Federal Aviation Administration
Overview of Safety Management Systems Video
Script

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Today's aviation systems have become more complex and operations have become increasingly global. As a result, aviation businesses and government entities must continually evaluate safety strategies for the future.

With a full endorsement from FAA, in 2006, ICAO published requirements for air operators and aviation maintenance organizations to establish safety management systems. Annex 6 to the ICAO Conventions requires member states to have requirements for Safety Management Systems in place as of January 1, 2009.

ICAO's purpose of Safety Management Systems is to provide a framework for certificate holders to manage their safety strategies and practices just like any other business objective. This means that a Safety Management System is a top-down business-like approach to managing safety risk.

As a proponent of safety management systems, FAA intends to implement the ICAO requirement.

In June of 2006, the FAA published an advisory circular, A-C 120-92, to introduce the concept of safety management systems to certificate holders and provide guidance to meet future FAA regulatory requirements.

Also, since businesses and governments must work cooperatively to manage safety, A-V-S is implementing its own safety management system, known as the A-V-S-S-M-S.

This internal S-M-S will help us in Flight Standards with our oversight responsibilities by providing a process-oriented approach to determine that certificate holders have management systems to manage risk and assure safety.

You'll hear more about our internal safety management system in the future.

The purpose of this presentation is to provide you with information about the safety management systems that many of air operators and aviation maintenance organizations will be building, using FAA's guidance.

These safety management systems are often called external safety management systems.

Before we go into the details of safety management systems, I want to establish the context.

First, risk is inherent in all certificate holder organizations. It results from the environment and

operational activities.

Second, under Title 49, certificate holders are responsible for operating safely. "Operating safely" means to reduce the risk of harm to persons or damage to property to an acceptable level through a continuing process of hazard identification and risk management.

So under Title 49, there is an inherent requirement for certificate holders to identify hazards in their operating environments and to manage associated risks to an acceptable level.

Remember that a safety management system will not eliminate hazards and their associated risks.

Instead, its purpose is to provide certificate holders with a systematic way to identify the hazards in their environments and implement affective controls to manage risks associated with them.

In this video, we will describe safety management systems and discuss why they are important.

We'll talk about FAA's SMS Standard.

We'll give you some detail on the two primary elements of FAA's standard – safety risk management and safety assurance.

And finally, we will look at the relationship of safety management systems and FAA's oversight systems.

To help you understand the practical application of SMS, we've included an example of what the processes looks like when an aviation service provider implements them. While the part 135 example we chose reduces the complexity of what can be a complicated system, it makes the basic concepts and requirements of an SMS clear for *any* air carrier.

Part One: What is a Safety Management System?

NARRATOR:

A safety management system is a formal, top-down business-like approach to managing safety risk. It includes systematic procedures, practices, and policies for the management of safety.

DON ARENDT:

A Safety Management System is a means for a Certificate Holder to assess their systems, to determine the needs for risk controls in those systems, and to provide them a means of assuring that those risk controls can continue to be in place and that they continue to be effective in the performance of their system mission.

NARRATOR:

To get a clearer picture of a Safety Management System, it may be helpful to compare what a Safety Management System is with what it is not.

DON ARENDT:

First, a Safety Management System is not just a new buzzword and it's not a replacement for System Safety. We've talked about System Safety now for just about a decade and Safety Management System is not a substitute.

Conversely, it is a completion of the System Safety concept. It's a management system delivered to the operator's organization in which system safety is practiced in a more formal and more structured manner.

The other thing is it's not an abrogation of our responsibility as a regulator. We're still a regulator, we still work within a system of regulations . . . .

So it's a way for Certificate Holders to demonstrate their management capability in meeting their statutory and safety management requirements.

It's also not a diminishing of the skill or expertise of needed by FAA safety inspectors or of their jobs. We'll always need as many inspectors as we can get and we'll always need inspectors that have high levels of technical competence and credentials.

If anything, Safety Management Systems and the move toward System Safety will require the needs for new skills in addition to the technical skills we've always had. Of course, that makes it incumbent on the Agency to provide the training for those skills for those people.

It's also not, for the operator, a requirement for a new Safety Department or quote "Safety Empire." Most of safety management systems or safety management efforts are just that, they're management efforts.

The safety manager in an organization serves as a facilitator.

Line management and top management are the important people in that, so safety management systems give them a new tool.

The safety management system in that tool allows the Certificate Holder a formal means of assessing their systems, identifying hazards in those systems, and developing risk controls in those systems.

After that, once these risk controls and their requirements are in place, the safety management system gives the operator a safety assurance system, a means of making sure that those requirements and safety controls are continuously practiced, that they continue to be effective, and in these design and performance elements – safety risk management driving design – safety assurance, being a way to assure performance they give the FAA an effective means of interfacing with the company's management.

NARRATOR:

A Safety Management System is important because it provides both safety benefits and business benefits.

DON ARENDT:

In terms of safety benefits, the safety management system give us a much more structured and a much more formal way of assuring safety, of assuring that risk management is built into that.

NARRATOR:

Complying with the requirements of Title 49 to "operate safely" is not easy. It can't be done without thoughtful design of operating systems, including implementation of risk controls and systematic measurement of performance. A safety management system provides a formal structure for meeting this challenge.

DON ARENDT:

It also lets us look at the management capability mutually ahead of time. In many cases, in the past, we've basically assessed safety by failure.

That is, once safety failures occur, whether they're accidents or incidents, breaches of regulations or just operating at a lesser level of safety than we'd like to see, we're able to look at the failure and then determine that something has to change.

Now we can look more at the management system and the way that we're achieving those results ahead of time, before the failure. So it's getting ahead of those.

NARRATOR:

This proactive, formal structure for assuring safety, results in:

* A quality management approach to identifying hazards and controlling risk,

* An organizational framework to support a sound safety culture,

* And a detailed roadmap for monitoring the effectiveness of safety-related processes.

On the business side, a safety management system provides the best way of meeting every customer's primary demand—the demand for a safe product or service.

It goes without saying that accidents, incidents, and unsafe products are bad for business.

A management process with the sole focus of identifying hazards and controlling risk is good for business.

DON ARENDT:

The emphasis on assuring consistency of meeting requirements and working toward definitive requirements, having procedures, controls, assignment of responsibility, good communication to ensure interfaces and a measurable process, can't but help their business as well. Better processes produce better products.

NARRATOR:

Another business benefit is the potential to integrate all of a company's management systems, including quality, occupational safety, and environmental control systems, thereby reducing redundancies and inefficiencies.

DON ARENDT:

A safety management system is closely allied to other management systems, such as Quality Management Systems, Environmental Management Systems, Occupational Safety Systems, all of which are responsibilities that the carrier has to meet in their business as well as their primary delivery of goods or services to the public -- their primary mission or business.

NARRATOR:

The emphasis on process management and continuous improvement provides additional financial benefits by reducing costs and waste.

DON ARENDT:

Reduction of waste and better customer performance has lead in some cases where we've looked at other countries' implementation of SMS, a significant financial benefits for the operators as well.

Part Two: Why is a Safety Management System Important?

NARRATOR:

Safety management means approaching safety in the same way as other business objectives – through careful, effective management. This involves using a systems approach that focuses on control of processes rather than extensive inspection and remedial actions on end products.

The two core functions of a safety management system are safety risk management and safety assurance. Safety risk management focuses on designing operating systems so that hazards are identified and associated risks are controlled.

DON ARENDT:

This is basically a design component in that we assess our systems and our systems environments as well as their mission, and we assess what hazards might be byproducts of performing that mission and put risk controls into it. So the risk controls added to the basic design of the system are the final design that sets our requirements.

NARRATOR:

The second function, safety assurance, focuses on auditing operating systems to ensure effective performance and conformance with requirements, including compliance with regulatory requirements.

DON ARENDT:

The other function is Safety Assurance. Very much similar to a traditional quality management system, safety assurance takes those design requirements and ensures that they are consistently met and where they're not met according to acceptable levels to the management, then the management has a means of developing corrective action.

NARRATOR:

These core functions are supported by a positive safety culture. A safety culture consists of how people think, how they act, and organizational elements such as mission goals and performance measures.

DON ARENDT:

The definition of assurance is given as "something that gives confidence." And we feel that having a structured safety management system is something that can give us a greater degree of confidence that the level of safety will be maintained than again just waiting for failure, assessing failures, and correcting failures.

NARRATOR:

Advisory Circular 120-92 explains these concepts in more detail and provides guidance for U.S. aviation service providers in developing their own safety management systems. A key part of the guidance is the uniform standard for SMS development.

Part Three: Overview of the FAA's SMS Standard

DON ARENDT:

The Advisory Circular 120.92, the Introduction to Safety Management Systems, that Flight Standards published in 2006, embodies our view of a basic set of requirements for a safety management system.

The "standard," as we call it in the AC, is similar to the ISO standards for quality or environmental protection, it's based on them as have been several other occupational safety standards.

The ICAO Standards and Recommended Practices in Annex 6, that are due to take effect in a couple of years now, are very basic requirements for risk management and safety assurance and accountability.

We've converted those into an auditable standard that certificate holders and others in the aviation system can use to establish a structured safety management system.

NARRATOR:

When certificate holders use the standard to develop their safety management systems, it creates a common language and framework across domestic and international aviation service providers and oversight organizations.

The standard describes "what" the safety management system must do, but not "how" to accomplish it.

It is designed to be applicable to a wide variety of types and sizes of aviation service providers – allowing them to integrate safety management practices into their unique business models.

While it allows flexibility in how service providers configure their systems, it assures functional standardization of essential safety management processes.

Currently the SMS standard in AC 120-92 is voluntary. In the future, it will provide the basis for one way of complying with the new ICAO mandate for safety management systems. Let's take a closer look.

There are seven clauses in the standard. The first three clauses describe scope and applicability, references, and definitions.

The remaining four clauses (clauses 4-7) describe four components that are essential for safety management systems.

These four components are also known as the four "pillars."

Clause 4 is Policy. The expectation of Clause 4 is that an organization will develop an integrated, comprehensive safety management system for its entire organization.

All management systems must define policies, procedures, and organizational structures to accomplish their goals.

Clause 4 outlines the requirements for these elements, which form the framework for the safety management system functions.

Clause 5 is safety risk management. The expectation of Clause 5 is that an organization will understand the critical characteristics of its systems and operational environment and apply this knowledge in a formal system of hazard identification, risk analysis, and risk assessment, which are essential in controlling risk to acceptable levels.

Clause 5 presents a safety risk management process, which is derived from FAA's system safety process model. This process produces well-designed operating systems that control the risk associated with hazards in the operating environment.

Clause 6 is safety assurance. The expectation of Clause 6 is that an organization will monitor, measure, and evaluate the performance and effectiveness of all risk controls, as well as ensure regulatory compliance.

This function ensures that the risk controls are continuously practiced and remain effective when the environment changes.

Clause 6 presents a safety assurance process, which is based on quality management concepts and processes.

And finally, clause 7 is safety promotion: The expectation of Clause 7 is that top management will communicate the safety related responsibilities for the organization's personnel including clear and regular communication of safety policy, goals, objectives, and standards.

Safety promotion consists of the practices in place to promote safety as a core value and to support a sound safety culture. Clause 7 provides guidance for setting up these functions.

Of the four pillars, safety risk management and safety assurance represent the heart of a safety management system. As such, it's worthwhile to look at each in greater detail.

Part Four: A Closer Look at Safety Risk Management (Clause 5)

Safety risk management deals with every aspect of a company's operations. It is a process for examining the operating environment for hazards, analyzing the associated risk, and identifying controls to address the risk.

Safety Risk Management includes fives steps, which are:

* Analyze systems and tasks,
* Identify hazards,
* Analyze safety risk,
* Assess safety risk,
* and Control safety risk.

This process allows certificate holders to proactively address risks by following it each time they:

* Design new systems, organizations, or products,
* Develop operational procedures, or
* Plan changes to existing systems, organizations, products, or procedures.

To see how the safety risk management process looks in operation, let's consider the case of a start-up airline that intends to fly medium twin-engine airplanes in a Part 135, passenger-carrying operation.

The company's business model is based on single-pilot IFR capability.

The company has also decided to employ a safety management system and is using AC 120-92 as a guide in designing its operating systems.

One of the programs the operator is designing is an MEL, so that it can continue operations when certain equipment is inoperable, as allowed by regulation.

Let's look at how this operator can design its new MEL program by following the safety risk management process in the FAA standard.

The first step in the safety risk management process is systems and task analysis. When an operator designs a new system, it must do two things: First, the operator must describe the new system in terms of the processes, procedures, people, equipment, and other organizational resources that will be required for the system to work properly.

To design the new MEL program, our operator must define the required processes and procedures its employees will follow.

For example, among others, it must define the processes it will use to:

* Identify and log inoperable items,
* Repair inoperable items within the prescribed time limits, and
* Train personnel in the new procedures.

Second, the operator must consider how the new system will interact with its other operating systems.

Clause 4 of the SMS standard says that safety management shall be included in the complete scope of the operator's systems including:

* Flight operations
* Dispatch/flight following
* Maintenance and inspection
* Cabin safety
* Ground handling and servicing
* Cargo handling
* Training

In our example, the operator's new MEL program may interface with all of these systems, but for our purposes, we'll focus on flight operations, maintenance and inspection, and training systems.

By defining the new system and identifying how it will interface with other processes, the operator can make decisions about how to tailor its MEL program to its specific operations.

For example, the operator can decide what items it wishes to include on its MEL, by considering how any operating restrictions for MEL'd items align with its business objectives and processes.

In our example, our operator has made the business decision to conduct single-pilot IFR operations. To do this, the regulations require a functioning autopilot.

However, the operator also wants to be able to conduct IFR operations when the autopilot is inoperative.

Consequently, when designing its MEL program, the operator must accommodate this requirement by adapting provisions in the Master MEL.

According to the master MEL, if the autopilot is inoperable, the operator can continue operations, but only if there is an IFR-rated second-in-command pilot.

So to tailor its MEL program to meet this business objective – in other words to include the autopilot on its MEL – the operator must analyze the impact on the interfacing systems. For example:

* What changes will need to be implemented in the flight operations process to comply with the MEL operations – or "O" – procedures?
* What procedures must be built into the operational control process so that if the autopilot is inoperable, flights are conducted in compliance with the MEL limitations

* What procedures must be built into the maintenance and inspection process to ensure compliance with MEL maintenance – or “M” – procedures and time restrictions?
* How will we train flight crews and maintenance personnel to implement the (O) and (M) procedures? For example, the operator will need to include training in IFR operations with a second-in-command in its training program.

With these questions answered, the operator will have an understanding of how the design of its new system will integrate into its operational environment.

The next step in the safety risk management process is hazard identification.

While it’s impractical to identify every conceivable hazard, certificate holders are expected to exercise due diligence in identifying, documenting, and controlling hazards in their operating environments.

A thorough system and task analysis facilitates this step.

In our example, the operator may identify multiple hazards resulting from the business decision to operate in IFR conditions with a single pilot.

For simplicity, let’s focus on a single, primary hazard—excessive pilot workload. We’ll follow this hazard through the remaining steps in the safety risk management process.

Once the hazards are identified, the next step in the safety risk management process is risk analysis.

In this step, the hazard is analyzed in terms of any existing safety risk controls, triggering mechanisms, and the likelihood and severity of an undesirable outcome resulting from the hazard.

Let’s look at the hazard we identified in our example, which is excessive pilot workload.

A potential consequence of this hazard is that an over-tasked pilot will lose control of the aircraft or be involved in a CFIT accident.

Because the regulations anticipate this hazard, there is already a safety risk control in place. The regulations prohibit a single pilot operating in IFR conditions without an operable autopilot.

In this context, the regulations serve as a risk control to reduce the likelihood that a CFIT accident will occur as a result of excessive pilot workload.

The next step in the safety risk management process is risk assessment. In this step, certificate holders determine, based on the analysis of likelihood and severity, whether the risks associated with the identified hazards are acceptable.

Although certificate holders can develop their own methods for evaluating the acceptability of risk, one method is to use a risk matrix.

To illustrate this step, let's return to our example. Recall that during the risk analysis step, we said that single-pilot IFR operations without an operating autopilot could result in an accident caused by the pilot being over-tasked.

Without a risk control, under adverse operating conditions, the likelihood and severity of this outcome would be high.

Using the risk matrix, we see this is an unacceptable risk that falls within the red area.

In many cases, when a risk is determined to be unacceptable, and would be for any operator, the Government addresses it through the regulations; and this is the case in our example.

In other cases, when a risk is determined to be unacceptable and that risk is not addressed through regulation, the certificate holder would design an intervention to either:

* Eliminate the associated hazards,
* Or control the factors that lead to higher likelihood or severity.

In other words, the certificate holder would identify how to reduce the risk to an acceptable level.

In our example, the regulations and the provisions of the master MEL provide the means to mitigate the risk to an acceptable level.

The master MEL requires a qualified and current second-in-command when operating in IFR conditions with an inoperative autopilot.

This provision reduces the likelihood of the risk to an acceptable level which corresponds to the yellow area labeled "acceptable with mitigation" on the risk matrix.

Our operator must decide whether to accept the risk – and therefore adapt the provisions of the master MEL into its MEL program – or eliminate the hazard all together – which means the operator would not include the autopilot in its MEL and would not conduct IFR operations with an inoperable autopilot.

Once the operator understands the hazards and their associated risk, the final step in the risk management process is to design and implement actions that would control the risks.

Let's turn back to our example in which our operator has decided to accept the risk and adapt the provisions of the master MEL. Risk controls would include documented M and O procedures on the MEL.

Examples of these could include:

* The autopilot must be deactivated or removed by qualified maintenance personnel
* Pilots must be notified that the autopilot is out of service in aircraft logbooks and cockpit placards
* The crew must include a second-in-command that is qualified and current on the operator's certificate
* The autopilot must be returned to service within 10 days

After a system is designed using the safety risk management process, it is implemented by the operator.

In our example, the MEL program has been appropriately tailored to the company's operations, and the FAA has approved it.

When the company completes the initial certification process and receives its operating certificate, it will be authorized to use its MEL in day-to-day operations.

Once a system is in use, the safety assurance process helps the operator determine if it adequately controls risk or if there are additional hazards, risks, or controls that must be built into its system.

Part Five: A Closer Look at Safety Assurance (Clause 6)

Let's take a closer look at the safety assurance process. Safety assurance is the function in the safety management system that makes sure that the risk controls are effective in maintaining risk within acceptable levels. It also provides a basis for continuous improvement.

There are four steps.

* The first step is to acquire data about the operational processes and the safety management system. Certificate holders can acquire data by continuous monitoring, internal and external audits, investigation, and employee reporting.

The remaining steps are

* to analyze the data,
* assess the system,
* and Initiate preventive/corrective action, if required

Let's turn back to our example to illustrate the safety assurance process. Recall that our operator is a new airline that is incorporating a safety management system in the design of its operating systems.

We've been focusing on one aspect of its MEL program which it has designed to support business decisions relating to IFR operations.

Now that our operator has received its operating certificate and has begun providing service, the safety assurance function of the safety management system kicks in.

In the first step of the safety assurance process, our operator should acquire information about the performance of all of its operating systems, including the MEL program and the programs that interface with it.

To do this, the standard requires six methods for acquiring information. These are grouped into three categories in the advisory circular's process flowchart.

First, is continuous monitoring of operational data. In our example, the operator could collect this information by reviewing records related to the process.

The records review might include aircraft logbook entries, dispatch schedules, pilot utilization records, maintenance schedules, and inspection records

The second category of acquiring information contains three methods of auditing, which include:

* Internal audits by process owners, which may include the CASS,
* Internal evaluations by people who are functionally unrelated to the process, and
* External audits, including those conducted by FAA.

And finally, the third category for acquiring information consists of investigations of accidents and incidents.

The standard also requires an employee reporting and feedback system. This is an important method of data acquisition that will be included in future versions of the flowchart.

The next step in the safety assurance process is data analysis.

By analyzing the data collected, certificate holders can determine if the risk controls they have in place are effective and also identify other risks that were not previously identified in our safety risk management process.

In our example, our operator can analyze its risk controls in the MEL program.

For example, the operator should analyze whether:

* Documented MEL policies and procedures are followed,
* Operational control is exercised in accordance with MEL limitations,
* Pilot check rides confirm that training is effective for single-pilot IFR operations and operations with a second in command when the autopilot is inoperative,
* and Maintenance and inspection procedures are followed to ensure MEL items are repaired within the proper time limitations.

Given the data analysis, the operator can now make a bottom line assessment of the system. This is the next step in the safety assurance process.

There are three potential outcomes of system assessment:

* Satisfactory performance and effectiveness,
* Process failure or ineffective risk controls, or
* Nonconformance.

If the assessment results in a determination of satisfactory performance, then normal operations continue and the safety assurance process is used to continue monitoring the system for satisfactory performance.

Process failures and ineffective risk controls are systemic in nature and are addressed by returning to the safety risk management process to redesign the failed system or control.

Nonconformances, such as a mechanic failing to follow a procedure, are dealt with in the final step of the safety assurance process.

The final step in the safety assurance process is corrective action. The safety management system is dependent on corrective and preventive actions for system improvements that reduce overall risk.

Corrective action strategies should also address cultural factors that may be contributing to the weaknesses – such as pilots' desires to produce for the company rather than follow the restrictions of the risk controls; or a punitive environment where there is fear of retribution for disrupting operations.

Once preventive or corrective action strategies are implemented, the system returns to daily operations and the safety assurance process repeats itself.

Throughout our review of the safety risk management and safety assurance processes, we looked at how a Part 135 operator's safety management system becomes the framework for designing a new program – in this case an MEL program – and monitoring the performance of that program.

Although our example may have seemed a bit simplistic, it is based on a 1993 accident report published by the Australian Bureau of Air Safety Investigation, in which a Piper Navajo Chieftain crashed, killing all five passengers and two crewmembers.

The C-FIT accident occurred when the pilot descended below the minimum circling altitude without adequate visual references.

Other contributing factors included equipment malfunctions caused by an MEL'd autopilot and excessive pilot workload.

Let's look at how a safety management system might have helped prevent this accident.

As with U.S. regulations, Australian rules also prohibit single-pilot IFR operations without an autopilot.

They also require an IFR-rated second-in-command to continue operations without a functioning autopilot.

According to details in the accident report, the autopilot computer amplifier had been removed from the aircraft for repair.

The report also indicated that several pilots had informed mechanics that when this component is not installed, the pilot's heading indicators are rendered inoperative.

These items are, of course, required for flight. Nevertheless, the aircraft was being operated with the pilot relying on the co-pilot's directional indicator for heading information.

The accident report includes four key findings related to the operator's MEL program.

First, the airplane was dispatched under the authority of an approved MEL, but the analysis of the airplane's systems did not take into account the interaction of the autopilot computer amplifier and the captain's heading indicators.

This required the captain to refer to the co-pilot's directional indicator, which substantially increased his workload and contributed to the accident.

Second, the co-pilot was not qualified for the particular operation and was, therefore, of limited assistance to the captain.

Third, mechanics were not qualified for the work they performed

And finally, there was little communication from employees to managers who had operational control.

So how might a safety management system have helped prevent this accident?

First, the safety risk management process, if used effectively, would have ensured proper design of the MEL, training, and flight operations systems to employ risk controls for many of the hazards that led to this accident.

For example, had the company properly trained its pilots and mechanics in the use of MEL O and M procedures, the aircraft would not have been released or accepted for flight in the first place. This is the proactive aspect of safety management.

Second, the safety assurance process might have detected poorly performing safety risk controls in time to take effective corrective actions or, if necessary, to re-design deficient systems and controls.

The accident report includes an abundance of information that could have been collected and analyzed by the company in time to preclude this accident.

For example, many mechanics and pilots were aware of the effect of removing the autopilot computer amplifier and knew that the airplane had been flown with the pilot's heading indicators inoperative. But there was no system in place to gather this information and analyze it in the context of its operational significance.

A formal system to collect data, analyze it, assess its impact on systems, and take corrective actions could have used this type of information to improve systems and risk controls before the accident occurred.

To summarize, the safety risk management and safety assurance processes are central of a certificate holder's safety management system.

They provide management with a systematic approach to controlling risk and managing safety.

Certificate holders should follow the safety risk management process whenever they initiate a new program, introduce new equipment, revise an existing program, or identify a new hazard.

This process is important because it allows certificate holders to proactively develop controls to address risks that may result from new business initiatives.

Certificate holders should make the safety assurance process an ongoing part of every program to ensure the safety controls are effective.

An effective safety assurance process considers data from the system being assessed as well as all interfacing systems; and collects data from multiple sources.

Part Six: The Relationship Between SMS and FAA Oversight

NARRATOR:

You've learned that safety management systems provide certificate holders with a systematic approach for managing safety.

As you saw in our example, the processes of safety risk management and safety assurance are the service providers' responsibility. In this segment, we'll briefly review the FAA's responsibility for providing oversight to assure that service providers meet these responsibilities.

To understand the relationship between Safety Management Systems and the FAA's system safety-based oversight programs – which is ATOS for our part 121 carriers – let's begin by looking at some common misunderstandings.

DON ARENDT:

We've been asked a number of times, "well, I'm an ATOS carrier, do I need SMS?" Or "will SMS be a replacement for ATOS?" I've been asked that from the industry side.

And look at the last two letters in each of these acronyms – ATOS is an Oversight System, it's the means by which the government – the FAA – manages safety oversight of the air carrier.

Safety Management System – MS – is a management system, it's something that the carrier or the operator, the other certificate holder, has to do for themselves, it is their management system.

These are two distinct roles that we have between the government and the operator, first by the

Act, the FAA Act, Title 49, as it's been recodified, the operator has the responsibility to operate at the highest levels of safety.

The management system that they have – this SMS – will give them that structured capability to do that.

It doesn't take away the FAA's role though, and the FAA has to have an oversight system in order to meet our safety assurance, if you will, role in meeting the responsibility to the public for safety oversight.

NARRATOR:

While we emphasize the distinction between SMS and ATOS, we must also note that a certificate holder's safety risk management process and the FAA's design assessment process are complementary.

DON ARENDT:

We describe the two basic components of the Safety Management System, and remember that we said that one of the components, the Safety Risk Management side, is basically concerned with the design of air carrier or certificate holder systems.

NARRATOR:

In the safety risk management process, the service provider designs controls to manage the hazards in their operating environment.

Other aspects of their program design assure that their program meets regulatory requirements.

One of FAA's key oversight functions is assessing the design of a certificate holder's operating systems to ensure that they meet the regulatory requirements and address the hazards in the operating environment.

This assessment results in either program approval (in the case of initial certification) or continued approval (in the case of certificate management).

DON ARENDT:

Once we see a satisfactory design, we issue a certificate or we approve or accept a particular program that the operator or certificate holder has proposed.

NARRATOR:

The provider's safety assurance process and the FAA's performance assessment process are also complementary.

DON ARENDT:

The Safety Assurance is basically their means of assuring the performance and the effectiveness of their systems.

NARRATOR:

In the safety assurance process, the certificate holder confirms that the risk controls are performing as intended and are effective. These risk controls must be analyzed in the context of all parts of the certificate holder's system. The result is an assessment of how well the system is performing.

DON ARENDT:

After that, we have to assure continuing operational safety, so the Safety Assurance side of the SMS matches very closely to ATOS' Performance Assessments.

NARRATOR:

A performance assessment is FAA's oversight process for evaluating the service provider's program to ensure that it is performing as designed – for example that the procedures and controls are being followed – and that it is achieving the intended result. The result is a bottom line assessment of the system's performance.

DON ARENDT:

And again these Design and Performance Assessments result in the various responsibilities – administrative responsibilities, that we have as the FAA, or as the regulatory oversight organization.

Conclusion

NARRATOR:

In this presentation, we introduced you to safety management systems and to the SMS standard in AC 120-92. While safety management systems are not a panacea, they do provide a structured framework for integrating the intent of the regulations – in other words, the requirement to identify hazards and control associated risk – with the certificate holder's unique operating environment.

By putting in place this structured framework, our certificate holders will be able to leverage the complementary management practices they already have in place – such as their continuous analysis and surveillance systems, quality management systems and internal evaluation programs. The structured nature of their safety management systems will also be a better interface with our oversight functions, as FAA's system safety-based oversight methods evolve.