CATEGORY:

Data analytics with Tableau

PROJECT TITLE:

The Tragedy of Flight A Comprehensive crash analysis

1.INTRODUCTION:

1.1 Overview:

A brief description about your project

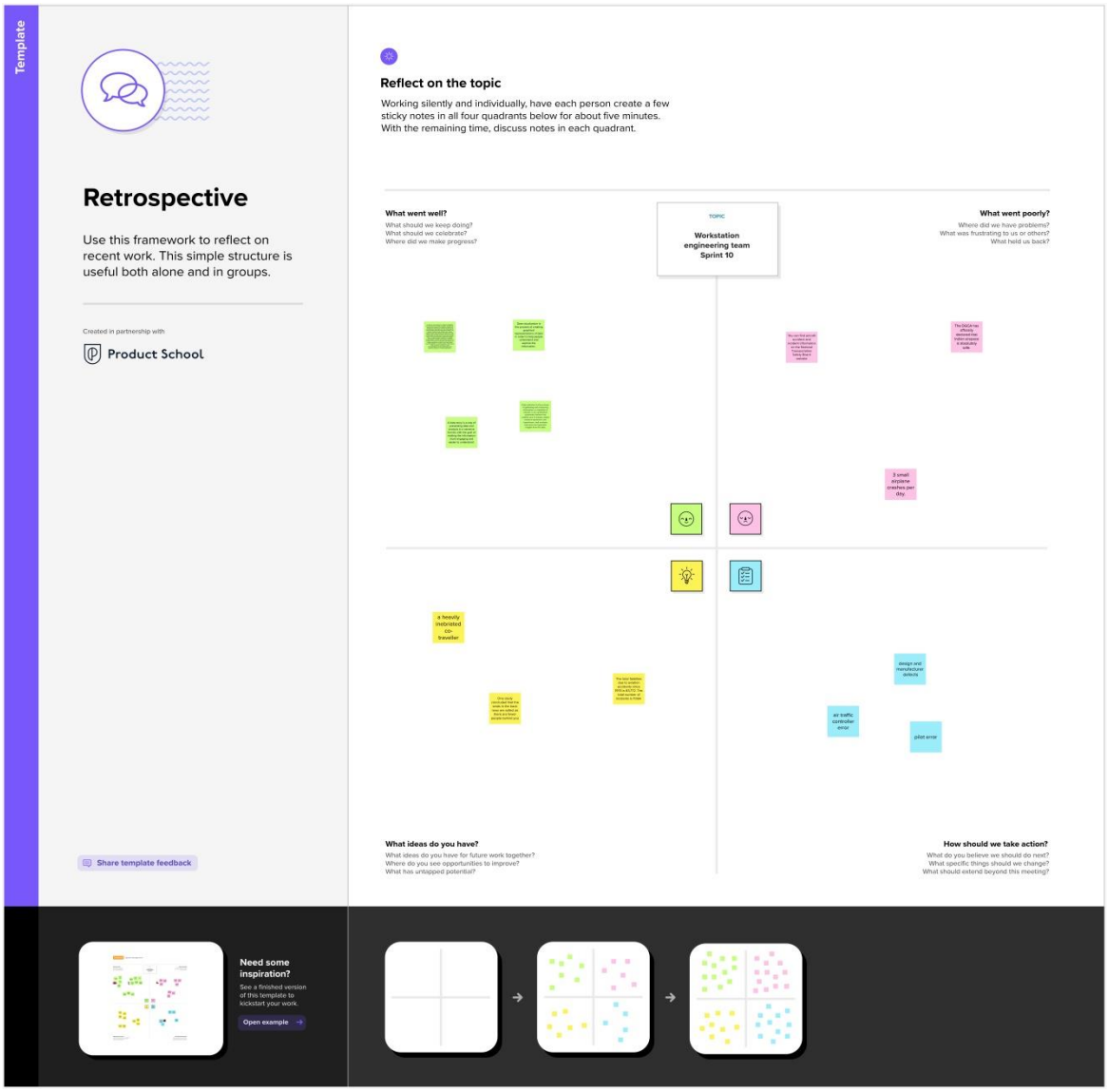
1.2 Purpose:

The use of project. What can be achieved using this.

2.Problem Definition &Design Thinking.:

An airplane crash analysis is a detailed investigation into the causes of an aviation accident. The goal of an airplane crash analysis is to identify any factors that contributed to the accident, with the ultimate goal of improving safety and preventing future accidents. The process of conducting an airplane crash analysis typically involves the collection and analysis of a wide range of data, including information about the aircraft and its systems, the operators, and any other relevant factors. This data is typically collected from Kaggle. Once the data has been collected, it is analysed through tableau, to identify any potential causes of the accident. The results of an airplane crash analysis are typically published in a report, which may include recommendations for improving safety and preventing similar accidents in the future. These recommendations may be implemented by the relevant authorities or industry organizations.

2.1 Empathy Map



Template

Retrospective

Use this framework to reflect on recent work. This simple structure is useful both alone and in groups.

Created in partnership with

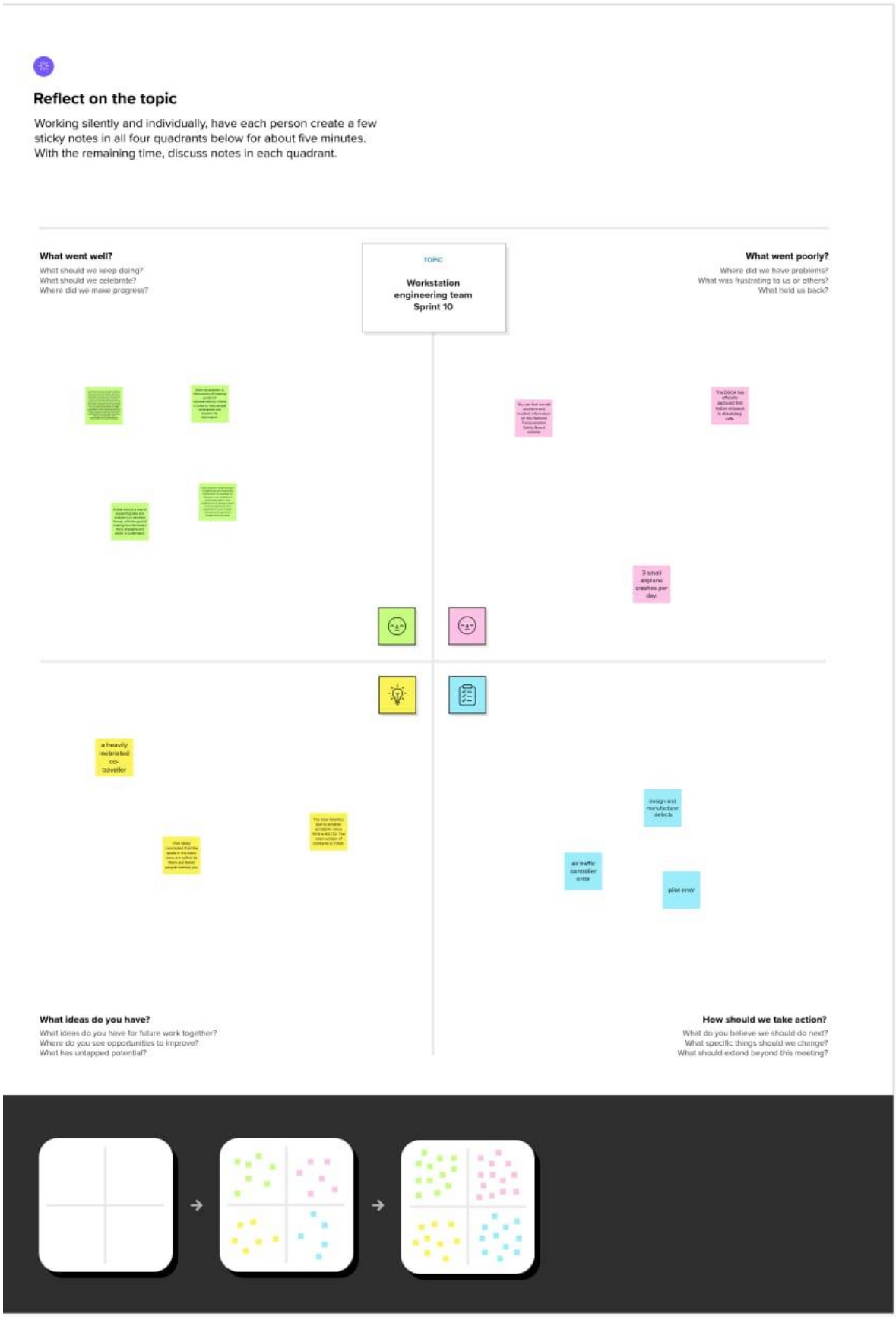
Product School

Share template feedback

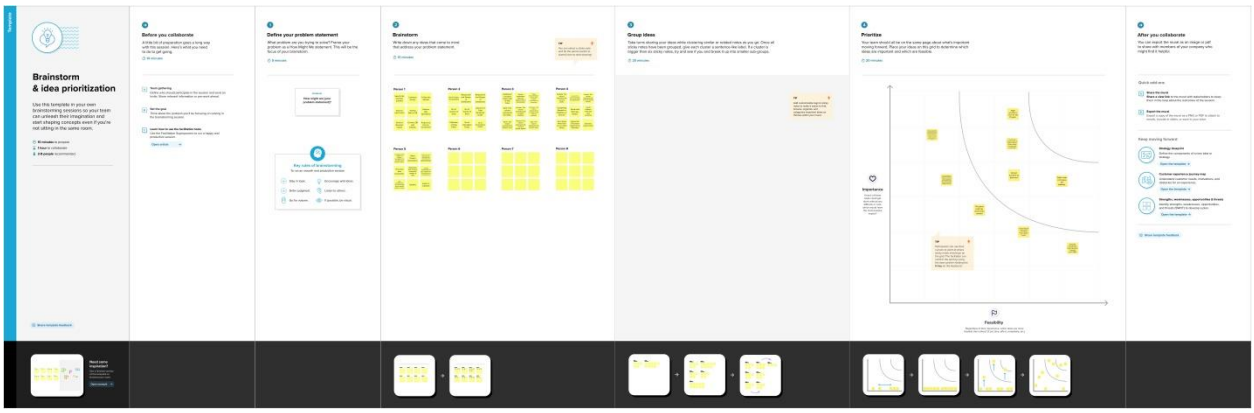
Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →



2.2 Ideation & Brainstorming map screenshot



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

Share template feedback

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

- Team gathering
  Gather the relevant participants for the session and book 60 mins. Share relevant information or pre-work ahead.
- Set the goal
  Think about the problem you'll be focusing on solving in the brainstorming session.
- Learn how to use the facilitation tools
  Use the Facilitation Superpowers to run a happy and productive session.

Open article

Define your problem statement

What problem are you trying to solve? Frame your challenge as a how might we (HMW) question. This will be the focus of your brainstorm.

5 minutes

Example
How might we [your problem statement]?

Key rules of brainstorming
To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
Use the Idea Paint feature to quickly add ideas and start voting on them.

Person 1 | Person 2 | Person 3 | Person 4
Person 5 | Person 6 | Person 7 | Person 8

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

Importance

Feasibility

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick wins

- Share the mural
  Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.
- Export the mural
  Export the mural as an image or PDF to attach to emails, include in slides, or save in your files.

Keep moving forward

- Strategy blueprint
  Define the components of a new idea or strategy.
  Open the template
- Customer experience journey map
  Understand customer needs, motivations, and obstacles for an experience.
  Open the template
- Strengths, weaknesses, opportunities & threats
  Identify strengths, weaknesses, opportunities, and threats of an existing idea or strategy.
  Open the template

Share template feedback

Need some inspiration?
See how this template was used in real life.
Open example

Template

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Open example →

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Open article →

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PROBLEM
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Key rules of brainstorming

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2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Person 1

Person 2

Person 3

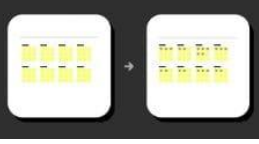
Person 4

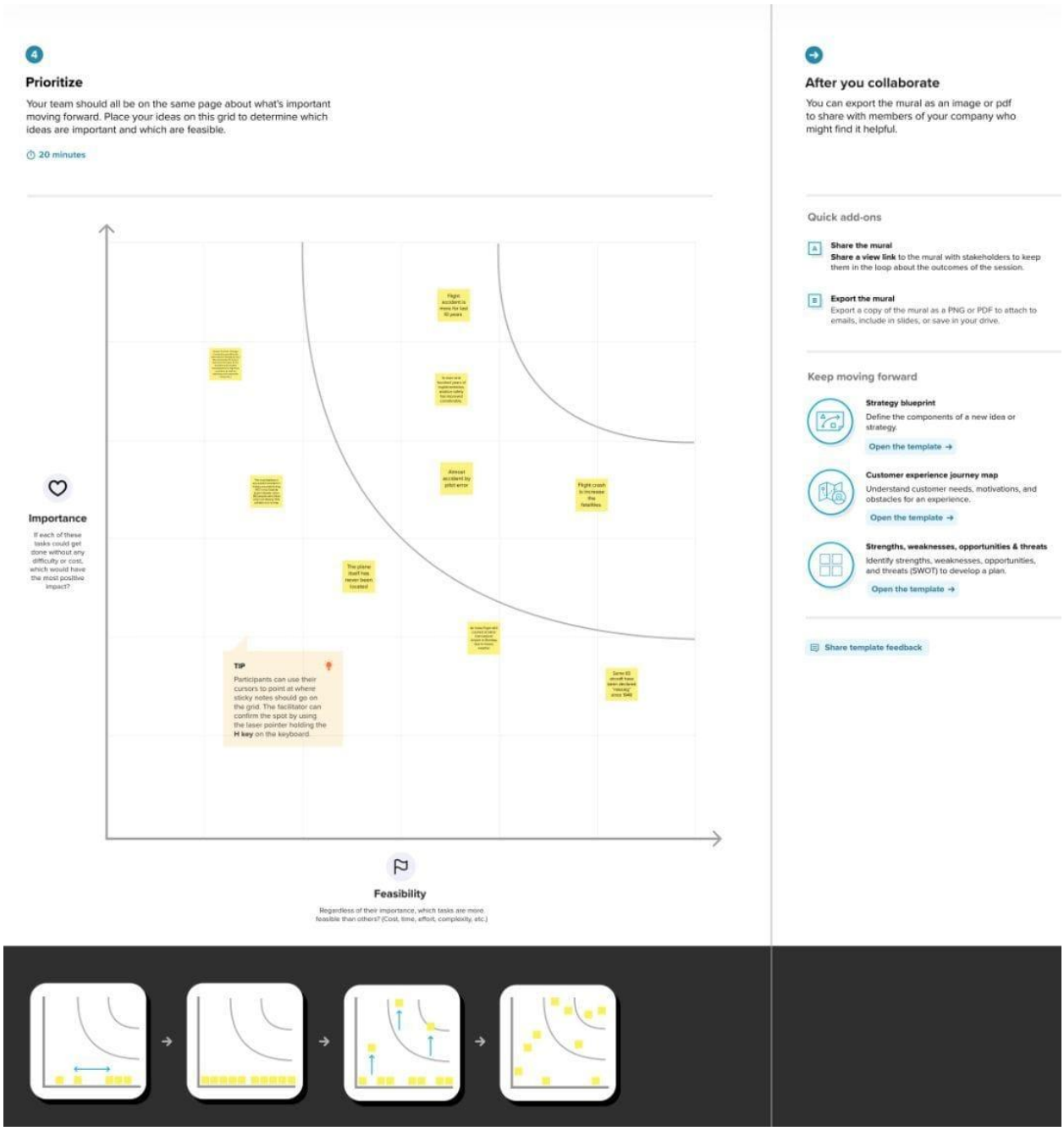
Person 5

Person 6

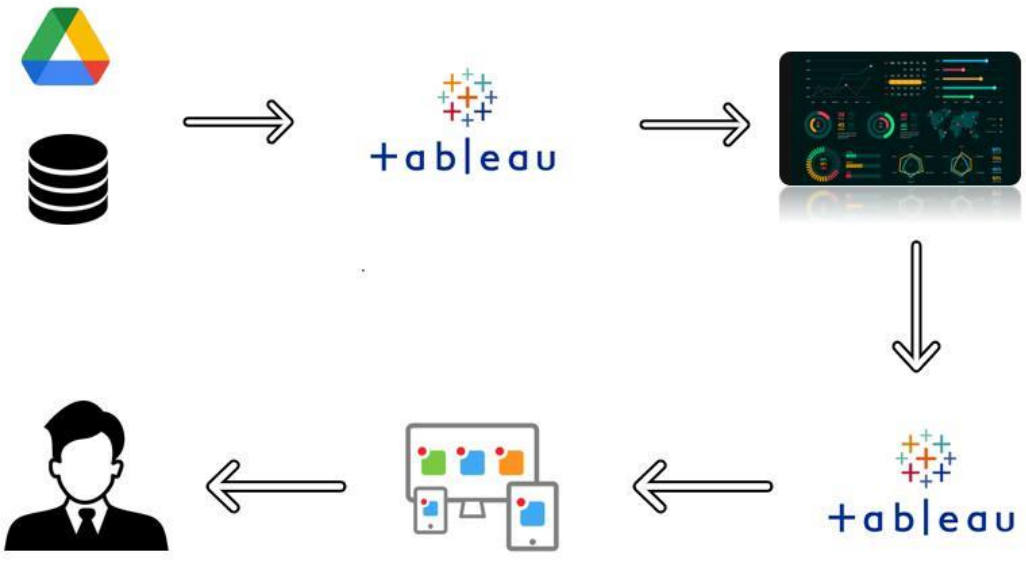
Person 7

Person 8





Technical Architecture:



Project Flow

To accomplish this, we have to complete all the activities listed below,

Define Problem / Problem Understanding

Specify the business problem

Business requirements

Literature Survey

Social or Business Impact.

Data Collection & Extraction from Database

Collect the dataset

Storing Data in DB

Perform SQL Operations

Connect DB with Tableau

Data Preparation

Prepare the Data for Visualization

Data Visualizations

No of Unique Visualizations

Dashboard

Responsive and Design of Dashboard

Story

No of Scenes of Story

Performance Testing

Amount of Data Rendered to DB ‘

Utilization of Data Filters

No of Calculation Fields

No of Visualizations/ Graphs

Web Integration

Dashboard and Story embed with UI With Flask

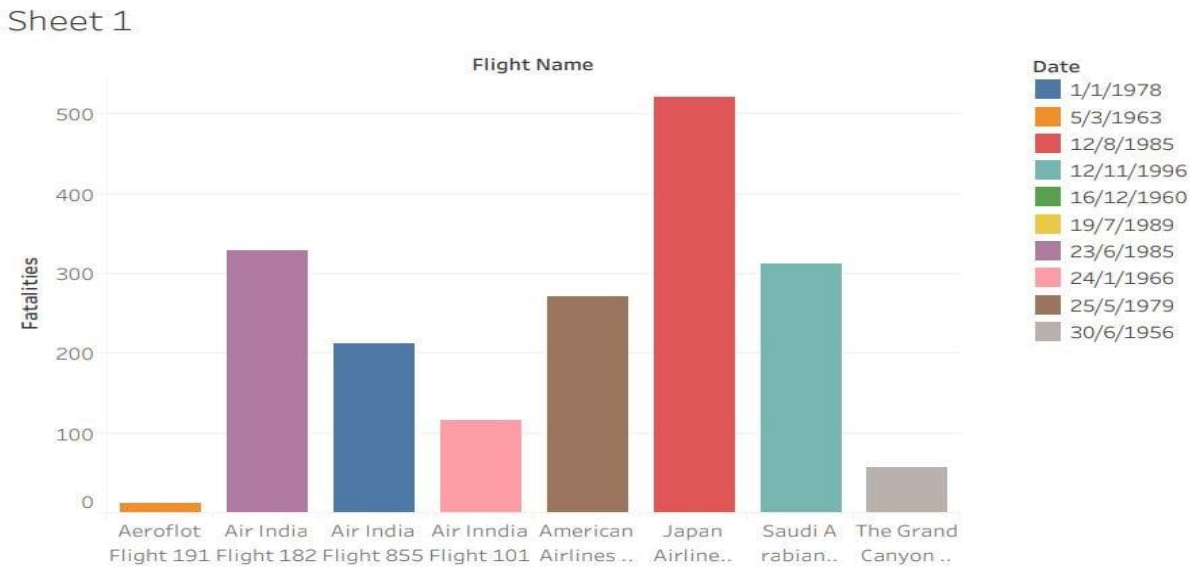
Project Demonstration & Documentation

Record explanation Video for project end to end solution

Project Documentation-Step by step project development procedure

Common Causes of Airplane Accidents

Air travel for leisure is a growing interest for many people. As future pilots partake in flying planes, it is important to be aware of common causes of aviation accidents. If an accident occurs, an **aviation accident lawyer in Los Angeles** should be contacted so that they can explain the rights and responsibilities of all parties involved. The following is a list of 10 common causes of aviation accidents:



3. RESULT:

1. **Losing control during flight**

   The loss of control of an aircraft occurs when a mechanical error takes place, making it impossible for the pilot to control the airplane.

2. **Controlled flight into land**

   In this instance, a pilot has control, but lands in a way where the airplane abruptly comes in contact with the ground, trees, etc.

3. **Power Plant failure**

   When there is an issue with the right cylinder of an airplane's engine, this failure causes the plane to stop working mid-flight. A pilot should try to make the safest land possible if this happens.

4. **Low altitude operations**

   If the plane's functions are checked while the plane is too low to the ground, an accident can occur.

5. **Unknown causes**

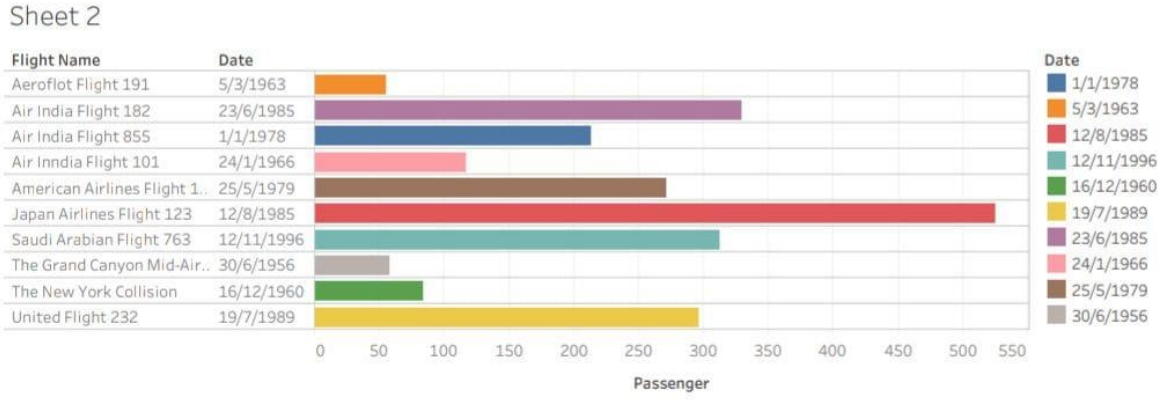
   There are times when the cause of an accident is unknown so the cause is listed as such for reporting purpose

6. **Flight missed point of approach**

   If a pilot attempts to descend the plane, but misses the point to land, this can cause a crash.

7. **Fuel exhaustion**

   An aviation accident can happen when the plane runs out of fuel and stops working properly.



8. Indicator failure

If meters and indicators fail to work properly, the pilot is unable to operate the plane correctly.

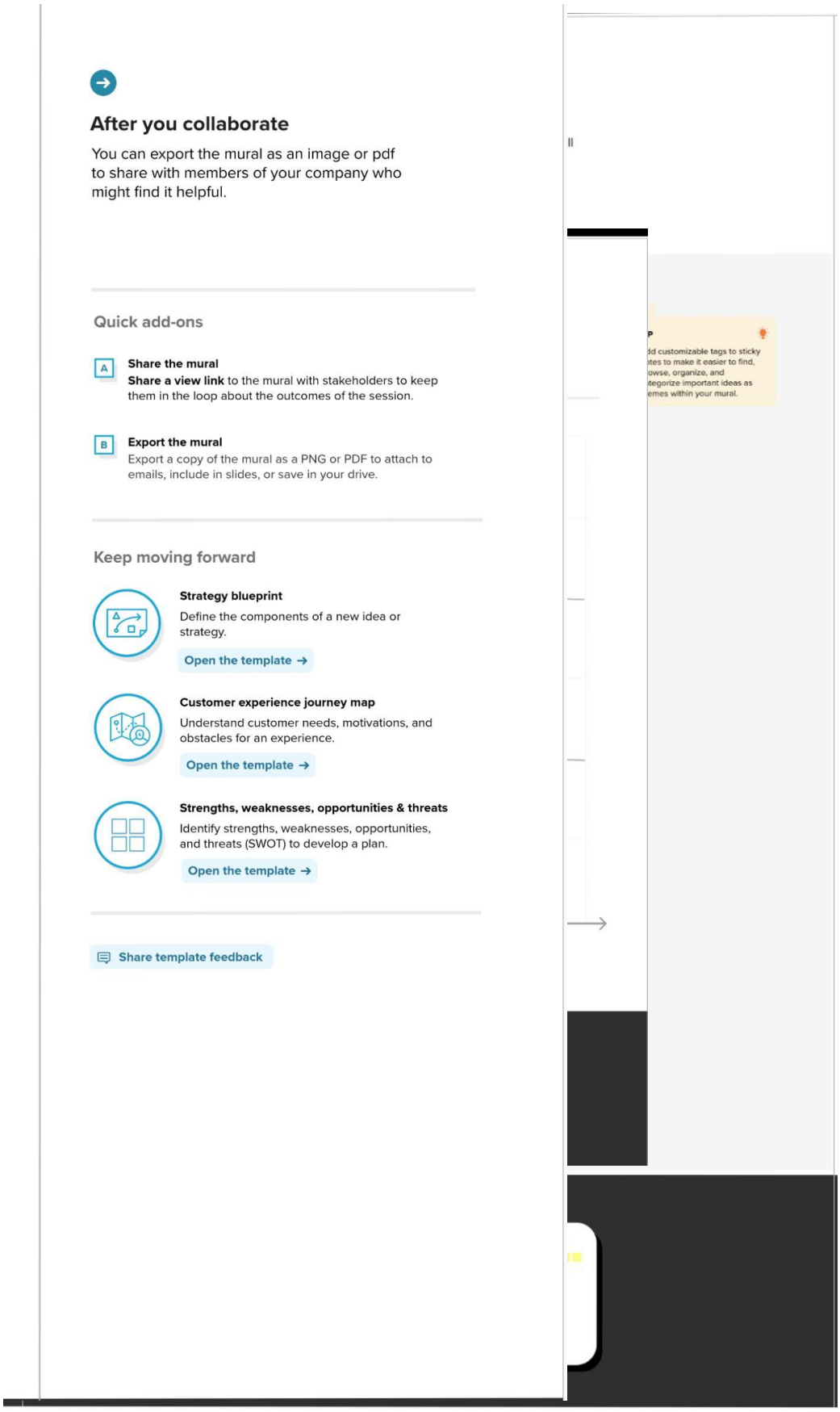
9. Accidents with other airplanes

If aircrafts happen to be in the same area of airspace, non-communication can result in the two crashing into each other.

10. Weather

Severe weather plays a major role in airplane accidents. Pilots should always check weather warnings before flying.

It is crucial for pilots or passengers to have an **airplane accident lawyer in Los Angeles** in the event that legal expertise is needed. As a **personal injury lawyer in Los Angeles**, the Law Offices of Oscar H.



Aviation accidents and incidents

An **aviation accident** is defined by the Convention on International Civil Aviation Annex 13 as an occurrence associated with the operation of an aircraft, which takes place from the time any person boards the aircraft with the *intention of flight* until all such persons have disembarked, and in which (a) a person is fatally or seriously injured, (b) the aircraft sustains significant damage or structural failure, or (c) the aircraft goes missing or becomes completely inaccessible. Annex 13 defines an **aviation incident** as an occurrence, other than an accident, associated with the operation of an aircraft that affects or could affect the safety of operation.

A hull loss occurs if an aircraft is damaged beyond repair, lost, or becomes completely inaccessible.

The first fatal aviation accident was the crash of a Rozière balloon near Wimereux, France, on June 15, 1785, killing the balloon's inventor, Jean-François Pilâtre de Rozier, and the other occupant, Pierre Romain. The first involving a powered aircraft was the crash of a Wright Model A aircraft at Fort Myer, Virginia, in the United States on September 17, 1908, injuring its co-inventor and pilot, Orville Wright, and killing the passenger, Signal Corps Lieutenant Thomas Selfridge

Aviation and Plane Crash Statistics

request free consultation

It is accurate to say that plane travel is among the safest modes of transportation. However, when aviation accidents do happen, the results are often catastrophic. There are no such things as minor airplane collisions or crash landings, these occurrences are devastating, life-altering events. Aviation accident rates have gone down in recent years, but the growing popularity of private jet travel and helicopter flights may soon reverse that trend.

In the United States, the National Transportation Safety Board (NTSB) tracks aviation accident statistics and investigates aviation disasters. In 2007, the National

Transportation Safety Board estimated a total of nearly 24 million flight hours. Of these 24 million hours, 6.84 of every 100,000 flight hours yielded an airplane crash, and 1.19 of every 100,000 yielded a fatal crash. This is down from an all-time high of 9.08 accidents per 100,000 hours in 1994. These numbers are higher for private flights, but private flights are much harder to document due to lax government regulation and non-reporting. Private plane crashes have been on the decline since the 1980s, but user error and insufficient training still contributes to many more accidents than are necessary each year.

4. Advantages and Disadvantages:

Advantages:

1. It's The Fastest Way To Travel Long Distances

2. It's The Most Efficient Way To Travel Long Distances

3. Planes Can Carry A Lot Of Weight

4. You Can Fly Everywhere

5. It's Safe

Disadvantages:

1. It Can Be Expensive Depending On The Route And Season

2. You Might Have To Fly Early Or Late

3. You Might Have To Fly In A Middle Seat

4. Security Measures Can Be Inconvenient And Time-consuming

5. It Can Be Uncomfortable For Long Journeys

6. The Journey Can Be Long If You Have Stopovers

Final Thoughts On Traveling By Plane

"Statistics show that up to 80 percent of all aviation accidents can be attributed to human error."

Statistics show that up to 80 percent of all aviation accidents can be attributed to human error. The most dangerous times include takeoff and landing and the time periods before and after these events. Pilot error is thought to account for 53% of aircraft accidents, with mechanical failure (21%) and weather conditions (11%) following behind.

Even in the best training situations, where flight crews undertake comprehensive simulator-based training, human beings tend to revert to previous habitual behaviors. Training helps, but it takes people time to develop muscle memory which can result in catastrophic unintended consequences, particularly when flying a highly maneuverable aircraft.

The NTSB database, which has records of every reportable accident since 2008, shows over 13 thousand accidents with at least one issue pertaining to personnel. All these accidents include over 20 thousand findings related to personnel, with an average of 1.54 per accident.

On the other hand, its important to note that other factors are always in play when pilot error occurs. The aircraft, environmental issues, and organizational issues are a few examples.

How Safe is Air Travel?

Compare it to other major forms of transportation – with 0.04 deaths per 100 million miles traveled, train travel is much more dangerous than airplanes' 0.01 deaths per 100 million miles. However, air travel is only as safe as the operator, the equipment, and the training procedures that underlie the flight itself. Without stringent aviation safety training and controls, air travel is unsafe for private and commercial passengers.

How Many Plane Crashes Have Taken Place in 2022 So Far?

Not accounting for small planes and helicopter crashes, there have been 2 plane crashes in 2022 so far.

1. **March:**
    a. A China Eastern Airlines Boeing 737-800 plane crashes in the mountains of Guangxi near Guangzhou, China, leading to the tragic loss of all 133 people on board.
2. **April:**

a. A DHL Aviation Boeing 757-200 freighter crashes near the runway at Juan Santamaria Airport in San Juan, Costa Rica. All crew members managed to escape with minor injuries.

3. **May:**

a. The crash of a Tibet Airlines Airbus A319 at Chongqing Jiangbei International Airport while taking off. The plane caught on fire but luckily all people on board have survived.

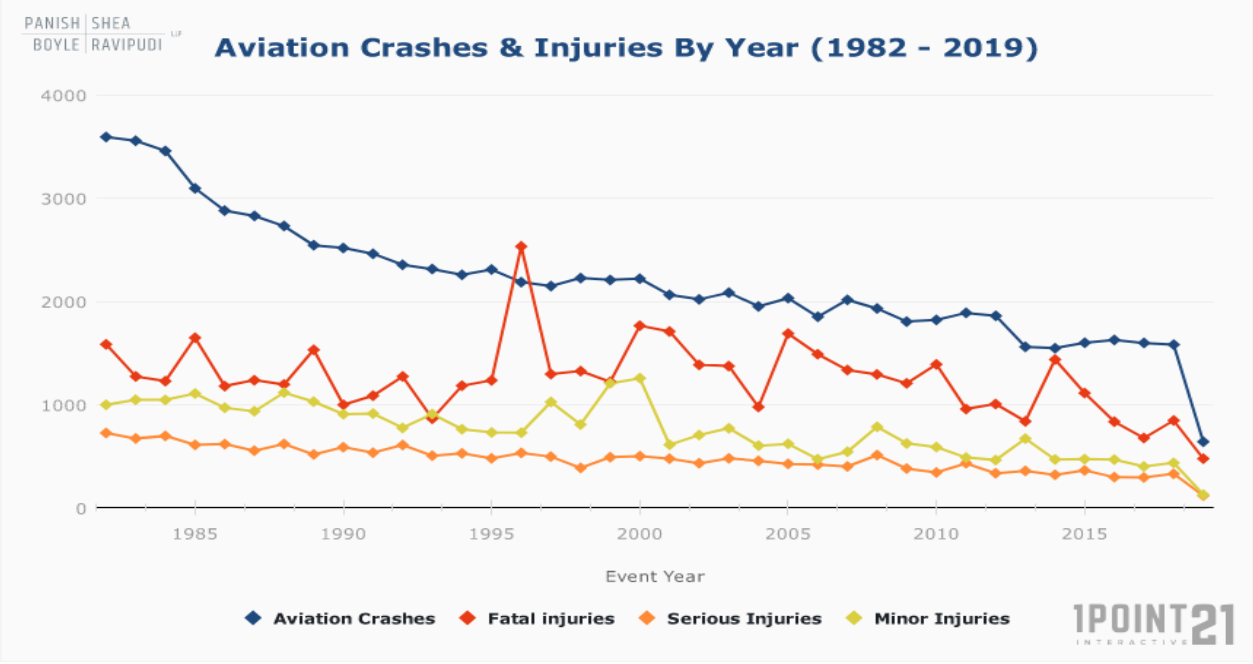
b. A Tara Air DHC-6 Twin Otter crashes in the Mustang region of Nepal. Unfortunately, all 22 people on board were killed**.**

4. **June:**

a. A Red Air McDonnell Douglas MD-82 crash-lands and catches on fire while landing at Miami international airport. All the people on board survived with 3 occupants being hospitalized for minor injuries.

Aviation Crashes and Injuries Statistics

Our team worked on gathering data on all aviation crashes from 1982 until the latest available data for 2019. We sorted the total injuries into 3 tiers: fatal injuries, serious injuries, and minor injuries. Here's a chart that visualizes all the aviation crashes and injuries we've analyzed for this study:



Additionally, here's the full table of data for all aviation crashes that took place between 1982 and 2019.

Please note that the data for 2019 is incomplete which explains the sharp decline in crashes.

Year	Number of Crashes	Fatal Injuries	Serious Injuries	Minor Injuries
1982	3593	1585	727	998
1983	3556	1273	673	1048
1984	3457	1229	697	1047
1985	3096	1648	612	1108
1986	2880	1180	619	970
1987	2828	1237	554	936
1988	2730	1195	620	1117
1989	2544	1532	518	1029
1990	2518	999	589	908
1991	2462	1087	535	913
1992	2355	1273	609	775
1993	2313	865	505	910
1994	2257	1183	529	763
1995	2309	1236	480	731

Year	Number of Crashes	Fatal Injuries	Serious Injuries	Minor Injuries
1996	2187	2533	532	729
1997	2148	1296	497	1026
1998	2226	1325	388	807
1999	2209	1221	491	1206
2000	2220	1765	501	1256
2001	2063	1709	478	612
2002	2020	1386	432	706
2003	2085	1374	480	772
2004	1952	978	457	603
2005	2031	1689	426	620
2006	1851	1489	420	473
2007	2016	1335	402	543
2008	1931	1293	511	786
2009	1805	1207	381	625
2010	1821	1390	343	589
2011	1889	959	432	488
2012	1861	1007	336	464

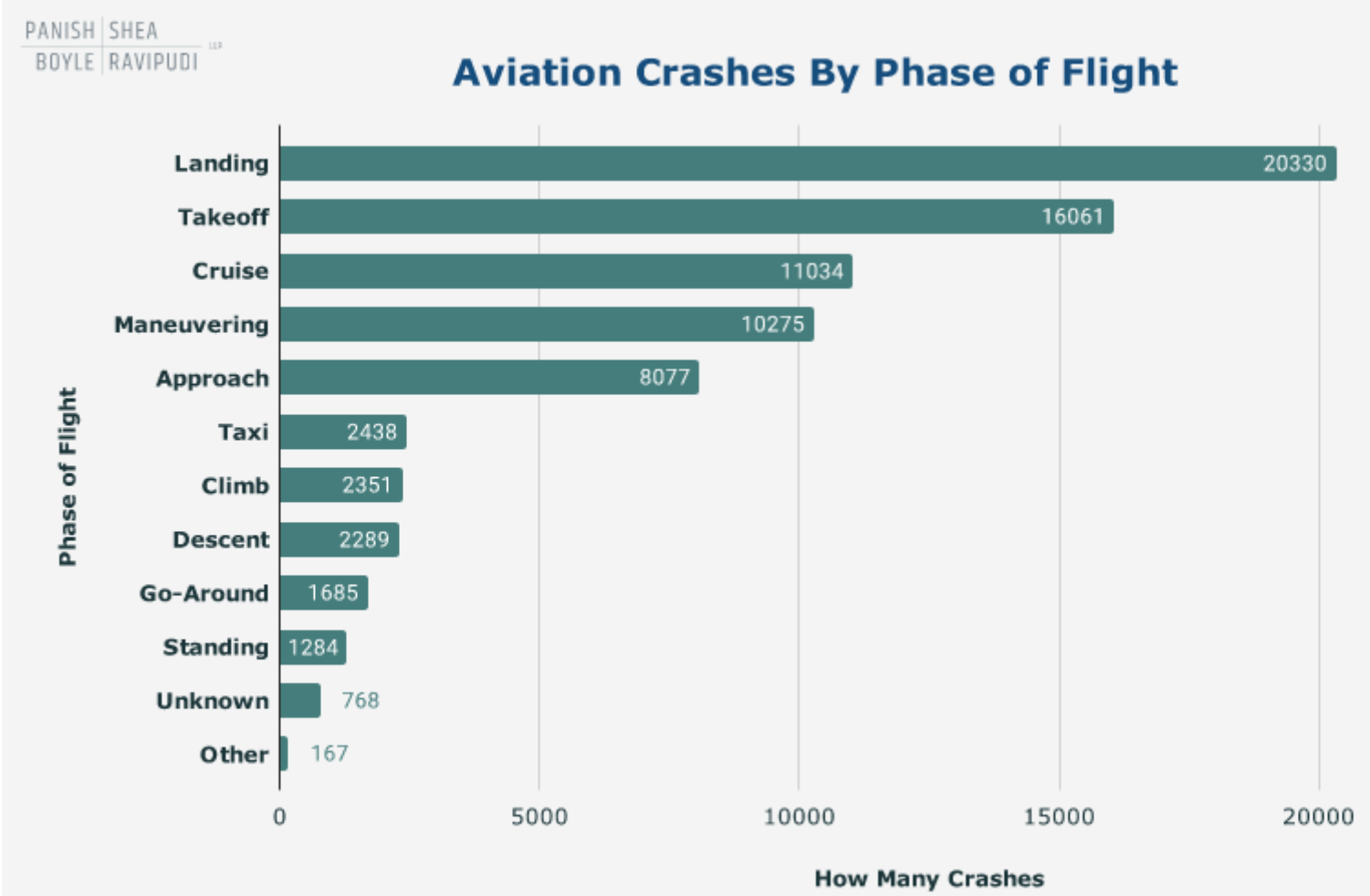
Year	Number of Crashes	Fatal Injuries	Serious Injuries	Minor Injuries
2013	1561	839	358	671
2014	1547	1438	321	469
2015	1600	1112	364	473
2016	1628	835	297	468
2017	1597	677	295	401
2018	1581	847	331	437
2019	640	477	120	129
Total	83374	47719	17862	28607

Nearly Half of All Aviation Crashes Happen During Landing or Takeoff

One fact becomes clear after looking at historic aviation crash data and focusing on the phase of flight during which the crash took place: Landing and Takeoff are the most complex phases of flight for any airplane. Nearly half of all the aviation crashes we analyzed covering the period 1983 – 2019 took place during either landing or take off procedures. These phases place a heavy load on airline crews and ground teams as well.

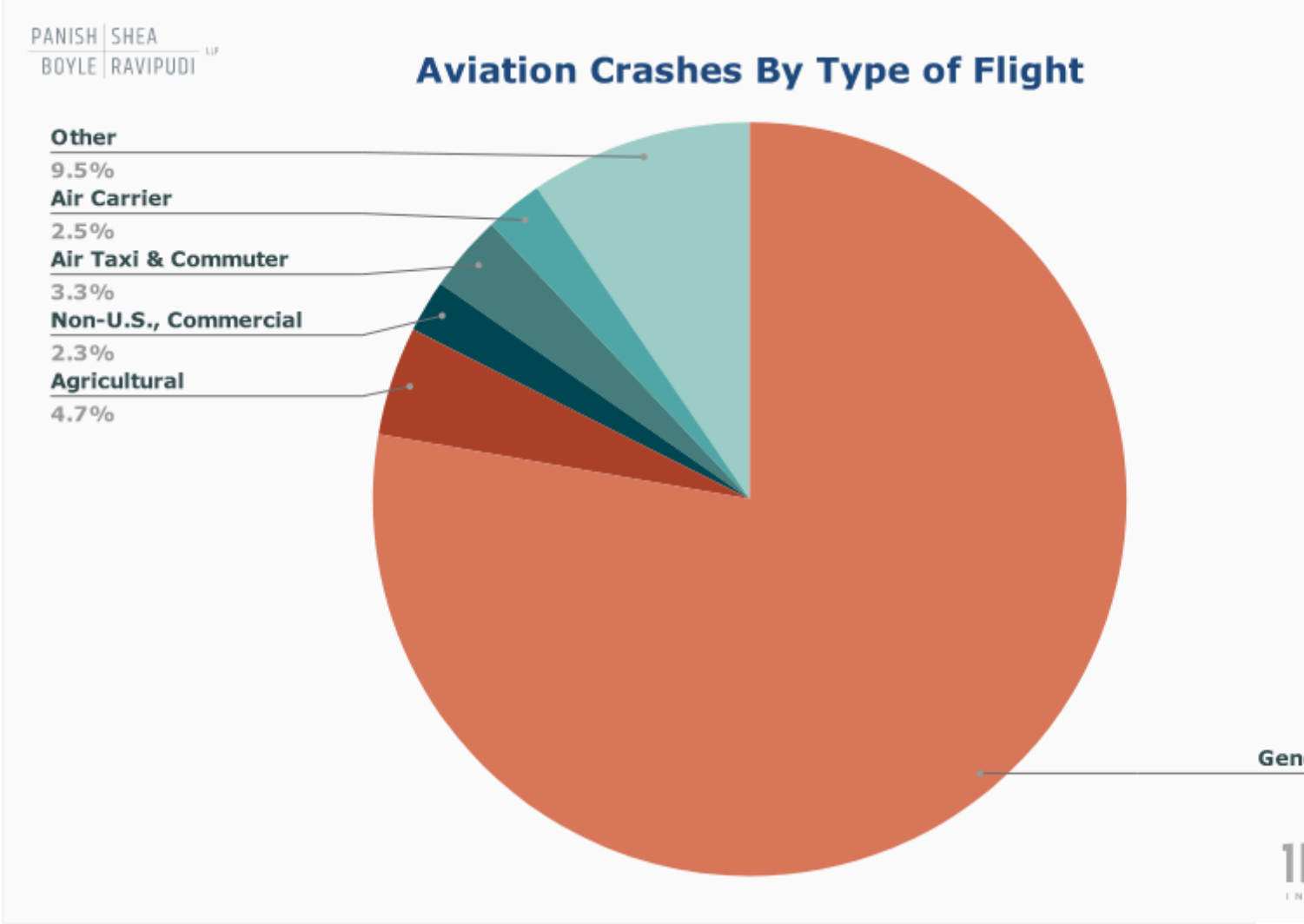
The tough combination of constant airplane configuration changes, having to navigate the plane, communicating with Air Traffic Control, and keeping an eye on ever-changing weather conditions increases the potential for unanticipated events which sometimes leads to a crash.

This following chart visualizes the disparity in aviation crashes when looking at the phase of flight in which the accident took place:



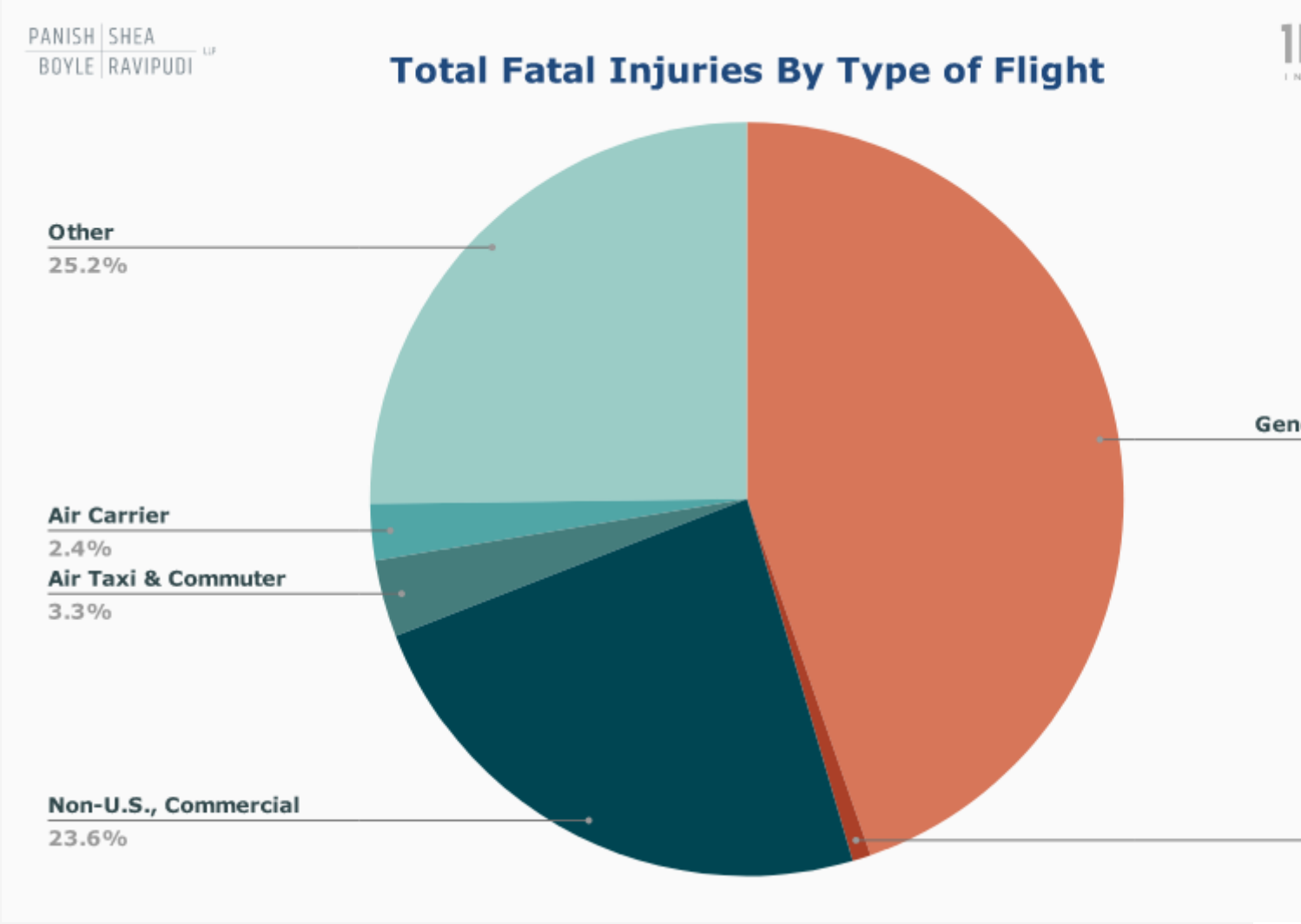
General Aviation Aircraft Involved in 78% of Crashes

Furthermore, our team analyzed the types of flights involved in the most crashes and found that general aviation aircraft were involved in almost 78% of all crashes. General aviation aircraft include all civilian flights except for passenger or cargo transport that is scheduled by an airline company.



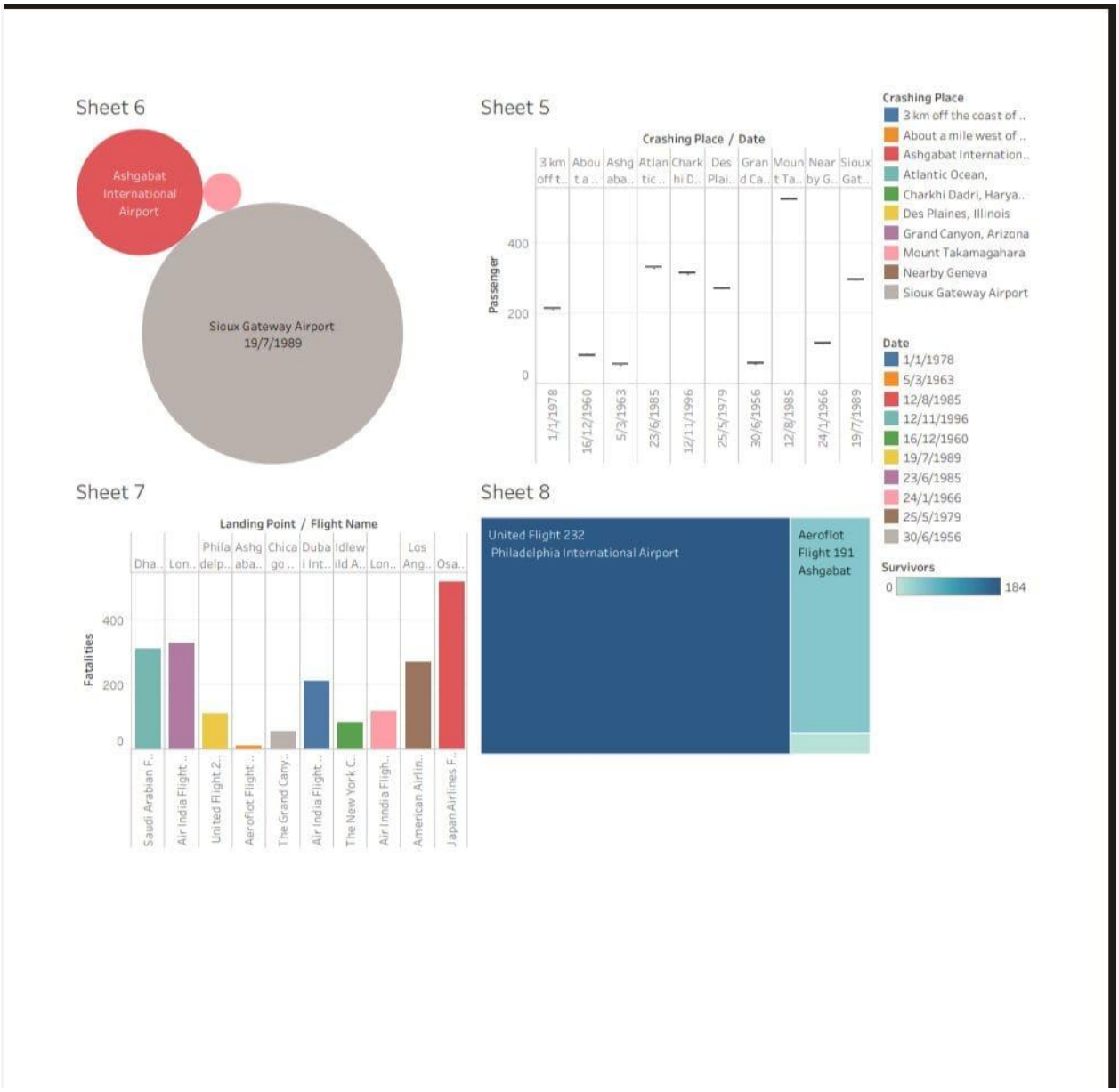
One of the main reasons why general aviation planes are involved in so many crashes is that there are many more of them flying than scheduled commercial flights.

However, if we look at the percentage of fatal accidents by the type of flight, we see that general aviation was involved in almost 45%, while non-US commercial and other flights share almost half of crashes that involved a fatality.



It's Tough to Investigate an Aviation Accident

No matter what the aviation accident statistics, one fact remains clear – investigating an aviation accident is time-consuming and complex. It's also necessary when an aviation-related lawsuit is filed. If you have been injured in an airplane accident or your loved one has lost his or her life, don't delay. Your time to file could be limited. Call an experienced, reputable law firm for the help you deserve. Panish | Shea | Boyle | Ravipudi LLP represents personal injury victims nationwide. We have what it takes to fight for you in court and reconstruct what happened to you in the air. Call today for a free case consultation.



Airline Safety Tips

1. Fly on Nonstop Routings

Most accidents occur during the takeoff, climb, descent, and landing phase of flight so flying nonstop would reduce exposure to these most accident prone phases of flight.

2. Choose Larger Aircraft

Currently, aircraft with more than 30 passenger seats were all designed and certified under the strictest regulations. Also, in the unlikely event of a serious accident, larger aircraft provide a better opportunity for passenger survival.

3. Pay Attention to the Preflight Briefing

Although the information seems repetitious, the locations of the closest emergency exits may be different depending on the aircraft that you fly on and seat you are in.

4. Keep the Overhead Storage Bin Free of Heavy Articles

Overhead storage bins may not be able to hold very heavy objects during turbulence, so if you or another passenger have trouble lifting an article into the bin, have it stored elsewhere.

5. Keep Your Seat Belt Fastened While You are Seated

Keeping the belt on when you are seated provides that extra protection you might need if the plane hits unexpected turbulence.

6. Listen to the Flight Attendants

The primary reason flight attendants are on an aircraft is for safety, so if one of them asks you to do something like fasten your seat belts, do it first and ask questions later.

7. Don't Bring Any Hazardous Material

There are rather long lists of hazardous materials that are not allowed, but common sense should tell you that you shouldn't bring gasoline, corrosives, poisonous gases, and other such items on the aircraft unless they were allowed by the airline and shipped in a proper container.

8. Let the Flight Attendant Pour Your Hot Drinks

Flight attendants are trained to handle hot drinks like coffee or tea in a crowded aisle on a moving aircraft, so allow them to pour the drink and hand it too you.

9. Don't Drink Too Much

The atmosphere in an airliner cabin is pressurized to about the same altitude as Denver, so any alcohol you consume will affect you more strongly than at sea level. Moderation is a good policy at any altitude.

10. Keep Your Wits About You

In the unlikely event that you are involved in an emergency situation such as a precautionary emergency evacuation, follow the directions of the flight attendants and flight crew and exit the aircraft as quickly as possible

5.Applications:

This idea – that the same technology that allows systems to be efficient and largely error-free also creates systemic vulnerabilities that result in occasional catastrophes – is termed "the paradox of almost totally safe systems." This paradox has implications for technology deployment in many organizations, not only safety-critical ones.

One is the importance of managing handovers from machines to humans, something which went so wrong in AF447. As automation has increased in complexity and sophistication, so have the conditions under which such handovers are likely to occur. Is it reasonable to expect startled and possibly out-of-practice humans to be able to instantaneously diagnose and respond to problems that are complex enough to fool the technology? This issue will only become more pertinent as automation further pervades our lives, for example as autonomous vehicles are introduced to our roads.

Commercial aviation offers a fascinating window into automation, because the benefits, as well as the occasional risks, are so visible and dramatic. But everyone has their equivalent of autopilot, and the main idea extends to other environments: when automation keeps people completely safe almost all of the time, they are more likely to struggle to reengage when it abruptly withdraws its services.

Organizations must now consider the interplay of different types of risk. More automation reduces the risk of human errors, most of the time, as shown by aviation's excellent and improving safety record. But automation also leads to the subtle erosion of cognitive abilities that may only manifest themselves in extreme and unusual situations. However, it would be short-sighted to simply roll back automation, say by insisting on more hand-flying, as that would increase the risk of human error again. Rather, organizations need to be aware of the vulnerabilities that automation can create and think more creatively about ways to patch them.

6.CONCLUSION:

The Black box is currently widely used in the airplanes, ships and satellites but the current Black Box cannot be used for real time operations, since there is no

bandwidth that can carry such huge amount of data. A technology needs to be invented that can carry a subset of data, Real time and Boeing has claimed to create such a technology and has patented for the same. Along with the above demands, the Black Box should be able to transmit signals for 90 days when submerged in deep waters which can increase the chances of success of recovering the black box. The signal from the Black box should be able to reach the surface of the sea or ocean so that it can be picked up by floating receivers/transmitters.

The floating device should be able to transmit data to SAR planes, ships or submarines or to the satellites sent into the zone or area to locate down the aircraft. Lastly, the Black box should have its own power source to transmit signals so it is not dependent on the power of the plane and hence, can result in a secure collection and retrieval of data.

In this paper, the real-time flight & its data tracking system is discussed to fulfil the need to find the black box easily after any unfortunate accident. The glass box system is eventually distributed, ascendable, trustable and representation are given with the bandwidths which are available today. The rules determining the format & transmission of data and types of packet are defined particularly to make fit for all 88 parameters that are recorded using flight data recorders & cockpit voice data recorders. Future work includes adding data encryption and routing specific modules in the system for better security & efficient data retrieval system. Data mining of data which is received on flight completion may be analysed for complete fuel efficiency and other operational efficiencies of an aircraft.

7.Future scop:

Transmission–Top mounted antennas communicate with satellites at higher altitudes, at lower altitudes, data can be sent directly to the ground receivers.

Bandwidth – To save money, aircrafts could flash data intermittently, switching to streaming ways in an emergency.

Satellites – By 2015, a constellation of dedicated search towards technology, rescue satellites will track aeroplanes exact location more quickly globally.

Storage Servers – Today, uncountable servers around the world stores & send real time flights recorded data. Eventually, in coming future every airline would have its own server

8.Appendix:

On the morning of 12 December 1985, at 0645 local time (0515 EST), Arrow Airlines flight 1285, a DC-8-63 charter carrying 248 passengers and a crew of eight, crashed just after takeoff from Gander International Airport, Gander, Newfoundland. All on board perished. The postcrash fire, fed by the contents of the stricken aircraft's full fuel tanks, took local firefighters nearly four hours to bring under control and approximately thirty hours to completely extinguish. The firefighters were hampered in their efforts because of the rugged terrain, which initially prevented more than one fire truck at a time from being used.

The passengers on the ill-fated charter were U.S. soldiers. All but twelve were members of 101st Airborne Division (Air Assault), most of whom were from the 3d Battalion, 502d Infantry; eleven were from other Forces Command units; and one was a CID agent from the Criminal Investigations Command. They were returning to Fort Campbell, Kentucky, home station of the 101st Airborne Division, after completing a six-month tour of duty in the Sinai with the Multinational Force and

Observers (MFO). This international peacekeeping organization, made up of contingents from ten nations, had been established under terms of a protocol between Egypt and Israel signed on 3 August 1981. The MFO has had the mission of implementing security provisions contained in the 1979 Israeli-Egyptian peace treaty.

Perhaps no other event in its peacetime history has so wrenched the soul and torn at the heart of the U.S. Army as the Gander tragedy, which ranked as the worst military air disaster in the nation's history. But in spite of its grief, the Army moved quickly in responding to the tragedy.