

# Safety Management Systems (SMS)

## FAA Flight Standards SMS Policy, Guidance & Tools

Presented to: SMS Focus Group

By: Dudley Oatman

Version Date: 8/30/2009



Federal Aviation  
Administration



# Overview

- **State Safety Program and Provider's SMS**
- **Functional requirements of the SMS Framework for Aviation Service Providers**
- **Design and use of the Assurance Guide**
- **Design and use of the Gap Analysis Tools**
- **Use of the Implementation Guide**



# Important Documents

<b>ICAO</b>	<ol style="list-style-type: none"><li>1. ICAO Annex 1, 6, 8, 13</li><li>2. ICAO Safety Management Manual (SMM) Doc 9859</li><li>3. ICAO Safety Oversight Manual Doc 9734a</li></ol>
<b>FAA</b>	<ol style="list-style-type: none"><li>1. FAA Flight Plan 2008 – 2012</li><li>2. SMS Guidance: FAA Order 8000.369 (September 2008)</li><li>3. FAA Order 8000.368 (July 2008) - AFS Oversight Responsibilities</li></ol>
<b>AVS</b>	<ol style="list-style-type: none"><li>1. AVSSMS Doctrine: VS8000.1 (August 2006) (order canceled April 2009)</li><li>2. AVSSMS Requirements: VS8000.367 (May 2008)</li><li>3. The Safety Management System Strategic Plan (July 2008)</li></ol>
<b>AFS</b>	<ol style="list-style-type: none"><li>1. AC 120-92: Introduction to SMSs for Air Operators (June 2006)</li><li>2. Voluntary Developmental Guidance (revised February 2009)<ol style="list-style-type: none"><li>a) SMS Framework for Aviation Service Providers</li><li>b) SMS Assurance Guide</li><li>c) SMS Implementation Guide</li><li>d) SMS Developmental Guidebook (to be published fall 2009)</li></ol></li></ol>

# The ICAO View of SMS

- **A systematic approach to managing safety**
  - includes the necessary organizational structures, accountabilities, policies and procedures
- **Providers are responsible for establishing an SMS**
- **States are responsible for the acceptance and oversight for providers' SMS**



ICAO Annex 6  
ICAO Annex 11  
ICAO Doc. 9859 (SMM)

# ICAO Definitions for SMS

- **State Safety Programme (CAA)**
  - An integrated set of regulations & activities aimed at improving safety.
  - States are responsible for establishing a safety program:
    - Safety regulation
    - Safety oversight
    - Accident/incident investigation
    - Mandatory/voluntary reporting systems
    - Safety data analysis and exchange
    - Safety assurance
    - Safety promotion
- **Safety Management System (Provider)**
  - A systemic approach to managing safety, including the necessary organizational structures, accountabilities, policies & procedures.

# ICAO Annex 6

- “From 1 January, 2009, **States shall require**, as part of their safety programme, **that an operator implement** a safety management system acceptable to the State of the Operator...”
- The U.S. has filed a difference with ICAO
- Currently, there are no FAA authorized procedures to accept or approve Service Providers’ SMS’s



# ICAO Doc 9859

## The ICAO Safety Management Manual (SMM)

- This manual follows Annex 6, Part 1 and provides more detailed guidance and standardization for member states when implementing SMS



# ICAO SMM - Chapter 8

## Chapter 8

### SMS PLANNING

#### 8.1 OBJECTIVE AND CONTENTS

This chapter describes the requirements associated with the planning of an SMS, including the structure of an SMS implementation plan. These requirements are described using as reference the ICAO SMS framework. Although the ICAO SMS framework is introduced in full, this chapter discusses only the first component of the framework, safety policy and objectives; the other three components of the ICAO SMS framework (safety risk management, safety assurance and safety promotion) are discussed in Chapter 9. This chapter includes the following topics:

- a) The components and elements of an SMS;
- b) The ICAO SMS framework;
- c) Management commitment and responsibility;
- d) Safety accountabilities;
- e) Appointment of key safety personnel;
- f) Coordination of emergency response planning;
- g) SMS documentation; and
- h) SMS implementation plan.

#### 8.2 THE COMPONENTS AND ELEMENTS OF AN SMS

8.2.1 There are four components of an SMS that represent the two core operational processes underlying an SMS, as well as the organizational arrangements that are necessary to support the two core operational processes. The four components of an SMS are:

- a) safety policy and objectives;
- b) safety risk management;
- c) safety assurance; and
- d) safety promotion.



# ICAO SMM Framework

## Appendix 1 to Chapter 8

### FRAMEWORK FOR SAFETY MANAGEMENT SYSTEMS (SMS)

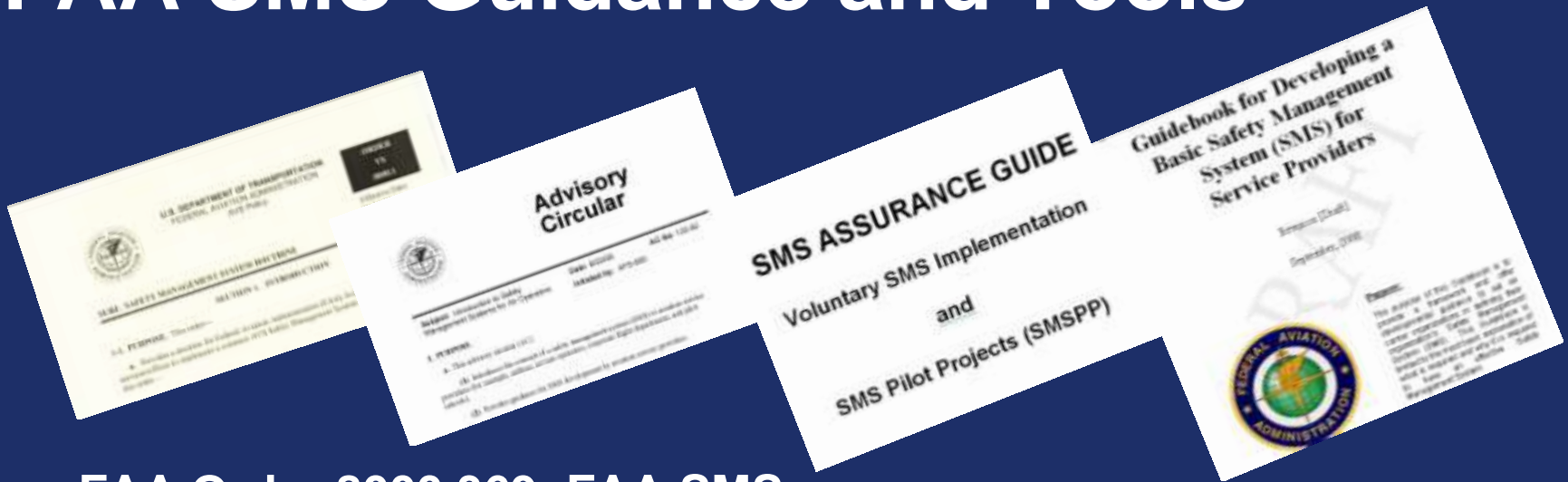
An SMS is a management tool for the management of safety by an organization. This appendix introduces a framework for the implementation and maintenance of a safety management system (SMS) by an organization. The implementation of the framework shall be commensurate with the size of the organization and the complexity of the services provided. The framework includes the following four components and twelve elements, representing the minimum requirements for SMS implementation.

1. Safety policy and objectives
  - 1.1 Management commitment and responsibility
  - 1.2 Safety accountabilities
  - 1.3 Appointment of key safety personnel
  - 1.4 Coordination of emergency response planning
  - 1.5 SMS documentation
2. Safety risk management
  - 2.1 Hazard identification
  - 2.2 Risk assessment and mitigation
3. Safety assurance
  - 3.1 Safety performance monitoring and measurement
  - 3.2 The management of change
  - 3.3 Continuous improvement of the SMS
4. Safety promotion
  - 4.1 Training and education
  - 4.2 Safety communication.

# ICAO SMM Framework

- ① Safety policy and objectives
  - 1.1 – Management commitment and responsibility
  - 1.2 – Safety accountabilities
  - 1.3 – Appointment of key safety personnel
  - 1.4 – Coordination of emergency response planning
  - 1.5 – SMS Documentation
- ② Safety risk management
  - 2.1 – Hazard identification
  - 2.2 – Safety Risk assessment and mitigation
- ③ Safety assurance
  - 3.1 – Safety performance monitoring and measurement
  - 3.2 – The management of change
  - 3.3 – Continuous improvement of the SMS
- ④ Safety promotion
  - 4.1 – Training and education
  - 4.2 – Safety communication

# FAA SMS Guidance and Tools



- **FAA Order 8000.369: FAA SMS Guidance**
- **VS 8000.367: AVS Requirements Document**
- **SMS Standard: AC 120-92 Appendix 1**
- **Voluntary Implementation Guidance (multiple documents)**



# Order VS 8000.367

## AVS SMS Requirements

- **Chapter 5: Service Provider Safety Assurance**
  - Design Assurance
  - Performance Assurance
- **Appendix B: Service Provider SMS requirements**

# FAA Order VS 8000.367



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

Aviation Safety Policy

**ORDER  
VS 8000.367**

Effective Date:  
05-14-2008

**SUBJ: Aviation Safety (AVS) Safety Management System Requirements**

This order fulfills the requirement described in FAA Order VS 8000.1, *Safety Management System (SMS) Doctrine*, Section 1-1.c.(2). Specifically, this document provides requirements to be met by AVS and AVS services/offices in support of the Aviation Safety Safety Management System (AVSSMS). This document does not define implementation schedules. Compliance with this order will be achieved in accordance with the implementation plans required by the *AVS SMS Doctrine* and as required by the *FAA Flight Plan*. The document addresses neither occupational safety and health nor personnel safety issues. This order addresses aviation safety.

In addition, each service/office plays a role in the AVSSMS. Therefore, AVS services/offices must have processes and procedures in place to ensure proper alignment with:

- SMS processes in other AVS services/offices;
- the AVSSMS; and
- SMS processes in product/service provider organizations for which the AVS service has oversight responsibility, if applicable.

A handwritten signature in black ink, appearing to read "Nick Sabatini".

Nicholas A. Sabatini  
Associate Administrator for Aviation Safety



# FAA Order VS 8000.367, Appendix B

05/14/2008

VS 8000.367  
Appendix B

## Appendix B: Product/Service Provider SMS Requirements

The following requirements are the minimum set of requirements that must be established for constituent product/service provider organizations for which AVS services have oversight responsibility.

1. **Scope and Applicability.** To be developed by the AVS service/office.
2. **References.** To be developed by the AVS service/office.
3. **Definitions.** To be developed by the AVS service, but the definitions should be consistent with existing FAA definitions and those in the AVSSMS.
4. **Policy.**
  - a. **General Requirements.**
    - (1) Safety management must be included in the entire life cycle of the organization's outputs.
    - (2) The organization must promote the growth of a positive safety culture (described in Chapter 4, Section b and Chapter 7, Section a).
  - b. **Safety Policy.**

# AC 120-92

## Introduction to SMS for Operators

- **Appendix 1 = “Standard” - SMS Functional Framework**
- **Based on structure of VS 8000.367 Appendix B**
- **Patterned after ISO Standards**



# New Documents

- **SMS Framework**
  - Supersedes Appendix 1 to AC 120-92 for SMS Pilot Project Participants
  - Based on ICAO Framework
- **SMS Assurance Guide**
  - Based on process flows
  - Incorporates Safety Attributes (ATOS Attributes)
  - Aligns with element/process structure of SMS Framework
- **SMS Implementation Guide**
  - Supersedes Draft AC 120-XX-XX in developmental guidance of phased implementation



# Reengineering of Tools and Development of Guidance

- Effort to simplify assessment tools
- Systemic process flow
- Each question analyzed for interpretive problems
- Based on SMSPP experience
- Guidance will be combined into Development Guidance (DG) sections in SMS Guidebooks



# Plain Language Edits

## FAA: SMS Framework

- a) Recorded.
- b) Monitored.
- c) Measured, and
- d) Analyzed.
- 4) **It is expected** that:
  - a) The service provider will **create a** positive safety culture (described under Component 4, B);
  - b) If the service provider has a quality policy, **top management** will ensure that the quality policy is consistent with the SMS;
  - c) The SMS will **include a way to comply** with legal and regulatory requirements;
  - d) The service provider will **set up** and maintain a procedure to identify current **SMS** legal and regulatory requirements;
  - e) The service provider will develop and maintain procedures with measurable criteria to accomplish the objectives of the safety policy;
  - f) The service provider will **set up** and maintain supervisory and operational controls to ensure procedures are followed for safety-related operations and activities, **and**
  - g) The service provider will **set up** and maintain a plan to describe **how it will reach its safety policy's** safety objectives.

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Comment [PG95]: Passive voice, "AFS expects that..." is more active (but maybe not true?)

Comment [PG96]: Changed to be clearer and more direct; also the SMS Assurance doc measures them on "promote positive safety culture" rather than "promote growth of..."

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Comment [PG97]: IN FOOTNOTE: passive voice

### Element 1.1 Safety Policy

A) Performance Objective: Top Management will define the service provider's safety

# Plain Language Edits

## FAA: SMS Framework – Revision 2, Draft

- a) Recorded,
  - b) Monitored,
  - c) Measured, and
  - d) Analyzed.
- 4) It is expected that:
- a) The organization will promote the growth of a positive safety culture (described under Component 4, B);
  - b) If the organization has a quality policy, top management will ensure that the quality policy is consistent with the SMS;
  - c) The SMS will include a means to comply with FAA policy, legal, regulatory and statutory requirements applicable to the SMS;
  - d) The organization will establish and maintain a procedure to identify current FAA policy, legal, regulatory and statutory requirements applicable to the SMS;
  - e) The organization will establish and maintain procedures with measurable criteria to accomplish the objectives of the safety policy<sup>2</sup>;
  - f) The organization will establish and maintain supervisory and operational controls to ensure procedures are followed for safety-related operations and activities; and
  - g) The organization will establish and maintain a safety management plan to describe how it will achieve its safety objectives.

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Deleted: achieving

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### ***Element 1.1 Safety Policy***

**A) Performance Objective:** Top Management will define the organization's safety policy and convey its expectations and objectives to its employees.

**B) Design Expectations:**

# Language simplification - Before

## ***Element 1.2 Management Commitment and Safety Accountabilities***

### **Performance Objective**

Top Management will define, document, and communicate the roles, responsibilities, and authorities regarding safety throughout its organization.



#### **Design Expectations**

#### ***Management Accountability***

**Does the aviation service provider have documentation to ensure** top management has the ultimate responsibility for the SMS?

*SMS Framework 1.2 B) 1) Old – SMS Standard 4.5.A (P/R/A)*

**Does the aviation service provider have documentation for** top management to provide the resources essential to implementing and maintaining the SMS?

*SMS Framework 1.2 B) 2) Old – SMS Standard 4.5.B (P)*

**Does the aviation service provider have documentation to define levels** of management that can make safety risk acceptance decisions?

*SMS Framework 1.2 B) 4) Old – SMS Standard 5 D) 2) (P)*

#### ***Procedure/Output/Measure***

**Does the aviation service provider have documentation to ensure that** aviation safety-related positions, responsibilities, and authorities are— (P/R/A)

Defined?

*SMS Framework 1.2 B) 3) a) Old – SMS Standard 4.5.D.1 (P)*

Documented?

*SMS Framework 1.2 B) 3) b) Old – SMS Standard 4.5.D.2 (P)*

Communicated throughout the organization?

# Language simplification - After

## ***Element 1.2 Management Commitment and Safety Accountabilities***

### **Performance Objective**

The organization will define, document, and communicate the safety roles, responsibilities, and authorities throughout its organization.



<b>Design Expectations</b>
<i>Management Accountability</i>
<p><b>Does the organization ensure</b> top management has the ultimate responsibility for the SMS?  <i>SMS Framework 1.2 B) 1) Old – SMS Standard 4.5.A (R/A)</i></p>
<p><b>Does the organization's top management</b> provide the resources needed to implement and maintain the SMS?  <i>SMS Framework 1.2 B) 2) Old – SMS Standard 4.5.B (P/R/A)</i></p>
<p><b>Does the organization define levels</b> of management that can make safety risk acceptance decisions?  <i>SMS Framework 1.2 B) 4) Old – SMS Standard 5 D) 2) (P/R/A)</i></p>
<i>Procedure/Output/Measure</i>
<p><b>Does the organization ensure</b> that aviation safety-related positions, responsibilities, and authorities are -</p>
<p>Defined?  <i>SMS Framework 1.2 B) 3) a) Old – SMS Standard 4.5 D) 1 (P)</i></p>
<p>Documented?</p>

# Language simplification - Notes

**NOTE 1:** Throughout this document, the term “organization” will be used to indicate both certificated and non-certificated aviation organizations, aviation service providers, air carriers, airlines, maintenance repair organizations, air taxi operators, corporate flight departments, repair stations, and pilot schools.

**NOTE 2:** To ensure organizational conformity with the performance objectives and design expectations outlined in this assurance guide, documentation or “objective evidence” of processes will be recorded for validation by the oversight organization (CMT, CMO, FSDO, or CHDO) and/or the SMS Transition Assistance Team (STAT). Objective evidence may take the form of physical or electronic documents, manuals, training material, records, correspondence (email, memo, etc.), organizational charts, meeting minutes, and/or interviews/observations conducted by the oversight organization/STAT. Documentation of all SMS processes is a policy expectation of the SMS Framework, Component 1.0, B) 2) (a).

# ICAO and FAA SMS Framework



## Elements:

### Elements:

1.1 Safety Policy

### Elements:

4.1 Competencies and Training

Process 4.1.1 Personnel requirements

Process 4.1.2 Training

4.2 Communication and Awareness

3.2 Management of Change

3.3 Continual Improvement

# SMS Frameworks

## ICAO ----- Vs ----- FAA

### 1. Safety policy and objectives

- 1.1 – Management commitment and responsibility
- 1.2 – Safety accountabilities
- 1.3 – Appointment of key safety personnel
- 1.4 – Coordination of emergency response planning
- 1.5 – SMS documentation

### 2. Safety risk management

- 2.1 – Hazard identification
- 2.2 – Risk assessment and mitigation

### 3. Safety assurance

- 3.1 – Safety performance monitoring and measurement
- 3.2 – The management of change
- 3.3 – Continuous improvement of the SMS

### Component 1.0 Safety Policy and Objectives.....

- Element 1.1 Safety Policy.....
- Element 1.2 Management Commitment and Safety Accountabilities.....
- Element 1.3 Key Safety Personnel .....
- Element 1.4 Emergency Preparedness and Response.....
- Element 1.5 SMS Documentation and Records.....

### Component 2.0 Safety Risk Management (SRM) .....

- Element 2.1 Hazard Identification and Analysis .....
- Process 2.1.1 System Description and Task Analysis.....*
- Process 2.1.2 Identify Hazards.....*
- Element 2.2 Risk Assessment and Control.....
- Process 2.2.1 Analyze Safety Risk.....*
- Process 2.2.2 Assess Safety Risk.....*
- Process 2.2.3 Control/Mitigate Safety Risk.....*

### Component 3.0 Safety Assurance .....

- Element 3.1 Safety Performance Monitoring and Measurement.....
- Process 3.1.1 Continuous Monitoring.....*
- Process 3.1.2 Internal Audits by Operational Departments.....*
- Process 3.1.3 Internal Evaluation.....*
- Process 3.1.4 External Auditing of the SMS.....*
- Process 3.1.5 Investigation.....*
- Process 3.1.6 Employee Reporting and Feedback System.....*
- Process 3.1.7 Analysis of Data.....*
- Process 3.1.8 System Assessment .....*
- Process 3.1.9 Preventive/Corrective Action.....*
- Process 3.1.10 Management Review.....*
- Element 3.2 Management of Change.....
- Element 3.3 Continual Improvement.....



# SMS Frameworks

## ICAO ----- Vs ----- FAA

### 4. Safety promotion

4.1 – Training and education

4.2 – Safety communication

### Component 4.0 Safety Promotion.....

Element 4.1 Competencies and Training.....

*Process 4.1.1 Personnel Expectations (Competence) .....*

*Process 4.1.2 Training.....*

Element 4.2 Communication and Awareness.....



# SMS Frameworks

## FAA .367 ----- Vs ----- AFS Framework

**6. Safety Assurance.** Figure B-1 illustrates how Safety Assurance functions (described in Sections b-k) are linked to the SRM process (described in Chapter 5).

**a. General Requirements.** The organization must monitor its systems, operations and products/services to:

- (1) Identify new hazards;
  - (2) Measure the effectiveness of safety risk controls;
  - (3) Assess compliance with legal, regulatory and statutory requirements applicable to the SMS;
- and
- (4) Assess conformity with organizational safety policies and procedures.

### **b. Information Acquisition**

<sup>4</sup> While it is recognized that identification of every conceivable hazard is impractical, organizations are expected to exercise diligence in identifying and controlling significant and reasonably foreseeable hazards related to their operations. Describing the system involves the act of bounding the system (i.e., defining what the system actually is). The definition process is a purely subjective one. Defining a system requires a definition of its boundary and its components.

<sup>5</sup> Severity and likelihood may be expressed in qualitative or quantitative terms.

B-6

05/14/2008

VS 8000.367  
Appendix B

- (1) The organization must collect the data/information necessary to demonstrate the effectiveness of the SMS.
- (2) The organization must monitor operational data/information.
- (3) The organization must monitor products and services received from contractors.

### **Process 3.1.1 Continuous Monitoring**

**A) Performance Objective:** The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.

#### **B) Design Expectations:**

- 1) The organization will monitor operational data (e.g., duty logs, crew reports, work cards, process sheets, and reports from the employee safety feedback system specified in Process 3.1.6) to:
  - a) Determine conformity to safety risk controls (described in Process 2.2.3);
  - b) Measure the effectiveness of safety risk controls (described in Process 2.2.3);
  - c) Assess SMS system performance; and
  - d) Identify hazards.
- 2) The organization will monitor products and services received from subcontractors.

# AFS SMS Framework





# **SAFETY MANAGEMENT SYSTEM (SMS) FRAMEWORK**

**For:**

**Safety Management System (SMS) Pilot Project  
Participants and Voluntary Implementation of  
Organization SMS Programs**

**Federal Aviation Administration  
Flight Standards Service - SMS Program Office**

**Revision 2**

**July 15, 2009**



## Component 2.0 Safety Risk Management (SRM)

A) **Performance Objective:** The service provider will develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to the identification of hazards, risk decision-making, and the design of risk controls.

### B) **General Design Example**

- 1) Safety Risk Management
  - a) System and task analysis
  - b) Hazard identification
  - c) Safety Risk Assessment
  - d) Safety Risk Control
  - e) Safety Risk Communication
- 2) The SRM processes include:
  - a) Initial designs of systems, organizations, and/or products;
  - b) The development of operational procedures;
  - c) Hazards that are identified in the safety assurance functions (described in Component 3.0, B); and
  - d) Planned changes to the operational processes.
- 3) The service provider will establish feedback loops between assurance functions described in Process 3.1.1, B to evaluate the effectiveness of safety risk controls.
- 4) The Service provider will define a process for risk acceptance that:
  - a) Defines acceptable and unacceptable levels of safety risk.
  - b) Establishes descriptions for:
    - (1) Severity levels, and
    - (2) Likelihood levels.
  - c) The service provider will define specific levels of management that can make safety risk acceptance decisions.
  - d) The service provider will define acceptable risk for hazards that will exist in the

Each Element/Process has a Performance Objective that defines the expected outcome of the process.

## Element 2.2 Risk Assessment and Control

### Process 2.2.1 Analyze Safety Risk

A) **Performance Objective:** The service provider will determine and analyze the severity and likelihood of potential events associated with identified hazards and identified factors associated with unacceptable levels of severity or likelihood.

B) **Design Expectations:**

- 1) The safety risk analysis process will include:
  - a) Existing safety risk controls;
  - b) Triggering mechanisms;
  - c) Safety risk of reasonably foreseeable outcomes from the existence of a hazard, to include estimation of the:
    - (1) Likelihood; and
    - (2) Severity.
  - (3) Risk likelihood and severity metrics in quantitative or qualitative terms.

### Process 2.2.2 Assess Safety Risk

A) **Performance Objective:** The service provider will define risk acceptance procedures and criteria for risk acceptance decisions.

B) **Design Expectations:**

Each hazard will be assessed against the risk acceptance process described in the risk management plan.

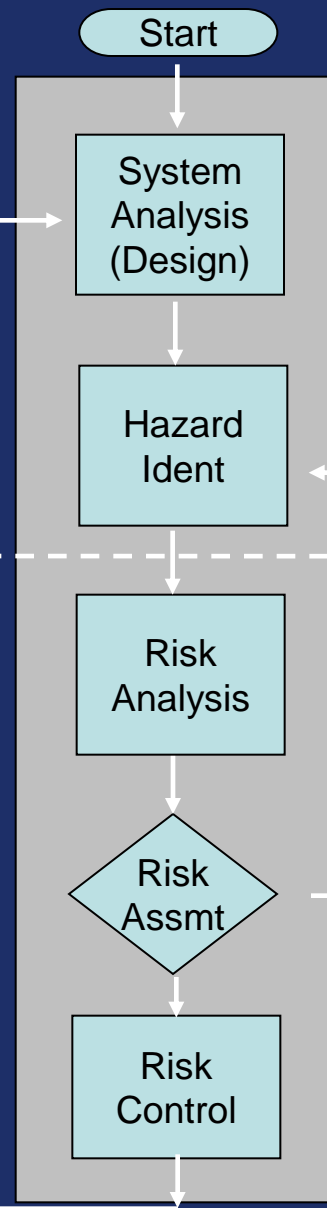
Design expectations are then defined that outline characteristics of a well designed process. These are organized in terms of the six attributes.

### Process 2.2.3 Control/Mitigate Safety Risk

A) **Performance Objective:** The service provider will design and implement a risk control for each identified hazard for which there is an unacceptable risk to reduce the potential for death, serious physical harm, or damage to equipment or property to acceptable levels. For each Risk Control the residual or substitute risk will be analyzed before implementation.

Page Break

# SRM



**Inputs:** 2.0(B)(2)(a),(b) & (d)  
•New System  
•System Change  
•New Operational Procedure

2.1.1

2.1.2

**Inputs:** 2.0(B)(2)(c)  
From SA: 3.1.8(B)(3)

2.2.1

2.2.2

**Outputs:** To SA 3.0(B)(1)(b)

2.2.3

## 2.1 Hazard Identification & Analysis

## 2.2 Risk Assessment & Control

Evaluate Controls 2.2.3(B)(2) & (3)



## ***Element 3.1 Safety Performance Monitoring and Measurement***

### ***Process 3.1.1 Continuous Monitoring***

A) **Performance Objective:** The service provider will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.

B) **Design Expectations:**

- 1) The service provider will monitor operational data (e.g., duty logs, crew reports, work cards, process sheets, and reports from the employee safety feedback system specified in Process 3.1.6) to:
  - a) Determine conformity with safety risk controls (described in Process 2.2.3);
  - b) Measure the effectiveness of safety risk controls (described in Process 2.2.3);
  - c) Assess system performance; and
  - d) Identify hazards.
- 2) The service provider will monitor products and services received from subcontractors.

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### ***Process 3.1.2 Internal Audits by Operational Departments***

A) **Performance Objective:** The service provider will perform regularly scheduled internal audits of operational processes, including those performed by contractors, to determine the performance and effectiveness of risk controls.

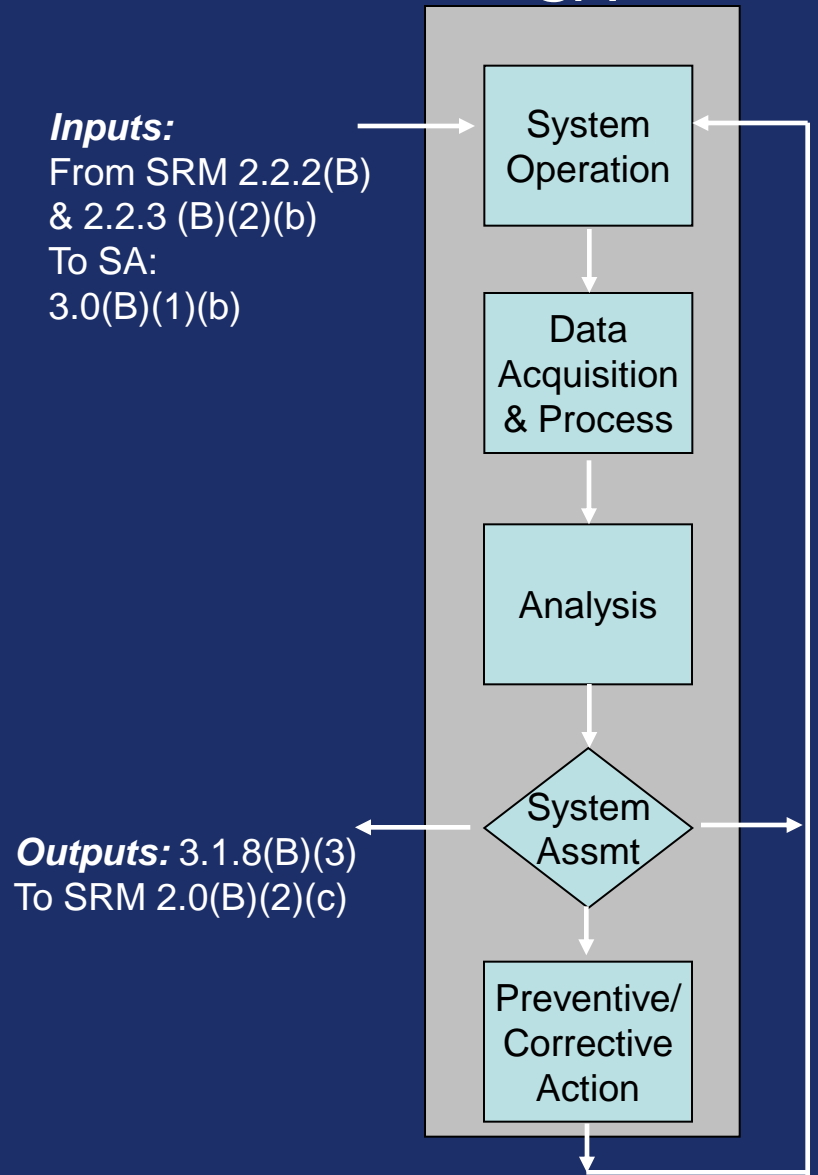
B) **Design Expectations:**

- 1) Line management of operational departments will ensure that regular internal audits of safety-related functions of the organization's operational processes (production system) are conducted. This obligation will extend to any subcontractors that they may use to accomplish those functions. (Note: The Internal Audit is a primary means of output measurement under Component 1.0, B, 3) c) and 4) e)).
- 2) Line management will ensure that regular audits are conducted to:
  - a) Determine conformity with safety risk controls; and
  - b) Assess performance of safety risk controls.
- 3) Planning of the audits program will take into account:



# 3.1 Safety Performance Monitoring and Measurement

SA



Per 2.1.1 including Risk Controls per 3.1.3

- 3.1.1 Continuous Monitoring
- 3.1.2 Internal Audits
- 3.1.3 Internal Evaluation
- 3.1.4 External Evaluation
- 3.1.5 Investigations
- 3.1.6 Employee Reporting

3.1.7 Analysis of Data { How is this going to be analyzed? By whom? }

- 3.1.8 System Assessment
- 3.1.10 Management Review

3.1.9 \* Note: Each data source should be traceable through analysis (3.1.7(B)(1)), assessment and Corrective Action (3.1.9(B)(1)) where necessary.



# Core Document Relationships

SMS Framework



SMS Assurance Guide



Gap Analysis Tools

# AFS SMS Assurance Guide





# **SAFETY MANAGEMENT SYSTEM (SMS) ASSURANCE GUIDE**

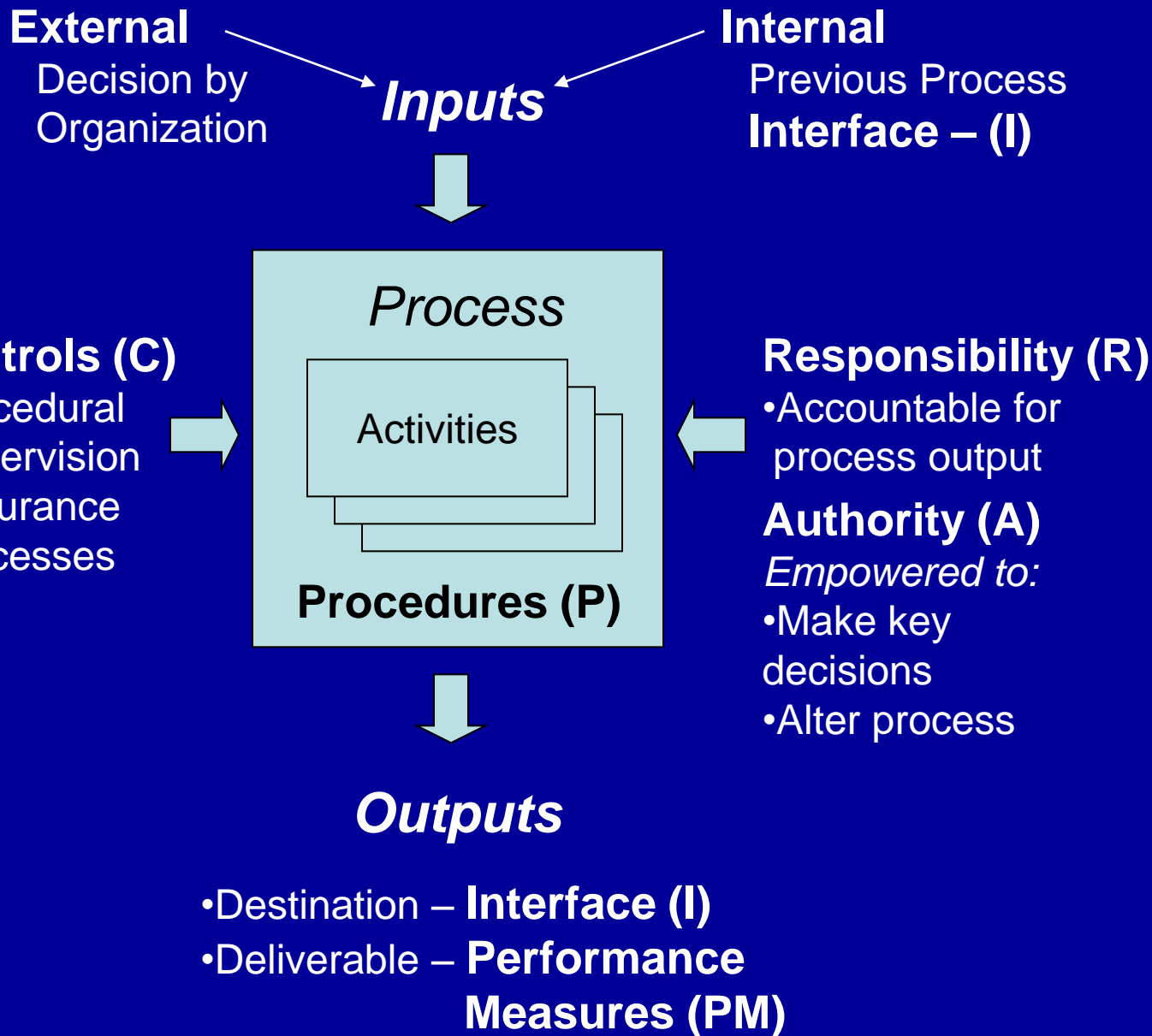
For:

**Safety Management System (SMS) Pilot Project  
Participants and Voluntary Implementation of  
Organization SMS Programs**

**Federal Aviation Administration  
Flight Standards Service - SMS Program Office**

**Revision 2  
July 15, 2009**





**Process 2.1.2 Identify Hazards**

**Performance Objective**

The service provider will identify and document physical harm or damage to equipment or property in accordance with the service provider's acceptable level of risk and risk acceptability.

**Design Expectations**

**Input**

Does the service provider's documented process obtain the necessary information identified from the System and Assurance program deficiencies (3.1.8 (B), SMS Framework 1.5 B) 1) Old - SMS

**Management Responsibility**

Does the service provider's documented identification process?  
SMS Framework 1.2 A) Old - SMS

**Procedure**

Does the service provider's hazard identification process cover the entire scope of the system?  
SMS Framework 2.1.2 B) 1) a) Old - SMS

**Outputs and Measures**

Does the service provider's documented process and the analysis and assessment of the hazard identification process?  
SMS Framework 1.5 B) 1) Old - SMS

**Bottom Line Assessment**

Has the service provider identified an acceptable level of risk and risk acceptability?

Each Element/Process has a Performance Objective that defines the expected outcome

Design expectations are then defined that outline characteristics

Inputs tell us where the process starts:

Management Responsibility tells us:

- Who is accountable for process

Finally, the "Bottom Line Assessment" takes us back to the objective – will/does the process achieve its intended outcome? (Affirmation)

measures)

- Destination of the output (Interfaces)

Some critical processes also have Controls

# Relationship – Framework Vs Assurance

## SMS Framework

### *Process 3.1.1 Continuous Monitoring*

**A) Performance Objective:** The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.

## SMS Assurance Guide

### **Process 3.1.1 Continuous Monitoring**

#### **Performance Objective**

The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.

# Relationship – Framework Vs Assurance

## SMS Framework

### **B) Design Expectations:**

- 1) The organization will monitor operational data (e.g., duty logs, crew reports, work cards, process sheets, and reports from the employee safety feedback system specified in Process 3.1.6) to:
  - a) Determine conformity to safety risk controls (described in Process 2.2.3);
  - b) Measure the effectiveness of safety risk controls (described in Process 2.2.3);
  - c) Assess SMS system performance; and
  - d) Identify hazards.
- 2) The organization will monitor products and services received from subcontractors.



# Relationship – Framework Vs Assurance

## SMS Assurance Guide

<b>Procedure</b>
<b>Does the organization monitor operational data to -</b>
<b>Determine whether it conforms to safety risk controls?</b> <i>SMS Framework 3.1.1 B) 1) a) Old – SMS Standard 6.3.1 A) 1) (P)</i>
<b>Measure the effectiveness of safety risk controls?</b> <i>SMS Framework 3.1.1 B) 1) b) Old – SMS Standard 6.3.1 A) 2) (P)</i>
<b>Assess system performance?</b> <i>SMS Framework 3.1.1 B) 1) c) Old – SMS Standard 6.3.1 A) 3) (P)</i>
<b>Identify hazards?</b> <i>SMS Framework 3.1.1 B) 1) d) Old – SMS Standard 6.3.1 A) 4) (P)</i>
<b>Does the organization monitor products and services from contractors?</b> <i>SMS Framework 3.1.1 B) 2) Old – SMS Standard 6.3.1.B (P)</i>

# Relationship – Framework Vs Assurance

## SMS Assurance Guide

<b>Design Expectations</b>
<b>Input</b>
Does the organization identify inputs (interfaces) for the Continuous Monitoring process obtained from the Risk Assessment process (2.2.2) or Risk Control/Mitigation process (2.2.3)? <i>SMS Framework 1.5 B) 1) f) Old – SMS Standard 4.9 A (6) (I)</i>
<b>Management Responsibility</b>
Does the organization clearly identify who is responsible for the quality of the Continuous Monitoring process? <i>SMS Framework 1.2 B) 3) Old – SMS Standard None (R/A)</i>
<b>Procedure</b>
Does the organization monitor operational data to -
Determine whether it conforms to safety risk controls? <i>SMS Framework 3.1.1 B) 1) a) Old – SMS Standard 6.3.1 A) 1) (P)</i>
Measure the effectiveness of safety risk controls? <i>SMS Framework 3.1.1 B) 1) b) Old – SMS Standard 6.3.1 A) 2) (P)</i>
Assess system performance? <i>SMS Framework 3.1.1 B) 1) c) Old – SMS Standard 6.3.1 A) 3) (P)</i>
Identify hazards? <i>SMS Framework 3.1.1 B) 1) d) Old – SMS Standard 6.3.1 A) 4) (P)</i>
Does the organization monitor products and services from contractors? <i>SMS Framework 3.1.1 B) 2) Old – SMS Standard 6.3.1.B (P)</i>
<b>Outputs and Measures</b>
Does the organization identify interfaces between the continuous monitoring functions and analysis of data process (3.1.7)? <i>SMS Framework 1.5 B) 1) f) Old – SMS Standard 4.9 A (6) (I)</i>
Does the organization periodically measure performance objectives and design expectations of the continuous monitoring process? <i>See note at 3.1.3 &amp; SMS Framework 1.D B) 2) (c) and 3) (c); 3.1.3 B) 1) Old – SMS Standard 4.1 B) 3 &amp; C) 3; 6.3.2 A &amp; 6.3.3 (P/M/I)</i>



# Process Outputs Table

## FAA: SMS Framework

### 5.2 Process Outputs

The table below lists SMS outputs for each process, as identified in the SMS Framework.

**Table 1. SMS Process Outputs**

Process	Reference	Output Expectation
<b>Component 2.0 - Safety Risk Management</b>		
2.1.1 System/Task Analysis	2.1.1(B)(1)	System Descriptions for following situations:
	2.0(B)(2)(a)	<ul style="list-style-type: none"> <li>Initial designs of systems, organizational procedures, and products</li> </ul>
	2.0(B)(2)(b)	<ul style="list-style-type: none"> <li>Development of operational procedures</li> </ul>
	2.0(B)(2)(d)	<ul style="list-style-type: none"> <li>Planned Changes</li> </ul>
2.1.2 Hazard Identification	2.1.2(B)(1)b)	Hazards documented
	2.1.2(B)(2)(a)	Hazards tracked
2.2.1 Risk Analysis	2.2.1(B)(1)(c)	Assignment of severity and likelihood for each hazard (as documented in 2.1.2)
2.2.2 Risk Assessment	2.2.2(B)(1)	Assessment of acceptability of each risk (as documented in 2.1.2)
2.2.3 Risk Control	2.2.3(B)(1)	Risk control/mitigation plans for each hazard with unacceptable risk (as assessed in 2.2.2)
<b>Component 3.0 - Safety Assurance</b>		
3.1.1 Continuous Monitoring	3.1.1	Objective evidence of monitoring activities IAW company policy
3.1.2 Internal Audit	3.1.2(B)(5)(b)(1)	Plans
	3.1.2(B)(5)(b)(3) & (4)	Reports/Records

**SUMMARY CROSS REFERENCE:**

AC 120-92 (Appendix 1)	SMS Framework, Revision 2 (7-15-2009)
4. Policy	1.0 Safety Policy and Objectives
4.1. General Requirements	1.0 Safety Policy and Objectives
4.2. Safety Policy	1.1 Safety Policy
4.3. Quality Policy	1.0 Safety Policy and Objectives, B) 4) b)
4.4. Safety Planning	1.0 Safety Policy and Objectives, B) 4) g)
4.5. Organizational Structure and Responsibilities	1.2 Management Commitment and Safety Accountabilities
4.5. Organizational Structure and Responsibilities	1.3 Key Safety Personnel
4.6. Compliance with Legal and Other Requirements	1.0 Safety Policy and Objectives, B) 4) c) and d)
4.7. Procedures and Controls	1.0 Safety Policy and Objectives, B) 4) e) and f)
4.8. Emergency preparedness and Response	1.4 Emergency Preparedness and Response
4.9. Documentation and Records Management	1.5 Documentation and Records
5. Safety Risk Management	2.0 Safety Risk Management (SRM) and 3.2 Management of Change
5.1. System and Task Analysis	2.1.1 System and Task Analysis
5.2. Identify Hazards	2.1.2 Identify Hazards
5.3. Analyze Safety Risk	2.2.1 Analyze Safety Risk
5.4. Assess Safety Risk	2.2.2 Assess Safety Risk and 1.2, Management Commitment and Safety Accountabilities, B) 4)
5.5. Control Safety Risk	2.2.3 Control/Mitigate Safety Risk
5.7 Change Management (proposed)	3.2, Management of Change
6. Safety Assurance and Internal Evaluation	3.0 Safety Assurance
6.1. General Requirements	3.0 Safety Assurance
6.2. System Description	3.0 Safety Assurance, B) 1) d)
6.3. Information Acquisition	3.0 Safety Assurance, B) 2)

# Cross Reference (Bridging)

# SMS Implementation



# SMS Implementation & Pilot Project

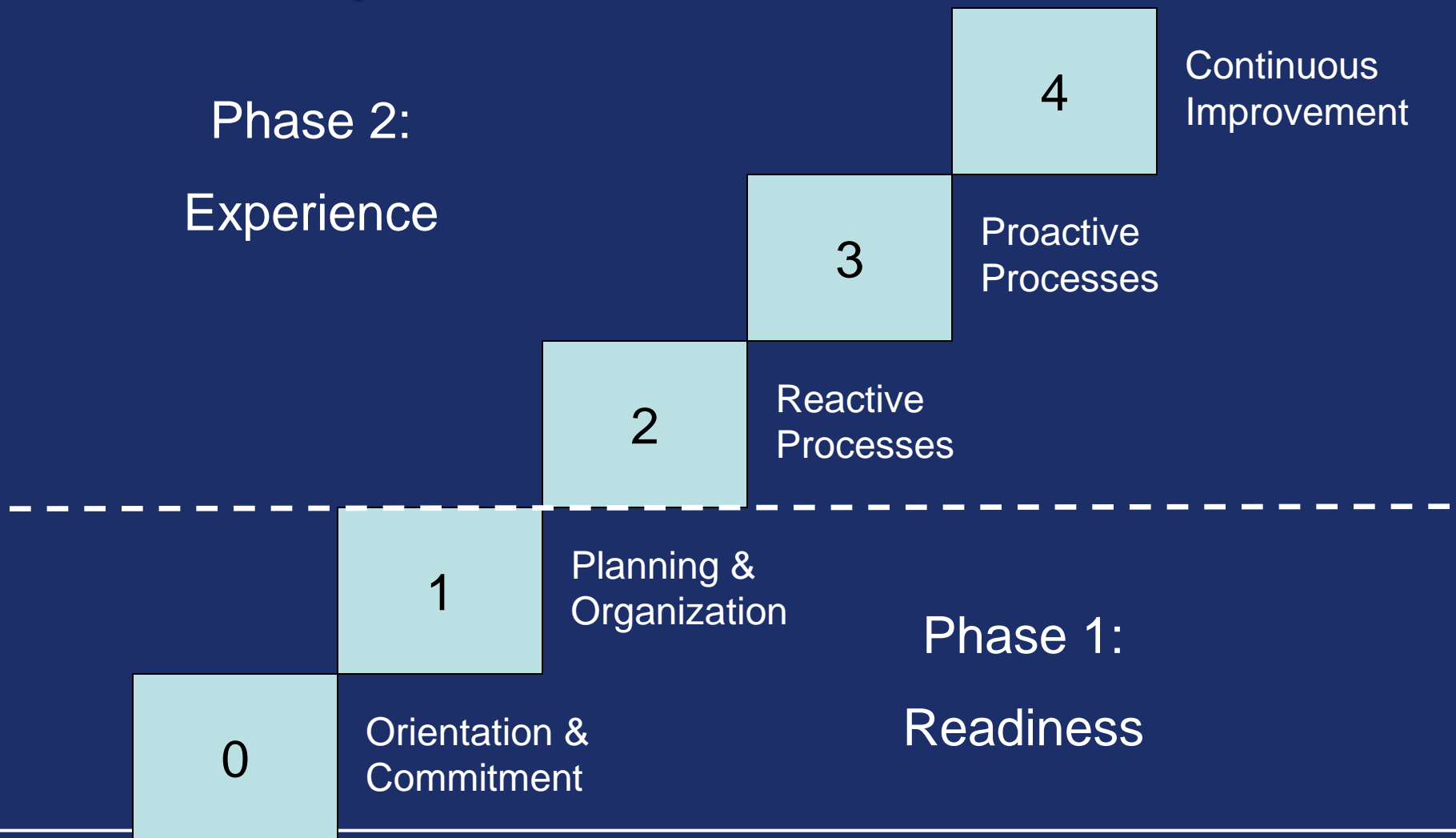
- **Pilot Project activities commenced in 2007**
- **Voluntary SMS development and interface with oversight systems**
- **AFS combined effort**
- **Objectives:**
  - Development of guidance material,
  - Implementation strategies, and
  - Oversight systems
  - Provide experience for FAA and operators



# SMS Implementation Process



# SMS Implementation Process





# SMS Implementation Guide





# **SAFETY MANAGEMENT SYSTEM (SMS)**

## **IMPLEMENTATION GUIDE**

**For**

**AVIATION SERVICE PROVIDERS**

**(For use by Aviation Service Providers participating in the Safety Management System Pilot Project (SMSPP) and for voluntary implementation of Safety Management Systems)**

**Federal Aviation Administration  
Flight Standards Service - SMS Program Office**



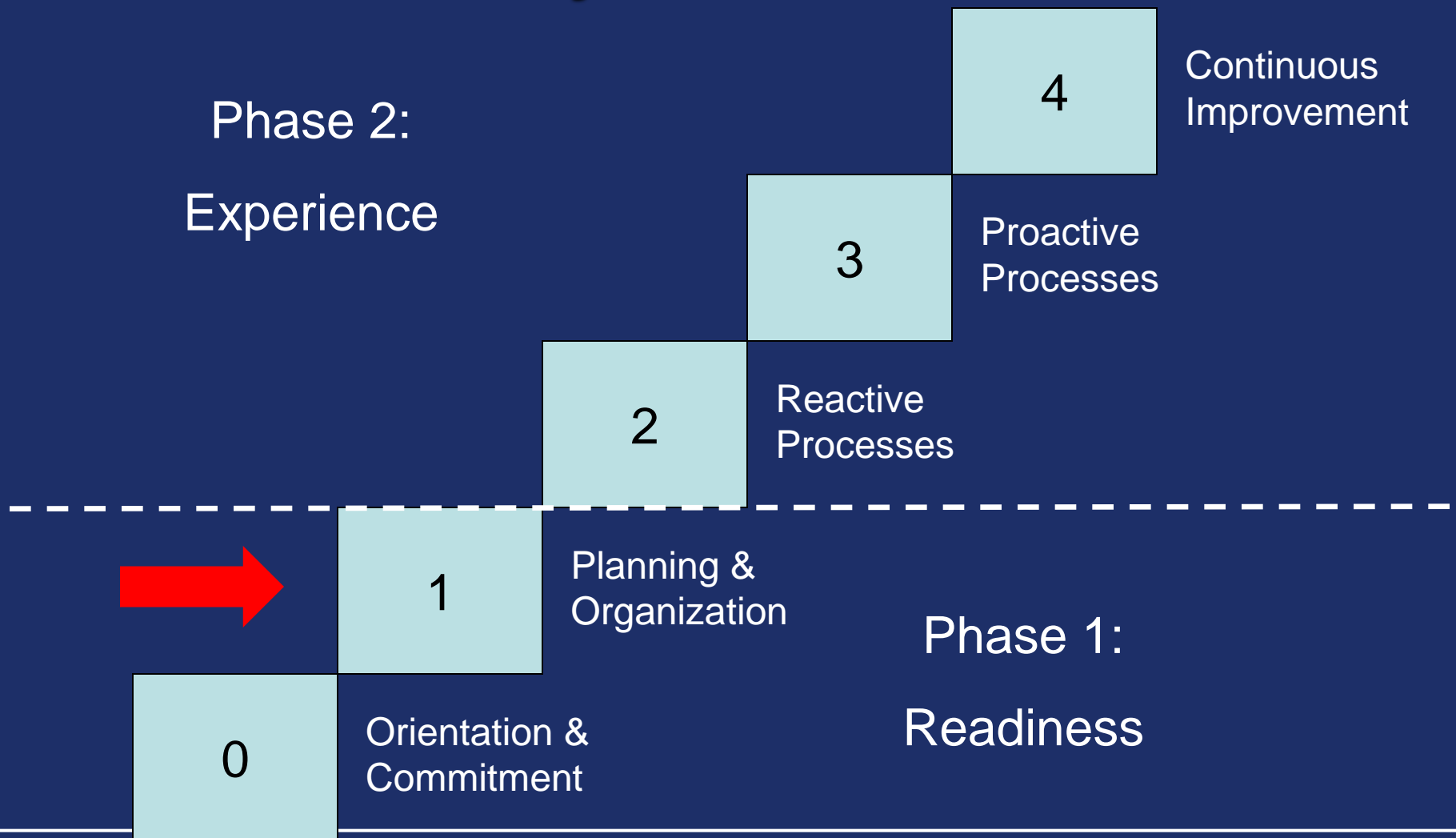
# SMS Development Chart

Components, Elements and Processes should be completed by the indicated Level of Implementation	Implementation Level		
	1	2	3
<b>SMS Framework Expectation</b>			
Component 1.0 Safety Policy and Objectives		X	
Element 1.1 Safety Policy	X		
Element 1.2 Mgmt Commitment and Safety Accountabilities	(*1)	X	
Element 1.3 Key Safety Personnel	X		
Element 1.4 Emergency Preparedness and Response		X	
Element 1.5 SMS Documentation and Records		X	
Component 2.0 Safety Risk Management (SRM)		(*3)	X
Element 2.1 Hazard Identification and Analysis		X	
Process 2.1.1 System and Task Analysis			X
Process 2.1.2 Identify Hazards		X	
Element 2.2 Risk Assessment and Control		X	
Process 2.2.1 Analyze Safety Risk		X	
Process 2.2.2 Assess Safety Risk		X	
Process 2.2.3 Control/Mitigate Safety Risk		X	
Component 3.0 Safety Assurance			X
Element 3.1 Safety Performance Monitoring and Measurement		X	
Process 3.1.1 Continuous Monitoring		X	
Process 3.1.2 Internal Audits by Operational Departments		X	
Process 3.1.3 Internal Evaluation		X	
Process 3.1.4 External Auditing of the SMS		X	
Process 3.1.5 Investigation		X	
Process 3.1.6 Employee Reporting and Feedback System.		X	
Process 3.1.7 Analysis of Data.		X	
Process 3.1.8 System Assessment.		X	
Process 3.1.9 Preventive/Corrective Action.		X	
Process 3.1.10 Management Review.		X	
Element 3.2 Management of Change		(*3)	X
Element 3.3 Continual Improvement		X	
Component 4.0 Safety Promotion			X
Element 4.1 Competencies and Training			X
Process 4.1.1 Personnel Expectations (Competence)	(*2)		X
Process 4.1.2 Training		X	
Element 4.2 Communication and Awareness		X	

# SMS Development Chart



# SMS Pilot Projects

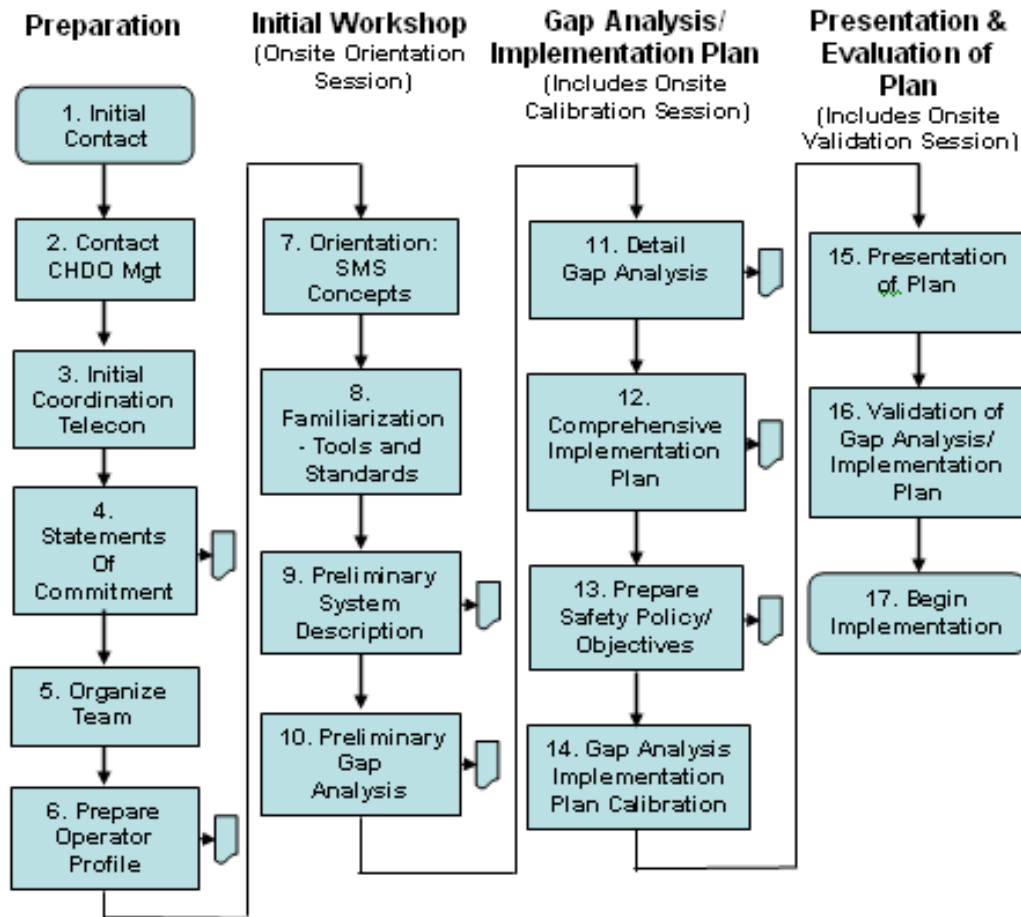


# Level 1: Planning & Organization

## Charting the Course

- Preliminary Gap Analysis: Evaluating existing processes, programs, and practices for safety management
- Develop Safety Policy
- Develop Implementation Plan
- Organizing for Implementation

## OPTION 1- For Service Providers with no SMS



**Figure 1 - Flow Diagram of Level 1 Activities (No SMS)**

# Level 1 – Meeting Session 1

## Session 1 is a 2-day event

- Day 1- STAT Briefing:
  - SMS Tutorial – 4-Hr. In-Depth Overview
  - In-depth walk-through of the Framework & Assurance Guide
  - Preliminary Audit/Gap Analysis Tool
  - Detailed Audit/Gap Analysis Tools
- Day 2 - Service Provider & CMT jointly Perform Preliminary Gap Analysis
  - Schedule Operator's Detailed Gap Analysis
  - The operator may require 4 to 6 months to complete the detailed gap analysis. STAT and CMT will be available on call while the operator is performing this task.

# Preliminary Gap Analysis Tool

- **High level assessment tool**
- **Evaluates the organization's existing systems to determine conformance to the SMS standards**
- **Used for initial screening or audit summary**
- **Questions at the objective level**
- **Training Tool to assist in completing the Detailed Gap Analysis**



# Preliminary Gap Analysis Tool

	A	B	C	D	E	F	G	H
1	<b>Preliminary <span style="color: red;">Air Carrier</span> Gap Analysis Tool</b>							
2	Note: This tool is designed to be used with SMS Assurance Guide, Rev 2 (7-15-09)							
3	Participant:				Location:			
4	Assurance Guide Question	Overall Assmt Rating	Flt Ops. Assmt Rating	Dispatch Assmt Rating	MTC Assmt Rating	Cabin Assmt Rating	Ground Assmt Rating	Cargo Assmt Rating
45	<b>Component 3: Safety Assurance</b>							
46	<b><i>Safety Assurance: General Expectations</i></b>							
47	<b>Performance Objective</b>							
48	The organization will monitor, measure, and evaluate the performance and effectiveness of its risk controls.							
49	<b><i>Element 3.1 Safety Performance Monitoring and Measurement:</i></b>							
50	<b>Process 3.1.1 Continuous Monitoring</b>							
51	<b>Performance Objective</b>							
52	The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.							
53	<b>Process 3.1.2 Internal Audits by Operational Departments</b>							
54	<b>Performance Objective</b>							
55	The organization will perform regularly scheduled internal audits of its operational processes, including those performed by contractors, to determine the performance and effectiveness of risk controls.							



# Gap Analysis Assessment Scales

- Evaluate Objectives utilizing assessment scales
- Measure the level of development for each objective



# Preliminary Gap Assessment Scale

A	B	C	D	E	F	G	H	I
<b>Preliminary Air Carrier Gap Analysis Tool</b> Note: This tool is designed to be used with SMS Assurance Guide, Rev 2 (7-15-09) <b>Participant:</b> _____ <b>Location:</b> _____								
Assurance Guide Question	Overall Assmt Rating	Flt Ops. Assmt Rating	Dispatch Assmt Rating	MTC Assmt Rating	Cabin Assmt Rating	Ground Assmt Rating	Cargo Assmt Rating	Training Assmt Rating
<b>Assessment Rating Scale Word Picture</b>	<b>Assessment Scale Value</b>							
The objective for this Element of the <i>SMS Framework</i> is not performed.	0							
This Element of the <i>SMS Framework</i> is in place; however it <b>does not</b> include all SMS processes.	1							
This Element of the <i>SMS Framework</i> is in place; and it <b>does</b> include all SMS processes.	2							



# Detailed Gap Analysis Tool

- **In-Depth assessment tool**
- **Evaluates the organization's existing systems to determine conformance to the SMS standards**
- **Used for comprehensive evaluation of conformance to the Framework for Aviation Service Providers**
- **Questions at the Element and Process level**



# Detailed Gap Analysis Tool

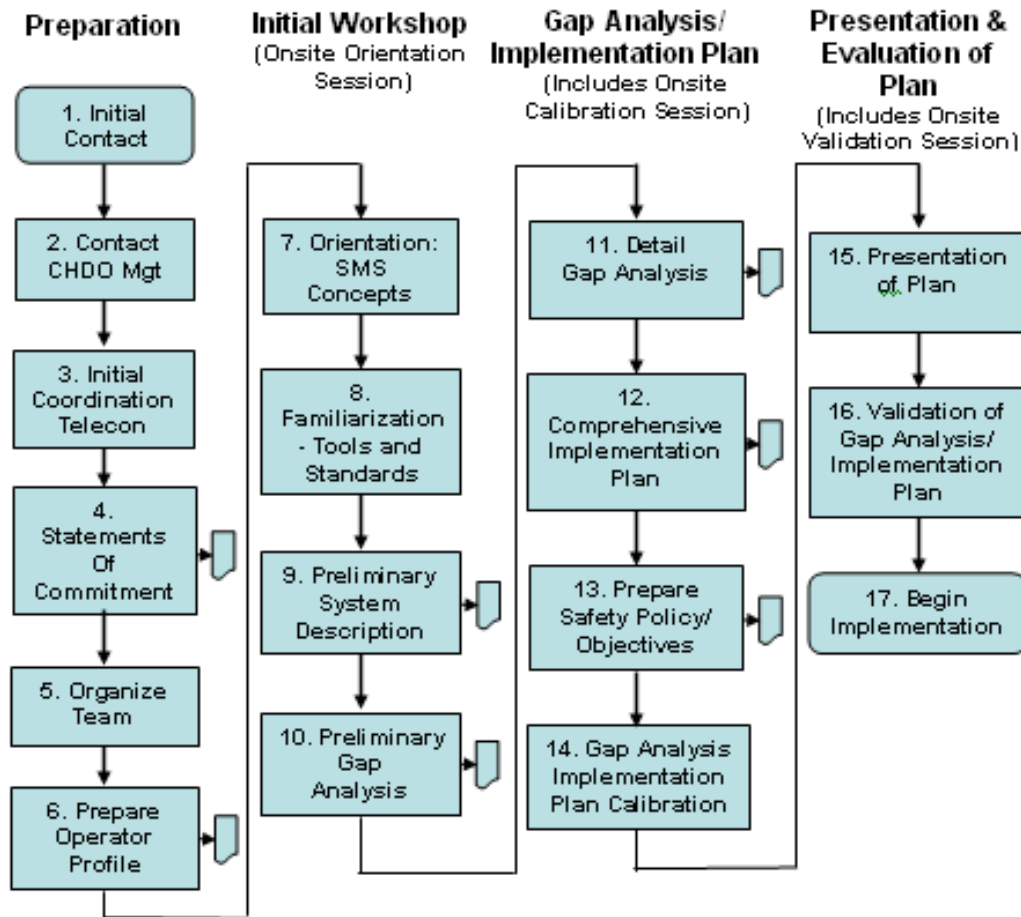
	A	B	C	D	E	F	G	H	I	J
1	<b>Detailed Air Carrier Gap Analysis Tool - Assessments and Summary</b>									
2	Note: This tool is designed to be used with SMS Assurance Guide, Rev 2 (7-15-09)									
3	<b>Participant:</b>					<b>Location:</b>				
4	<b>Assurance Guide Question</b>	<b>Company's Documentation Source</b>	<b>Overall Assmt Rating</b>	<b>Flt Ops. Assmt Rating</b>	<b>Dispatch Assmt Rating</b>	<b>MTC Assmt Rating</b>	<b>Cabin Assmt Rating</b>	<b>Ground Assmt Rating</b>	<b>Cargo Assmt Rating</b>	<b>Training Assmt Rating</b>
522	<b>Process 3.1.1 Continuous Monitoring</b>									
523	<b>Performance Objective</b>									
524	The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.									
525	<b>Design Expectations</b>									
526	<b>Input</b>									
527	Does the organization identify inputs (interfaces) for the Continuous Monitoring process obtained from the Risk Assessment process (2.2.2) or Risk Control/Mitigation process (2.2.3)?									
528	<i>SMS Framework 1.5 B) 1) f) Old – SMS Standard 4.9 A) 6) (I)</i>									
529	<b>Management Responsibility</b>									
530	Does the organization clearly identify who is responsible for the quality of the Continuous Monitoring process?									
531	<i>SMS Framework 1.2 B) 3) Old – SMS Standard None (R/A)</i>									
532	<b>Procedure</b>									
533	Does the organization monitor operational data to -									
534	Determine whether it conforms to safety risk controls?									
535	<i>SMS Framework 3.1.1 B) 1) a) Old – SMS Standard 6.3.1 A) 1) (P)</i>									

# Detailed Gap Assessment Scale

	A	B	C	D	E	F	G	H	I	J
1	<b>Detailed MRO Gap Analysis Tool - Assessments and Summary</b>									
2	Note: This tool is designed to be used with SMS Assurance Guide, Rev 1									
3	Participant:					Location:				
4	Assurance Guide Question	Company's Documentation Source	Part/Mat'l Assmt Rating	Res. Mgmt. Assmt Rating	Tech. Data Assmt Rating	Maint & Insp Assmt Rating	Q C Assmt Rating	Records Assmt Rating	Cont. Maint. Assmt Rating	Training Assmt Rating
189										
190	<b>Assessment Level</b>	<b>Assessment Scale</b>					<b>Assessment Scale</b>			
191	<b>Level</b>	<b>Word Picture</b>					<b>Value</b>			
192	<b>Not Performed</b>	No action has been taken on this expectation of the <b>SMS Framework</b> .					0			
193	<b>Planned</b>	A plan exists with resources and schedule identified to meet this expectation of the <b>SMS Framework</b> .					1			
194	<b>Documented</b>	The expectations of this element/process are incorporated into company documents such as manuals, training material, and work instructions.					2			
195	<b>Implemented</b>	Identifiable actions have satisfied this expectation of the <b>SMS Framework</b> . Resources have been allocated to accomplish the objectives of the elements, in accordance with SMS expectations. These actions have been observed in policies, procedures, organiza					3			
196	<b>Demonstrated</b>	This element of the service providers SMS has been subjected to at least one round of evaluation/auditing to demonstrate performance and there is evidence these expectations are being performed and are effective. Further, there are no identifiable reason					4			
197										



## OPTION 1- For Service Providers with no SMS



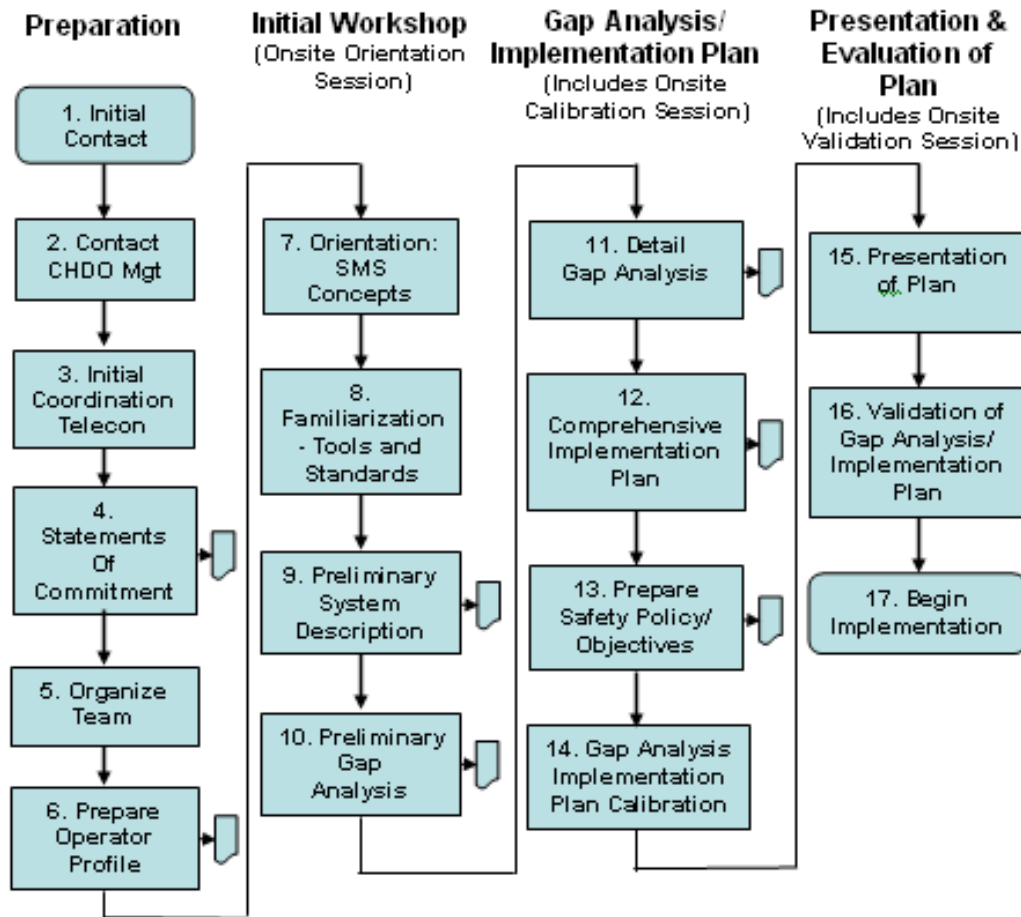
**Figure 1 - Flow Diagram of Level 1 Activities (No SMS)**

# Level 1 – Meeting Session 2

- **Operator to Brief:**
  - Overview of their Gap Analysis
  - Gaps found and how they may develop processes to close the gaps.
- **Operator to Discuss Documentation**
  - Operator to present objective evidence of conformity
- **Operator to Identify Resource and Training Needs**
  - STAT may provide additional training if necessary as a result of this discussion.
- **STAT to Brief on Planning Process**
- **Schedule for Operator’s SMS Implementation Plan Detailed Gap Analysis**
  - The operator may require 2 to 4 months to complete the detailed implementation plan development.
- **Estimated time for this session is one day of presentation of gap analysis by the operator. ½-1 day of STAT presentation and discussions of the planning processes.**



## OPTION 1- For Service Providers with no SMS



**Figure 1 - Flow Diagram of Level 1 Activities (No SMS)**

# Level 1 – Meeting Session 3

- **Operator’s Presentation of Implementation Plan**
  - Detailed presentation and discussion of their SMS implementation plan involving the operator, CMT and STAT
- **Consensus on Plan**
  - Agreement on the implementation plan among operator, CMT and STAT
- **Exit Level 1**
  - Agreement among operator, CMT and STAT that the participant is ready to move the next phase of the pilot project.
- **Estimated time for this session is one day of presentation by the operator.**

# Level 1 – Completion Criteria

- **Comply with requirements in Framework Element 1.1; “Safety Policy“**
- **Comply with requirements in Framework Element 1.3; Key Safety Personnel**
- **Complete Detailed Gap Analysis on the entire organization for all elements**
- **Complete comprehensive SMS implementation plan.**
  - **Plan for all element to take the organization through Level 4**
- **Training commensurate with this level of implementation phase maturity**

# Level 1 - Expectations

- **Service Provider/Certificate Holder**
  - Sessions 1
    - Complete preliminary gap analysis
  - Session 2
    - Completed detailed gap analysis utilizing the detailed audit/gap analysis tools
    - Brief gap analysis results
    - Brief gaps and how they will be addressed
    - Provide evidence of conformity
  - Session 3
    - Present implementation plan
    - Complete the required documents
    - Meet the requirements of the exit criteria for this phase
    - Provide process inputs to the STAT

# Level 1 - Expectations

## Oversight Organization (FAA CHDO)

- Review and utilize audit/gap analysis tools
- Attend audit/gap analysis meetings with the operator
- Participate in meetings with the STAT and operator
- Review the operator's implementation plan and other documents
- Discuss the requirements of the exit criteria for this phase with the operator and STAT
- Provide input to the STAT regarding the SMS implementation, documents and audit tools

# Level 1 - Expectations

## STAT – All Levels

- Provide assistance, as requested, to the Service Provider and its Oversight Organization throughout the Pilot Project period.
- Participate in meetings with the CMT and operator, if requested
- Review the operator's implementation plan and other documents
- Discuss the requirements of the exit criteria for this phase with the operator and CMT
- Receive Pilot Project inputs from the Service Provider and Oversight Organization
- Report on summarized data gathered from the Pilot Project

## Exit - Level 1 Criteria - Worksheet

### Level 1

To be completed during Level 1 Validation Session. Forward completed copy to SMS PO STAT Lead.

Exit Expectation	Validated	Initials	Date
1. Objective Evidence of Top Management's commitment to implement SMS, define safety policy and convey safety expectations and objectives to its employees ( <i>SMS Framework</i> Element 1.1; "Safety Policy")			
2. Objective Evidence of Top Management's commitment to insure adequate resources are available to implement SMS (In accordance with <i>SMS Framework</i> Element 1.2 B) 2)			
3. Designation of a management official who will be responsible for SMS development ( <i>SMS Framework</i> Element 1.3; "Key Safety Personnel");			
4. Definition of Safety-related positions for those who will participate in SMS development and implementation (In accordance with <i>SMS Framework</i> Element 1.2 B) 3);			
5. Completed Preliminary and Detailed Gap Analysis' on the entire organization for all elements of the <i>SMS Framework</i> ( <i>SMS Implementation Guide</i> , Section 5, 8 & 9);			
6. Completed comprehensive SMS Implementation Plan for all elements to take the organization through Level 4 ( <i>SMS Implementation Guide</i> , Section 5, 8 & 9); and			
7. Identified safety competencies necessary (In accordance with <i>SMS Framework</i> Element 4.1.1 B) 1); completed training commensurate with Level 1, implementation phase of maturity for those competencies and developed a training plan for all employees.			

Output Documents	Document Attached?		
8. Management Commitment definition;	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Safety Policy;	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Comprehensive SMS Implementation Plan for the entire organization through SMS Implementation Level 4;	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. SMS Training Plan for all employees.	<input type="checkbox"/> Yes <input type="checkbox"/> No		

*The undersigned attest to the participation of \_\_\_\_\_ in the FAA SMS Pilot Project (SMSP) and their associated accomplishment in the development, through Level 1, of their SMS.*

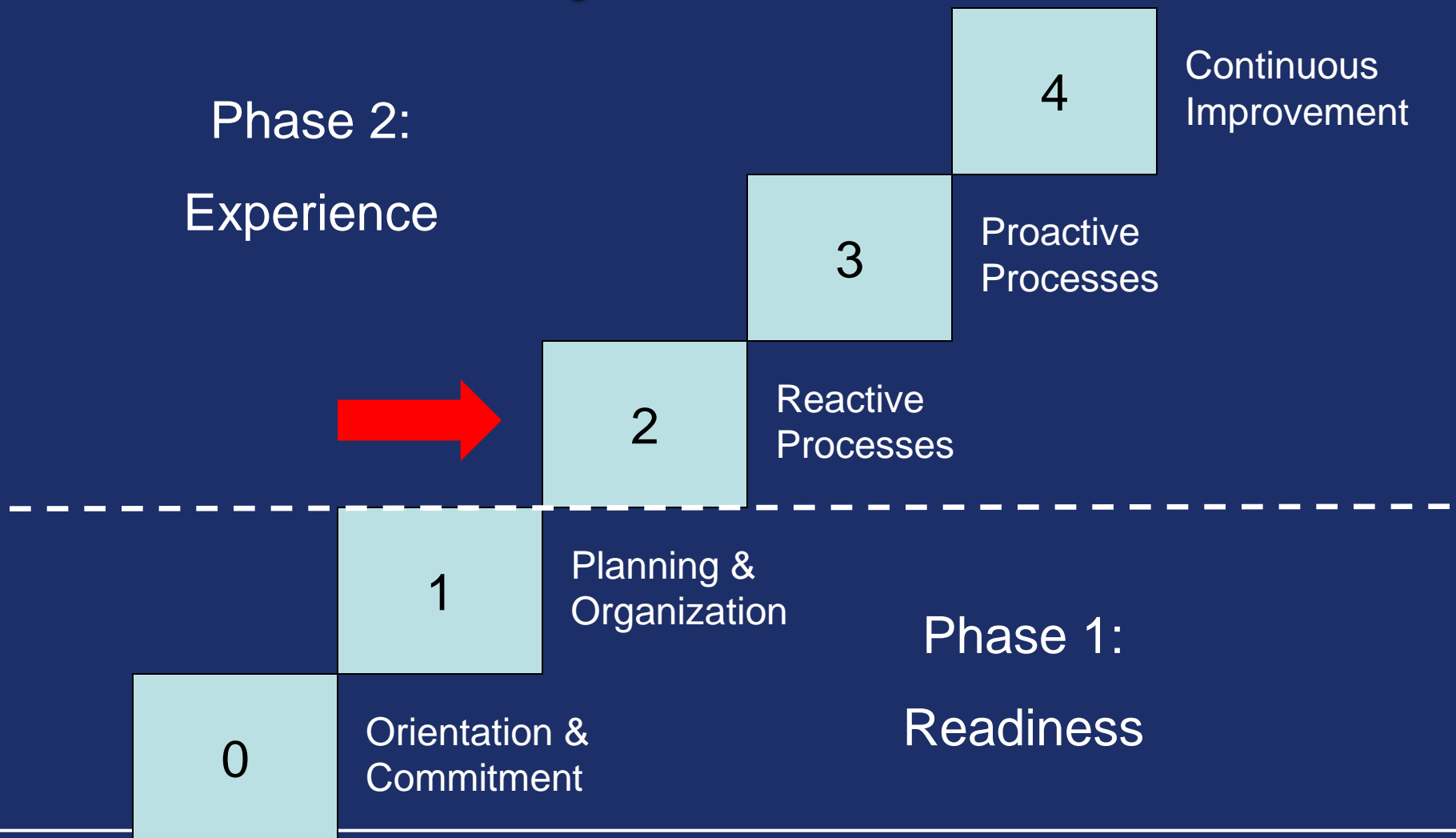
STAT POC:

CMT/CHDO - MGR / SPVR / PI:

# Criteria Checklist



# SMS Pilot Projects





# Level 2: Reactive Processes

## Basic Risk Management

- Setting up the information infrastructure and processes
- Going after known problems: Reactive Hazard Identification
- Designing and implementing risk controls
- Voluntary employee reporting and feedback system
- Documentation
- Training
  - Training commensurate with this level of implementation phase maturity

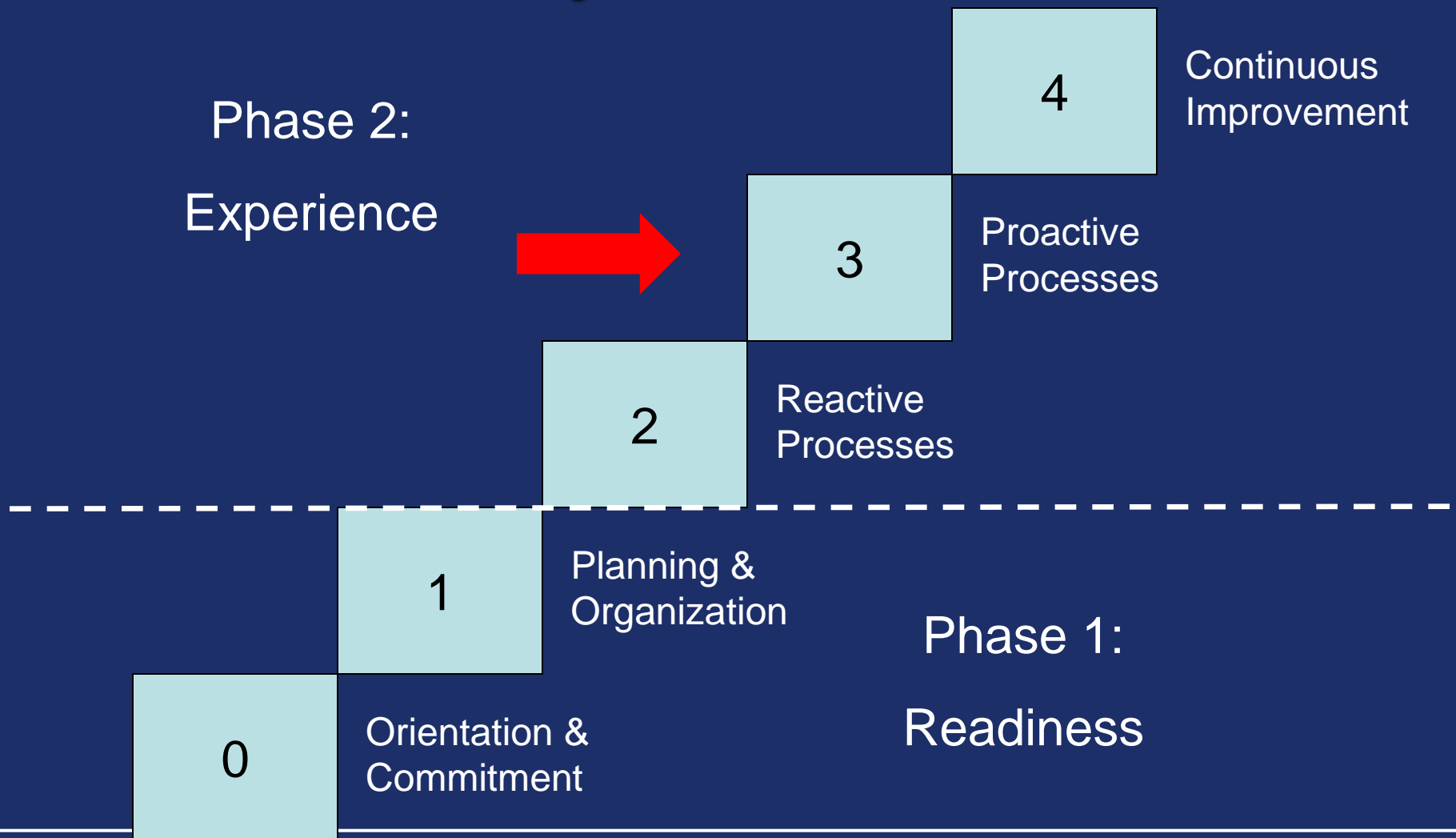
# Level 2 – Completion Criteria

Comply with requirements in Framework:

- **Element 1.2 Management Commitment & Safety Accountabilities**
- **Element 1.4 Emergency Preparedness & Response**
- **Element 1.5 SMS Documentation & Records**
- **General Design Expectations from all 2.0, Except 2.0(B)(2)(a, b & d)**
- **Element 2.1.1 System/Task Analysis-Only for new/modified processes**
- **Element 2.1.2 Identify Hazards**
- **Element 2.2.1 Analyze Safety Risk**
- **Element 2.2.2 Asses Safety Risk**
- **Element 2.2.3 Control/Mitigate Safety Risk**
- **All 3.0 General Design Expectations**
- **Element 3.1 Safety Performance Monitoring & Measurement**
- **Element 3.3 Continual Improvement**
- **Training commensurate with this level of implementation maturity**



# SMS Pilot Projects



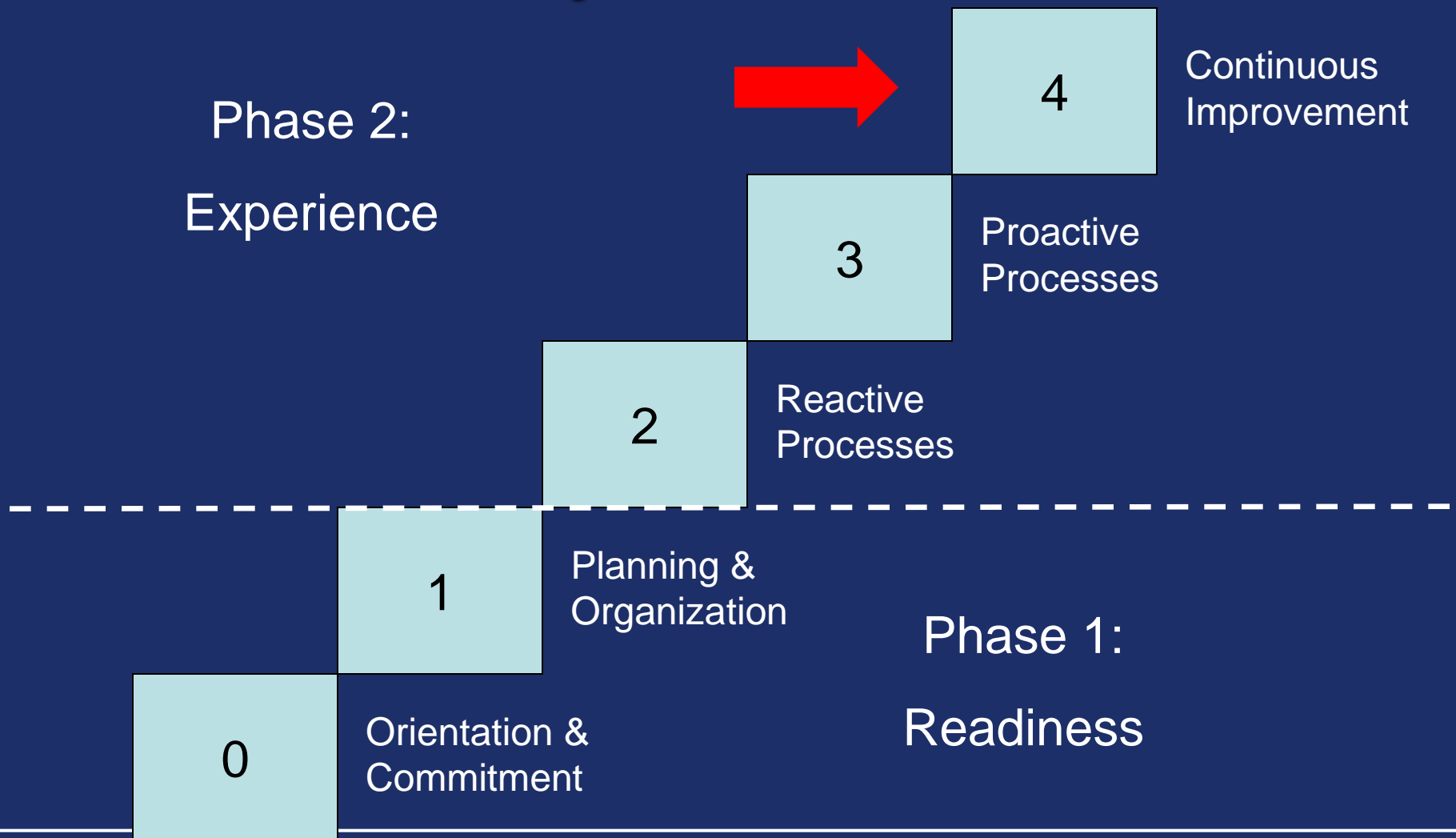
# Level 3: Proactive Processes Looking Ahead

- System and task analysis of the operational (production) systems
- Proactive Hazard identification
- Updating:
  - Risk controls
  - Documentation
- Additional specialist training

# Level 3 – Completion Criteria

- Comply with requirements in Framework:
  - Demonstrated performance of Level 2 Expectations
    - Objective evidence that the processes are being updated, maintained and practiced
  - Element 2.0 (B)(2)(a, b & d)
  - Element 2.1.1
  - Element 3.2
  - Training commensurate with this level of implementation phase maturity

# SMS Pilot Projects



# Level 4: Continuous Improvement

## Continued Assurance

- Mature safety assurance process
  - Analysis of data
  - System performance assessment
  - Corrective/Preventive action: Maintaining the controls
  - Identifying new and emerging hazards
- Management Reviews: Formal involvement
- Documentation & Training as required

# Level 4: Continuous Improvement

Continuous improvement is based on:

- Continuous risk management, and
- Continuous safety assurance





# MITRE



# MITRE

- <http://www.mitrecaasd.org/SMS/>
- Provides a two-way communications mechanism between SMS PMO and participants in voluntary implementation
- Provides a forum for knowledge sharing among participants



# MITRE (<http://www.mitrecaasd.org/SMS/>)

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites

Address <http://www.mitrecaasd.org/SMS/>

*Home*

*External Links*

*Reference Documents*

*Contact info*

## Safety Management



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Address  <http://www.mitrecaasd.org/SMS/documents.html>


*Home*  
*External Links*  
*Reference Documents*  
*Contact info*

## Reference Documents

### FAA Documents

<a href="#">AC 120-92 - Introduction to SMS for Air Operators</a> 
<a href="#">SMS Framework - Rev 2</a> 
<a href="#">SMS Assurance Guide - Rev 2</a> 
<a href="#">SMS Implementation Guide - Rev 2</a> 
<a href="#">AC 145-XXX (DRAFT) - Introduction to SMS for Maintenance Organizations</a> 
<a href="#">AC 150/5200-37 - Introduction to SMS for Airport Operators</a> 
<a href="#">FAA ORDER VS8000.1 SMS Doctrine</a> 
<a href="#">FAA ORDER VS8000.367 SMS Requirements</a> 

### Gap Analysis Tools

<a href="#">Preliminary Gap Analysis AC - Rev 2</a> 
<a href="#">Detailed Gap Analysis AC - Rev 2</a> 
<a href="#">Preliminary Gap Analysis MRO - Rev 2</a> 
<a href="#">Detailed Gap Analysis MRO - Rev 2</a> 

# MITRE

## FAA Documents

[AC 120-92 - Introduction to SMS for Air Operators](#) 

[SMS Framework - Rev 2](#) 

[SMS Assurance Guide - Rev 2](#) 

[SMS Implementation Guide - Rev 2](#) 

[AC 145-XXX \(DRAFT\) - Introduction to SMS for Maintenance Organizations](#) 

[AC 150/5200-37 - Introduction to SMS for Airport Operators](#) 

[FAA ORDER VS8000.1 SMS Doctrine](#) 

[FAA ORDER VS8000.367 SMS Requirements](#) 

## Gap Analysis Tools

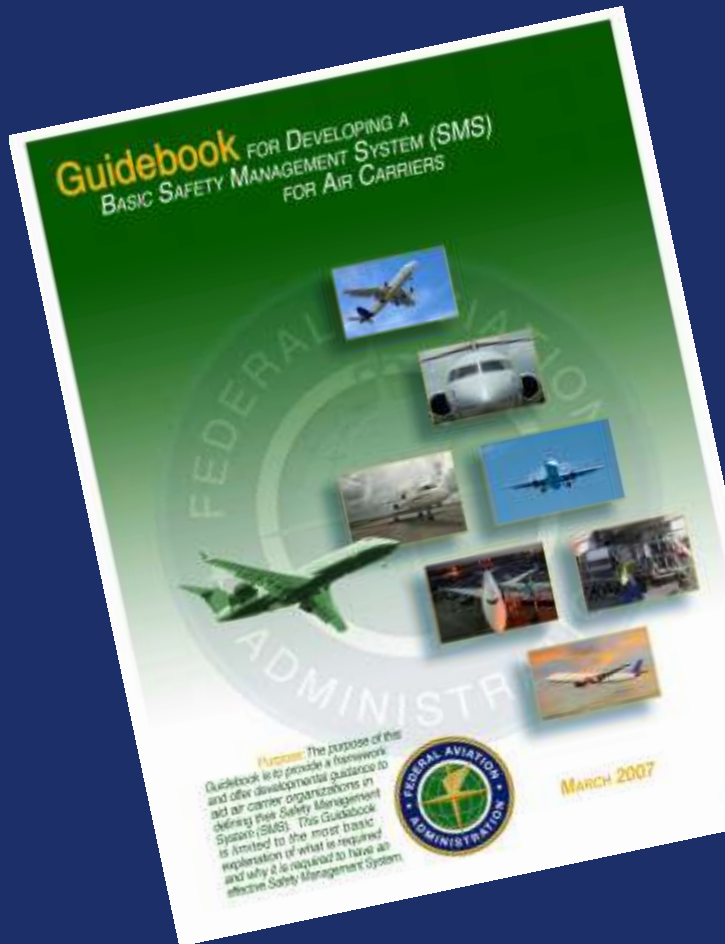
[Preliminary Gap Analysis AC - Rev 2](#) 

[Detailed Gap Analysis AC - Rev 2](#) 

[Preliminary Gap Analysis MRO - Rev 2](#) 

[Detailed Gap Analysis MRO - Rev 2](#) 

# SMS Development Guidebooks



# Format of the Guidebook

- **(OBJ)** The objective section states what you will be expected to develop in this specific area of your Safety Management System to meet an SMS standard.
- **(STND)** are standards. This is the specific language of the standard.
- ***(DG) is developmental guidance that provides instruction regarding how you can develop your policy, procedures, and controls to address each specific requirement of the Safety Management System.***



# Example Section of the Guidebook

## • 1.1 B 4) g) Safety Planning

**(OBJ)** The expectation of this section is that you describe your safety management plan to meet the objectives described by your above stated safety policy.

**(STND)** - FAA Advisory Circular AC 120-92 Appendix 1

### 1.1 B 4) g) Safety Planning

**The organization shall establish and maintain a safety management plan to meet the safety objectives described in its safety policy.**

***(DG)** Management has historically been defined as planning, organizing, directing, and controlling. Therefore a Safety Management System will start with a plan to meet the Safety Objectives. A plan should be set by Top Management that will direct and sequence the implementation of the Safety Management System. Planning at one level becomes direction at the next level. The first thing to plan is how much and on what time table the various portions of the Safety Management System will be created, who will be responsible for the overall system and the various portions of it.*

# Review

- **State Safety Program and Service Provider's SMS**
- **Functional requirements of the SMS Framework for Aviation Service Providers**
- **Design and use of the FAA SMS Framework**
- **Design and use of the SMS Assurance Guide**
- **Use of the SMS Implementation Guide**
- **Use of the Gap Analysis Tools**
- **SMS Development Guidebooks**



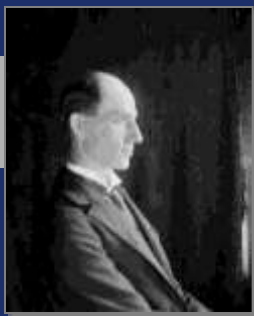
***“Carelessness and overconfidence are more dangerous than deliberately accepted risk”***  
**Wilbur Wright, 1901**

***Contact:***

***Don Arendt, Ph.D.***

***(703) 661-0516***

***don.arendt@faa.gov***



Wilbur Wright gliding, 1901  
Photographs: Library of Congress

