Fire and Cabin Safety Research as a Part of Safety Management Systems

Presentation to:
2007 **International Fire & Cabin Safety Research Conference**

October 29, 2007

Objectives

- ✓ SMS Overview
- ✓ Research within an SMS Perspective
- ✓ Cabin Safety in a SMS Construct

What is safety?

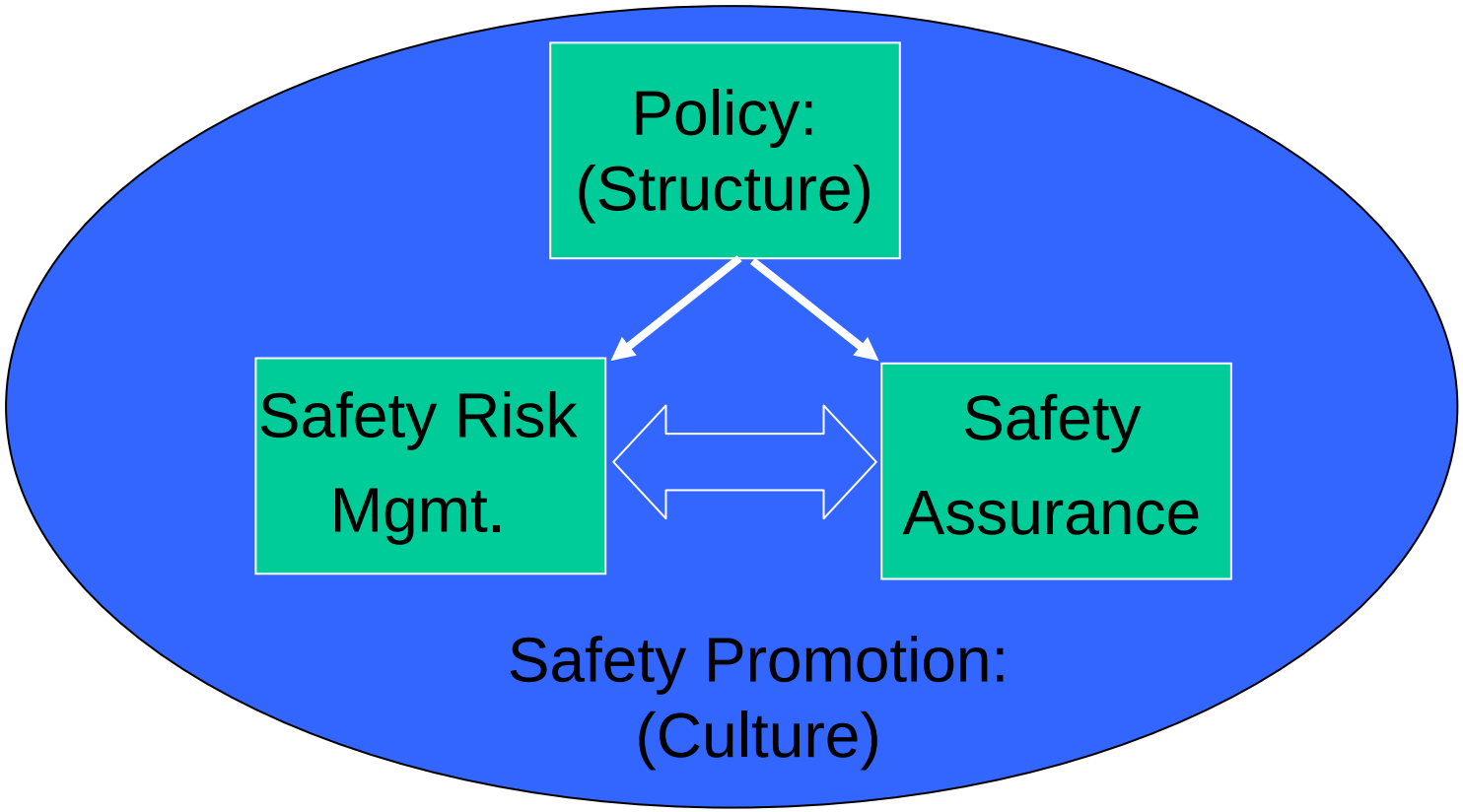
- Safety is not equivalent to risk free (U.S. Supreme Court, 1980)
- Carelessness and overconfidence are more dangerous than deliberately accepted risk (Wilbur Wright, 1901)
- “Risk management” is a more practical term than “safety.” (Jerome Lederer ~1928)
- Practical safety is ***risk management***

SMS Purpose and Methods

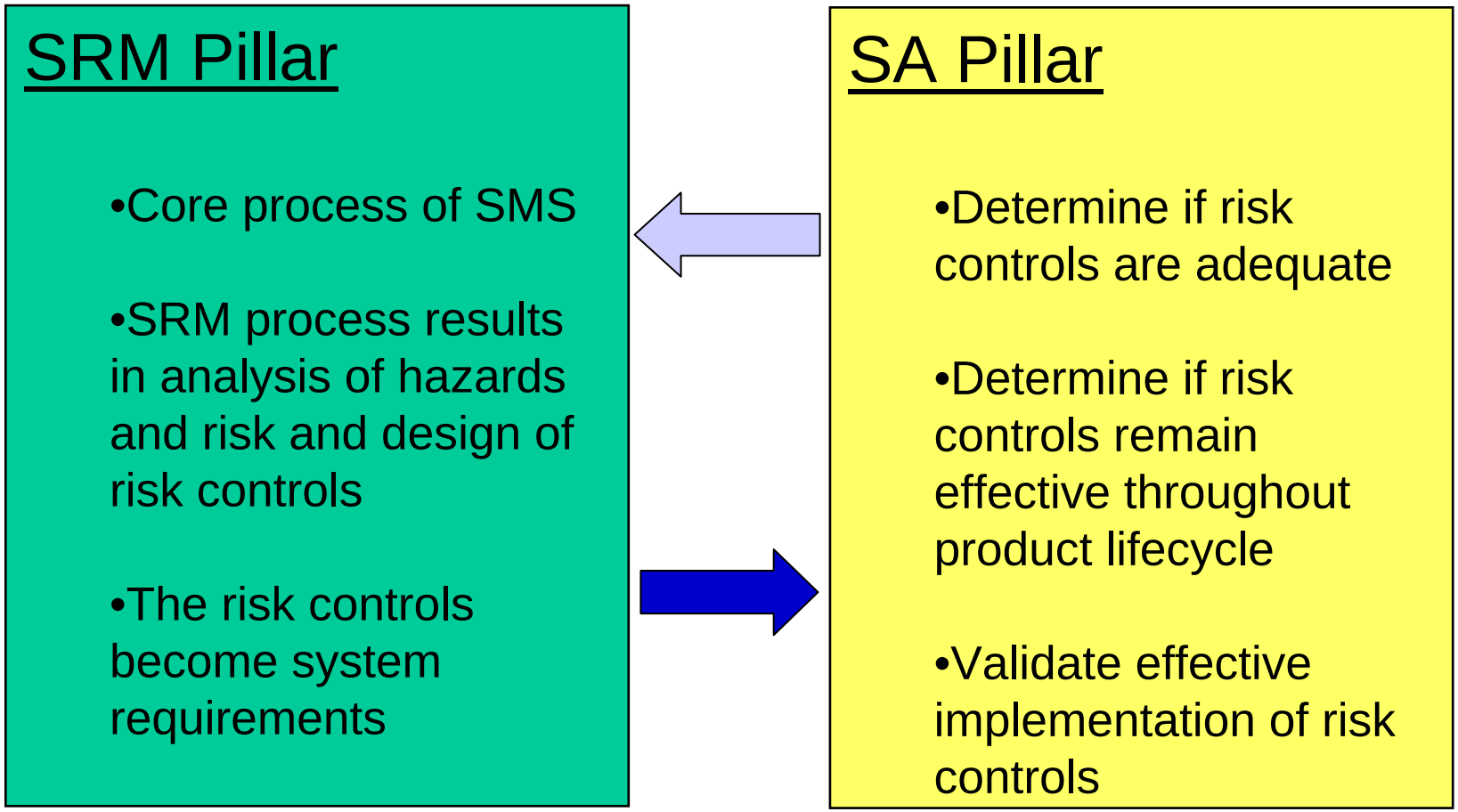
- The purpose of a safety management system is to provide a systematic way to control risk and to provide assurance that those risk controls are effective

- The SMS will give certificate holders a formal means of meeting safety requirements and the FAA a means of evaluating management capability

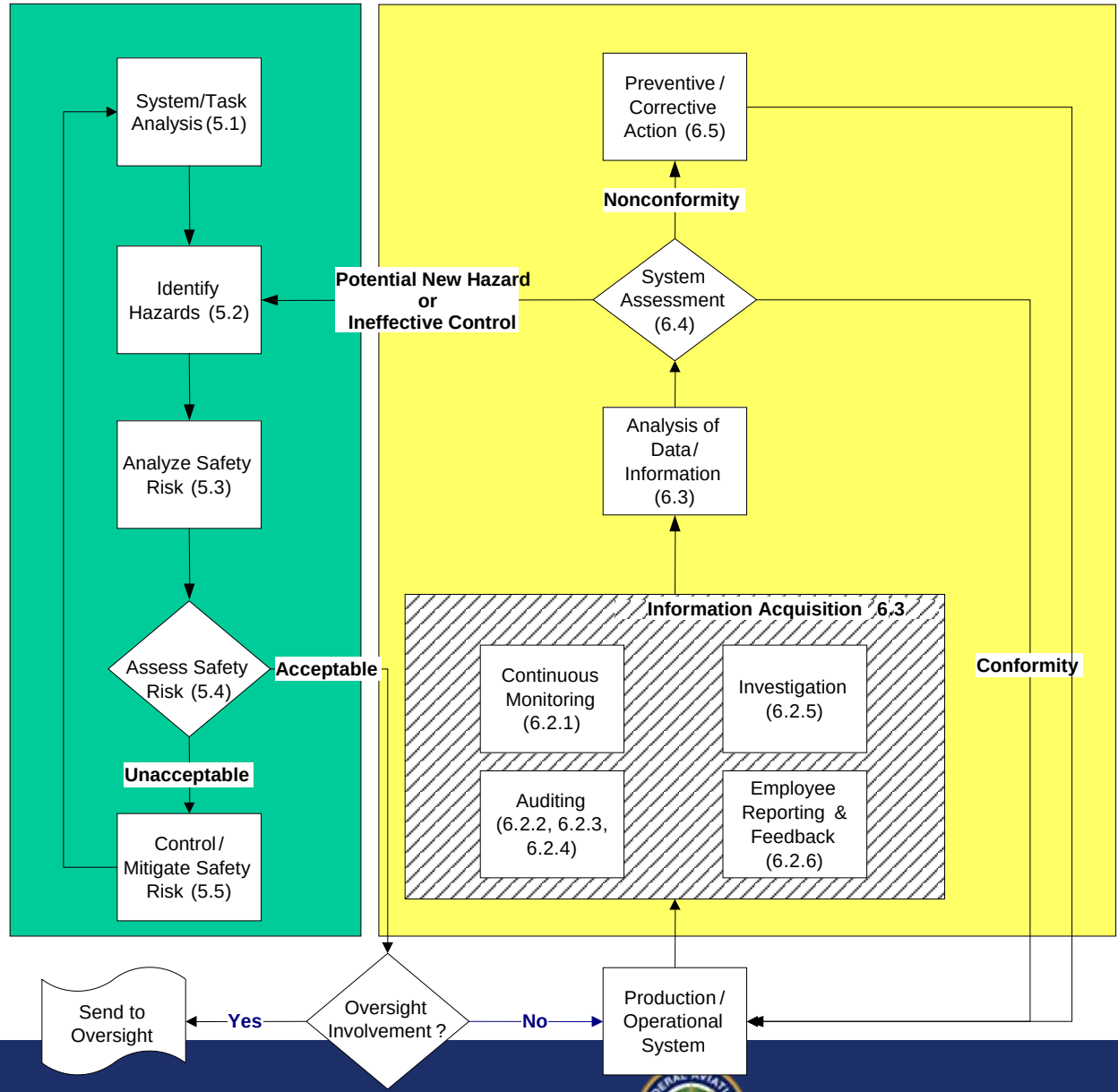
SMS Components (“Four Pillars”)



Functional Pillars of SMS



SRM and SA Processes in the SMS



Cabin Safety COS in SMS

R(total) = R(system failure) * R(cabin safety shortcoming)

- R(system failure) dominates
- Resource allocation a function of risk
- Cabin Safety – existing risk controls proven capable
  - Cabin safety shortcomings may still mitigate risk to acceptable levels
- Mitigating risk controls more likely to be focused on system failures

Need other means to protect the “standard” to maintain mitigation

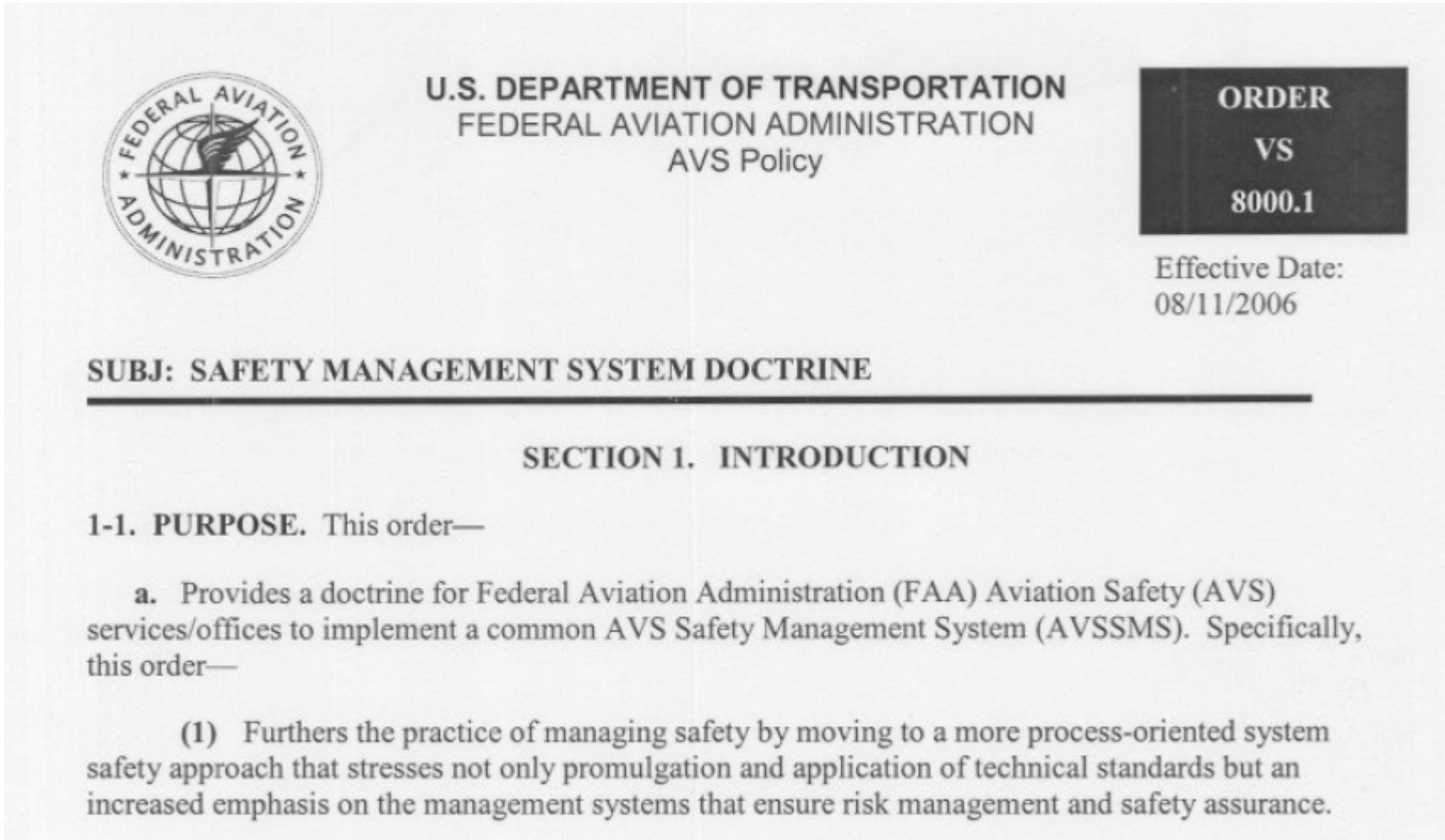
Cabin Safety Standards in SMS

- Justification based on level of risk
  - Direct risk mitigation
  - Exposure is high
- Research helps define risk mitigated by rule compliance
- SMS provides for protection of risk mitigation through certificate management
  - Certificate holders responsible for maintaining acceptable level of risk in accordance with risk controls (SRM and SA)
  - Standards/policy primary forms of risk controls (SRM)

Cabin Safety Research and SRM

- Organize Cabin Safety Research in terms of SRM
- Move to a more probability based performance
  - Enable future rule justification
  - Enable ongoing compliance determinations
- Enable Research to meet needs of risk control program
  - Timing
  - Cost

The AVSSMS



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVS Policy

ORDER
VS
8000.1

Effective Date:
08/11/2006

SUBJ: SAFETY MANAGEMENT SYSTEM DOCTRINE

SECTION 1. INTRODUCTION

1-1. PURPOSE. This order—

a. Provides a doctrine for Federal Aviation Administration (FAA) Aviation Safety (AVS) services/offices to implement a common AVS Safety Management System (AVSSMS). Specifically, this order—

(1) Furthers the practice of managing safety by moving to a more process-oriented system safety approach that stresses not only promulgation and application of technical standards but an increased emphasis on the management systems that ensure risk management and safety assurance.