# A Just Culture in Aviation Safety

Safety Management Systems require an environment where safety information is freely collected, reliable, and available for discussion at many levels in the organization. Safety also requires employees know that certain activities are not allowed and are punishable by termination. *Just Culture* is the term used to describe such an environment. But what is *Just Culture*?

In my lifetime, flying a on a commercial jet has become a hundred times safer. In 1959, the fatal accident rate for jets weighing more than 60,000 lbs was 40 per million departures. In the last ten years, worldwide, that rate has dropped to 0.39 per million departures.[i] The causes are many: better airplanes, better weather forecasting, better training, better maintenance, and better air traffic control. Most of the easy fixes have been discovered, implemented, perfected, and institutionalized. We have not suffered a single loss of an airliner in the United States for three years. Nevertheless, we strive for an even safer air transportation system.

Recent losses have involved complicated causes, with small problems occurring in several disciplines. The loss of Air France 440 involved a peculiar confluence of problems in weather forecasting, operation of the airspeed sensors, the aircraft man-machine interface, and pilot training. The Swiss cheese model of accident prevention was insufficient to predict or prevent this accident. As we eliminate the accidents stemming from a single point of failure, these kinds of multi-factor accidents will become the rule and not the exception.

Anticipating multi-factor accidents requires teams of experts from various aviation disciplines to brainstorm "what-if" scenarios to make sure we don't built systemic faults into our processes. We have discovered over time that these experts don't always have degrees and plush offices. They are often line-level employees who have apparently simple jobs. Based on an old management model of command and control, often modeled after the military, they are taught to do as they are told and keep quiet. This is changing in the cockpit, where a crew member is expected to speak up when he or she sees something that could fester into a problem or accident. Not every member of the team is yet encouraged to speak up, for example, ramp staff with a responsibility to wash aircraft. Their job includes taping over static ports, before washing and waxing. If the tape is not removed, as it was not on Aeroperú 603, the results can be tragic. What may be considered a trivial task is crucial to safety. The people who do it may have some good ideas about how to improve the process and improve safety.

The aviation industry looked closely at its own problems and benchmarked itself against other industries, where the concepts of Total Quality Management and Six Sigma had been developing since the 1950's. Manufacturers have figured out how to reduce product defects to an extraordinarily low level. These industrial methods were based on the collection and analysis of huge amounts of production data. ICAO and its various member states adopted this approach for safety, calling it collectively *Safety Management System*. The aviation industry soon discovered, as had manufacturers, that to be effective the statistics from every level in the organization had to be reliable. Further, the dialog with the people about whose processes the numbers were collected had to open and frank. Staff is often concerned that the purpose of measurement is to track individual performance for the purpose of blame or salary negotiations. This leads to a fundamental conflict between management's need to collect information and labor's desire to supply it and discuss it.

James Reason describes a different environment, a *Just Culture* "in which each individual is clear about what determines the difference between acceptable and unacceptable actions, [and] second, … in which the vast majority of errant behaviors could be reported without fear of punishment."[ii] For most organizations this represents a revolutionary change in culture. To effect this sort of change requires social engineering of the most positive type.

The mathematics of process improvement are well known. You can buy a book called *Six Sigma: The McGraw-Hill 36 Hour Course.*[iii] Social engineering takes a lifetime to study and eternity to learn. It has been a compelling topic for philosophers from Athens to Cambridge. Before you decide to develop a numbers-based safety system, think first about how the organization will change. We can start with the moniker *Just Culture*.

Justice has been a primary interest of philosophers from Socrates (The Republic, 380 BCE), to Michael Sandel (Justice, 2005). What is *just* is worthy of discussion before we start talking about any of the other details of our aviation safety effort. Labels are important, especially in a campaign as important as aviation safety. If the concept doesn't stick, if people don't like it, the label will be changed every twenty years as the labels are invested with emotional baggage. Consider another social issue that uses labels. We've run through a series of perfectly good English words: *crippled*, *handicapped*, *disabled*, and *challenged*, each one discarded as it has been invested with negative connotations. If we don't do a good job, *Just Culture* as a label will eventually come to be loaded with emotional baggage, too.

*Just*, as it is used in *Just Culture*, is a synonym for *fair*, and similarly, *justice* for *fairness*. It sounds good. And it'll be the topic of happy talk memos from human resources. But what is it?

We are asking members of aviation organizations to self-report issues, mistakes, hazards, and problems. Management is promising not to punish them for the matters that are not egregious or willful. Staff needs to trust that promise. It's a social contract. Is it a fair contract? Socrates would ask two questions about the contract. For a perfect contract, the answer to both questions would be an unequivocal yes. In a reasonably fair contract, the answers would be "reasonably so." And in an unfair contract, the answer to both would be "no."

- Are the two parties equal in power to negotiate and enforce the contract?
- Are the two parties equal in their knowledge of the factors that contribute to the decision to enter the contract?

The question Socrates would not ask is whether the contract was entered into willingly. That does not of itself make it fair – enforceable perhaps, but not fair.

For a Just Culture to be one, the parties need to be equal in their negotiating power. That's a challenge for management. Nothing will change management's right and responsibility to discipline or fire an employee who knowingly does bad work or no work. Where safety is concerned, management needs to go out of its way to hold the data it collects sacred – never to be used for discipline or dismissal. Management needs to go out of its way to describe how the data is to be used – the primary factor in whether the staff will choose to share.

Potentially, the users of this data include more than the executive staff of the organization. It includes all the other parties who may see the data collected as part of an SMS effort. Imagine for a moment that SMS team of an air carrier agrees that a particular practice needs to be discussed and, by implication, documented. Then imagine that an FAA inspector reads about those internal — and perhaps hypothetical — problems. In the opinion of the inspector, that practice is perhaps not in accord with regulation. Absent an SMS effort, the topic would have never been discussed or documented. It would therefore never come to the attention of the inspector. But with that information, the inspector has now a cause of action against the air carrier.

A better example of the misuse of safety analysis data would be the release of internal discussion documents during discovery in preparation for a trial. Any discussion of a potential hazard, no matter how trivial or remote, would become part of list of items brought before a jury indicating that the carrier (defendant) knew of hundreds of potential safety problems and simply chose not to deal with them.

SMS, and its necessary component Just Culture, are here with us by mandate. Management has two choices, then, to consider Just Culture as just another tick-mark on the list of regulations to be complied with, or to adopt the Just Culture precept and the responsibility that goes along with it.

We can leave it to the market to devise ways to meet the Just Culture requirement in a minimalist fashion — enough to meet the regulatory requirement, but not enough to change the culture of the organization.

For the management team that embraces the Just Culture concept, there is a challenge to ensure that the data collected and the people who collect it are protected.  That effort needs to start with the company's legal team.  First and foremost, that team needs to devise a means to protect the data from use in a lawsuit against the company.  The tactics could include dissociation of names, dates, and places from incident records, making reconstruction difficult while retaining diagnostic value.  The tactics must include legal means to protect the data from discovery in lawsuits.  This may require lawmaking and legislative intervention.  It's a matter that operators should take up with their trade organizations.

Why should we be worried about the legal aspects?  We need to be concerned because as long as we have been collecting accident data, there has been a conflict between the open use of the data to prevent future accidents and the use of the same data to assign blame under the law.  In 1966, Bobbie R. Allen, the Director of the Bureau of Safety of the U.S. Civil Aeronautics Board said:

> In the event that the fear of exposure cannot be overcome by other means, it might be profitable if we explored a system of incident reporting which would assure a substantial flow of vital information to the computer for processing, and at the same time, would provide some method designed to effectively eliminate the personal aspect of the individual occurrences so that the information derived would be helpful to all and harmful to none.

Mr. Allen's comments eventually resulted in the creation of the NASA Aviation Safety Reporting Program (ASRP), an FAA program administered by NASA which allows pilots, mechanics, air traffic controllers, and others to report errors and deficiencies in the aviation system without fear of reprisal.  The Aviation Safety Reporting System (ASRS), which dissociates the reporter from the report, promises excusal from penalty if the reported incident results in administrative action.  ASRS remains the strongest protected reporting system in the U.S. aviation system.  ASRS is the standard to which Just Culture proponents point when they describe self-reporting.

In the 1990s, the FAA introduced several voluntary self disclosure programs for air carriers: Voluntary Disclosure Reporting Program (VDRP), Aviation Safety Action Program (ASAP), and Flight Operational Quality Assurance (FOQA).  These programs have had varying levels of success.  By 2008, three major carriers, American, Delta, and Comair had dropped the ASAP program because of contentions that the privacy protections for reporters was being violated.  Pilots and mechanics contended that that they were identified for discipline when the system was supposed to dissociate the identity of the reporter from the incident.

Another source of accident data is the cockpit voice recorder (CVR).  The first CVR was produced in 1957 by Australian David Warren.  His nation was the first to require the installation of CVRs.  The United States followed.  CVR recordings and transcripts have long troubled pilots and their unions.  ALPA has made use of CVR a contractual point in collective bargaining agreements.  In general CVR recordings are available without substantial limitation to investigators and legal teams, but for domestic accidents, are not released to the press.  The controversy continues as some press for video in the cockpit.

The National Transportation Safety Board investigates transportation accidents, determines probable cause, and issues safety recommendations.  The outputs of the Board are (a) factual reports, (b) final reports, and (c) recommendations.  NTSB factual reports are admissible in evidence.  NTSB final reports – specifically the portion that assigns probable cause — are generally not admissible in evidence.  NTSB recommendations are generally not admissible in evidence.

The FAA collects Service Difficulty Reports from a voluntary reporting program by mechanics, and issues Airworthiness Directives (ADs), the aviation equivalent of an automotive recall notice but mandatory under federal law.  Federal law prohibits the existence of an AD to be entered as evidence of faulty design or manufacturing.

While the NTSB and FAA reports themselves cannot be used as evidence against a manufacturer, carrier, pilot, or mechanic, it is indisputable that they simplify the work of a plaintiff's attorney in making a case.

One can appreciate the reluctance of members of the industry to participate in voluntary plans that may result in lawsuits against them.

In the larger scheme, of the seven umbrella programs, only one, ASRS, has a golden record. What makes it different? It is crucial to understand what makes this program stand out, if we are to use it as a model for a just culture.

ASRS is substantially detached from its sponsor, the FAA. It is physically separate, based in a NASA facility in California. The day-to-day operations are managed by contractors. NASA redacts dates, times, and related information, which could be used to infer an identity. Most importantly, an ASRS report shields the reporter from civil penalty or certificate action related to the event, although the violations will still appear on the certificate-holder's record. This protection is known as Transactional Immunity. Transactional Immunity is not granted by law or regulation, but by FAA Advisory Circular. In the forty years since the ASRP has been in existence, the FAA has consistently stood behind the terms of the AC 00-46E and its antecedents. The ASRS protection has certain limitations, including requirements that the event be unintentional and not involve an accident or criminal activity. These are the same sorts of distinctions made in a Just Culture, where persons and organizations are liable to discipline for intentional acts.

What makes ASRS different is its anonymity and the legal teeth in the protection. The ASRS database is vague enough that an inspector, manager, or lawyer cannot rifle through it to determine who the individual reporters are. Second, it provides legal protection to the reporter.

It is to the FAA's credit that it has faithfully stood by its promise not to pursue civil penalties or certificate action against ASRS reporters since the beginning of the program. The definition of accidents and criminal activities is well described in regulation and law. Reports of "honest mistakes" can be made without fear. A review of ASRS reports will show many events were likely violations (assuming that the report was written in favor of the writer). The FAA is generous in its determination that the act of writing a report is evidence of a compliant attitude.

It is to NASA's credit that it has faithfully redacted enough information from each ASRS report that the reporter's identities are not discoverable.

The complaints about the other reporting systems are that the reporters' identities are not well enough shielded. For example, at an air carrier, a reporting captain's name may not be reported, but if flight origin and destination are reported, the hunt is easier. If time and date are reported, then it's easy to figure out who was involved. The smaller the organization, the bigger the challenge.

Those are the challenges associated with written reports. Asking an employee to discuss an incident is another matter. Asking anyone to talk about himself is tough. Ask a psychotherapist. The first element in creating an environment that allows frank discussion is the establishment of the ground rules as to what unacceptable behavior and what is acceptable. Unacceptable behavior is that may lead to discipline and perhaps dismissal. Acceptable behavior is that which can be discussed without reprisal and lead, we hope, to process and safety improvement – a "teachable moment". Reason's distinction between "teachable moments" and "unacceptable behavior" is well defined in *A Roadmap to a Just Culture*.[iv] When an incident includes unacceptable behavior, and the individual knows it, we are unlikely to get much useful information. After the individual has made statements in his own defense – and those are all we are likely to get – he or she will hesitate to give more information in the fear that it will add to the trouble.

There are two ways for an organization to promulgate the definition of acceptable and unacceptable behavior. It can publish absolute rules in the same way the lawmakers and regulators do. Substance abuse on the job is a firing offence. Willful negligence is a firing offence. The second approach is relativist. We look at the incident and substitute another employee – either a real one, whom we question, or a hypothetical one we generate by consensus. If the second employee would have taken the same action, then the action is acceptable.

Most organizations already have an absolute set of rules, whether written or embedded in the culture. More progressive organizations use the second, relativist, approach. The relativist approach is better at stimulating discussion, which is a necessary element of a process improvement effort.

One of the first rules of supervision is "praise in public and criticize in private." When a significant incident occurs, the organization's imperative is to determine whether the act was unacceptable. Was it willful and negligent? Because the discussion is highly charged and can lead to discipline, it is best conducted in private, with perhaps the manager, a representative of human resources and a union representative. If the finding is unfavorable to the employee, then the necessary steps can be taken. If the action is deemed to be a teachable moment, then the employee should be reassured. The employee should be encouraged then to participate in follow-on discussions that will allow the organization to learn from the incident. This is the "cooperative attitude" that the FAA encourages in the ASRP.

When an incident is brought to a company forum, it should be introduced first in factual description, then management should make a statement that the incident was deemed a "teachable moment." At that point the incident is owned by the company, not by the individual. Management will take the position that the individual will not suffer for the incident. The company may have a large problem to solve, but it will not solve it by disciplining the employee for the previous offense. At that point, the employee is encouraged to give more details about the occurrence.

It may well be that an occurrence was a one-time event. It may well be that the group concludes that it was of sufficient severity to classify it unacceptable on repetition. In any case, once the first occurrence has been excused, but subsequent occurrences may be unacceptable.

In the event that the investigation showed the event to be unacceptable, perhaps leading to the dismissal of the employee, then at the next safety meeting, management needs to deliver a carefully worded announcement that there was an occurrence that led to a dismissal. The point of doing so is to reinforce the distinction between acceptable and unacceptable behavior. Before you discuss an employee's or ex-employee's performance, you better have your legal team review it. There are things one should not say about ex-employees.

In all but the most dysfunctional organizations, once you have established a history of fair adjudications – a just culture – you will find that employees are willing and enthusiastic to discuss observed issues and propose solutions. This environment requires constant tending. The staff will look not to the monthly safety newsletter and its happy talk, but will look to see where management moves. If management encourages safety improvements, then the organization will follow. If water-cooler discussion shows that management is not truly supportive, then the safety spirit will die.

Safety efforts cannot exist in a vacuum. Safety has to be accomplished in concert with on-time flight, profitable operation, and happy customers. Management's messages about safety need to be interlaced with the other goals of the organization. Safety messages are not credible if they do not recognize the other goals of the organization. As this author observed in another paper, "It will do no commercial organization any good to achieve a sublime level of safety if the costs make it unprofitable or the procedures drive away customers."[v]

If you decide to implement a just culture – because you are mandated to adopt SMS, or because you think it's the right thing to do – then be prepared for several challenges: legal, cost, and lack of credible benchmarks.

The legal risks associated with a Just Culture are quite high. While the internal benefits of discussion of process flaws are invaluable, there is a great risk that internal documents appear in adversarial court proceedings, or worse, on the evening news. This is a risk that must be considered.

The cost of organization change will not be inconsequential. Training, communications, implementation, and operation cannot be fixed at the start.

We are early in the life cycle of Just Culture. The innovators and early adopters have not published results against which organizations can benchmark themselves or use for gap analysis. The thought leaders in the field, GAIN and Professor Reason, have slowed their production of documents related to the field. We are therefore dependent on hiring people with experience from our successful competitors and using consultants to build a knowledge base. As the field becomes more mature, the effort will be easier and less costly.

The FAA, to whom we would properly look for guidance, is facing the same challenges as an SMS innovator. It paid for pilot SMS programs at fourteen airports[vi]. The participants described cost, participation, and complexity as negative factors. When they asked the FAA about rulemaking, the FAA declined to answer, citing the closure of the public comment period, after which the agency may not discus the matter with the public.

We can expect this rulemaking to take a long time. ICAO mandated SMS in 2001. The FAA Air Traffic Organization launched its SMS program in 2010. According to the Government Accountability Office (GAO), implementation for other FAA divisions and the industries they regulate are scheduled through 2016.[vii] That same report describes the FAA's belief (and that of its consultant MITRE corporation) that the efforts with take six to ten years.

If you choose to embark on the journey to Just Culture, be confident that you are doing the right thing, but don't expect immediate results. That's OK, because there are some legal and regulatory hurdles that are yet to be fixed, described later in this series in *Just Culture – Acceptable Behavior.*[viii]

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iii http://books.google.com/books/about/The_McGraw_Hill_36_Hour_Six_Sigma_Course.html?id=Nzem7sQLcLkC

iv GAIN Working Group E, A Roadmap to a Just Culture, 2004, http:/flightsafety.org/files/just_culture.pdf

v Hadow, R; What is SMS Really? www.bestinflight.net/DocLibrary/What%20is%20SMS%20121204.pdf

vi FAA, SMS Implementation Study: November 2011 Roundtable Meeting Summary
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vii GAO, Additional FAA Efforts Could Enhance Safety Risk Management, 2012

viii Hadow, R Just Culture – Acceptable Behavior www.bestinflight.net/DocLibrary/Just Culture Acceptable Behavior 121206.pdf