# Airline Safety – Project Task 5

As a part of Project Task 5, the Airline safety Final presentation, I have tried recapping the work over the past few weeks with help of Visuals and Infographics using variety of datasets and sources. I used the measurements in terms of Air fatalities and compared with Road travel as well as other modes of travel within the US. This data was also complemented with world-wide airline fatalities and traffic data. The reflection of the increased Air traffic data is evident from the Revenue passenger miles and Operating revenue amounts for the airlines. We will get into the details further as we look at the different aspects of the data for the Air Travel and Road Travel, brief comparison with other modes of transport with help of supporting data.

First we look at the comparisons between ***number of fatalities in US via Air and Road transportation modes during years 1994 – 2019*** using **Area chart** which gives first clue about safety aspects of Air travel. Highest Air travel Fatalities were encountered back in 2001 at 531 (owing to the unfortunate events on September 11). However it is down to near zero levels for the past ten years between 2010 to 2019. On the other hand, the fatalities in Road travel have still been lingering around the 36,000 mark in 2019 with the highest fatalities 43,810 recorded back in 2005 – nothing significantly changed.
This data is also accompanied by the ***comparison of the fatalities rate per 100M miles of travel between Air and Road travel for the same time period in the US*** and it is pictured using **line chart.** We can see while the Air travel within US has gotten increasingly safer as we scan through the data from 1994 – 2019. The fatalities rates for the Air travel are down from 4.36 back in 1994 to rate of 0.04 in 2019 with a peak of around 7.2 around 2001 (the unfortunate events of September 11). In contrast, Road travel fatalities rate is still lingering around 1.11 in 2019 per 100M miles of road travel which was at 1.73 per 100M miles of road travel back in 1994.

Then, we looked at the new chart for **US Fatalities statistics for the year 2019 for different modes of transports** like Air, Road, Rail, Water and Other modes (all consisting of passenger, freight and commercial etc.) and used **Donut chart** to compare the percentage share of each transportation mode. We can notice around 94% of the total fatalities are via Road transportation mode whereas Air travel constitutes under 2%.

To gain wider perspective of overall Airline industry across the globe, we analyzed the **Worldwide Airline data from Safety aspects** e.g. in terms of **Number of Incidents**, **Fatal Accidents** and **Total number of fatalities** in the period 1985 to 1999 and compare the corresponding numbers for the 2000 to 2014. With the help of **Bar charts**, we can see the clear trends of significant decrease in these adverse incidents (down by ~42%), fatal accidents (down by ~70%) and fatality counts (down by ~50%), which are very strong indicators about improved safety worldwide, in terms of Air travel. All of this while the worldwide Airline traffic, in terms of number of departures, has been steadily on the rise. This is indicated in the **Area chart** representation of this data collected for the duration 1984 – 2019. So, despite the fact that Airline traffic has been increasing worldwide over the years, the adverse incidents and fatalities have gone down significantly - another concrete sign about the Airline safety.

Finally I have tried considering additional aspects like **Revenue Passenger Miles** and the **Operating Revenue** for the US Airlines.

1) Revenue passenger miles for the Domestic and Overall International Segments for the US airlines, have seen steady increase from 2000 to 2019 and is evident from the **Line chart** giving the simple to understand view.
2) Operating Revenue (in USD) chart gives us a view for Domestic as well as overall International segments of air travel along with Total Revenues. The **Area charts** representation gives us the

super clear picture that revenues have grown from 2000 to 2019 in fairly steady manner (except for the hiccups in 2008-09 financial crisis).

Overall, after taking in all these facts, gives a major ***booster for Air Travel – despite the increased travel operations / travel miles accompanied with the increase in revenue, the adverse and fatal incidents have greatly decreased in the past 25 – 30 years***. On the other hand, road transportation has remained one of the major contributor for fatalities in the same period from travel aspects.

We can safely conclude that Air Travel has become increasingly safer based on improvement in technology and the security measurements undertaken.

**References:**


1) fivethirtyeight/data. (n.d.). GitHub. https://github.com/fivethirtyeight/data/tree/master/airline-safety
2) Fatality Analysis Reporting System (FARS), FHTSA. https://www-fars.nhtsa.dot.gov/Trends/TrendsGeneral.aspx
3) https://www.bts.gov/content/us-air-carrier-safety-data (scraped the necessary data)
4) https://www.bts.gov/content/transportation-fatalities-mode
5) https://www.airlines.org/dataset/world-airlines-traffic-and-capacity-2/
6) https://www.transtats.bts.gov/Data_Elements.aspx?Qn6n=G