System Safety Comes to the Operators

System Safety, Safety Management Systems and the Air Line Pilots Association

Captain Rick Clarke – SMS Team Director
What is ALPA?

- Trans border
- International
- Varied membership
- Dual nature
  1. Representation
  2. Professional
- Strong safety commitment and history

“Schedule with Safety”
ALPA’s Safety Organization

- Volunteer / Member Activity:
  - Airline Level
    - General and Technical issue committees
  - Association Level
    - Policy and guidance
    - Standing Technical committees
    - Special issue committees

- Full time Staff:
  - Government and Industry interface
    - Ottawa
    - Washington
ALPA’s Safety Efforts

- Substantial Effort in the Industry
- Largest outside the government.

A Dual Structure:
- The Volunteer Structure
- The full time staff
The Volunteers

Executive Central Air Safety Chairman

Industry

Subject Groups

Technical Teams and Committees

Airline

Central Air Safety Chairmen

Subject Groups

Technical Teams and Committees
The Safety Department

- Full time staff to coordinate the affairs of the Volunteer activities
  - Industry liaison
  - Continuity
  - Strong technical subject backgrounds for the Volunteer Technical Groups
  - Ottawa and Herndon, Virginia
Some of the Major Subject Areas

- Accident Analysis (3)
- Aircraft Design and Operation (7)
- Airport and Ground Environment (4)
- Air Traffic Services (4)
- Human Factors and Training (3)
- Geographic Areas (20)

The subjects derive from industry trends and history – adapted, not planned. Reactive vs. Proactive
System Safety vs. the Real World

Problems:
- Hardware orientation
- 100 years of aviation safety development, techniques and growth
- Lack of Management focus
  - Do the analyses – don’t guide the project
The Seed is Planted

- System Safety knowledgeable people migrate into leadership positions
- Shrinking resources demand a better way to approach aviation safety
  - Britain
  - Canada
  - Australia
  - New Zealand
  - U. S.
  - JAA
System Safety Adapted

- Modify System Safety to meet the needs of operational organizations instead of hardware systems
  - Cradle to Grave – NOT
  - Emphasize Management vs. hardware design
SYSTEM SAFETY PROCESS

REQUIREMENTS IDENTIFIED → SSWG → DEFINITIONS → OBJECTIVES ESTABLISHED
SYSTEM SAFETY PROCESS

SYSTEM DEFINED
- EQUIPMENT
- PEOPLE
- ENVIRONMENT
- INTERFACES

PHA/PHL COMPLETED
- HAZARDS ID
- RISK ASSESSMENT
- UNKNOWNS ID
System Safety

- FTA
- FMEA
- OSA
- STEP

Further Analysis

- Implement Controls
- No Action Required

Monitor Performance

- Incident Reports
- Accident Reports
- Testing
- Violations
- Audits
An Adaptation for Operators

The Seven-Step Risk Management Process

1. Initiate Process
2. Perform Preliminary Analysis
3. Estimate Risk
4. Evaluate the Risk Activity
5. Control Risk
6. Take Action
7. Monitor Impact

Communicate with Stakeholders

Document the Process

Note: the decision arrows which follow each of the steps one to six provides the user with the important option of ending the process, going back to a previous step or continuing on to the next step.

Transport Canada
The “New Thing”

The Safety Management System
ALPA’s Involvement

Derives from:
- Becoming a cross-border organization
- Transport Canada interest
- Staff Expertise
- Aviation Developments.
What ALPA is Seeking

1. Support member airlines’ in Canada as they implement SMS

2. Bring SMS into U. S. airline operations

*The outcome is not a foregone conclusion*
What is SMS?

- **Business-like approach** to achieving safety goals
- Systematic and comprehensive process for managing risks
- System for setting goals and measuring performance
It is...

- Woven into the fabric of the organization...a culture - they way it does business
- Cooperative effort among employee groups, corporate management and the regulator
It’s based on...

- A strong management commitment
- Clear demonstrated strategy, policy, and objectives for continuous safety improvement
- Clear lines of authority, accountabilities, responsibilities
One “Classic” Problem

THE FULL DISCLOSURE C.E.O.

THE BUCK STOPS AT A MUCH LOWER LEVEL
SMS also is based on...

- Coordination and integration of departmental information systems
- Widespread reporting and sharing of information
- Coherent and effective performance measures
and on...

- Partnership with employees and the regulator
- Shared approach to “safety values”
- Sound safety culture
ALPA Believes That...

**SMS** offers a chance to improve “bottom line” performance at a time critical to the industry.
SMS is not just another
“Bright Idea”
SMS can improve employers’ decision-making. That affects their future...and ours
ALPA’s Use of **SMS**?

- We are not an “operator,”
- But ALPA can adapt **SMS** to:
  1. Resource allocation
  2. Decision making
  3. Industry safety activities
Problems with the “Operationally Oriented”

- Impatience
- Bias against the “academic”
- Available time and money
- Long history of “traditional” aviation safety activities

“If it ain’t broke, don’t fix it!”
Appeals for the “Operationally Oriented”

- **SMS** is managed safety achievement
- **SMS** includes employee participation
- **SMS** can make the employers “healthier” financially
- **SMS** coordinates “order out of chaos”
Here’s what we DO NOT want to do to our members!
Identify Causes

Continuous Monitoring

Describe new or modified system, operation or procedure

Identify Hazard(s)

Identify Hazards

Plan SRM

Describe System

Determine Risk Severity & Likelihood

Analyze Existing Controls

Analyze Risk

Document residual risk & acceptance

Implement Change

Define add’l risk control strategies

Select/validate risk control strategies

Is risk strategy acceptable?

Rank Hazards

Prioritize Hazards

Is risk acceptable?

YES

NO

Treat Risk

Implement risk control strategies

Verify risk control strategies
and SRA
Our Need…
Our Approach…

- **SMS** has to be useful to be accepted
- Safety Risk Assessment (SRA) is something that the Volunteers and Staff need and can apply ….. NOW
- ALPA is applying SRA to its safety challenges

"Win acceptance – don’t develop opponents"
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Risk Assessment Matrix

**Severity**

- 5
- 4
- 3
- 2
- 1
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<tr>
<th>Assessment</th>
<th>Follow up</th>
<th>Level of Communication</th>
<th>Advice to Others</th>
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<tr>
<td>Unacceptable</td>
<td>Stop operation</td>
<td>Regulator Manufacturer Other Operators</td>
<td>Warn all</td>
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<tr>
<td></td>
<td>Detailed Quantitative Engineering &amp; Operational Risk Assessment</td>
<td>Management &amp; Employees</td>
<td></td>
</tr>
<tr>
<td>Undesirable</td>
<td>Restrict operation</td>
<td>Detailed quantitative and/or qualitative engineering &amp; operational risk assessment</td>
<td>Regulator Manufacturer Other operators Management &amp; Employees</td>
</tr>
<tr>
<td>Acceptable with action</td>
<td>Restrict operation as required</td>
<td>Management &amp; employees</td>
<td>Alert management and employees</td>
</tr>
<tr>
<td>Acceptable with monitoring</td>
<td>Detailed action plan to resolve problem</td>
<td>Management &amp; employees</td>
<td>Alert management &amp; employees</td>
</tr>
<tr>
<td>Acceptable</td>
<td>Establish monitoring parameters Set timelines for assessment</td>
<td>Management &amp; employees</td>
<td>Advise management &amp; employees</td>
</tr>
<tr>
<td></td>
<td>Risk profile monitoring</td>
<td>Management &amp; employees</td>
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SRA Applications

- Air Traffic Control conflicts
- Wake Vortex vs. “System” capacity
- Wildlife control at airports
- Etc.
We Emphasize

Hazard Detection

Hazard Control
We Prefer Safety Programs with a Solid Foundation
We need to relate to “Real World” Problems
Despite Common Aviation Attitudes

- ALPA and Airline Safety Issues are Complex
- The Issues require the flexibility and adaptability of System Safety
...and so

That’s all, folks!