

Safety Management System (SMS)

Flight Standards Update

Presented By: Flight Standards Service



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What SMS is not and what it is...

What it isn't:

A substitute for compliance

A substitute for oversight

A replacement for system safety

A requirement for a new department

What it is:

Compliance is integral to safety management

An effective interface for safety management

SMS completes the systems approach

A set of decision making processes for senior and line management



SMS Guidance, Tools and Implementation

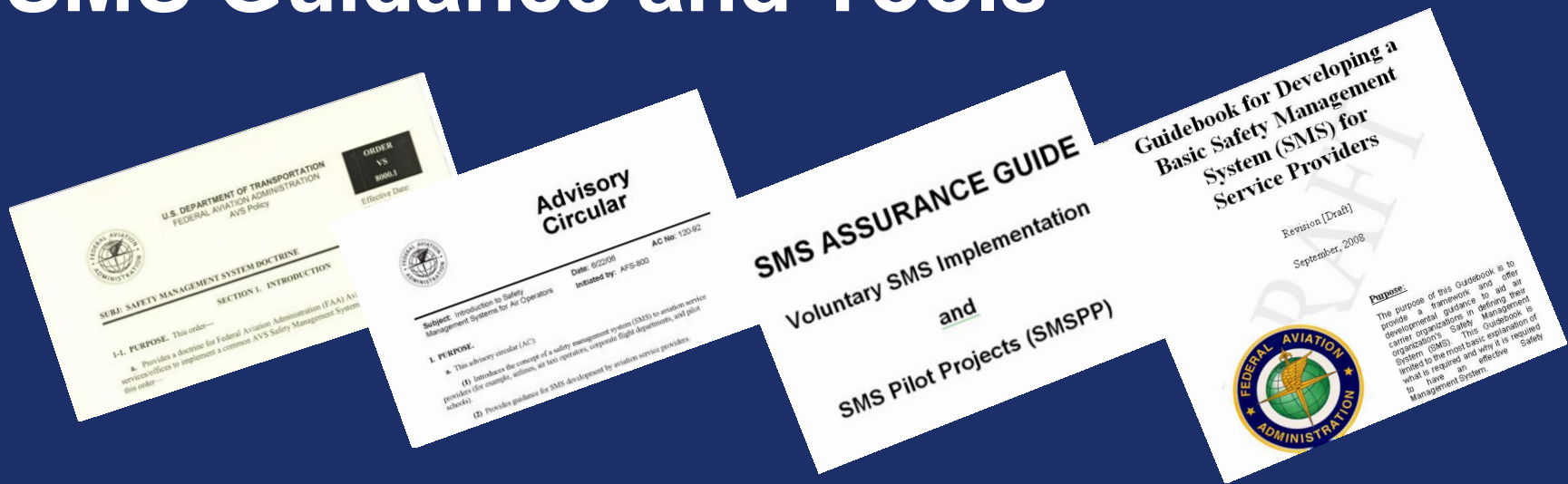


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SMS Guidance and Tools



- ICAO Doc 9859: Safety Management Manual (SMM)
- FAA Order 8000.369: FAA SMS Guidance
- VS 8000.367: AVS Requirements Document
- SMS Standard: AC 120-92 Appendix 1
- Voluntary Implementation Guidance



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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

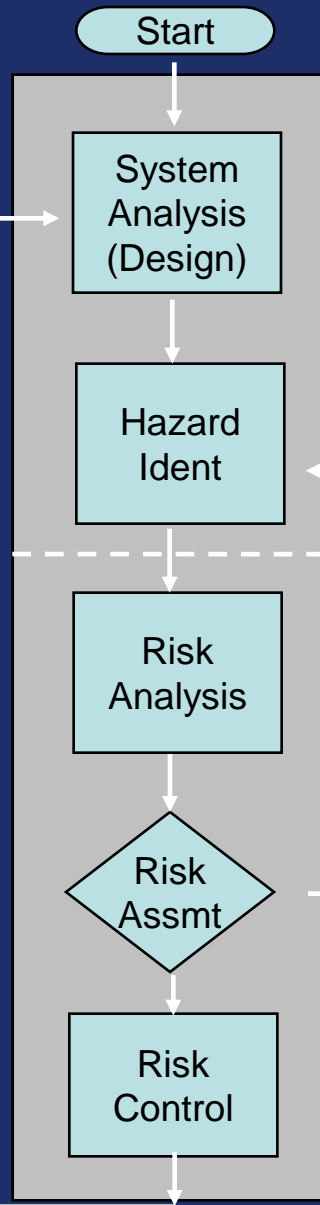
3.2 Management of Change

3.3 Continual Improvement



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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)

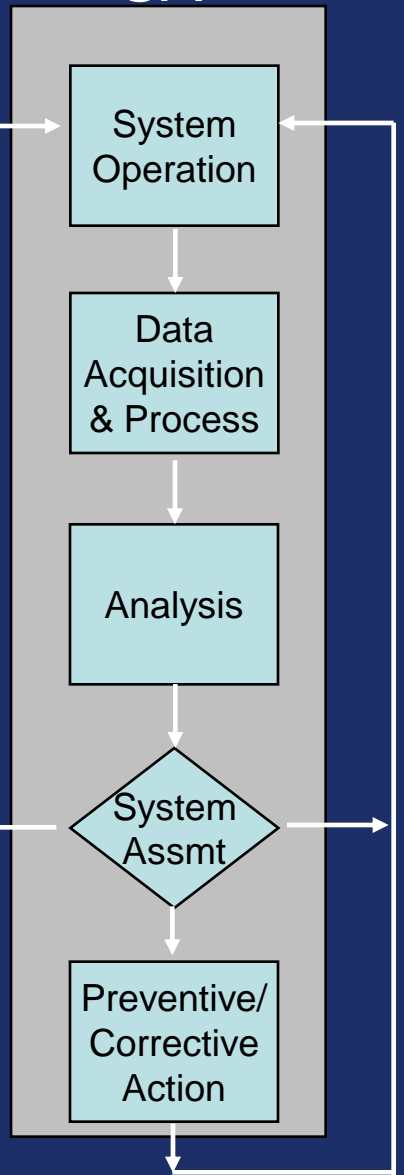


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3.1 Safety Performance Monitoring and Measurement

SA

Inputs:
From SRM 2.2.2(B) & 2.2.3 (B)(2)(b)
To SA:
3.0(B)(1)(b)



Outputs: 3.1.8(B)(3)
To SRM 2.0(B)(2)(c)

Per 2.1.1 including Risk Controls per 3.1.3

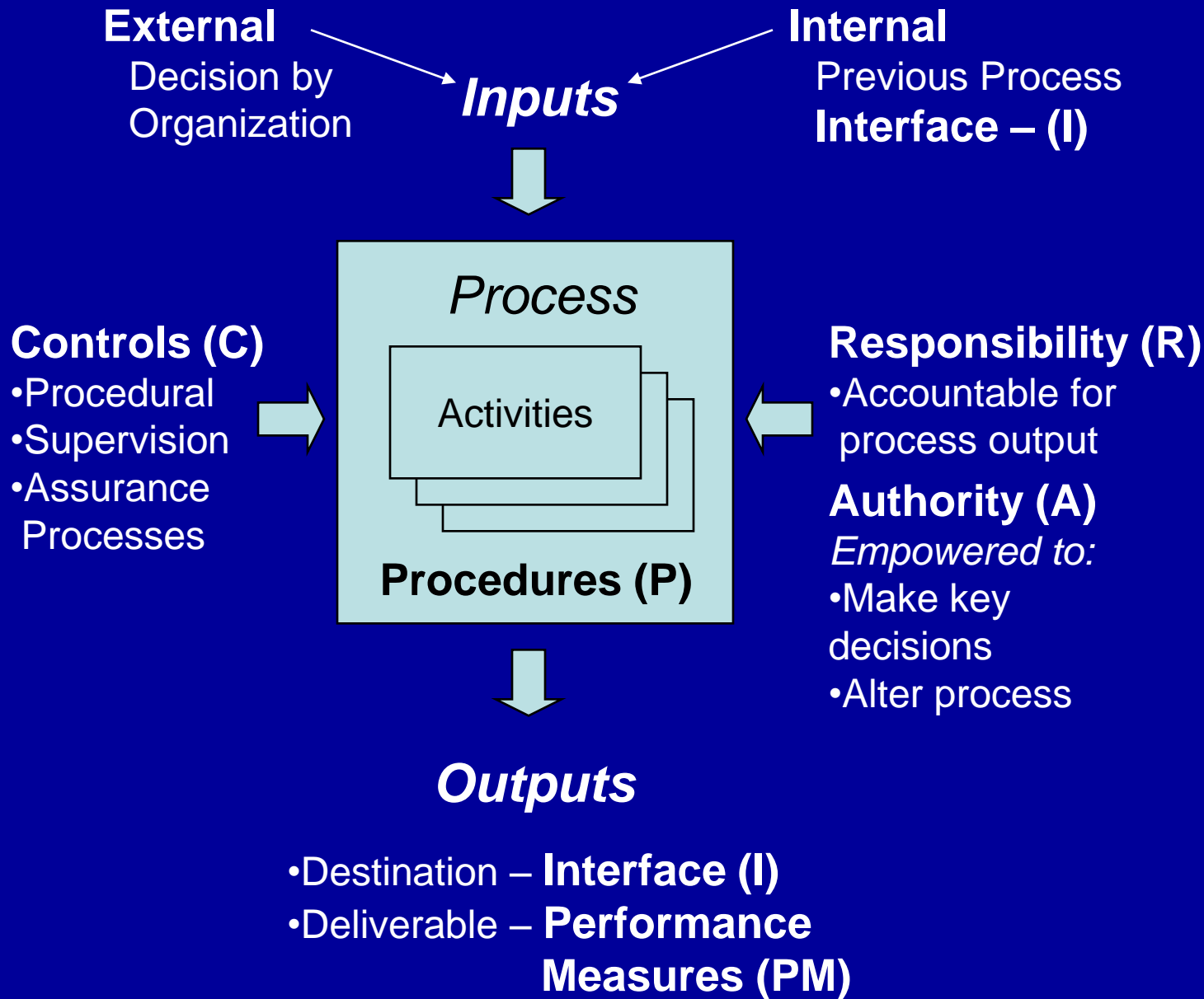
- 3.1.1 Continuous Monitoring
- 3.1.2 Internal Audits
- 3.1.3 Internal Evaluation
- 3.1.4 External Evaluation
- 3.1.5 Investigations
- 3.1.6 Employee Reporting

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.





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 process and the analysis and assessment process. (SMS Framework 1.5 B) 1) Old - SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a)

Design Expectations

Input

Does the service provider's documented process obtain the design expectations identified from the service provider's assurance process and the analysis and assessment process? (SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a)

Management Responsibility

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

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 Framework 2.1.2 B) 1) a) Old - SMS Framework 2.1.2 B) 1) a)

Outputs and Measures

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

Bottom Line Assessment

Has the service provider identified an physical harm or damage to equipment or property in accordance with the service provider's process and the analysis and assessment process? (SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a) Old - SMS Framework 1.5 B) 1) a)

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

SMS Implementation

- Should follow a *Phased Approach*
- The processes underlying the four components will be modularized
- “Growth” or “increasing maturity” will then be emphasized for each process and the system as a whole



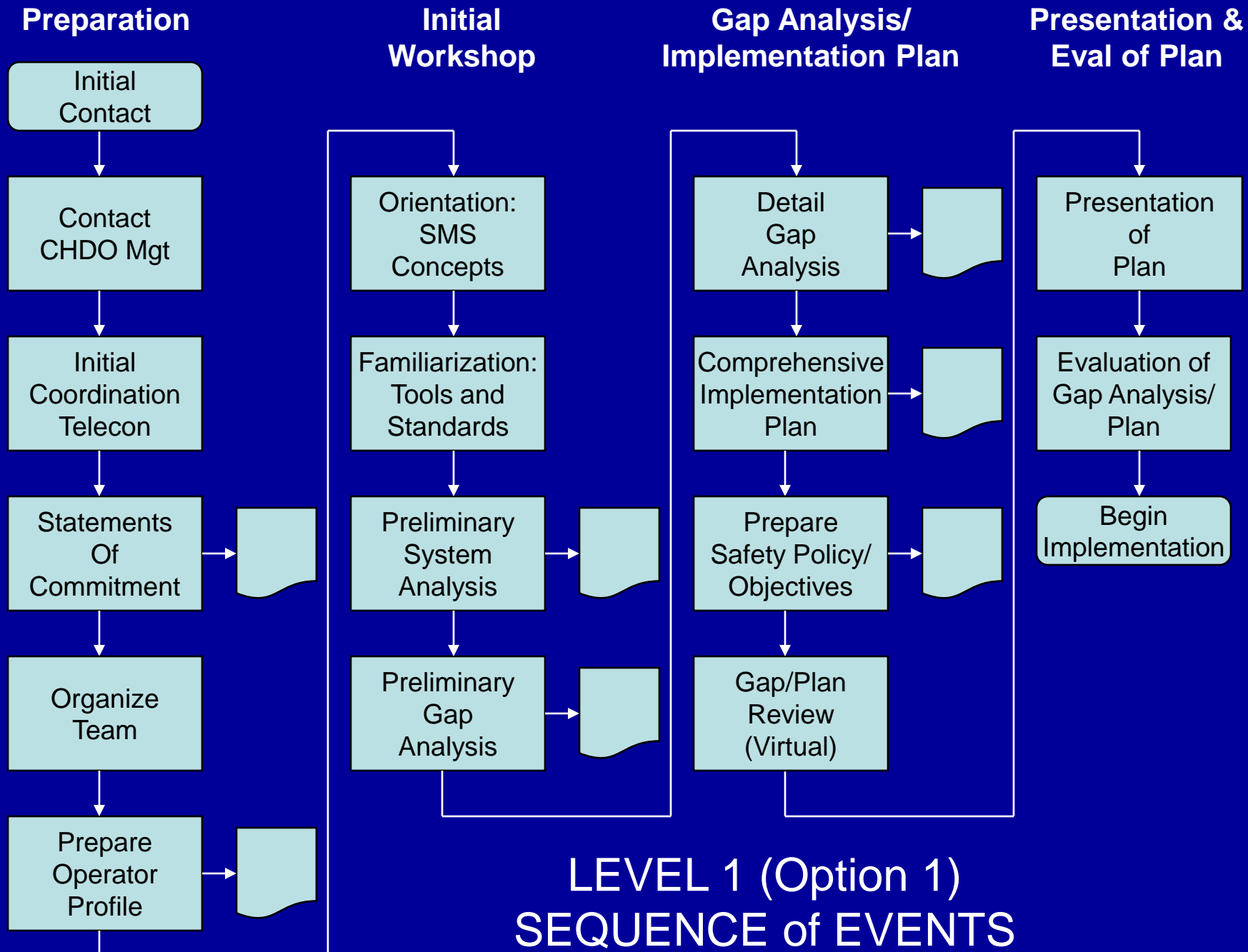
SMS Voluntary Implementation: Pilot Projects

- Pilot Project activities commenced in 2007
- Voluntary SMS development
- AFS combined effort
- Objectives are to Develop:
 - Implementation strategies,
 - Oversight interfaces, and
 - Gain experience for FAA and Service Providers

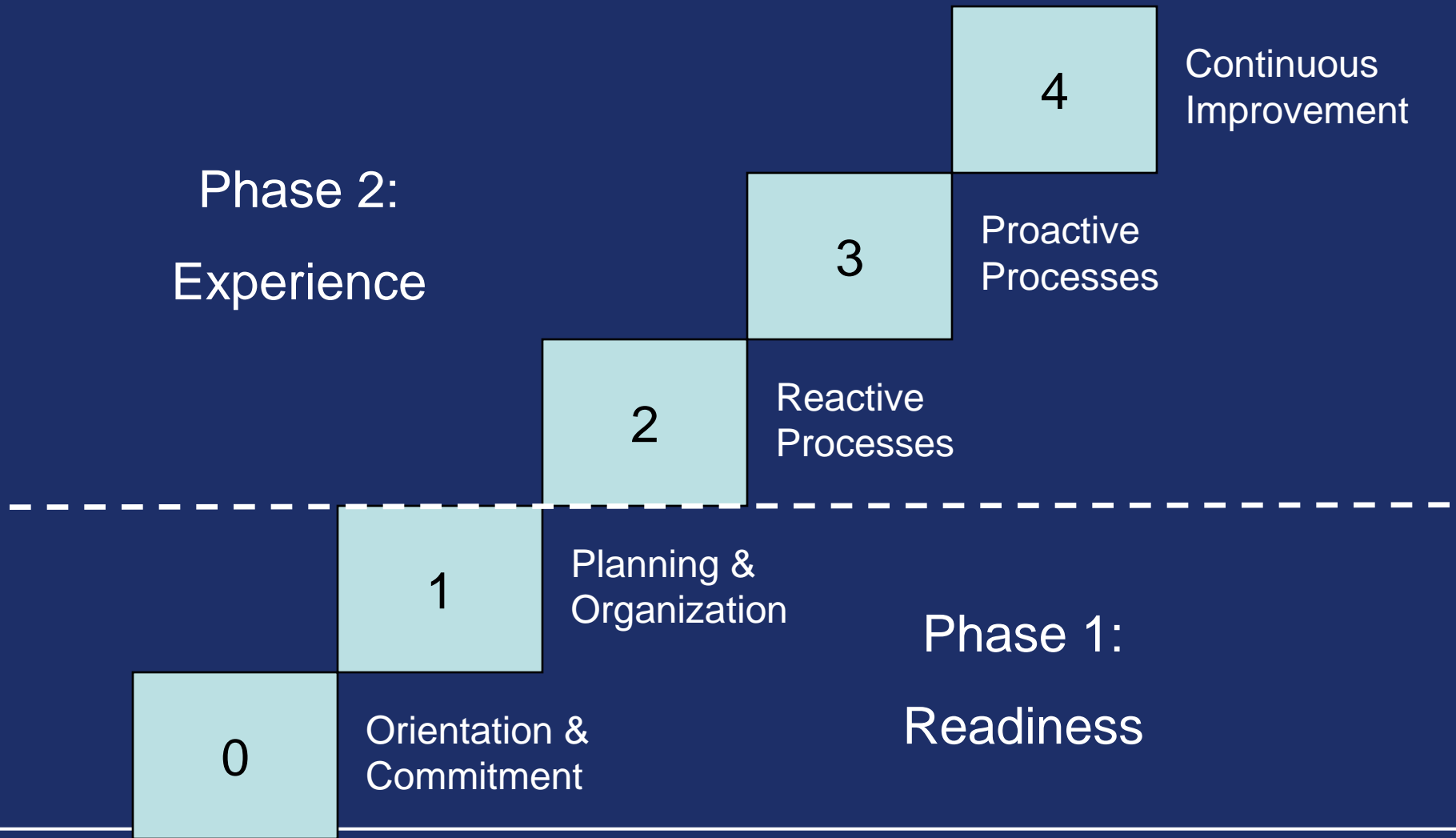


SMS Implementation Process





SMS Studies and Analysis



Legend: : ≤ 29% (2/7s); : 43% (3/7s) ≤ ≤ 71% (5/7s); : ≥ 86% (6/7s)

AC 120-92 Standards	# Airlines w/Org-Wide Conformity	Flight Ops Conformity	Dispatch Conformity	Maintenance Conformity	Cabin Safety Conformity	Ground Ops Conformity	Cargo Ops Conformity
4. Policy							
4.1 General Requirements	0	14%	14%	0%	14%	14%	0%
4.2 Safety Policy	1	57%	43%	14%	43%	43%	43%
4.3 Quality Policy	1	57%	57%	29%	57%	43%	29%
4.4 Safety Planning	1	57%	43%	29%	57%	43%	43%
4.5 Organizational Structure & Responsibility	2	57%	57%	43%	43%	43%	43%
4.6 Compliance with Legal and other Requirements	4	100%	86%	71%	86%	86%	71%
4.7 Procedures and Controls	3	86%	86%	71%	71%	86%	57%
4.8 Emergency Preparedness and Response	3	86%	86%	71%	86%	86%	86%
4.9 Documentation and Records	2	71%	71%	43%	57%	57%	29%
5. Safety Risk Management							
5. Safety Risk Management	1	71%	43%	29%	71%	43%	14%
5.1 System and Task Analysis	1	71%	57%	29%	57%	57%	29%
5.2 Identify Hazards	2	57%	57%	29%	71%	57%	43%
5.3 Analyze Safety Risk	0	43%	71%	57%	43%	43%	14%
5.4 Assess Safety Risk	1	43%	57%	29%	43%	29%	14%
5.5 Control Safety Risk	1	29%	43%	29%	43%	29%	14%
5.6 Operational Risk Management (New)	0	43%	43%	14%	0%	14%	14%
5.7 Management of Change (New) (ICAO 3.2, AC 120-92 5.0.E)	0	29%	29%	14%	14%	43%	29%
6.0 Safety Assurance and Internal Evaluation							
6.1 General Requirements	2	43%	43%	57%	57%	43%	29%
6.2. System Description	2	43%	43%	43%	57%	43%	29%
6.3. Information Acquisition	2	43%	29%	43%	43%	43%	29%
6.3.1 Continuous Monitoring	1	57%	43%	57%	43%	43%	29%
6.3.2 Internal Audits by Operational Departments	2	57%	57%	71%	43%	43%	43%
6.3.3 Internal Evaluation	3	57%	57%	71%	43%	57%	57%
6.3.4 External Auditing of the SMS	4	57%	57%	71%	57%	57%	57%
6.3.5 Investigation	4	100%	86%	71%	86%	86%	86%
6.3.6 Employee Reporting and Feedback System	1	86%	71%	29%	86%	14%	29%
6.4. Analysis of Data	0	71%	57%	29%	29%	29%	14%
6.5 System Assessment	1	29%	43%	29%	14%	43%	29%
6.6. Preventive/Corrective Action	2	57%	57%	29%	71%	57%	43%
6.7. Management Reviews	1	43%	57%	29%	29%	29%	29%
6.8 Continual Improvement	1	43%	57%	29%	14%	43%	43%
7.0 Safety Promotion							
7.1 Safety Culture	1	43%	57%	14%	43%	29%	43%
7.2 Communication and Awareness	0	29%	43%	0%	0%	29%	29%
7.3 Personnel Requirements (Competence)	0	43%	43%	29%	14%	29%	29%
7.4 Training	1	57%	71%	57%	57%	57%	43%
7.5 Safety Lessons Learned	1	57%	71%	29%	57%	43%	29%

Figure 3. SMS Participant Scoring

Organizations



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SMS Transition Assistance Team (STAT)

- Provides Standardization and Assistance to operators and CMT's in voluntary SMS projects
- Under direction of AFS SMS Program Office (PO)
 - Team members currently from:
 - SMS PO
 - FAASTeam
 - HQ Policy Divisions
- All activities coordinated with appropriate certificate oversight offices



AFS SMS Program Office (PO)

Authorized by Order FS1100.1A:

- AFS SMS Policy
- Focal point for SMS rulemaking
- Oversight and coordination of voluntary SMS implementation and testing
- Integration with oversight systems
- Policy, guidance, and tool development
- Training and outreach development and coordination



MITRE Corporation Involvement

- **MITRE is a Federally-Funded Research and Development Corporation (FFRDC)**
- **MITRE assists the AFS SMS PO in:**
 - SMS Pilot Project (SMSPP) activities
 - Studies and analysis to support development of SMS implementation and oversight strategies



Safety Management System Focus Group (SMSFG)

Voluntary implementation user's group

- Provides a two-way communications mechanism between SMS PO and participants in voluntary implementation**
- Provides a forum for knowledge sharing among participants**



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

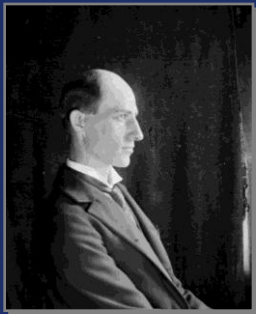
Contact:

SMS Program Office Manager

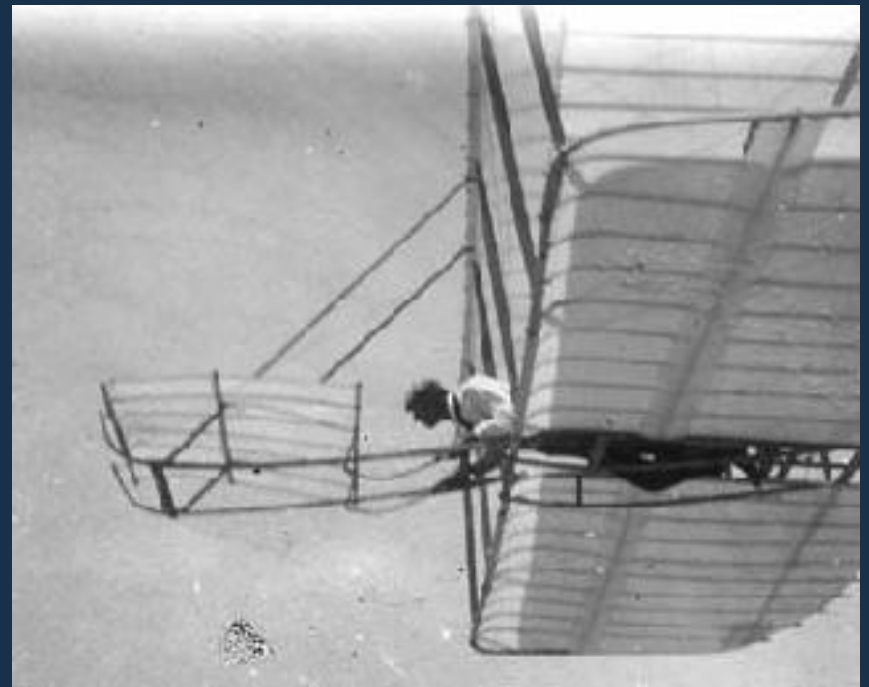
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Wilbur Wright gliding, 1901
Photographs: Library of Congress



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