

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

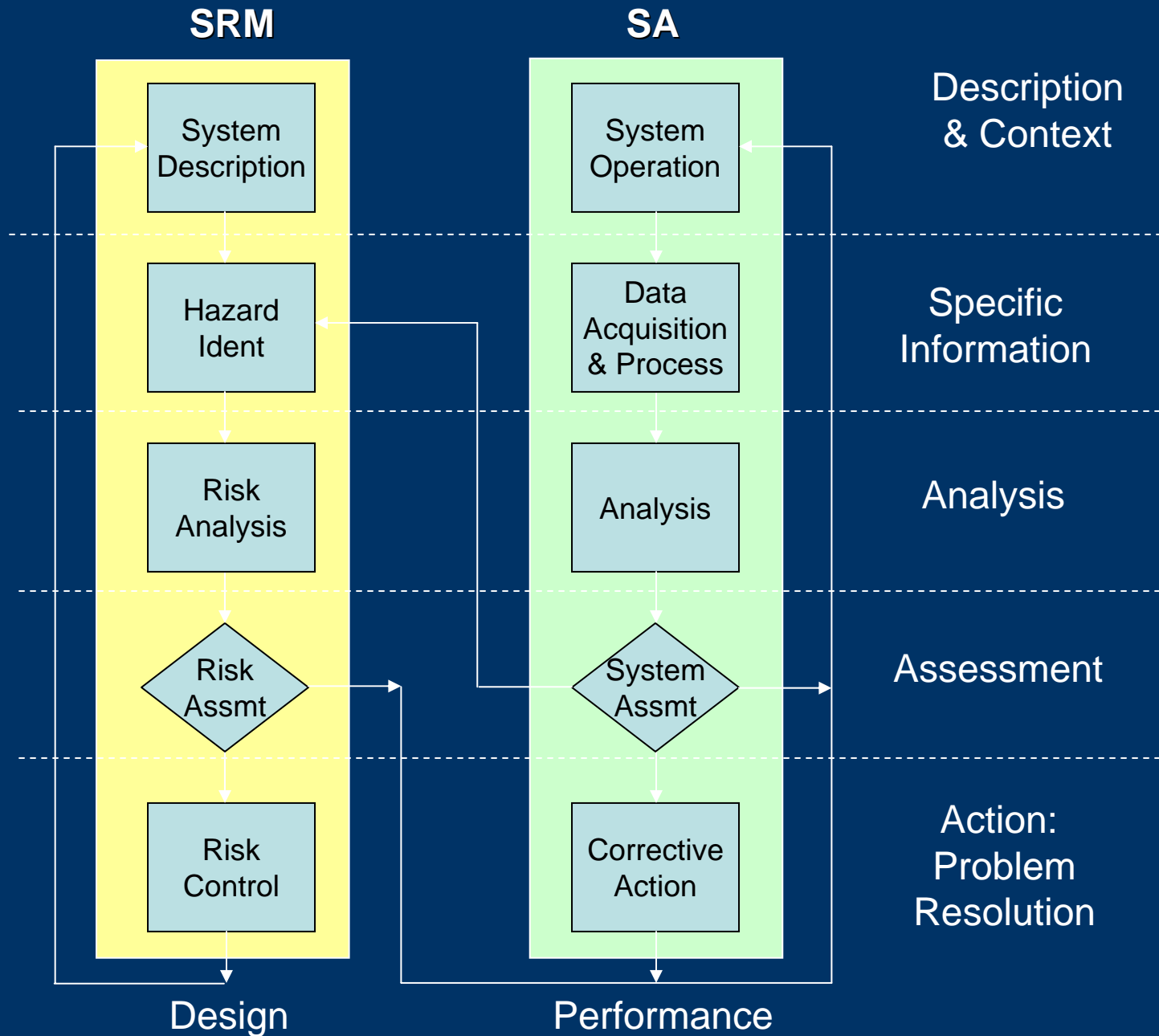
- Assurance: “something that gives **confidence**”¹
- Quality assurance: “... focused on **providing confidence** that quality **requirements** are being met”²
- Likewise, Safety Assurance relates to **safety requirements**



¹ Black's Law Dictionary

² 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

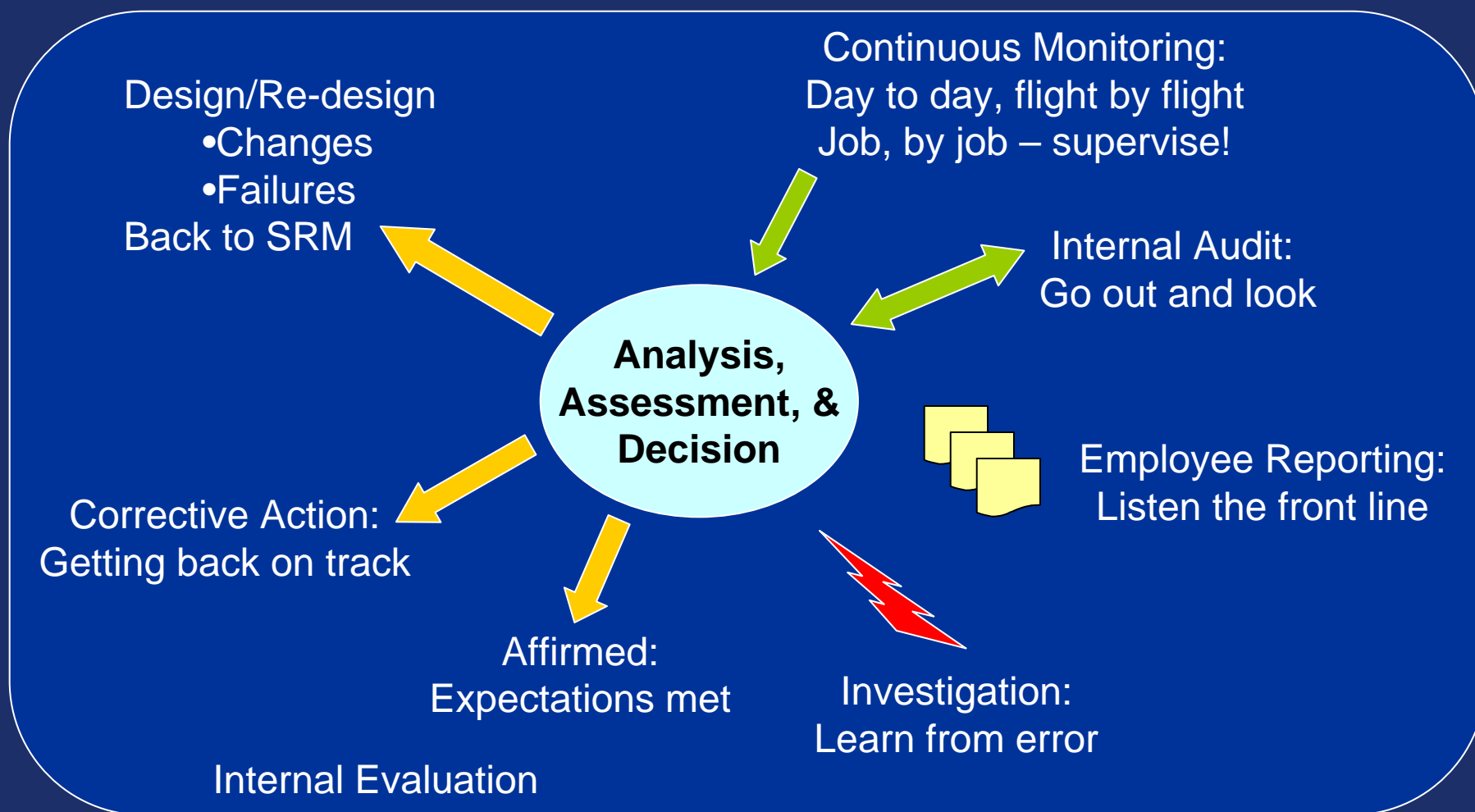
Information Sources

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



AC 120-92

Safety Assurance Processes



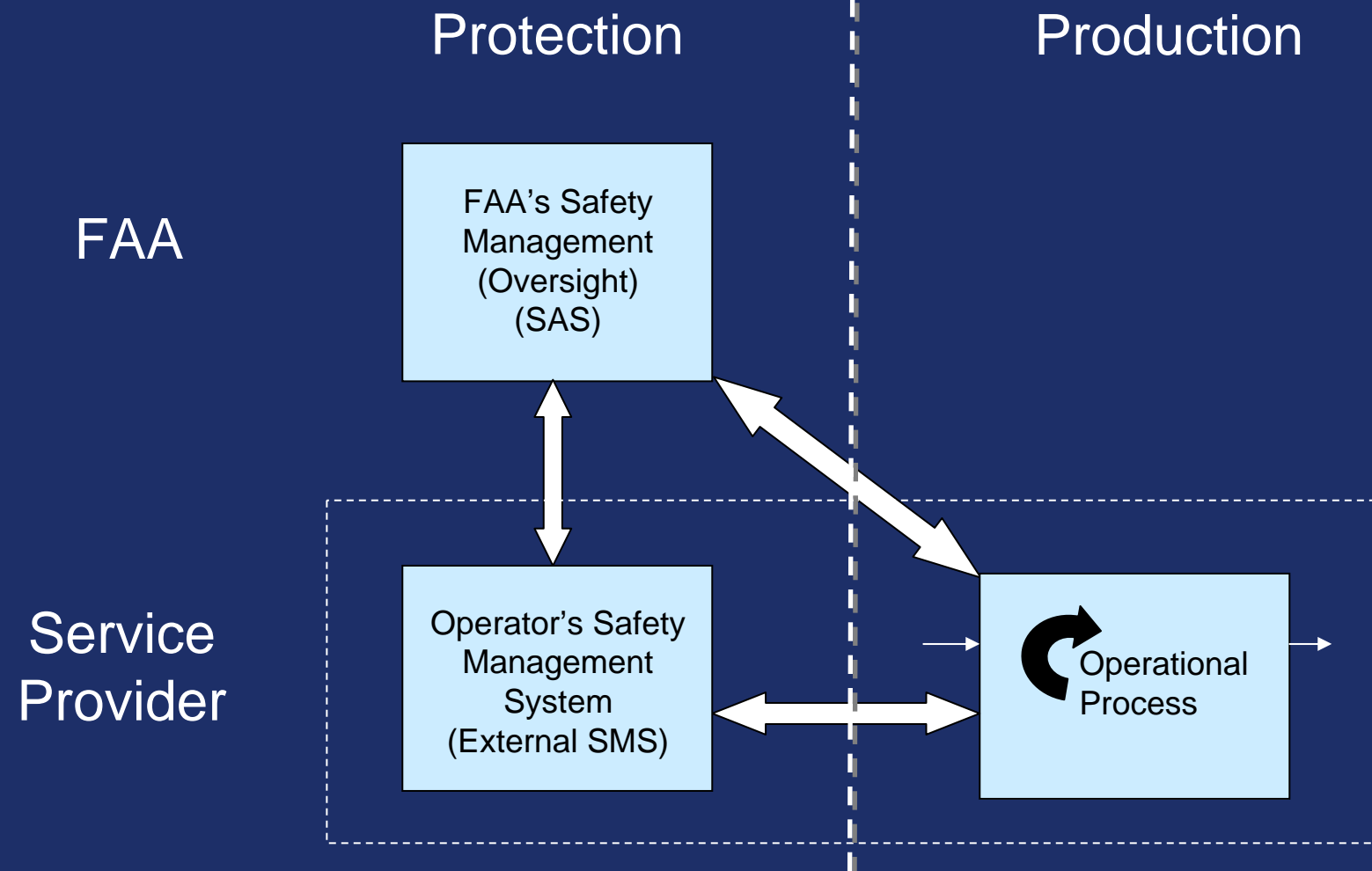
Employee Reporting

- 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

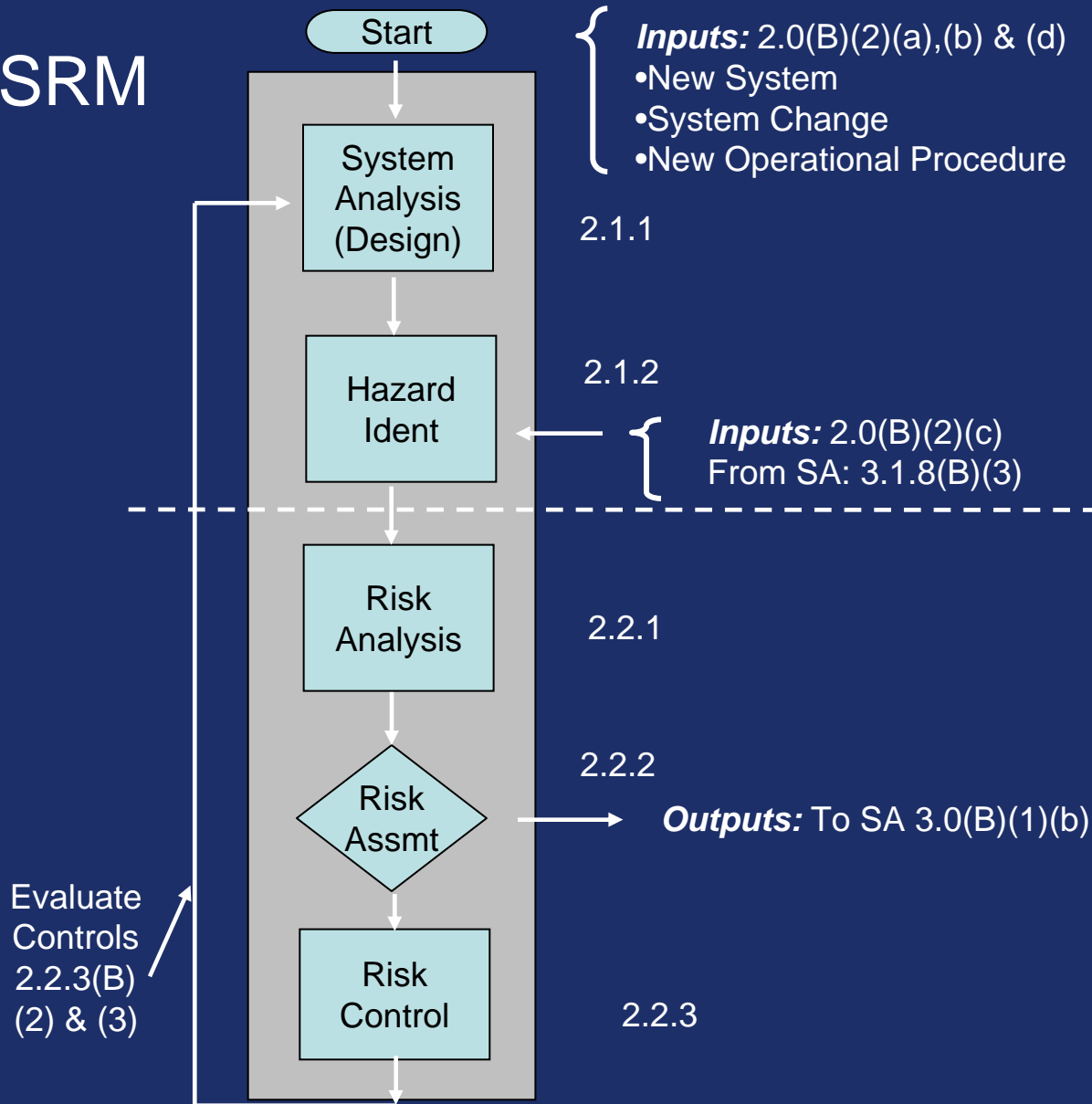
Elements:

- 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



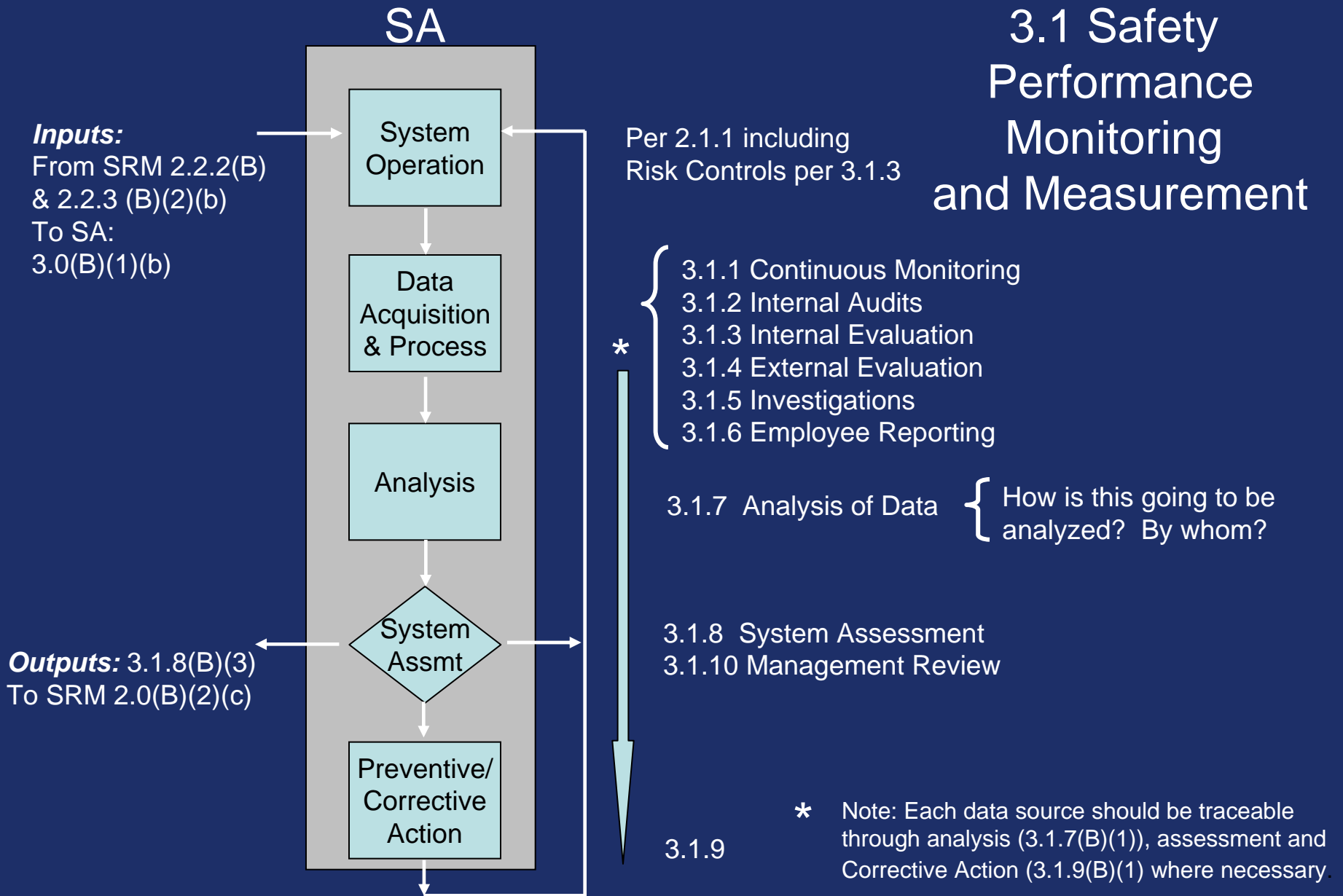
2.1 Hazard Identification & Analysis

2.2 Risk Assessment & Control

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



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

