

SCANDINAVIAN AVIATION EDUCATION PROGRAM



Risk Management Course



Risk Management Course

Introduction: The course is conducted by Scandinavian Aviation.

Purpose: To assist individuals responsible for managing Risk Management.

Knowledge: After the course you will understand the principles of Risk Management and be able to develop, implement, and manage Risk Management as a comprehensive part of the Safety Management System in order to:

- Identify Threats
- Analyze the findings
- Perform Risk Management on the basis of Probability Severity and Exposure
- Implement Risk Management in own organization
- Enhance the mission/job effectiveness of the organization

Safety Philosophy: Communicate for Safety

Certificate: At the completion of the course each student will receive a certificate of completion for his/hers records.



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WELCOME TO THE RISK MANAGEMENT COURSE



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RISK MANAGEMENT COURSE

- ▶ **“Risk management.** The identification, analysis and elimination (and/or mitigation to an acceptable or tolerable level) of those hazards, as well as the subsequent risks, that threaten the viability of an organisation.” (ICAO Doc 9859).
- ▶ **“Safety risk management (SRM)** – a formal process within the SMS composed of describing the system, identifying the hazards, assessing the risk, analysing the risk, and controlling the risk. The SRM process is embedded in the processes used to provide the product/service; it is not a separate/distinct process.” (FAA AC120-92, Introduction to SMS for Air Operators).

DOC 9859 SAFETY MANAGEMENT MANUAL

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- ▶ Criteria are established for assessing risks.
- ▶ Risks are analysed and ranked by competent personnel (including experienced staff representatives).
- ▶ Viable risk control measures are evaluated.
- ▶ Management takes action to reduce, eliminate or avoid the risks.
- ▶ Staff are aware of the actions taken to avoid or eliminate identified threats.
- ▶ Procedures are in place to confirm that the actions taken are working as intended.



A QUALITY SYSTEM

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- Contains all we do to assure that our processes run smoothly and that they continuously improve
- Main processes in Flight operations can be:
 - Preparation of Flights
 - Production of Flights
 - Evaluation, Follow Up and Improvements
- To control and improve these processes we need a Management System

FAA DEFINED FOUR CORE COMPONENTS IN SMS

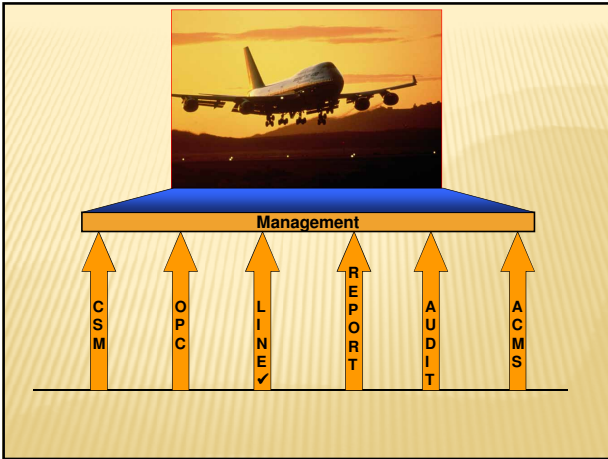
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SMS COMPONENTS

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HELIOS 522, 14 AUG05 ATHENS B737

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- Fatalities: 121:121
- Year of Delivery: 1998
- Cyprus to Athens
- Crew reported problem with the air conditioning packs
- Maintenance night before – left pressurisation off
- Check list
- 10.000' alarm mistaken for T/O warning
- 14.000' masks fell down - master caution
- Language problem

DOMINO

The 'DOMINO' diagram shows a sequence of dominoes. On the left, several dominoes are falling, representing a chain of failures. On the right, two dominoes are standing upright. The first standing domino is labeled 'TECHNICAL PROBLEMS'. The second standing domino is labeled 'Normal & safe operation' and includes a small image of an airplane in flight.

RISK MANAGEMENT

| Define Risk | Identify Risk involved | Assess Risk factor | Make control decisions | Action to control Risk | Monitor & Evaluate |
|-------------|------------------------|--------------------|------------------------|------------------------|--------------------|
|-------------|------------------------|--------------------|------------------------|------------------------|--------------------|

RISK MANAGEMENT COURSE

- Probability
- Severity
- Exposure

| Define Risk | Identify Risk involved | Assess Risk factor | Make control decisions | Action to control Risk | Monitor & Evaluate |
|-------------|------------------------|--------------------|------------------------|------------------------|--------------------|
|-------------|------------------------|--------------------|------------------------|------------------------|--------------------|



Three red and three green lights in landing gear

INCIDENT REPORT

RATIONALE FOR RISK MANAGEMENT

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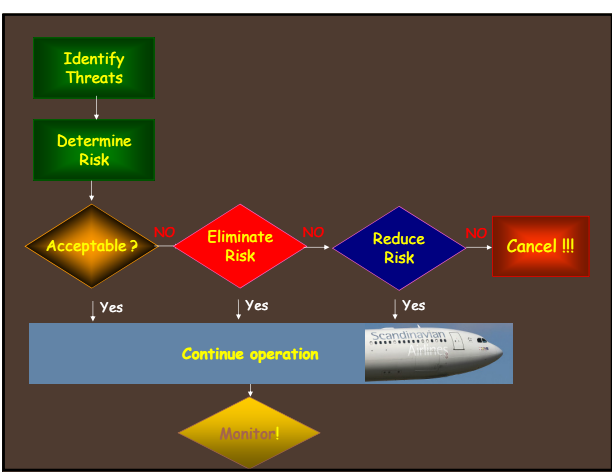
- Every situation has threats
- No one knows all the threats
- Threats are not equally consequential
- All situations require a balance (Risk vs. Benefit)
- Limited resources available to identify, eliminate, and control threats
- All serious threats should be eliminated or controlled

HOW TO DETECT THREATS

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- Analysis of data
- Observation of near mishaps
- Safety surveys
- Review of company plans, policies, procedures, and instructions
- Two types of Risk
 - Informed risk
 - Uninformed risk

THE AIM OF RISK MANAGEMENT IS TO AVOID, TRAP OR MITIGATE THREATS IN DAILY OPERATION.



RISK ASSESSMENT

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| Severity (Consequences) | Probability (Frequency) | | | | |
|-------------------------|-------------------------|---------|------------|----------|----------|
| | Low (1) | Low (2) | Medium (3) | High (4) | High (5) |
| High (5) | 5 | 10 | 15 | 20 | 25 |
| High (4) | 4 | 8 | 12 | 16 | 20 |
| Medium (3) | 3 | 6 | 9 | 12 | 15 |
| Low (2) | 2 | 4 | 6 | 8 | 10 |
| Low (1) | 1 | 2 | 3 | 4 | 5 |

RISK ACCEPTANCE CRITERIA

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| | |
|--------------|---|
| 1-6 | May be acceptable, however, review task to see if risk can be reduced further |
| 7-14 | Task should only proceed with appropriate management authorisation. Where possible the task should be redefined to take account of the threats involved or the risk should be reduced further prior to task commencement. |
| 15-25 | Task must not proceed. It should be redefined or further control measures put in place to reduce risk. The controls should be reassessed for adequacy prior to task commencement. |

ICAO SMM PAGE 5-8

| Risk probability | Risk severity | | | | |
|------------------------|-------------------|----------------|------------|------------|-----------------|
| | Catastrophic A | Hazardous B | Major C | Minor D | Negligible E |
| Frequent 5 | 5A | 5B | 5C | 5D | 5E |
| Occasional 4 | 4A | 4B | 4C | 4D | 4E |
| Remote 3 | 3A | 3B | 3C | 3D | 3E |
| Improbable 2 | 2A | 2B | 2C | 2D | 2E |
| Extremely improbable 1 | 1A | 1B | 1C | 1D | 1E |

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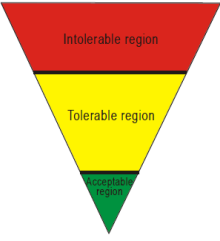
| Suggested criteria | Assessment risk index | Suggested criteria |
|---|---|--|
|  | 5A, 5B, 5C, 4A, 4B, 3A | Unacceptable under the existing circumstances |
| | 5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C | Acceptable based on risk mitigation. It may require management decision. |
| | 3E, 2D, 2E, 1A, 1B, 1C, 1D, 1E | Acceptable |

Figure 5-5. Safety risk tolerability matrix





RISK

➤ Risk "3 elements"

- Probability
- Severity
- Exposure

➤ All risks have three components: probability of occurrence, severity of the hazard, and the exposure of people and equipment to the risk.

FAA System Safety Handbook



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MANAGEMENT EVALUATION

➤ The purpose of the Management Evaluation is to

- review the suitability of the Quality System
- review the effectiveness, including Quality objectives, of the Quality System
- take necessary decisions based on the evaluation.

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SAFETY PHILOSOPHY



Communicate for Safety!
