There is a fair amount of wiggle in worldwide passenger airline accident numbers annually. While there has been a blip of increased accidents in recent years, overall numbers are still within a normal amount of variation. Despite the increased attention we’ve seen due to media reports, these numbers do not represent any sort of increasing trend, even in recent years. In fact, we’ve seen quite the opposite over time as fatal airline accidents have continued to decrease, even as overall flight numbers have steadily risen.

For my dashboard I have chosen a dark theme in part because it is easier on the eyes for something my audience will be looking at for a longer duration, but also because we are talking not just about airline safety, but actual people’s lives being lost, which is a darker subject matter. I have a colorblind colleague and I was a bit concerned with the default color scheme having some reds and greens, so I took a screenshot and uploaded it to a color-blindness simulator where I found that there appeared to be enough contrast in the shades of color to differentiate between them.

When it comes to airline accidents, smaller aircraft tend to crash at higher rates than the larger passenger planes we use for travel. I included a map of fatal accidents in the last 10 years that only includes larger aircraft, showing that the vast majority of accidents take place in Asian and Middle Eastern countries with none in the United States, which is where our Airline operates. Below this I show that of the US passenger flight accidents in recent years, the vast majority occurred in Alaska compared to the lower 48. This is likely because small aircraft is a much more common method of transport in Alaska, but also shows the low relative risk of flying in the contiguous US. Using this same data, we see that roughly half of the accidents occur while en route, which also accounts for the longest duration phase of the flight. I chose a donut graph because the actual numbers aren’t that important, but I wanted to show that ‘en route’ accounts for roughly as many accidents as all the others combined.

Fatalities by aircraft type shows that ultralights are far more dangerous than passenger flights and if we were to account for the number of flights for each type that passenger flights would appear even safter yet, relative to the others.

The most important graphs I wanted to show are grouped in a trio over on the right. These illustrate not just the real number of accidents decreasing over time, but also shows that accidents continue to decline despite the steady increase in overall flight numbers, resulting in a very low number of accidents per million flights worldwide. This helps to show that flight is an incredibly safe means of travel. Note that I also highlighted the 2020 bar to help explain the unusual dip in flight numbers, relative to preceding years.

In my scenario, I work for Southwest Airlines and am presenting to the Executive Team. Because the Team is already well informed on the recent cluster of incidents within the aviation and subsequent media fallout (which is the reason for the meeting), I jumped right into the safety data for our industry.

I start with the relative safety of airline travel as compared to other modes of travel. The first compares based on fatalities per billion kilometers traveled. The following two charts show similar comparisons using different criteria: fatalities per billion hours traveled and fatalities per billion trips. While the first chart tends to be the standard for illustrating and comparing safety between industries, the reason I show all three is to encourage discussions around the ethical implications of and meaning behind the different ways to compare the data. While both kilometers traveled and hours traveled put aviation in a very favorable light, we don’t fare as well when looking at number of trips so the fact that people travel less frequently by air would have to be taken into consideration. Note that the horizontal bar charts help to allow easy reading of the modes of transport and the wide format also helps the bar for Motorcycle category to fit on the page. Also, the category order is kept consistent for easy comparison.

Following this, I have a couple of slides showing how the combination of a long trend of decreasing accidents coupled with the ever-increasing trajectory of number of flights per year, equates to an incredibly low risk of accidents per flight taken. Note that for all of these bar charts I have chosen Southwest blue for the bars and Southwest red for the running average, with consistent fonts / themes to make them easy to follow.

The map illustrates that while there are still accidents occurring, any larger accidents have occurred outside of the North American regions where we operate. Couple this with Southwest’s spotless track record and this should demonstrate safety to our customers.

Following from Task 2, the company I work for (Southwest Airlines) has decided to publish some materials emphasizing the safety of airline travel in an effort to alleviate any concerns of the general public. I envision this as a three-part series of posts, each emphasizing a different aspect of airline safety. In this first post the goal is to emphasize the relative safety of airline travel to other modes of transport and to demonstrate how airline safety has increased over time and continues to do so. The following posts would cover what goes into airline safety and then how much safer the top safest countries to travel in (which includes the US) relative to other areas.

One ethical concern I had was in selecting the bar chart that compared the safety of airline travel relative to other modes of transportation. I had three different charts, by distance, by trip and by time and airline travel was only the safest by distance. I selected by distance however because it is the industry standard when comparing safety between these industries.

From a design perspective, I made some minor modifications to my graphs in order to fit them better to the blog post, but I stuck with using the Southwest Airlines company colors in the charts. I primarily used the blue when referring to air travel and the red for other industries or as an accent color when I needed to draw the eye to something. I don’t know that it is reflected very well in the pdf, but I used Blogger to create the post, which had it’s own challenges, especially since it doesn’t accept SVG images. Since the audience for this post is the general public, I also tried to create more of a narrative with the text in order to draw people in and tell a story, rather than just regurgitating the relevant information.

After experiencing only limited traffic to the informational blog post, our company (Southwest Airlines) has decided that a shareable infographic may be a better way to proceed in order to get our message out to the general public that flying is a safe way to travel. In this infographic I tried to stick to basic, yet interesting facts that might help to comfort and ease the concerns of those who are hesitant to fly. I also used the Southwest Airlines color scheme throughout.

In the first section, I wanted to portray that fear of flying is not uncommon, with the goal to reassure worried individuals that they are not alone. There is also some subtle imagery with the 6.5% bar chart in that the bar is filled in to 6.5% of the total. In the second section, I tried to emphasize the sheer volume of air traffic and contrast that with the relatively low risk of dying in a plane crash, emphasizing other more common activities with higher risk. Finally in section 3 I discussed how the industry continues to get safer over time, with a bit of information specifically about Southwest Airlines excellent safety record.

One design issue I ran into was with the bar graph showing Odds of Death in a given year. Initially I used the values of the millions (0.58, 1.2, 3.7, 11), but this made the flight bar the tallest, which gave the impression that airlines were the least safe. I replaced these values with 1 / the value (1/0.58, 1/1.2, etc) to make the airline bar the smallest, visually indicating lowest risk. There is some ethical concern here due to manipulation of the data, but the goal is to show relative risk and without units on the graph I think this seems like a reasonable decision.

Another ethical consideration was around some data that I left out. I had rates of fatality risk for different regions of the world, with the US being among the safest nations, another group of “advancing” nations, and a third group of developing countries. While this would have made the US seem safer by contrast, I didn’t want to denigrate the other parts of the world or make it seem as though they aren’t safe (especially when the ultimate goal here is to portray flying as a safe means of travel).