Airlines Approach to Implementing an effective SMS

Safety Management International collaboration group

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Avianca Holdings is composed of 9 airlines and operates from 3 Main Hubs which are used as connection centers:

- **Bogota**: El Dorado Int´l Airport
- **Salvador**: Comalapa Int´l Airport
- **Lima**: Jorge Chavez Int´l Airport
Avianca Holding in numbers

- 100+ Destinations
- 5,500 weekly Flights
- 3 Hubs: Bogota, San Salvador, and Lima
- 165 Aircraft
- Average fleet age 5.3 years

### AVH Aircraft

#### 2013 – 4 families

- 10 A330
- 99 A320
- 12 E190
- 29 Turboprop

Jet passenger operative fleet average age: 5.3 years

Total operative fleet age (incl. turboprop aircraft): ~6.4 years

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passengers (mm)</td>
<td>23.1</td>
<td>24.6</td>
<td>6.6%</td>
</tr>
<tr>
<td>ASKs (bn)</td>
<td>36.5</td>
<td>38.8</td>
<td>6.1%</td>
</tr>
<tr>
<td>RPKs (bn)</td>
<td>29.1</td>
<td>31.2</td>
<td>7.3%</td>
</tr>
<tr>
<td>Revenues (US$bn)</td>
<td>$4.3</td>
<td>$4.6</td>
<td>8.0%</td>
</tr>
<tr>
<td>EBITDAR (US$mm)</td>
<td>$659</td>
<td>$828</td>
<td>25.8%</td>
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<tr>
<td>EBITDAR Margin</td>
<td>15.4</td>
<td>18.0</td>
<td>+260bps</td>
</tr>
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</table>

### Aircraft Families

- Boeing 787
- A320 Neo
- ATR72
- A330F
Safety is a Journey not a destination....
Based on 4 premises, safety approach needs to change:

1. Legal does not [necessarily] mean safe

- Regulations encompass operational interactions anticipated during planning
- It is impossible to anticipate all possible operational interactions during planning

2. Unanticipated operational interactions with negative potential are not chance events

- Become evident after start of operations aimed at service delivery, without need of experiencing significant events (i.e., accidents)
- They are identifiable in advance and their consequences controllable

3. Data capture on unanticipated interactions is a wasted effort, if limited to the aftermath of significant/damaging events exclusively

- Not enough volume of data

4. "You can’t manage what you can’t measure"

- Without data there are only opinions
- Development of a common “corporate” language
Safety Management System

**Safety Management System** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. (Doc 9859 OACI).

SMS Is founded on 4 pillars:

![Diagram showing the 4 pillars of Safety Management System]

The aim of an SMS is to generate useful, relevant and reliable data for adequate risk based decision making for resource allocation!!

Safety efforts should be focused at identifying the disparities of the interactions of Humans with various elements of the system.
SMS at a Glance: Management systems Vs execution programs

**Input**
- Data
  - Operational
  - Financial
  - HR
  - Legal
  - Quality

**SMS**
- Regulations
- Policies
- Analysis
- Evaluation
- Cost/Benefit

**Output**
- Information for strategic decisions
- Safety programs
  - Bird strike
  - Runway safety
  - Safety reporting
  - Language proficiency
  - ...

SOURCE: Captain Daniel Mauriño
Safety Risk Management is divided into two main activities

HAZARD IDENTIFICATION

- Investigation of operational Events
- Investigation of Safety Reports

REACTIVE
- Safety Audits
- Airport Inspections
- Risk Analysis (MOC)
- Surveys

PROACTIVE
- Flight Data Analysis
- LOSA

PREDICTIVE

RISK EVALUATION

All SRM processes and activities are supported by the risk matrix values. These values establish guidelines for the decision making authority level and the depth of analysis to be performed on Safety Data.
Safety Database: In order to assure adequate data management it is necessary to have a Database system for data analysis and retrieval.

Safety Investigation

Safety Risk Controls evaluation
- Effectiveness
- Relevance

Risk Analysis:
- MOC
- Safety Inspect.

Mitigating Actions

All Safety Risk Management Activities are recorded and managed within AQD, in order to allow effective Safety Assurance Activities.
SRM-SA Process: Data Management is the core element of modern safety management!!

**OPERATIONAL SAFETY DIVISION**

- **Hazards and Occurrences**
- **Identified through**
  - IRO Reports
  - Safety Audits

**OPERATIONAL AREA**

- **Taxonomy and Risk assignation**
  - IMPROBABLE
  - POCD PROBABLE
  - PROBABLE
  - MUY PROBABLE

- **Mitigating actions**

**FINDINGS**

**Avianca**

**Trends and SPIs Monitoring**

**Feedback and monitoring of Operational Areas**

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*IRO (Operational Safety Report)*
Taking into account that the aim of SRM is to maintain risk at an acceptable level within operations, we have developed Indicators based on Risk Measurement instead of repetitiveness of conditions.

**Risk Indicator:** Continuous measurement of evolution of risk helps identify actual performance of the Organization.

**Safety Objective:**

\[
\text{Risk Index} = \frac{\sum \text{Risk Units per Month}}{\sum \text{Total reports per Month}}
\]

This focus allows to allocate resources on the conditions that have the highest potential of generating higher losses.
Risk Unit (RU) Calculation: The risk unit is the measure unit used to monitor Risk evolution on the Organization.

We receive a report of Risk Evaluation. We define the responsible area.

**RU X IRO**
- GRH: 22/5, RU GRH = 4.4
- DSP: 48/2, RU DSP = 24

**RU X OPERATOR**
- AV: 70/7, AV = 10
- TA: 35/7, TA = 5

(70 + 35) / 14 = 7.5

We define the responsible area.

**RU AVH**
- AV: 70/7, AV = 10
- TA: 35/7, TA = 5

SDB
How can Operational Areas improve their Safety Risk Indicator?

- **Managing Safety Issues**
  - Safety Issues are High Risk repetitive reports that are present in a given time.
  - Safety Manager puts information into context for defining SI

- **Safety Database**
  - Reports Classified by:
    - Taxonomy
    - Risk
  - TOP 10 RISK
  - TOP 10 FREQUENCY

- **Proactive Reporting**
  - Operational areas should encourage reporting of hazards before they escalated into negative consequences
  - More reports with low RU should make the average risk level lower, promoting a proactive reporting culture from Top Management
Safety Comites: One of the Key elements to have for SMS implementation is to assure flow of information From bottom to top and backwards.

*Airline committees are performed in each country where an AOC has been issued.
Safety Promotion: The organization must have means of disseminating Safety information to all levels of Organization

Safety Committee:

- **Integral Safety Committee** (BOG)
  - Strategic Committee (Bi-Monthly)
  - CEO -COO
  - FLT-GRH-MNT-CGO y HR VPs
  - Safety/Security Directors (Safety-Security)
  - HSEQ Manager

- **Primary Safety Committee** (BOG)
  - Primary Safety committee (Monthly)
  - Safety Director
  - Safety Managers
  - Safety Administrators

- **Corp Safety Management Group** (BOG)
  - Corporate Tactical Committee (Monthly)
  - Safety Director, Manager & Administrators
  - SMS Champions (FLT-DSP-MNT-CAB-GRH-CGO)
  - Security
  - HSEQ

- **Safety Management Group** (AOC)
  - Local Tactical committee (Monthly)
  - Responsible Managers
  - (FLT-DSP-MNT-CAB-GRH-CGO)
  - Security
  - HSEQ

- **Safety Action Group** (AOC)
  - Operational Committee (Bi-weekly)
  - Operational Personnel (FLT-DSP-MNT-CAB-GRH-CGO)

Safety Publications:

- **Regular Publications**

- **Extraordinary Publications**

- **Training Program**
  - Initial and recurrent training for all personnel in accordance with their organizational level and to operational service providers
What key elements have helped us for successful SMS Implementation??

• High Management commitment and support throughout the Organization, allocating adequate resources for SMS implementation

• Hiring of qualified personnel with two basic backgrounds
  Knowledge in Management Systems
  Technical expertise

• Developing the SRM/SA Activities focusing on human performance within context in order to identify Safety Deficiencies within Organizations

• Implementing a Safety Database with data management capabilities

What do we need from the industry??

• standardized guidelines and requirements required by CAAs for SMS Implementation through all Latin America (Different understandings-Different requirements)

• Develop a standardized set of taxonomy for: Safety Deficiencies, Hazards, Events, Immediate effect

• Generate means to share de identified Data based on standardized taxonomies

• Generate more specialized forums to share advanced SMS development within Organizations
Muchas gracias!!

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