

## **Alliance or Rebellion: Linking Efforts of State Safety Oversight Agencies**

**By Jeff Guzzetti, AO3317**

---

*Jeff Guzzetti is currently the Acting Deputy Director of the Office of Accident Investigation and Prevention at the U.S. Federal Aviation Administration (FAA). He joined the FAA in May 2014 as the manager of the Accident Investigation Division. Mr. Guzzetti also served as the Assistant Inspector General for Aviation Audits at the U.S. Department of Transportation's Office of the Inspector General for four years, where he led audits of FAA aviation safety programs. His prior experience also includes 18 years with the U.S. National Transportation Safety Board's (NTSB) Office of Aviation Safety, where he served as a field investigator, major accident investigator, and the Deputy Director of Regional Operations. Mr. Guzzetti has also worked as an air safety investigator with the Cessna Aircraft Company, and as a safety engineer with the U.S. Naval Air Systems Command. He earned a Bachelor of Science degree in Aeronautical Engineering from Embry-Riddle Aeronautical University, and he holds a Commercial Pilot license with multiengine, instrument ratings, and Seaplane & Glider pilot ratings.*

**The views expressed in this paper do not necessarily represent the views of the United States (U.S), the U.S. Department of Transportation (DOT), the Federal Aviation Administration, or any other Federal agency.**

---

### **Abstract**

The United States (U.S.) and many other ICAO nations each have various agencies inside their borders with overlapping yet differing roles in regulating, investigating, and evaluating the aviation industry. These interrelationships often produce tension and “rebellion” under the false premise that working together is an unacceptable “conflict of interest” or that the authorities of their respective agencies are being usurped. This paper demonstrates that creating “alliances” and linking the efforts between these agencies can actually accelerate improvements to aviation safety by fueling enhanced awareness and support for implementing practical safety actions. Suggested practices and behaviors for creating alliances and thwarting rebellion are presented. Examples are also presented regarding the U.S. National Transportation Safety Board (NTSB) -- the lead investigative agency for civil aircraft accidents -- and its typical target for recommendations -- the Federal Aviation Administration (FAA) which oversees every aspect of the daily operations of aircraft in the U.S. Meanwhile, the FAA and NTSB are subject to scrutiny by the Government Accountability Office (GAO) and the U.S. Department of Transportation’s Office of the Inspector General (DOT OIG), who both employ exceptional methodologies to audit and report on deficiencies within the FAA and NTSB. Specific examples of both collaborative and conflicted efforts among all these agencies will be presented, including the identification and mitigation of hazards associated with helicopter air ambulance operations and also with airline pilot fatigue. Examples of overlapping responsibilities between internal safety agencies within other states -- such as Germany, Russia, and Iceland -- are also presented.

## **Introduction**

The United States (U.S.) and many other ICAO nations each have various agencies inside their borders with overlapping yet differing roles in regulating, investigating, and evaluating the aviation industry. These interrelationships often produce tension and “rebellion” under the false premise that working together is an unacceptable “conflict of interest” or that the authorities of their agency are being usurped. However, these relationships should be fostered, rather than be allowed to wilt from ignorance, arrogance, or fear. Instead of being predisposed to rebel against each other, these agencies should find ways to *link their efforts* in order to achieve their ultimate objective of accelerating safety improvements in aviation. Enlightened managers and staff can and should provide for a culture of enhanced awareness to support practical safety actions.

## **The NTSB and the FAA**

In the U.S., the lead agency for all civil aviation accidents is the National Transportation Safety Board (NTSB) -- an independent and highly credible organization with less than 120 air safety investigators out of a total of about 400 people. The small size of this elite agency is at once its strength and its weakness. Its small size allows it to be nimble, quick, and focused. However, its size is also a challenge, because, by statute, the NTSB must assign an investigator-in-charge (IIC) and determine the cause for every one of the nearly 1,300 civil aviation accidents that occur each year in the U.S. [1] If one does the math, one would find that it is impossible for an NTSB IIC to travel to each accident site, let alone conduct research, write reports, and live a normal life. Throw in a half-dozen significant and complex aviation accidents and airline incidents, and the math becomes more troublesome. In fact, NTSB travels to less than 15 percent of these accidents, and therefore must rely on the voluntary support and expertise from the FAA – a massive bureaucracy of 40,000 people charged with regulating and controlling every facet of aviation in the U.S. [2] It would not serve either agency to refrain from a high level of collaboration with each other as they develop ideas to improve safety in the wake of an accident or incident.

The U.S. Congress intended to prevent duplication between investigations conducted by the FAA and NTSB, and therefore established that the NTSB shall always take the lead role. However, Congress also recognized that the FAA must participate as a party in all NTSB aviation accident and incident investigations, thus enabling it to obtain safety-critical information in a timely manner – to meet its safety oversight needs -- during the NTSB's fact-gathering activities.[3] As long as longstanding federal ethics and agency policies are followed, and with a healthy dose of transparency, the NTSB's independence would not be compromised if it needs to utilize some of the 40,000 FAA employees as force multipliers to perform on-scene investigations.

Looking beyond the “macro” view of an agency’s investigative practices, one must focus on the personal relationships between the individuals and personalities within the state agencies that are actually conducting the daily grind of investigative work. If these individuals do not play well in the investigation sandbox, potential life-saving safety improvements may be delayed. Aviation and accident investigation teams tend to be populated with accomplished experts that may have oversized egos, assertive personalities, or a narrow focus of their mission. In most cases, the individual relationships and work efforts of FAA and NTSB investigators are productive, but miscommunications, grudges held from previous investigations, arrogance, and ignorance can sometimes cause problems. It is the responsibility of the managers and leaders of these agencies to instill an appropriate culture and develop guidance that serve to eliminate useless “rebellion.”

### **The “Ashburn Accord”**

During the communication chaos that typically occurs after any significant airline accident or serious incident, the NTSB and FAA can be spring-loaded to “rebel” against each other when attempting to obtain critical evidence for each of their needs. For example, in the wake of a fatal accident overseas of a cargo jet operated by a U.S. airline in 2010, the FAA immediately wanted access to the maintenance records of the accident airline. However, the airline demurred and initially refused to allow the FAA – the regulatory agency responsible of its oversight – to gain access to this information. The reason given was that “the NTSB is in charge” and that “FAA will have to go through the NTSB.” This did not please the FAA inspectors assigned to oversee the airline. However, the NTSB was also not pleased that the FAA attempted to gain access to “evidence” that the NTSB’s authority clearly indicates the agency’s “priority” to obtain. Was the FAA trying to pull a fast one? Was the airline trying to “hide” evidence behind the guise of an NTSB investigation? Was the NTSB blocking FAA efforts to ensure the FAA’s requirement for “continuing operational safety (COS)” ? Should the investigators from NTSB and the inspectors from the FAA have pulled out their badges to see which one was bigger in order to settle this rebellion? Of course, in hindsight, the answer to all of these questions is NO !

Although the NTSB and the FAA have different roles, both share the need for timely, unimpeded access to operational safety information. After this incident, and also prompted by previous concerns regarding engine failure investigations, the NTSB, FAA, aircraft manufacturers, engine builders, and airline representatives got together in an attempt to forge an “alliance” of understanding. During a two-day meeting in early 2014 at the NTSB Training Center in Ashburn, Virginia, the FAA and NTSB hammered out the basics for a “joint policy letter” which was later formalized and signed on June 4, 2014. The policy was informally dubbed the “*Ashburn Accord*” and was distributed to the U.S. aviation industry to clarify the roles and responsibilities of the NTSB and the FAA during an incident or accident investigation. [4]

The *Ashburn Accord* states that the NTSB and FAA “both perform critical roles in maintaining aviation safety,” but asserts that the NTSB has “priority” over any other investigation. However, the letter also makes clear that the FAA has the authority to investigate aviation safety-related matters as necessary to ensure “continuous operational safety” and will do so as needed after a significant accident or incident. The FAA depends on the cooperation of the manufacturers and airlines that they certify to ensure collection of timely and relevant data in these investigations, and the *Ashburn Accord* stresses that the FAA may require information *in addition* to that required by the NTSB. Or, the FAA may require information more expeditiously than the NTSB to address urgent unsafe conditions. In these situations, the FAA is clearly authorized to obtain such information directly from the parties. The *Ashburn Accord* provides important guidance to help ensure that the appropriate priority is placed on the collection of investigative information that the FAA needs. If “rebellion” arises, the policy states that the NTSB, the FAA, and the operator or manufacturer (or both, as appropriate) will conduct an “*Interagency Communication Call*” at the start of an investigation to identify and coordinate information requests. Following that call, any information that is provided to the FAA must be shared with the NTSB. Also, if there are any questions regarding an information request, the assigned NTSB IIC should be contacted immediately via the NTSB 24-hour Response Operations Center.

With regard to conducting interviews, the *Ashburn Accord* stipulates that the NTSB will lead interviews of operator and manufacturer personnel, and will conduct them “as soon as practical.” An FAA party representative, along with other party representatives, will be invited to participate in the NTSB interviews. The FAA may conduct its own follow-up interviews if additional information is needed, and FAA will share the results of these interviews with the NTSB as per their obligations as a party. If the NTSB is unable to conduct interviews for its purposes within a reasonable time, the policy allows the FAA to coordinate with the NTSB to conduct its own interviews to ensure continuous operational safety and to provide the results to the NTSB.

Now that a written policy exists, potential rebellious parties can reference the policy during the chaotic hours following a major accident. Alliances are formed, rebellion is crushed, and safety issues are identified and mitigated more quickly.

### **An “Alliance” for Information Sharing**

Another example of collaboration between similar and competing safety oversight agencies is information sharing. A specific example involves the use and benefits of FAA’s Aviation Safety Information Analysis and Sharing (ASIAS) system. Implemented in 2007 by the FAA, ASIAS collects and analyzes data from multiple databases to proactively identify and address risks that may lead to accidents. It is a collaborative industry-government information sharing and analysis system

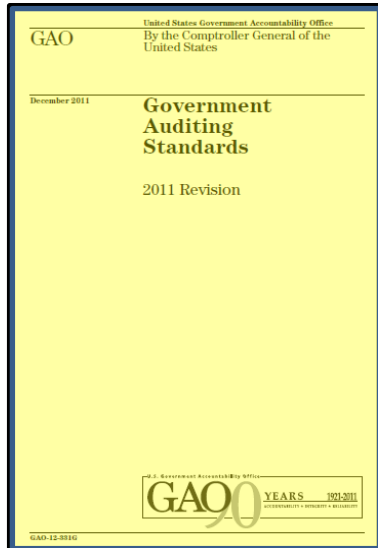
that combines, analyzes, and disseminates aviation safety data and report products. [5] The system is fed by a wide variety of data sources from both public and protected proprietary aviation data. Publicly available data includes information from many sources such as the NTSB Accident and Incident Reports database. Proprietary and/or confidential sources include data from aircraft operators, including Flight Operations Quality Assurance (FOQA) extracted from aircraft recorders, and voluntary safety reports submitted by flight crews. Interactions between the FAA and the aviation industry range from analyzing ASIAs data to identifying and recommending risk mitigations. While NTSB will never have access to the protected proprietary ASIAs data, a written agreement was struck in November 2012 that allows the NTSB to initiate written requests for de-identified and aggregated ASIAs data related to aircraft accidents involving U.S. airlines that occur in the U.S. [6] The NTSB has agreed it will not publicly disclose ASIAs information it receives via this process unless the ASIAs Executive Board agrees.

The FAA can be a rich source of information for NTSB investigators. For example, On August 14, 2013, an Airbus A300, crashed short of the runway during a localizer-only nonprecision approach to an airport in Birmingham, Alabama. The NTSB determined that the primary cause of this accident was the flight crew's continuation of an unstabilized approach and their failure to monitor the aircraft's altitude during the approach, which led to an inadvertent descent below the minimum approach altitude and subsequently into terrain. During the NTSB-led investigation, recorded data from the FAA's air traffic system was used to not only assist with characterizing the accident approach, but also to analyze other approaches flown by many other unidentified airlines to similar runways during a 3-year-period. An analysis was applied to 1.4 million approaches at a subset of 31 U.S. airports that had at least one runway with only a nonprecision approach, a situation similar to that of the accident flight. Approaches to runways with and without precision approaches at the 31 airports were compared with respect to vertical speed metrics. The vertical speed of flights on approach to runways with a precision approach at these airports exceeded a vertical speed of 1,450 feet per minute at one-third of the rate of approaches to runways without precision approaches. Based on these data, NTSB issued recommendations to the FAA, and awareness was raised in the airline industry about these types of non-precision approaches. [7]

### **The GAO, OIG, and the "Yellow Book"**

Meanwhile, both the FAA and NTSB are subject to scrutiny by two other oversight agencies -- the U.S. Government Accountability Office (GAO) and the U.S. Department of Transportation's Office of

the Inspector General (OIG). These agencies work at the behest of the U.S. Congress and conduct formal, in-depth “performance audits” that provide essential accountability and transparency over government programs, including FAA’s safety oversight efforts and the NTSB’s investigation operations. The rigorous standards for audits conducted by the GAO and the OIG are cited in a



GAO publication known as “*The Yellow Book*”. Its actual title is “*Government Auditing Standards*.” The standards contained in the *Yellow Book* are commonly referred to as “generally accepted government auditing standards” or “GAGAS.” GAGAS provides a framework for conducting high quality audits with competence, integrity, objectivity, and independence. GAGAS also contains requirements and guidance dealing with ethics, auditors’ professional judgment, quality control, performance of the audit, and reporting. [8] Portions of the *Yellow Book* provide an outstanding template for any aircraft accident investigators to utilize. It is an extremely well-written, succinct, and useful reference that can and should be applied to our trade.

**Figure 1:  
The GAO “Yellow Book”**

For example, listed below are a few key *Yellow Book* definitions that auditors must adhere to as they conduct their audits and document their findings.

- 
- **Professional skepticism** - an attitude for a questioning mind and a critical assessment of evidence. An assumption that management is not dishonest nor of unquestioned honesty.
  - **Threats to independence** - Circumstances that could impair independence. Whether independence is impaired depends on the nature of the threat, whether the threat is of such significance that it would compromise an auditor’s professional judgment or create the appearance that it may be compromised, and on the mitigations applied to reduce threat.
  - **Condition:** A situation that exists. The condition is determined and documented during the audit.
  - **Criteria:** The required or desired state
  - **Cause:** The reason for the difference between condition and the criteria, which may also serve as a basis for recommendations for corrective actions.
  - **Effect:** A clear, logical link to establish the impact of the difference between the condition and the required criteria. The effect identifies the outcomes or consequences of the condition
  - **Effective recommendations:** Recommendations that encourage improvements in the conduct of government programs and operations. They are addressed to parties that have the authority to act and when the recommended actions are specific, practical, cost effective, and measurable.
- 

Another useful example can be found in Chapter 6 of the *Yellow Book*, which contains standards for the “field work” involved in performance audits conducted in accordance with GAGAS. [9] This chapter provides requirements to establish an overall approach for auditors to apply in

obtaining “reasonable assurance that the evidence is sufficient and appropriate to support the auditors’ findings and conclusions.” Specifically, the field work requirements for performance audits address: planning the audit; supervising staff; obtaining sufficient and appropriate evidence; and preparing documentation.

Perhaps the most rigorous and powerful GAGAS tenant is the requirement for the audit organization to establish and maintain a “system of quality control” that is designed to provide “reasonable assurance” that the organization and its personnel comply with professional standards and applicable legal and regulatory requirements. In order to provide this assurance, GAO and OIG must have an external peer review performed by an independent reviewer of the audit organization at least once every three years, and the organization should make its most recent peer review report publicly available. [10] Typically, this is done by posting the peer review report on a web site for public transparency of peer review results. If the organization fails the peer review, the report serves as a scarlet letter to all that the agency is not credible – a powerful incentive for audit agencies to always strive for competence and pass their peer review!

### **The DOT Office of Inspector General**

The FAA and NTSB are also subject to audits and investigations by the DOT OIG. The *Inspector General Act of 1978* gives the OIG authority to conduct performance audits (and separate criminal investigations) to provide recommendations that lead to program improvements that directly enhance the safety, efficiency, and effectiveness of the U.S. transportation infrastructure. [11] The Act also prevents officials in the scrutinized agency from interfering with audits or investigations, and it requires the IG to keep the U.S. Secretary of the DOT and the Congress informed of its findings. Perhaps the most powerful authority granted by the Act is for the IG to “...have access to all records, reports, audits, reviews, documents, papers, recommendations, or other material available to the Department relating to its programs and operations.” That means that virtually any document that the DOT OIG wants to obtain from the FAA is fair game, including draft reports, open departmental enforcement investigations, etc. The NTSB and GAO do not have this authority.

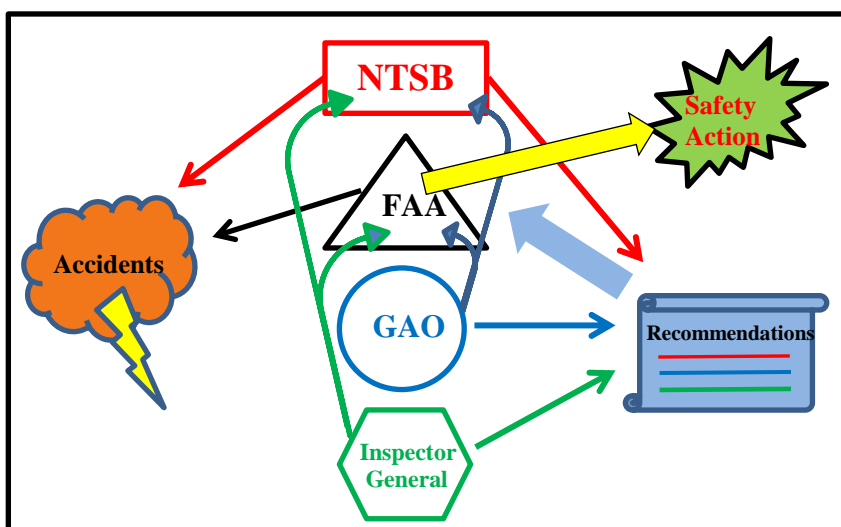
Additionally, the OIG has the ear of the Congress and the DOT Secretary should any of the DOT agencies—such as the FAA--- attempt to obstruct their audit efforts. Unlike the NTSB and GAO, the OIG is also authorized by Congress to report any "serious or flagrant problems" to an agency head under the IG Act. The agency chief, in turn, must pass on that OIG report to Congress within seven days -- thus earning the document its moniker of "seven-day letter" and guaranteeing a maelstrom of media coverage and Congressional attention for the agency audited. But doing so is considered the “nuclear option” because it could ends the collaborative

relationship between the IG and his or her secretary. Still, the 7-day letter is a powerful tool in the OIG arsenal, and the mere threat to use it can prompt closed-door negotiations between an IG and management in order to quell rebellion.

Finally, the audit reports that are issued by the DOT OIG are extremely well-written, and the professionals in our trade should readily refer to them as an excellent reference on relevant aviation safety topics. For example, the report's "Background" section provides a useful primer of the audit topic, and the "Results in Brief" section – or the "RIB" -- summarizes the main findings of the audit with one succinct paragraph per major finding. And, as previously mentioned, the support and documentation of each "finding" section is unassailable due to the adherence to the *Yellow Book* standards. Perhaps the only criticism of an OIG or a GAO audit report is that the findings and recommendations can sometimes lack a practicality about them, since they are written by "auditors", rather than aviation accident investigators and industry users. However, the OIG allows FAA and NTSB to provide comments on the draft audit report, and the OIG will append those comments in their final report. The OIG continues to monitor FAA and/or NTSB's actions taken to address any recommendations made in its final report, and the progress on these recommendations are routinely reported to Congress. [12]

### Investigating the Investigators

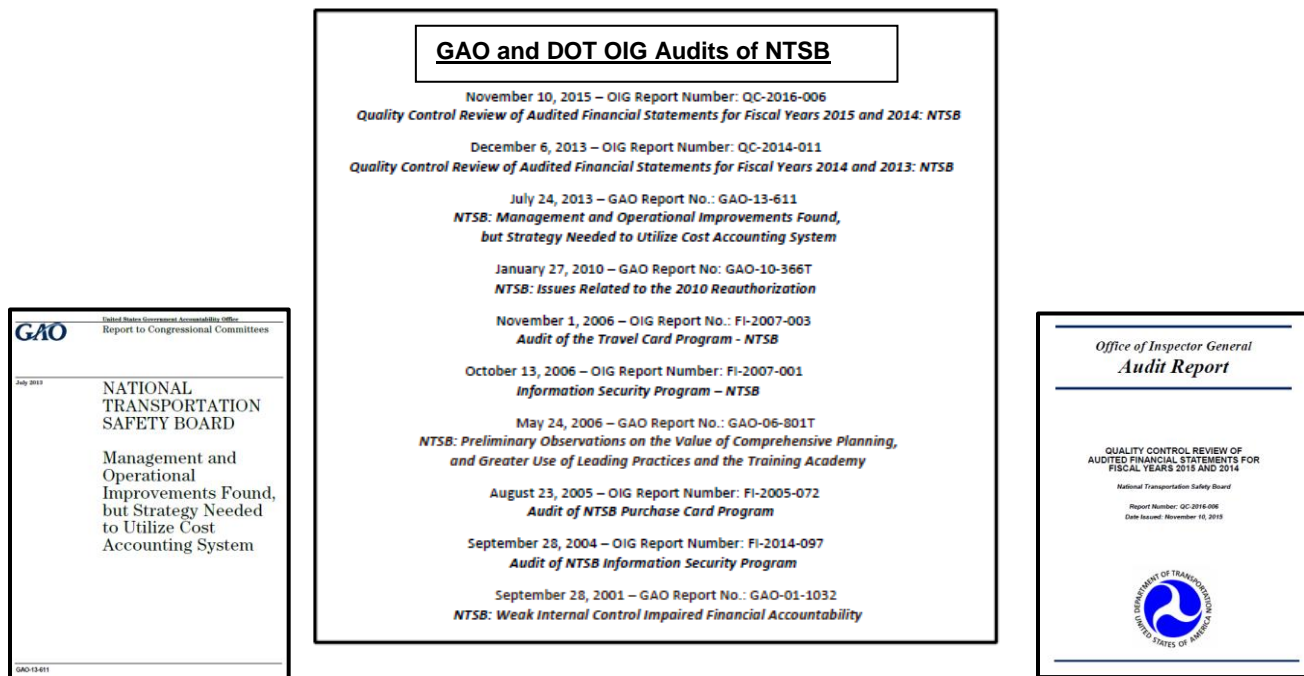
Why are the roles of the GAO and DOT OIG important for aviation safety and accident investigation? The answer should be obvious. As shown in Figure 2 below, the primary agency to conduct all U.S. civil aviation accidents (i.e. NTSB), and the agency that regulates and oversees all aspects of U.S. civil aviation (i.e. FAA), are held to the standards that the public expects of them by the frequent audits conducted by the GAO and DOT OIG. Additionally, the recommendations resulting from



**Figure 2.**  
**Diagram of Roles & Relationships Between NTSB, FAA, GAO and the DOT OIG**



the work of the NTSB, GAO, and DOT OIG regarding various aviation safety topics can be force multipliers to bring pressure to bear (or in many cases to support), FAA and Congressional safety actions. With respect to the NTSB, Figure 3 below provides a sampling of independent performance audits that it undergoes from the GAO and the DOT OIG.



**Figure 3:**  
**Examples of GAO and OIG Audit Reports targeting NTSB Budget and Operations**

**Characteristics for Creating Alliances and Accelerating Corrective Safety Actions**

The ICAO Manual of Aircraft Accident and Incident Investigation cites that the “Ideal Investigator” is “... *trained personnel possessing many qualities, not the least important of which are an inquisitive nature, dedication... diligence and patience.* The definition continues with: “...*Technical skill, perseverance and logic are the tools the profession; humility, integrity, and respect for human dignity the guiding rules.*” [13] When it comes to building alliances and thwarting useless rebellion, the key words in this definition are the ones that describe the characteristics of human relationships: **Patience, Humility, Respect for Human Dignity.**

Other guidance can be found in a list of principals recently agreed upon by all of the executives within the FAA. Named after the location of the FAA Executive strategic planning meeting for agency operations, these “Shepherdstown Principles” [14] could readily be applied during the rise in tensions between investigators and auditors in the heat of an inquiry, as shown here:

- **Assume Positive Intent and Set the Tone** – Consider that everyone working on the investigation or audit is trying to improve safety. Resist negativity and assumptions.
- **Collaborate and Build Connections** – Keep attuned to the needs and issues of others involved in the investigations and audits. Foster relationships. Find common ground.
- **Explain the “Why” and Be Transparent** – Ensure others fully understand your concerns and solutions. Ask them to ask “Why”. Lean into conflict and resolve issues with boldness and creativity. Don’t just send demanding emails, or “project” what you think the other is thinking. Pick up the phone. Talk it out. Better yet, get a cup of coffee together.
- **Always Model Cooperation** – Make decisions that communicate your willingness to cooperate. Collaboration and engagement starts at the top.

Perhaps the most useful behavior to apply is one of **empathy**. When one attempts to fully understand the other’s argument or perception – to the point of being able to actually argue their side better than *they* can – a true understanding of the other’s challenges and authority and concerns is attained. In other words, try to “Walk a mile in the Other Guy’s shoes.”

### **Rebellion – Barriers to Forming Successful Alliances**

On the opposite side of the ledger, the characteristics and behaviors that fuel the fire of useless rebellion are:

- **Arrogance** – No one wants to try to educate someone who thinks they “know everything “ about this issue at hand. There is no room for empathy and alliance when arrogance exists.
- **Badge Envy** – The “*my badge is bigger than your badge*” attitude only serves to alienate and infuriate those who are trying to get their job done.
- **Competition** – Some investigators or auditors want to be the first one to “solve the accident.” But preventing accidents is a race against *time*, not each other. Investigation is a team sport.
- **Projection** – Projection occurs when clear and frequent communications between two parties does not exist. The communication void allows one to “project” their own guess about how the other feels or thinks, without actually verifying this, and talking it out.

### **Case Study 1: U.S. Airline Pilot Commuting and Fatigue**

On February 12, 2009, a Bombardier DHC-8-400 was on an instrument approach to Buffalo-Niagara International Airport, Buffalo, New York, when it crashed into a residence about 5 nautical miles northeast of the airport. The 2 pilots, 2 flight attendants, and 45 passengers aboard the airplane were killed, along with, one person on the ground. [13] The NTSB’s investigation found that both pilots had not been adequately rested because they had chosen to “commute” from their residences that were far away from their pilot base in Newark, New



**Figure 4.**

**DHC-8-400 accident site in New York – February 2009**

Jersey. As a result, the NTSB recommended that the FAA “require airlines to address fatigue risks associated with commuting, including identifying pilots who commute; establishing policy and guidance to mitigate fatigue risks for commuting pilots; using scheduling practices to minimize opportunities for fatigue in commuting pilots; and developing or identifying rest

facilities for commuting pilots. [15]. Later, in September 2010, the DOT OIG issued an audit report entitled “*FAA and Industry Are Taking Action To Address Pilot Fatigue, But More Information On Pilot Commuting Is Needed.*” The report independently supported similar findings by the NTSB, and cited two similar recommendations to the FAA.[16] In part, the first recommendation was for FAA to “ensure the collection and analysis of data regarding domicile and commuting length for all Part 121 flight crews,” and the second was for FAA to “review and analyze the Part 121 domicile and commuting data collected to determine if further changes to flight duty and domicile regulations are needed, or if airlines need to take further mitigating actions in their fatigue management systems.”

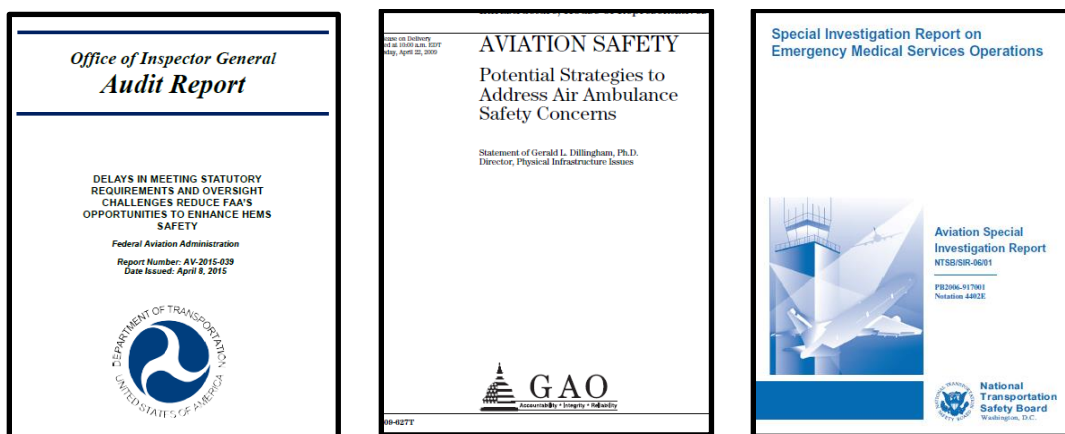
The FAA initially opposed the recommendations, citing that it had just issued substantial rules that revised and enhanced crew rest that addresses fatigue in general, regardless of the cause. The FAA also stressed their philosophy that pilots should take personal responsibility to be “fit for duty” before each flight. However, the OIG reiterated its view that these data were necessary to determine how prevalent fatigue existed due to airline pilot commuting, and they cited their recommendations as a “high priority” in response letters to Congress.[17] Additionally, the DOT OIG indicated that its views on the topic were consistent with similar recommendations made by NTSB, giving them more clout. Yet the FAA continued to rebel.

Through several written responses and meetings that occurred over the course of about two years, managers at the FAA and the OIG attempted to overcome the impasse regarding the OIG recommendations. Building an alliance can sometimes take a while. The FAA stipulated that commuting can definitely contribute to pilot fatigue, and that many pilots commute, but they indicated that a “study” was not needed and would waste precious resources. They also indicated that each airline must have a Fatigue Risk Management Plan (FRMP) in place, accepted by the FAA principle inspector for the airline annually. The DOT OIG appreciated the FAA’s view that commuting is widespread in the industry and can contribute to fatigue, and they gave serious consideration regarding the role that FRMPs could play in meeting the intent of this

recommendation. After much discussion, FAA indicated a willingness to develop and publish guidance to their inspectors and/or the airlines that would essentially compel the airlines to specifically address commuting in their annually-updated FRMPs in order to lay out a process by which the airline could intervene should the commutes of their pilots become problematic. The OIG felt that the FAA’s proposal was viable and met the intent of their recommendations.

## **Case Study 2: U.S. Helicopter Air Ambulance Safety**

Calendar year 2008 was the deadliest year on record for the helicopter air ambulance industry in the U.S., with 8 fatal accidents and 29 fatalities, prompting the NTSB to hold a 4-day public hearing in February 2009. [18] One month later, the GAO issued an audit report on entitled “Potential Strategies to Address Air Ambulance Safety Concerns.” [19] In the report, the GAO identified several potential strategies for improving air ambulance safety that were similar to what the NTSB had identified. In September 2009, the NTSB issued ten recommendations to the FAA regarding improved pilot training; collection and analysis of flight, weather, and safety data; and the use of dual pilots, autopilots, and night vision systems. [20]



**Figure 5:**  
**Reports Addressing Helicopter EMS Safety from (left to right) OIG, GAO, and NTSB**

The FAA did not rebel against the findings and proposals, because they also immediately recognized that something needed to be done. The NTSB and GAO reports and recommendations served to elevate the issue in the eyes of Congress, who supported the FAA’s issuance of a final helicopter air ambulance rule in February 2014. But this case study does not stop there. Congress asked the DOT OIG to review FAA’s progress in improving air ambulance safety. One year later, the OIG issued an audit report that found that while FAA’s recently issued helicopter air ambulance rule was a good first step toward improving safety, continued delays in finalizing all of the safety efforts that Congress wanted was affecting FAA’s ability to focus its accident reduction efforts and limiting the effectiveness of safety initiatives. The OIG also stated that the FAA would need to be better positioned to effectively oversee a rapidly expanding industry and would need to obtain

meaningful safety data to analyze for trends. The OIG made five recommendations to strengthen FAA's oversight of the industry, and the FAA concurred with all of them. [21] This case study shows how all four safety oversight agencies (see Figure 5 above) came together to improve safety.

Numerous other case studies could be presented regarding the interrelationships between the FAA, NTSB, GAO and DOT OIG, and how they can support each other to accelerate safety action. The chart shown in Figure 6 below provides a partial listing of recent aviation safety issues and the reports/recommendations that were issued for each.

<b><u>SAFETY ISSUE</u></b>	<b>NTSB Reports</b>	<b>GAO Audits</b>	<b>DOT IG Audits</b>
EMS Helicopter Safety	X	X	X
Unmanned Aircraft	X	X	X
Pilot Fatigue	X		X
Bird Strikes	X		X
Runway Incursions	X	X	X
ATC Near Misses	X		X
Lithium Battery Fires	X	X	

**Figure 6:**  
**Table Showing Common Safety Issues Addressed in Reports by FAA, NTSB, GAO, and OIG**  
 (Source: FAA, NTSB, GAO, and DOT OIG main web sites)

### **Case Study 3: Germany’s BFU, BMVI, EASA, and a Midair Collision**

At last year’s 2015 ISASI Seminar in Munich, Johann Reuss, the deputy director of the German Federal Bureau of Aircraft Accidents Investigation (BFU), effectively laid out yet another example of the benefits of “alliances” between safety oversight agencies – this time in Germany. In his paper entitled *"Independence does not mean isolation: A practical Approach,"* Reuss explained that the BFU is the responsible safety investigation authority in Germany for the accidents and serious incidents in civil aviation. [22] The BFU adheres to European and national requirements , and is subordinated to the Federal Ministry of Transport and Digital Infrastructure (BMVI).

German law stipulates the professional independence of the BFU and permits the director of the BFU to initiate an investigation and appoint and IIC in order to identify safety deficiencies and make recommendations. In his paper, Reuss cited the BFU’s investigation into the tragic midair collision in July 2002 between a Tupolev Tu-154 passenger jet and a Boeing 757 cargo jet over the southern German town of Überlingen. The official investigation by the German BFU identified the main cause of the collision to be a number of shortcomings on the part of the Swiss air traffic control service in charge of the sector involved, and also ambiguities in the procedures regarding the use of the on-board aircraft collision avoidance system. Reuss clearly articulated that a major investigation in Germany is effective only if the investigation process is transparent, safety

recommendations are comprehensible, the safety investigation authority give and receive sound facts about the ongoing investigation, and licensing and regulating authorities are involved in accordance with their nation's regulations. [23]

#### **Case Study 4: Russia's Aviation Investigation Structure and a Boeing 737 Accident**

Another ICAO-member state that has a similar "check and balance" aviation safety structure is Russia. The Interstate Aviation Committee (IAC/MAK) was established in Russia in 1991 pursuant to the interstate Agreement on Civil Aviation and Airspace Use. The principal aim of the IAC is to ensure safe and orderly *development* of civil aviation of Russia's member states, specifically to include certifying aircraft, engines, and hardware. Interestingly, the IAC has a separate group that conducts independent investigations of all civil aircraft accidents that involve the aircraft of the member states. Additionally, the work related to aircraft accident investigation is overseen by the Aircraft Accident Investigation Commission (AAIC) and the Aircraft Accident Investigation Scientific and Technical Support Commission (AAI STSC). Because of these "alliances," the IAC Investigators have at their disposal a modern laboratory which provides capabilities for flight recorders data recovery, readout and analysis, flight dynamics analysis, aircraft and fracture analysis. [24]

Additionally, Russia's Federal Air Transport Agency (FATA) – which is the equivalent of the FAA in the U.S. – conducts the government oversight of day-to-day Russian aviation operations. All of these aforementioned Russian agencies had a stake in an accident that occurred on November 17, 2013, when a Boeing 737-500, operated by a Russian airline, crashed during a missed approach at night at the airport in Kazan, Russia. The IAC determined that the cause of the crash was related to flight crew's failure to maintain control of the airplane, due to spatial disorientation, inadequate flight crew training, and other systemic weaknesses in safety to include a lack of adequate oversight by FATA. There were many controversies and some dissention related to the investigation, as non-investigative members of the IAC sought to indict the design of the aircraft, rather than follow the obvious facts that led to the official cause. However, in the end, rebellion was put down, and alliances between IAC, FATA, and others led to a comprehensive and impactful final accident report with recommendations that will enhance aviation safety in Russia. [25]

#### **Case Study 5: Iceland and the ITSB, ICAA, EASA, and a Russian jet**

Finally, three years ago, right here in our host country, Iceland's Parliament passed Act no. 18.2013, which combined three transportation committees in a single commission of inquiry for transportation accidents under the Minister of the Interior. The Act stipulates that investigations should only aim to reveal the causes of transport accidents and incidents, not to apportion blame or liability, with the aim to prevent similar accidents. The Icelandic Transportation Investigation Board (ITSB) was born. Meanwhile, The Flight Safety Division of the Icelandic Civil

Aviation Administration (ICAA), which is also under the auspices of the Ministry of the Interior, acts as Iceland's regulator. Additionally, Iceland is a party to EASA, and the Flight Safety Division participates in its operations. EASA provides oversight and development and coordination regarding requirements in flight operations and license issues. [26]



Shortly after the passage of Act no. 18.2013, a prototype Sukhoi RRJ-95B Superjet 100 airliner impacted the runway with its landing gear retracted during a go-around at Keflavik International Airport in July 2013. The purpose of the flight was to expand the airplane's capabilities for CAT IIIA automatic approaches. After seven approaches and go-arounds, the objective of the last approach was to assess the automatic flight control system performance during go-around at a radio altitude of 3 feet above the runway, with the right engine shut down and in a crosswind exceeding 20 knots. During this last go-around, the airplane climbed to 27 feet altitude after the landing gear had been selected to the up position, followed by a loss of altitude. The airplane hit the runway with the landing gear retracted and skidded down and off the runway. The crew evacuated the airplane one crew member suffered minor injuries during the evacuation.[27]

The ITSB determined the most probable cause of the accident to be flight crew fatigue, and they issued nine safety recommendations and one safety action. The ITSB recommended to EASA to ensure that necessary changes were made to the emergency escape slide design of RRJ-95B aircraft that are EASA-certified to meet the maximum wind requirements specified by EASA. The investigation also determined that the use of green color code during activation of the airport emergency plan was prone to causing confusion, prompting the ITSB to issue a "safety action" to the Iceland Ministry of Transport to revise the regulation and change the green color code to another color to avoid confusion. The alliances built between the ITSB, EASA, the Flight Safety Division of the ICAA, and the Icelandic Ministry of Transport demonstrated once again that creating *alliances* among a state's safety oversight agencies can lead to enhanced safety.

## **Conclusion**

The five cases cited above demonstrate that creating *alliances* among state safety oversight agencies can lead to improvements in aviation safety. Instead of being predisposed to *rebel* against each other, agencies should do what is necessary to create a culture of respect and understanding, and to find ways to link their efforts in order to achieve their ultimate objective of accelerating safety improvements in aviation.

## **References:**

1. 49 U.S. Code of Federal Regulation Part 830. National Transportation Safety Board Authorities
2. Goo, Sara Kehaulani. "Backlogged Investigators Pass on Small-Plane Accident Sites." Washington Post Newspaper. February 8, 2006.
3. 49 U.S. Code Sections 40101(d), 40113(a); 44701(a)(d). Federal Aviation Administration Authorities.
4. National Transportation Safety Board (NTSB). Policy Letter. "Federal Aviation Administration Access to Continued Operational Safety (COS) Information During a NTSB Investigation". June 4, 2014.
5. Federal Aviation Administration. "ASIAS Fact Sheet". June 30, 2013.
6. NTSB Press Release. "U.S. Aviation Industry, FAA Share Safety Information with NTSB To Help Prevent Accidents." November 8, 2012.
7. NTSB. "Aircraft Accident Report: Crash During a Nighttime Nonprecision Instrument Approach to Landing, UPS Flight 1354, Airbus A300, N155UP, Birmingham, Alabama, Aug.14, 2013. AAR-14/02. Washington, DC.
8. U.S. Government Accountability Office (GAO). "Government Auditing Standards". 2011 Revision. GAO-12-331G.
9. GAO. "Government Auditing Standards". 2011 Revision. No. GAO-12-331G. Chapter 6.
10. GAO. "Government Auditing Standards". 2011 Revision. No. GAO-12-331G.
11. U.S. Code. Title 5. "Inspector General Act of 1978".
12. Department of Transportation (DOT) Office of Inspector General (OIG). "Introduction to the OIG". <https://www.oig.dot.gov/about-oig>.
13. International Civil Aviation Organization. "Manual of Aircraft Accident and Incident Investigation. Fourth Edition". Chapter 1, page II-1-1. Doc. 6290. 1970.
14. FAA Executive Shepherdstown Principles, May 2016.
15. NTSB. "Accident Report: Loss of Control on Approach. Colgan Air, Inc. Operating as Continental Connection Flight 3407. Bombardier DHC-8-400, N200WQ, Clarence Center, New York. February 12, 2009" NTSB/AAR-10/01. Adopted February 2, 2010.
16. U.S. DOT OIG. "FAA and Industry Are Taking Action To Address Pilot Fatigue, but More Information on Pilot Commuting Is Needed". Report No. AV-2011-176. Washington, DC. September 12, 2011.
17. DOT OIG. Letter to Senator Charles E. Grassley Regarding the status of OIG Open Audit Recommendations. Letter no. CC-2016-001. November 5, 2015.
18. NTSB Press Release: Update on NTSB Public Hearing on EMS Operations. February 2, 2009.
19. U.S. Government Accountability Office. "Potential Strategies to Address Air Ambulance Safety Concerns" Testimony Before the House of Representatives. April 22, 2009. No. GAO-09-627T.
20. NTSB Press Release: Public Meeting of September 1, 2009. Four Safety Recommendation Letters Concerning Helicopter Emergency Medical Services.
21. DOT OIG. "Delays in Meeting Statutory Requirements and Oversight Challenges Reduce FAA's Opportunities To Enhance HEMS Safety". Report Number AV-2015-039. Washington, DC. April 8, 2015.
22. Reuss, Johann. "Independence does not mean isolation: A practical Approach" Paper presented to the delegates of the ISASI 2015 on Aug. 28, 2015, in Munich, Germany.
23. German Federal Bureau of Aircraft Accidents Investigation. Investigation Report No. AX-001-1-2/02. Midair Collision Between Boeing 757-200 and Tupolev TU154M. May 2004.
24. Zayko, Sergey. "Russia's Interstate Aviation Committee: A description of the Russian Interstate Aviation Committee makeup and operation." ISASI Forum Magazine. March 2013
25. Zemlianichenko. Associated Press. "Russian agencies in dispute over decree to ground nation's Boeing 737s" Seattle Times. November 5, 2015.
26. Icelandic Transport Authority . "About the ICT" . <http://rnsa/is>
27. Icelandic Transport Authority . "Report on Plane Crash Sukhoi RRJ-95B, July 21, 2013 at BIKF". Aug. 1, 2013.