on airports, airlines and their routes. It contains information such as names, cities, countries, codes (IATA and ICAO) longitudes, latitudes and altitudes of airports across the world with detailed time zone and daylight saving time data. Additionally, this includes information about airlines including their IDs, name aliases, IATA and ICAO codes, callsigns country of origin and active/inactive status. Similarly, it also covers route details such as airline sources to destination airports along with essential details like codeshare stakeholder if any stops required during this journey along with the type of aircraft being used for that particular journey. This dataset has been compiled through meticulous labor by researchers all over the world to give you a comprehensive detail into air transportation networks from around the globe.

2. Problem definition and design thinking

2.1. Empathy map



2.2. Brainstorming map



3. Result

Dashboard 1

World map showing details of all airport within a country

Country (airports.csv)
Australia

Country (airports.csv)
Algeria

No.of airports

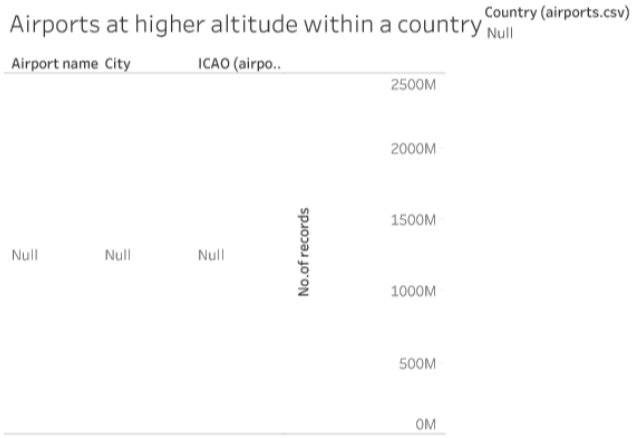
148

Dashboard 2

Airlines within a country

Airline ID	Name	Icao	Callsign	
15	Abelag Aviation	AAB	ABG	
271	Allied Command Europ..	ALF	ACEFORCE	
538	ASL	XXX	Null	
634	Airventure	RVE	AIRVENTURE	
1346	Belgian Air Force	BAF	BELGIAN AIRFORCE	
1373	Belgian Army	AYB	BELGIAN ARMY	
1428	Belgavia	BLG	BELGAVIA	
1515	Brussels International..	BXI	XENIA	
1531	Brussels Airlines	DAT	BEE-LINE	
1551	Belgian Navy	NYB	BELGIAN NAVY	
2235	Eurocontrol	EUC	Null	
2252	European Air Transport	BCS	EUROTRANS	
2431	Flying Service	FYG	FLYING GROUP	
2528	Gendarmerie Belge	GDB	BELGIAN GENERMERIE	
2800	International Air Carri..	ITC	Null	
3032	Jetairfly	JAF	BEAUTY	
3821	Ostend Air College	OCO	AIR COLLEGE	
4445	SITA	SIT	Null	
4734	Sky Service	SKS	SKY SERVICE	
4873	TNT Airways	TAY	QUALITY	
4896	Thomas Cook Airlines	TCW	THOMAS COOK	
5169	Thalys	Null	Null	
5333	Virgin Express	VEX	VIRGIN EXPRESS	
5383	VLM Airlines	VLM	RUBENS	
6002	TUI Airlines Belgium	TUB	BEAUTY	
10224	Zz	\N	Null	
17963	VG Airlines (IV)	FVG	Nico	

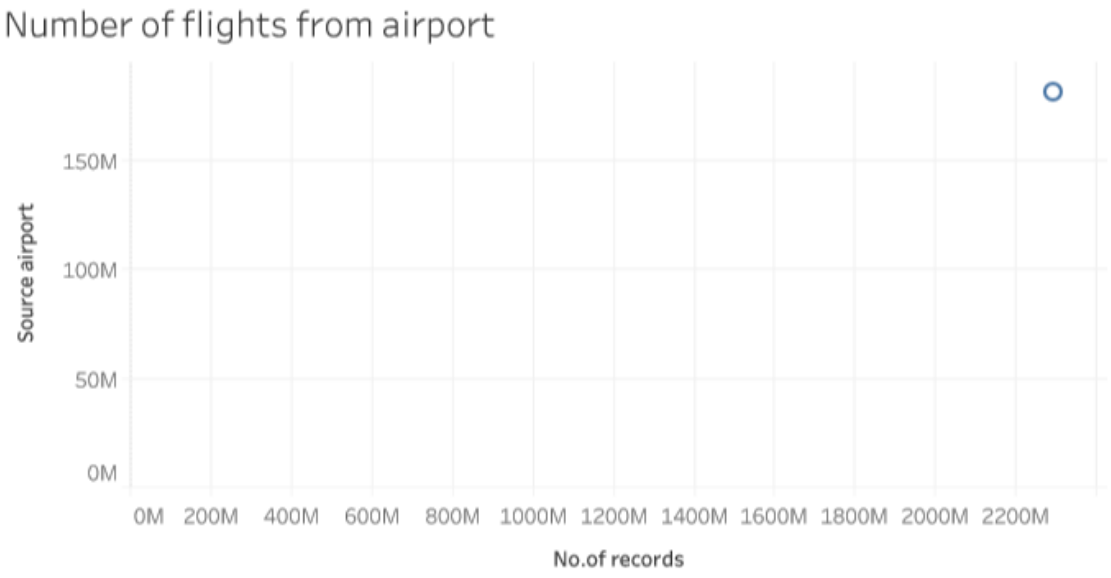
Dashboard 3



Airport at higher altitude in the world

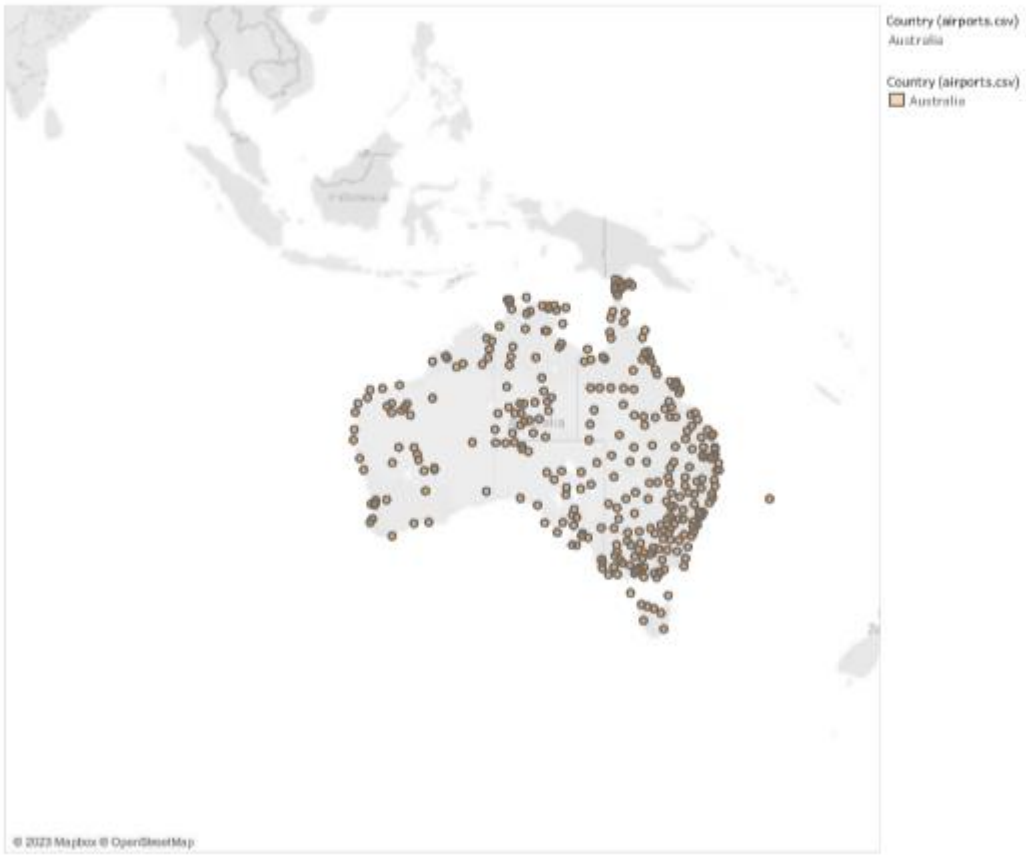
Airport name	City	ICAO (airpo..	
9 de Maio - Teix..	Teixeira de Freitas	SNTF	344
(Duplicate) Pla..	Playa Samara	MRSR	10
[Duplicate] Gie..	Giebelstadt	ETEU	980
[Duplicate] Ille..	Not Specified	XXXX	0
A 511 Airport	Pyongtaek	RKSG	51
A Coruña Airport	La Coruna	LECO	326
Aachen-Merzbr..	Aachen	EDKA	623
Aalborg Airport	Aalborg	EKYT	10
Aalen-Heidenh..	Aalen-heidenheim	EDPA	1,916
Aappilattoq (K..	Aappilattoq	BGAQ	30
Aappilattoq (Q..	Aappilattoq	BGAG	42
Aarhus Airport	Aarhus	EKAH	82
Aarhus Seapln..	Aarhus	EKAC	0

Dashboard 4



Story 1

World map showing countries with details.. | Tables showing airpots which are at h.. | Table showinh list of all airlines within the .. | bar graphs showing countries with Max n..



Story 1

World map showing countries with details.. | Tables showing airpots which are at h.. | Table showinh list of all airlines within the .. | bar graphs showing countries with Max n..

Country (airports.csv)
Afghanistan

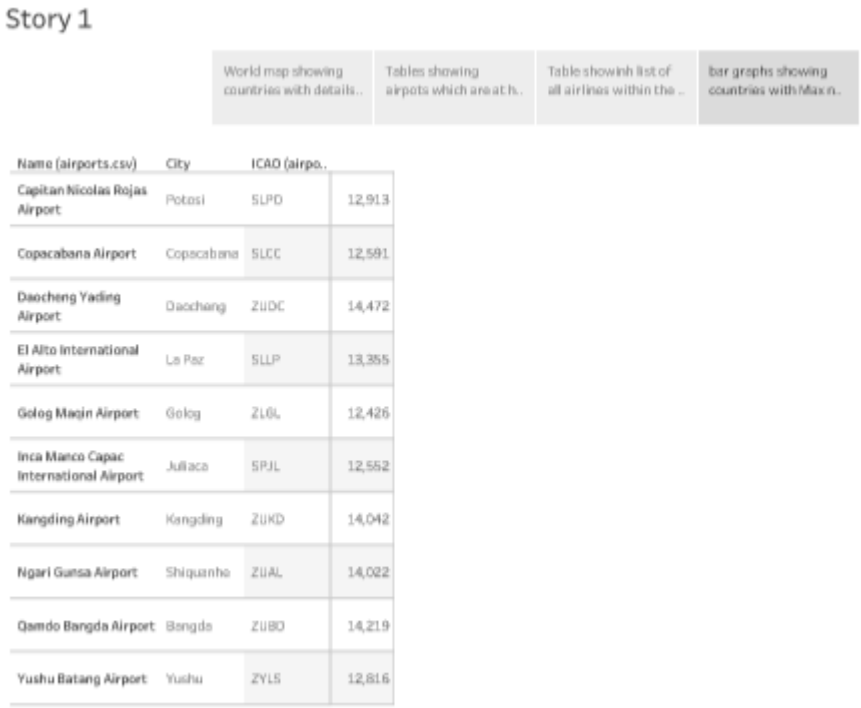
98.80

Story 1

World map showing countries with details.. | Tables showing airpots which are at h.. | **Table showinh list of all airlines within the ..** | bar graphs showing countries with Max n..

Airline ID	Name	Icao	Callsign	
-1	Unknown	Null	\N	
1	Private flight	Null	Null	
2	135 Airways	GNL	GENERAL	
3	1Time Airline	RNX	NEXTIME	
4	2 Sqn No 1 Elementary Flying Training School	WYT	Null	
5	213 Flight Unit	TFU	Null	
6	223 Flight Unit State Airline	CHD	CHKALOVSK-AVIA	

Active
N
Y



4. Advantages and disadvantages

4.1. Advantages

- 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.

- 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.

- 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.

- 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.

- 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.

- There is less need for heavy packaging

Air exports, in general, entail less hard packaging than ocean shipments. This ensures you save both time and money by not having to provide extra packaging services.

4.2. Disadvantages

- High cost
- Risky
- Limited capacity
- Uncertain and unreliable
- Accident prone
- Requires skill
- Large investment
- Unfit for cheap and bulky goods

5. Applications

- Air transport is the activity that allows the transfer of people, merchandise and mail in aircraft.
- Air transport is currently used in almost all industrial sectors and distribution chains.
- Most companies use air transport to market goods and products internationally or to deliver samples and documents related to foreign trade operations.

6. Conclusion

The Indian aviation industry has undergone significant developments and growth in recent years. The expansion of regional connectivity, emergence of low-cost carriers, increased investment in infrastructure, and adoption of technological advancements have all contributed to the growth of the industry.

7. Future scope

- Emerging technologies are reshaping with robotics, artificial intelligence, the internet of things, unmanned air craft systems and push for hybrid and electric airplanes.
- Alternative fuels can significantly change the current scenario of aviation in support of the environmental protection.