MAYDAY!
MAYDAY!
MAYDAY!

Learning from aviation to prevent disaster

Eduardo del Valle
eduard.delvalle@uib.cat

Captain José Parejo
jose@panamedia.org
“Master, what is wisdom?”
“Never make mistakes”
“And how can I become wise?”
“By making mistakes!”

Zen Master Seung Sahn
TransAsia Airways Flight GE235

4 February 2015, 10:55 LT - Republic of China

Aircraft type: ATR 72-600
Operator: TransAsia Airways
Flight origin: Taipei Songshan Airport, SongSahn, Taipei (Taiwan)
Destination: Kinmen Airport, Kinmen (Taiwan)
Passengers: 53
Crew: 5

Fatalities: 43
Survivors: 15
Ground injuries: 2
Every accident, no matter how minor, is a failure of the organization

Jerome F. Lederer

Retrieved: January 2019
Risk management is a more realistic term than safety. It implies that hazards are ever-present, that they must be:

- Identified
- Analysed
- Evaluated
- Controlled or rationally accepted

Jerome F. Lederer
NASA director of the Office of Manned Space Flight Safety for the Apollo Program

Right now the odds of any one flight being your last one is remote: 1 to 1,000,000

Evolution of safety thinking in Aviation

   Retrieved from https://www.faa.gov/about/initiatives/sms/explained/basis/
Safety Management System - SMS

SMS is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.

4 SMS COMPONENTS

1. SAFETY POLICY
   Establishes senior management’s commitment to continually improve safety; defines the methods, processes, and organizational structure needed to meet safety goals

2. SAFETY RISK MANAGEMENT SYSTEM
   Determines the need for, and adequacy of, new or revised risk controls based on the assessment of acceptable risk

3. SAFETY ASSURANCE
   Evaluates the continued effectiveness of implemented risk control strategies; supports the identification of new hazards

4. SAFETY PROMOTION
   Includes training, communication, and other actions to create a positive safety culture within all levels of the workforce

2. Safety Risk Management - SRM: Hazard documentation and follow-up risk management process

Safety Information Management System

Risk Management Documentation

COLLECT

ASSESS

MITIGATE

MANAGE

DISSEMINATE

HAZARD

HAZARD

DATA

REACTIVE (Past)  ///  PROACTIVE (Present)  ///  PREDICTIVE (Future)

Assess the consequences
Prioritize the hazard

Develop: Control & Mitigation actions

Approve and implement actions

Bulletins / Safety reports
Seminars & workshops

Mandatory occurrence reporting
Incident reports
Accident reports

Surveys
Audits
Voluntary hazard reporting

Flight Data Analysis
 direct observation systems

Hazard Identification

LIBNOVA detects a risk in our system: Our 2 Storage Disks could be of the same provider and manufacturing batch.

Are we safe?

ONE MORE STEP IS NECESSARY

What is interesting here is to observe how the NDSA Levels are not designed to manage safety risk and, therefore, to detect potential risks associated with technical, human and organizational factors.

The 2 storage disks could fail at the same time in case of a manufacturing defect.
One more step
One new proposal

NEW NDSA CATEGORY
BASED ON SAFETY MANAGEMENT SYSTEMS

Safety Management System
a dynamic Risk Management System
based on Quality Management Systems (QMS)
principles in a structure scaled appropriately
to the operational risk, applied in a
safety culture environment.\(^3\)

1. SAFETY POLICY
   2.1 Management commitment and responsibility
   2.2 Safety accountabilities
   2.3 Appointment of key safety personnel
   2.4 Coordination of emergency response planning
   2.5 SMS documentation

2. SAFETY PROMOTION
   1.1 Training and education
   1.2 Safety communication

3. SAFETY RISK MANAGEMENT SYSTEM - SRM
   3.1 Hazard identification
   3.2 Safety risk assessment and mitigation

4. SAFETY ASSURANCE - SA
   4.1 Safety performance monitoring and measurement
   4.2 The management of change
   4.3 Continuous improvement of the SMS


Where are we in Digital Preservation?

We are in the 1970s in terms of safety compared with the Aviation and Aerospace industry.

We need to work on Key Areas of Improvement:
- Software & Hardware
- Human Resource Management
- Maintenance Resource Management
- Human Performance
- NDSA Levels of Digital Preservation & Safety Management System – SMS

Evolution of Safety in Aviation:
- Technical factors
- Human factors
- Organizational factors

1900s | 1970s | 1990s | 2000s | 2020s

1970s:
- We are in the 1970s
- SKY IS THE LIMIT

1900s

1970s

1990s

2000s

2020s

8 documents in the last 5 years (19 in the last 9 years)

We are in the 1970s compared with the Aviation and Aerospace industry.