

# United States Approach to SMS Implementation

Presented to: IHST

Presented by: Don Arendt, Ph.D. FAA Flight  
Standards Service

Date: Oct 1, 2009



Federal Aviation  
Administration



# 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**



# A “Managerial Approach”

- Aviation organization management requires managing many **business processes**.
- Safety management is a **core business function** just as financial management, HR management, etc.
- This constitutes a **management challenge**.
- SMS provides a “business plan for safety”



# Management Responsibility

- Managers should manage safety in the same way that they manage other areas of the business
- Safety management involves judgment, assessing priorities, and making decisions – like all management **decision making**



# Top Management Involvement

Top management stimulates a healthy safety environment

- Visible, personal **involvement** of top management
- Setting safety **goals** and **objectives** as policy
- Allocation of **resources** to meet safety goals
- Clear **communication**

AC 120-92, App. 1



# Safety Management Strategies

Reactive (Past)	Proactive (Present)	Predictive (Future)
<i>Responds to events that have already happened, such as incidents and accidents</i>	<i>Actively seeks the identification of hazardous conditions through the analysis of the organization's processes</i>	<i>Analyzes system processes and environment to identify potential future problems</i>



# ICAO Annex 6

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



# SMS Components (“Pillars”)



# SMS Concepts: Risk Management

- Understanding the **system** and **environment**
- Identifying hazardous **conditions**
- Assessing **risk**
- Applying risk **controls**



# SMS Concepts: Assurance

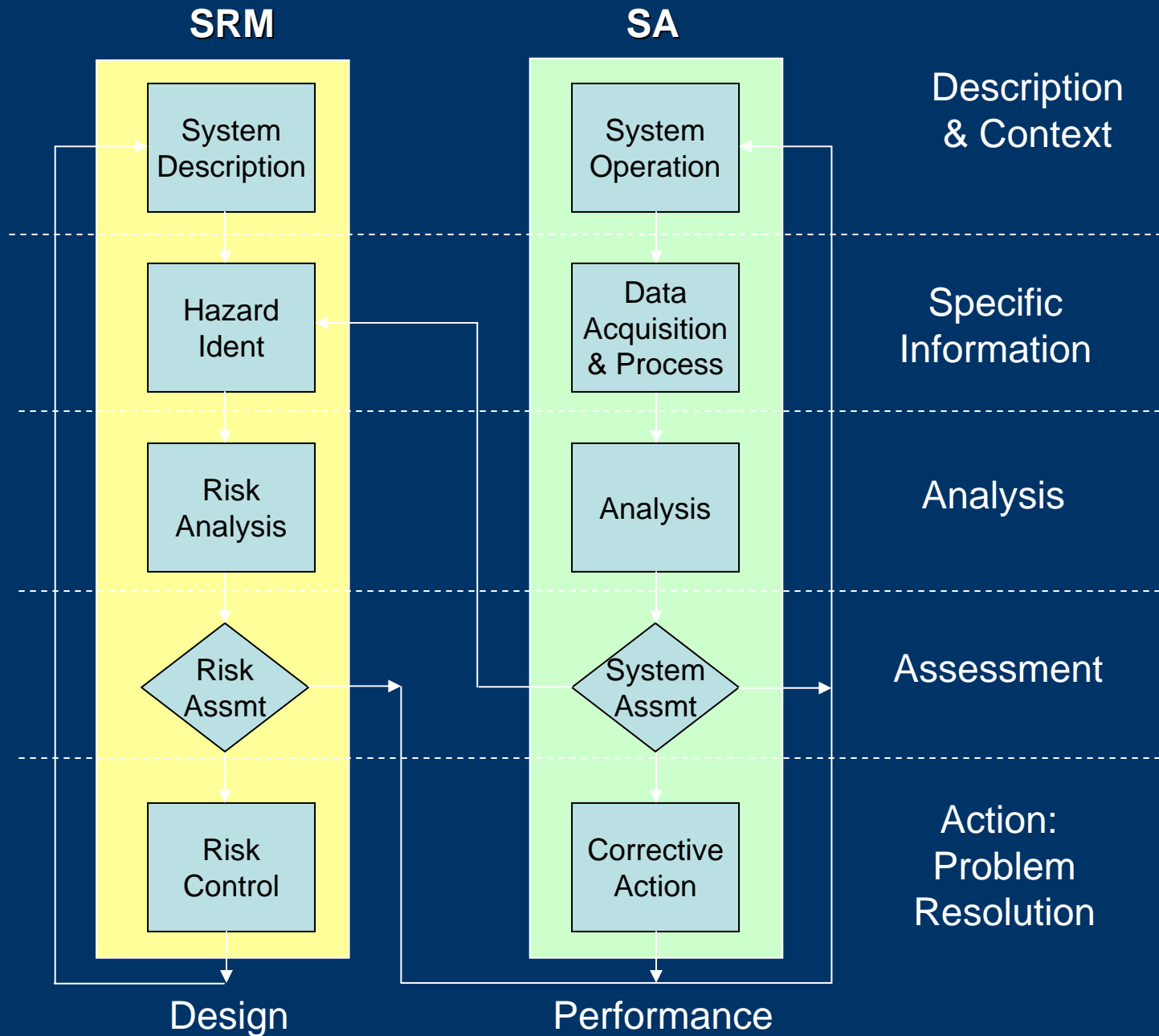
- Assurance: “something that gives **confidence**”<sup>1</sup>
- Quality assurance: “... focused on **providing confidence** that quality **requirements** are being met”<sup>2</sup>
- Likewise, Safety Assurance relates to **safety requirements**



<sup>1</sup> Black's Law Dictionary

<sup>2</sup> ISO 9000-2000

# Safety Risk Management (SRM) and Safety Assurance (SA) Workflow



## SRM

### Understand:

- Objectives
- System
- Environment

### Develop:

- Risk Controls

Design

## SA

### Monitor/ Measure:

- Risk Controls

### Confidence:

- Risk Controls

Performance

Decision  
Making

# Levels of Risk Management

- **Process Risk Management**

- Policy & Systems (What)
- Procedures & Controls (How)

## Design

- **Operational Risk Management**

- Operational Control/Supervision (Flight/Task/Mission)
- Crew/Team (Real time decision making)

## Performance



# Data Acquisition & Process

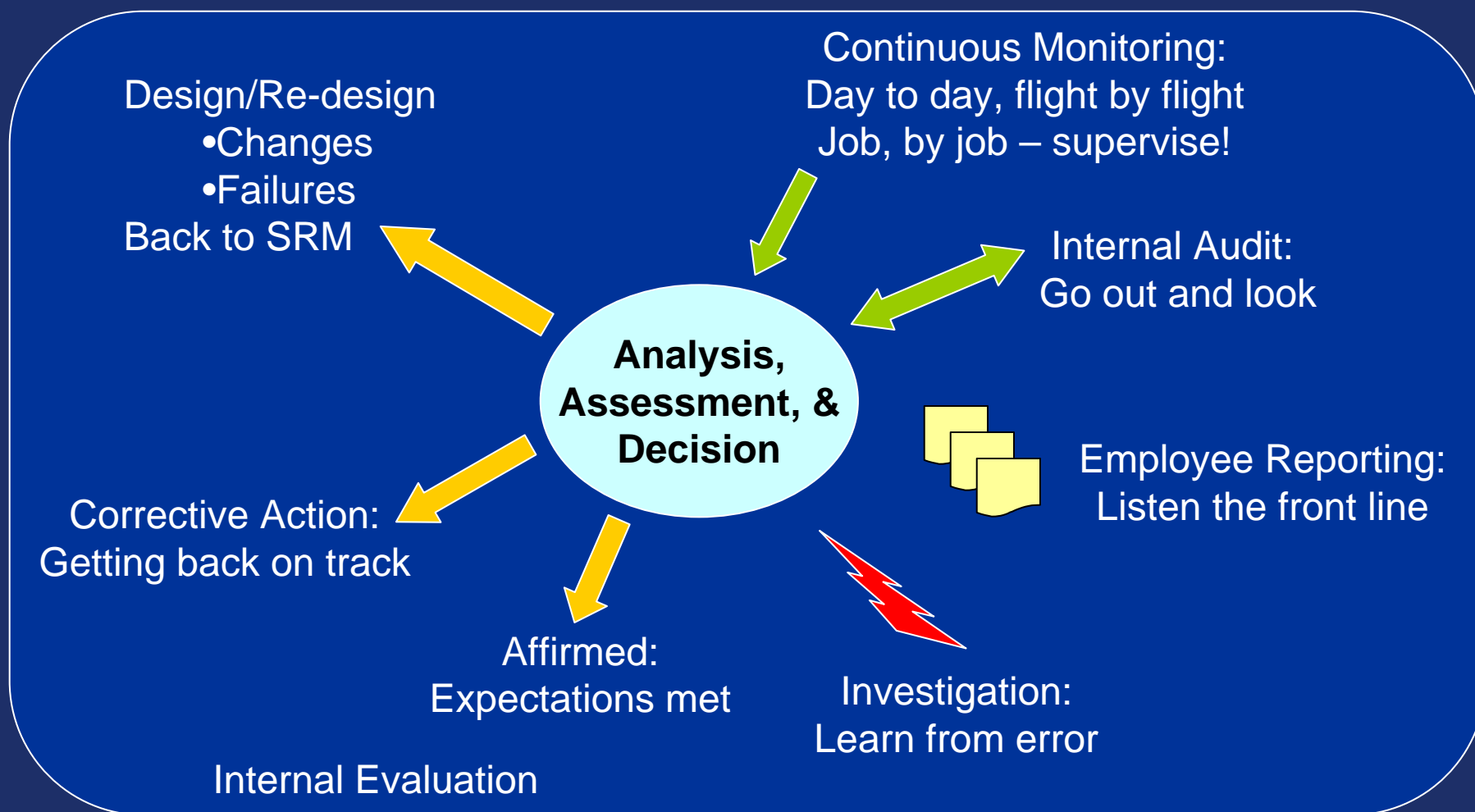
## Information Sources

1. Continuous Monitoring
2. Internal Audits
3. Internal Evaluation
4. External Audits
5. Investigations
6. Employee Reporting Systems



AC 120-92

# Safety Assurance Processes



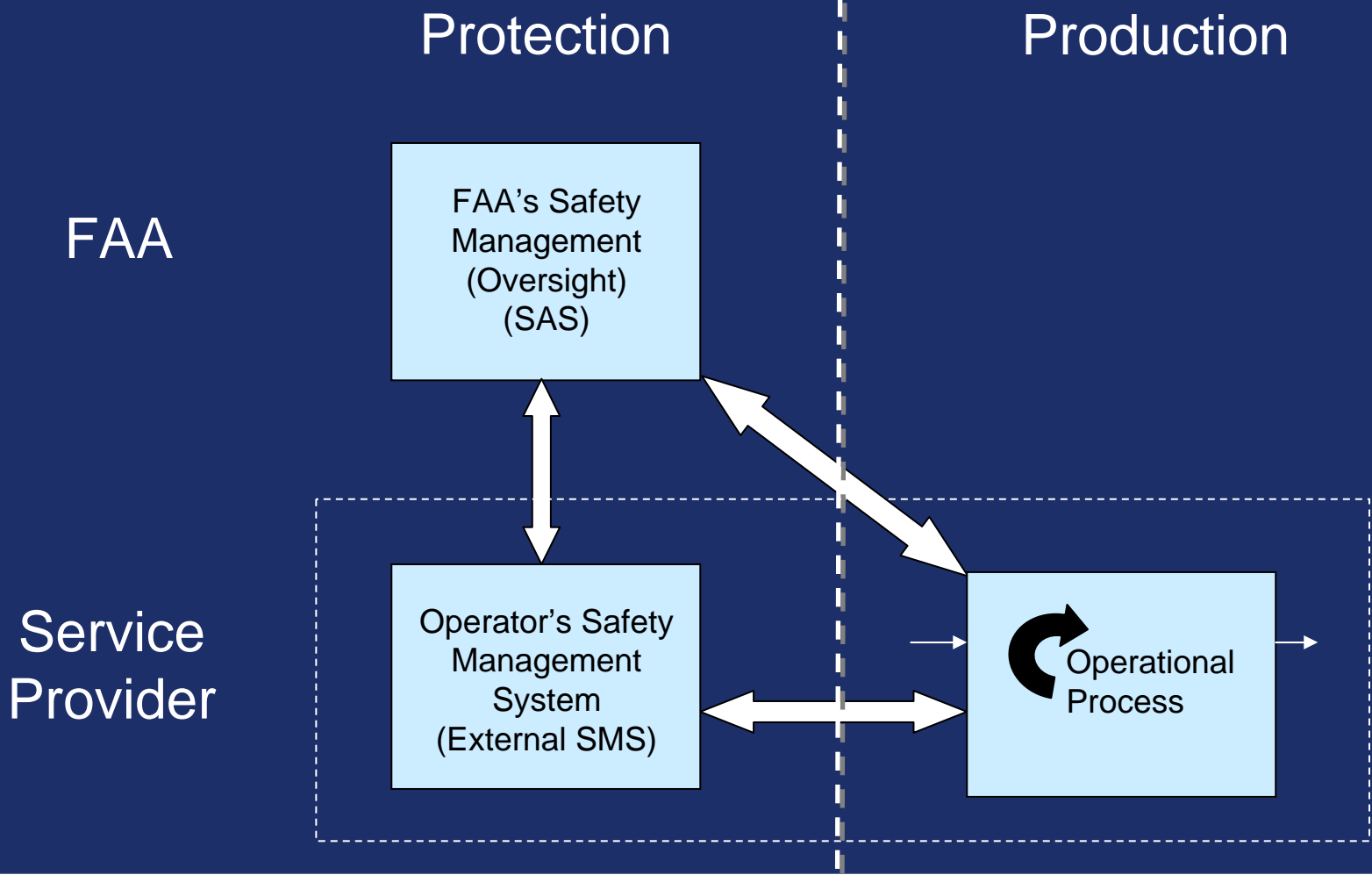
# Employee Reporting

- Employee safety reporting & **feedback** system is required.
- Must provide confidentiality.
- Employees must be encouraged to use the system.
- Data may identify emerging hazards.
- Data must be included in analysis.



AC 120-92, App. 1

# Roles, Responsibilities, and Relationships



# SMS Rulemaking

- **One rule for all types of service providers**
- **Aviation Rulemaking Committee (ARC)**
  - Associations representing industry
  - Working groups from service providers
- **Advance Notice of Proposed Rulemaking (ANPRM)**
  - Initial solicitation for information comment from public
  - No proposed rulemaking language
  - To be issued later this year



# 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

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



# SMS Implementation Process



# Current SMSPP Guidance Material

- **AC 120-92**
- **SMS Framework**
  - AC 120-92 Appendix 1 in ICAO structure
  - Same expectations as in original
  - Performance objectives added
- **SMS Assurance Guide**
  - Based on Framework
  - Uses process attributes
- **Implementation Guide**
- **(Coming Soon) Guidebooks**



# ICAO and FAA SMS Framework



## Elements:

### Elements:

1.1 Safety Policy

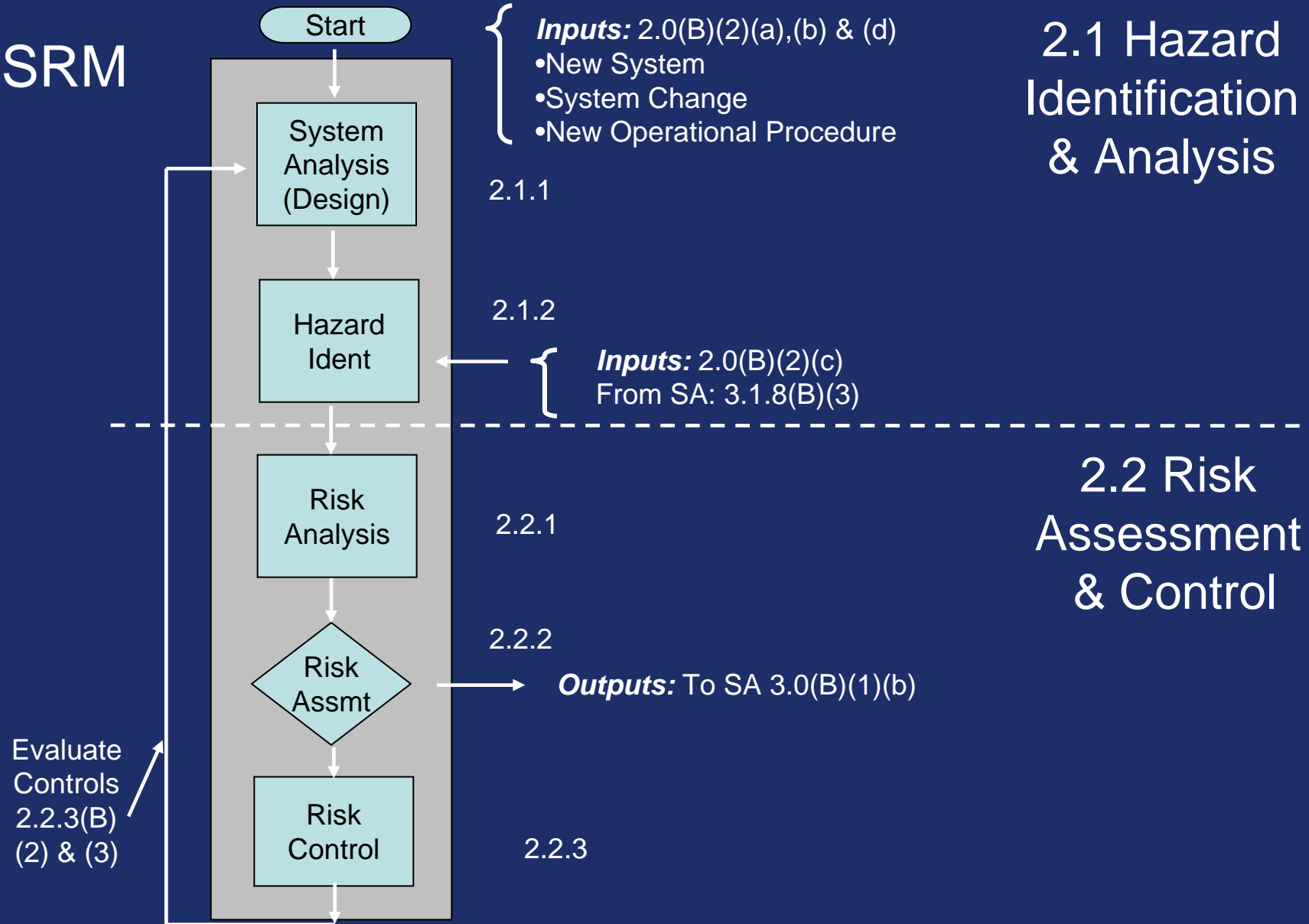
### Elements:

- 4.1 Competencies and Training
  - Process 4.1.1 Personnel requirements
  - Process 4.1.2 Training
- 4.2 Communication and Awareness

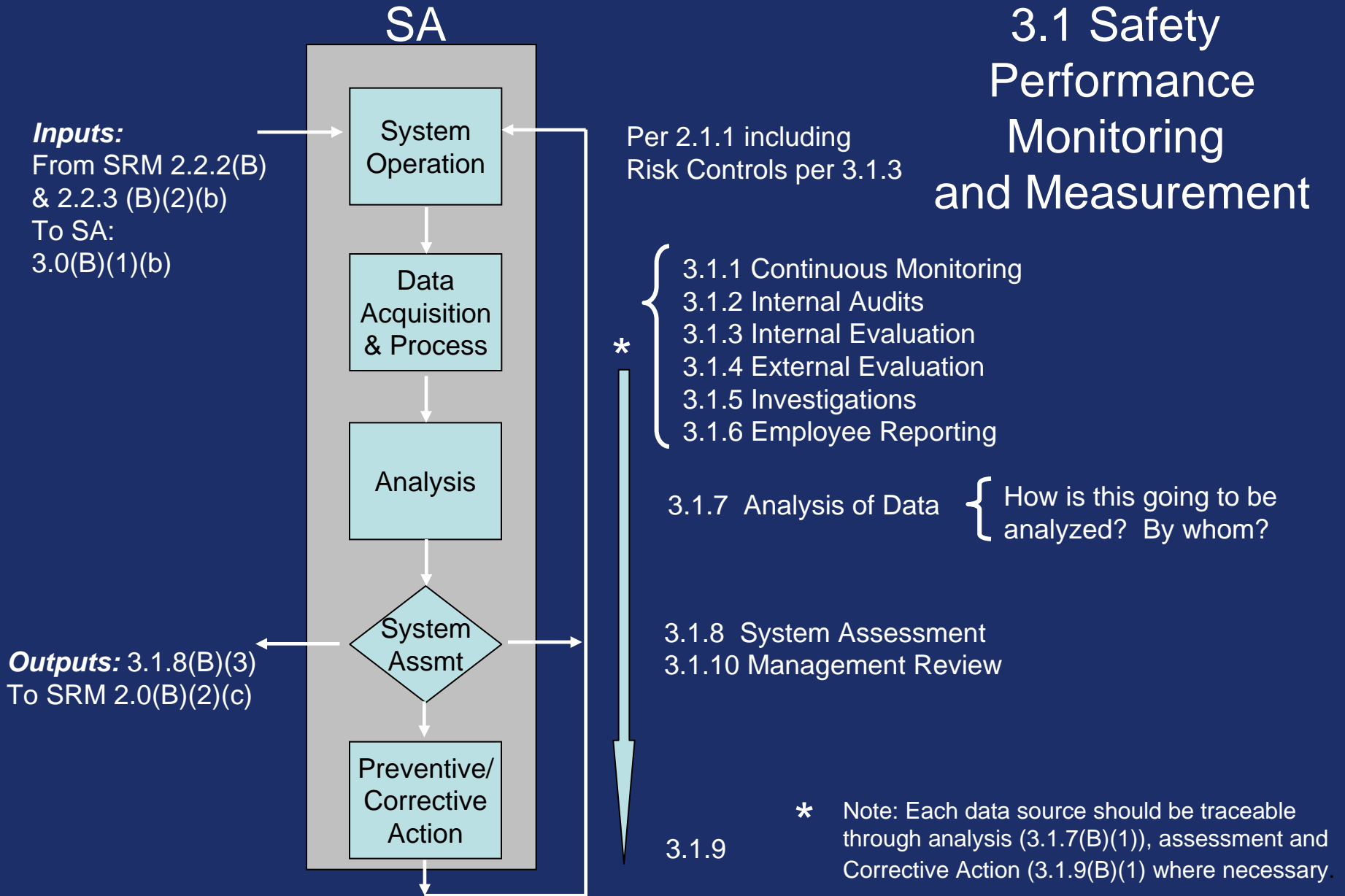
3.2 Management of Change

3.3 Continual Improvement

# SRM



# 3.1 Safety Performance Monitoring and Measurement



# 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:***

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

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

***(703) 338-7746 (Cell)***

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



Wilbur Wright gliding, 1901  
Photographs: Library of Congress

