FAAMA Interview

Improving Safety

Understanding, Correcting, and Communicating Causes of Risk

Joseph Teixeira, ATO Safety and Technical Training Vice President, recently updated Managing the Skies on the progress being made and the challenges being faced by FAA managers working to improve safety in the National Airspace System (NAS).

Since you addressed the FAAMA Convention last October, we've heard a lot about "transformation" and "safety culture change." Can you give us an update?

» **Teixeira:** First, let me say "thank you" to the FAA managers who have been so important to our success. It has taken real dedication to get where we are today. I commend you on managing all that has been asked of you, particularly the delivery and training of the new safety orders. All of your efforts are truly appreciated.

We are very pleased with all that has been accomplished and, at the same time, have set our sights firmly on all that still needs to be done. With successful implementation of many elements of the Safety Management System (SMS), the FAA has never been better positioned to embrace every opportunity to identify, understand, correct, and communicate the root causes of risk in the system.

Safety is now judged on our ability to fix potential hazards. Our success is now measured by the number of things we correct.

The first of the four "pillars" or strategies supporting SMS objectives states that we should collect and value information from front line employees. Why is this so important?

» **Teixeira:** People who deal daily with a particular issue are the most knowledgeable about their own environment. They know what works and what doesn't and are likely to have an idea how to fix it. We are very impressed with the information we receive from our front line people. They deserve the credit for our system being the safest and most efficient in the world – and they have great ideas on how to improve it.

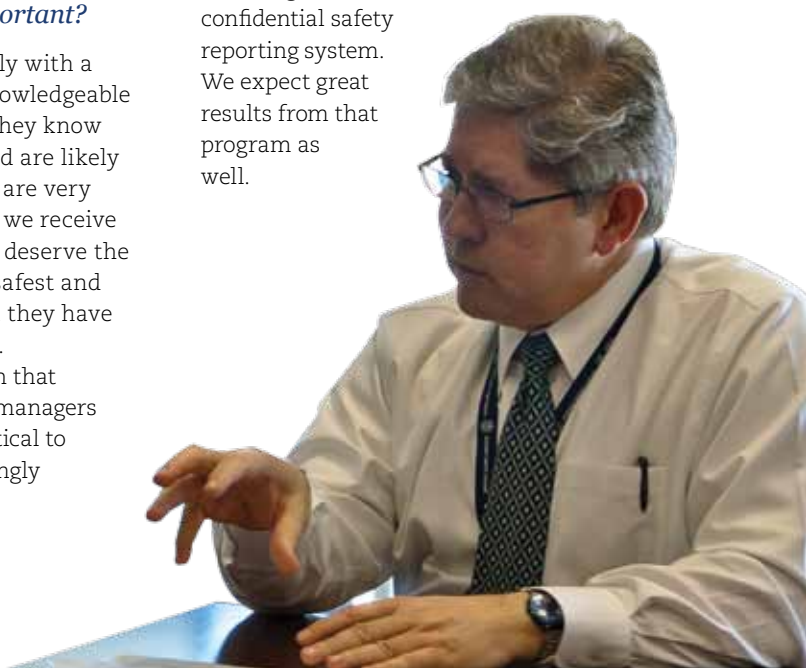
Having a culture and program that welcomes the views of front line managers on what is or is not working is critical to improvement. We have an amazingly safe system – 99.998 percent of our operations occur completely according to procedures. Now we are working on precursors of precursors and need the advanced knowledge found at the source. Simply put, front line employees are our greatest resource in eliminating risk in the airspace. Their efforts are vital to success.

Are we making progress in this area?

» **Teixeira:** There is much good news in this area. One of the most successful ways of gaining information from the field workforce is the Air Traffic Safety Action Program (ATSAP) which gives individuals an opportunity to confidentially report risk that previously may have been unnoticed or unreported. The level of participation from controllers and front line managers (this program is not just for controllers) has been tremendous.

We received nearly 50,000 ATSAP reports that resulted in 70 Corrective Action Requests. Plus, there are hundreds of informal corrections where an Event Review Committee manager calls a facility manager and resolves an issue. This important dialogue is one of many positive results of being proactive instead of reactive.

Recently, we launched the Technical Safety Action Program (T-SAP) program allowing the Technical Operations workforce to take advantage of the same confidential safety reporting system. We expect great results from that program as well.



Another new program, Partnership for Safety, encourages dialogue and local solutions. In this program, management and labor locally gather to address safety issues. This concept was derived from very successful programs in certain facilities. Because it works, it is being implemented across the country.

What has changed as a result of these programs?

» **Teixeira:** Take just one example from the most complex airspace in the world – between Philadelphia and New York's JFK. In one area, aircraft were making turns at different points and drifting into adjacent airspace. Pilots were not where they were supposed to be. One ATSAP report called attention to this safety risk. The report was reviewed as part of our safety processes and a solution was proposed. As a result of one person's participation, aircraft now have a fix to make that turn with precision. The NAS is safer thanks to that contribution.

On the technical side, recent T-SAP reports noted that the screen saver on the maintenance data terminals could inhibit technicians' monitoring of Airport Surface Detection System–Model X (ASDE-X) which enables air traffic controllers to detect potential runway conflicts. A Maintenance Alert was issued that provided instructions on how to disable the screen saver and a permanent solution is under way.

The second SMS pillar is to deploy technology to determine safety anomalies – any changes here?

» **Teixeira:** We have a new software reporting tool called Comprehensive Electronic Data Analysis and Reporting (CEDAR) that is being used by all the front line teams. It was designed at Kansas City Center and is now available system-wide. CEDAR collects radar data, talks to everybody, and is a communications device between the safety office, the quality control group, and each facility. It is easy for people to report and have a lot of information in one place, you can streamline the analysis.

Before CEDAR, we collected information from 350 different facilities using fax machines. Today, it's all in digital form and easily searchable. Something that used to be extremely difficult is now available at your fingertips. I tell people we went from using candlelight to a high-tech light-emitting diode (LED).

In addition, Traffic Analysis Review Program (TARP) is in place at 176 Air Traffic Control radar facilities and operates 24/7, providing a nearly real-time automated review and replay of airborne radar-tracked aircraft. Its functions are being integrated with other tools to provide solutions along with other Quality Assurance and Quality Control programs.

We are working with industry to provide a safety portal that will give FAA facilities data from industry sources. These tools enable greater visibility into incidents and also facilitate analysis.

These new technologies give us an opportunity to pursue advances that were not previously possible. We are creating a comprehensive approach that values information from the front line while allowing them access to the best information available to help themselves.

How do these virtual mountains of data impact the third SMS pillar of "risk analysis?"

» **Teixeira:** In the past three years, we've received 10 times more data than we did with traditional reporting. And we turn data into safety.

After we gather information, we take a critical look and analyze the data. We identify issues and make recommendations for corrective action. Most importantly, we can now prioritize so we can focus our efforts. One of the best examples of this is identification of the "Top 5 Hazards in the NAS."

The "Top 5" is a quantifiable list of what elements contribute to the highest risk events. As we improve the process, we will put more items in the analysis – surface events, terrain events, and others – so we have a more well-rounded set of hazards. For the moment, the "Top 5" lists the most important hazards that we need to focus on fixing.

We need the support of front line managers and are counting on them to recognize and reward instances of excellence regarding the "Top 5" – success of the program will occur at the local level.

It is important for field managers to know that we are sharing information with them. We have a lot of data and the analysis to go with it. The safety office is focused on national trends and national concerns. However, we are ill equipped to identify local, micro-issues which require collaboration with local managers—thus, Partnership for Safety.

What can you tell us about the fourth strategy, "embracing correction?"

» **Teixeira:** Learning from people, having tools, and doing analysis is for naught if we don't make corrections. The corrections are the ultimate measure that we are making progress. We need to change our culture to reflect this new attitude of rewarding correction. We must measure performance that way. We must

Top 5 Hazards in the NAS

The "Top 5" is a register of the most serious hazards in the NAS designed to help the ATO prioritize resources to mitigate the hazards.

1

Turns to Final

Arrival sequencing to final (angle and speed control). Aircraft vectors at a speed and/or angle that results in an overshoot of final approach

2

Parallel Runway Operations

Arrival sequencing at the same altitude and on parallel runways. (Aircraft overshoots turn to final at the same altitude as arrival traffic to a parallel runway)

3

Go-Arounds

Unexpected go-around operations. (Arrival aircraft executes an unexpected go-around resulting in conflict with departing traffic and false ASDE-X alarms)

4

Clearance Compliance Altitude

Aircraft at other than expected altitude, for example, incorrect hearback/readback

5

Coordination

Lack of appropriate, or incomplete, coordination among operational employees. (Aircraft handoff to controller at an altitude or route other than expected)

incentivize that way, and we must collectively value that behavior.

You can never put safety on pause and say "good enough." We find ourselves today with the ability to make improvements that result in new levels of safety because we have new ways to predict and prevent risk.

You stated that embracing correction is the biggest cultural change FAA managers need to make. What can managers do to make that happen? What is being done to show they are empowered to do so?

» Teixeira: Management exists to produce better outcomes. There are only two fundamental ways to improve outcomes: people or equipment. Equipment is pretty much static. So, how to you improve the contributions of people?

I believe ATSAP is one of those fundamental opportunities to improve what comes from people, because we learn from them what the issues are. Then we get to work on improving the situation.

Part of what I am trying to do is make it safe for people to say, "Yes, we have an issue that we need to resolve." So number one is to assess an issue realistically. It has to be safe to do that.

Then there has to be a willingness to provide resources – to empower people to make corrections. Lastly, you must reward people who do that.

We still need to realign our incentive structure toward the improvement process rather than the mistake process. Culturally we focused on the negative – and this is what we must change.

Let's talk about collaboration.

» Teixeira: If you truly value employees and believe they know best what the issues are, then you believe they are the subject matter experts. So, collaboration becomes not so much a requirement as the natural and necessary thing to do.

It doesn't come without challenges. I think managers know this. But it's true whether you are collaborating with National Air Traffic Controllers Association (NATCA) or Professional Aviation Safety Specialists (PASS), with other managers, or with airlines.

People who have different views of the world have different interests. Collaborating then becomes compromising, and it doesn't come naturally for people who are hard-drivers and want to get things done. It may take a little longer, and you may have to find a better way to make your perspective understood and adjust your own thinking, but it is well worth doing.

Yes, it is what we must do. Yes, we know it's difficult. Yes, it definitely pays off.

In ATSAP, collaboration and becoming a learning organization really come together. Where are we on those efforts?

» Teixeira: ATSAP is on a trajectory that is common with similar programs in the industry. It has instant credibility with the workforce because they get to participate in the safety program as well as in the identification and correction of issues. It also has instant credibility with senior managers because they value getting that information from the people in the front line.

The program is not designed to be a microcosm that addresses an individual or a facility, because, if that were the case, you would have no confidentiality.

What progress do you expect in the coming year?

» Teixeira: While I'm always impatient with how much needs to get done, I'm also surprised and proud of how much has been accomplished when I look back six months or a year.

A year from now, I hope to be discussing continued success of all of our programs and the way we view correction and making improvements to safety. And of course, I want to be talking about how front line managers are playing a significant role in establishing a learning culture that produces better safety outcomes.