
SMS Implementation Issues for a Large Air Operator

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Agenda

- SMS Concept: Precursor to an Implementation
 - Gap Analysis: What is new in SMS?
 - Positioning of Safety in the Airline
 - SMS Team
 - Inputs for an SMS
 - Risk Assessment
 - Output of an SMS
 - CEO Approval of SMS
- Towards a Successful SMS Implementation
- SMS: A Total Systems Approach
- European SMS Harmonization
- Conclusions

Gap Analysis: What is new in SMS?

- The Accident prevention and flight safety programme according to EU OPS 1.037 covers elements of an SMS
- Different structure is required
 - Safety **management** in stead of safety **monitoring**
 - Quality Management required as well: integrated approach?
- Gaps have been identified
- Existing or minor adjustments
 - Management commitment
 - Hazard identification process
 - Preventive risk mitigation process
 - Safety promotion and internal safety communication
- Extended challenges
 - Management responsibility for safety
 - Management of change
 - Just culture and its legal aspects
 - Preventive risk assessment
 - External safety communication

Positioning of Safety in the Airline

- Management of Safety by middle and upper management
 - Management by safety, commercial and quality objectives
- Support and information by VP Safety
- Safety Department: Risk Management support
 - Measurement of Safety Performance Indicators (SPIs) by SMS-Team
 - Definition of Safety Performance Targets (SPTs) with upper management
 - Risk assessment and internal SMS-Reporting
 - Management of change
 - Safety improvements where required
- Risk Management backup and monitoring
 - Safety Review Board
 - Safety Action Group
- Safety and Quality Management
 - SMS and QM may be combined to an SQMS for enhancement reasons
 - Proper Quality Management is a precursor
- SQMS Manual as basis for SMS work

SMS Team

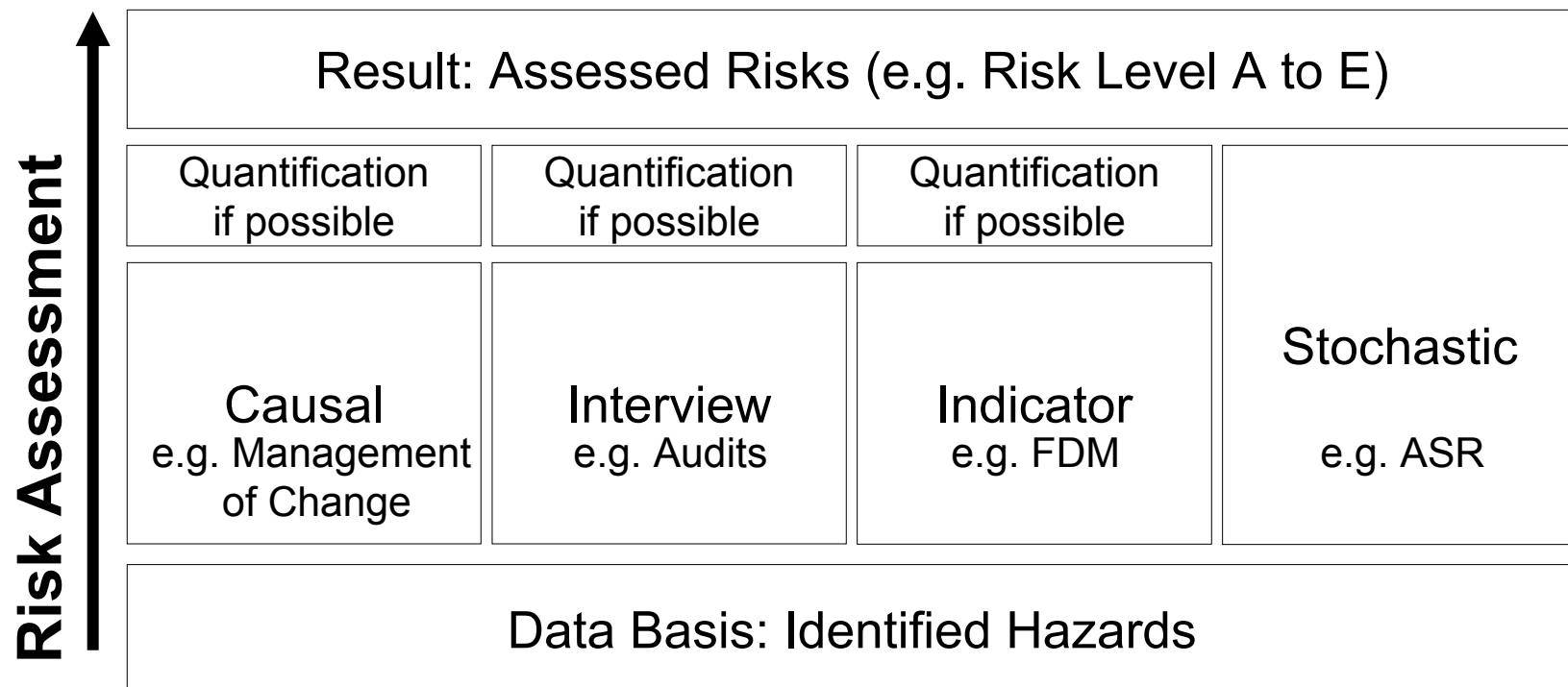
- New tasks require new tools
- New interfaces are required
- Organization
 - Safety Department becomes SMS Team (or SQMS Team if QM is included)
 - Main challenge is to formulate a common understanding what SMS really means
 - Organization between Accountable Manager and SQMS Manager required
- Organization has to cover
 - Hazard ID and Risk Management Support (HI&S)
 - ASR/CSR, All, FDM, other hazard identification, external sources, training, self assessments, questionnaires, change management assistance, risk assessment, risk mitigation assistance
 - Output and Information (OP&I)
 - Auditing, safety plan, internal reporting, external reporting, documentation
 - Safety Promotion and Training (SP&T)
 - Safety letter, safety seminars for the whole organization, seminars for external suppliers
- More focus on systematic and proactive work
 - Standardized risk assessment
 - More formalized output
 - Better documentation

Inputs for an SMS

- Aiming for Hazard Identification
- Safety reports and other confidential reports
 - It will not be possible to have an effective SMS system without consistent error reporting
 - Concept of Just Culture: Legal issues?
- Accident and Incident Investigations (AII)
- Flight data monitoring (FDM)
- Audit and control findings, training reports
- Hazards identified through the Management of Change
 - Cost effectiveness study -> safety impact study
- Internal and external databases
- Maintenance, manufacturers
- How is safety data exchanged?
 - Definition of risk and interfaces
- As a consequence a lot of data has to be processed to identify risks

Risk Assessment

- Systematic Risk Assessment is one of the core elements of an SMS
- Risk Assessment is still to be developed
- Risk Assessment requires a good amount of work
 - Sufficient time required



- Different approaches to RA required depending on needs
- The way RA is done has a great impact on the SMS

Output of an SMS

- Safety Communication
 - SMS Reporting
 - Safety Promotion and Training
- Aiming for continuous improvement of the SMS
- Safety Performance Indicators are the basis for SMS Reporting
 - Have to be developed by the operator in order to be sensitive to safety and robust
 - Should use all available data (ASR, All, FDM, audit findings, training reports, internal and external databases, maintenance, manufacturers...)
 - Can be based on causes, risks, risk owners, damages, findings or any combination
 - SPIs will differ between operators due to different cultural backgrounds, operations, size, aircraft types...
- Internal Reporting
 - Basis for management of safety, tailored to company needs
 - Basis for external reporting
 - Well documented, shows gaps and trends, should allow back testing
- External Reporting
 - Longer term basis for regulator oversight, have to fulfill minimum regulatory requirements
 - **Confidential in order to prevent the negative effect of business competition in the area of safety**
 - May be audited based on internal reporting

CEO Approval of SMS

- Means to manage complex airlines
- Focus on output rather than input
- Makes maximum use of information
- SMS is the way to performance based legislation
- Probably the only way for further safety improvements

But

- Thorough development required – there is no second chance
- Requires real commitment to safety on all levels of the organization
- Support of both CEOs and Regulators/NAAs is required
 - Incentives?
 - Confidence into an SMS has to build up over time
 - SMS concepts have to prove their practical use
 - Routine operation of an SMS will need some adjustments
- SMS must not lead to competition in regards to safety
- SMS should reward successful hazard identification and communication rather than discourage it
 - Danger of "good safety performance by ignorance"

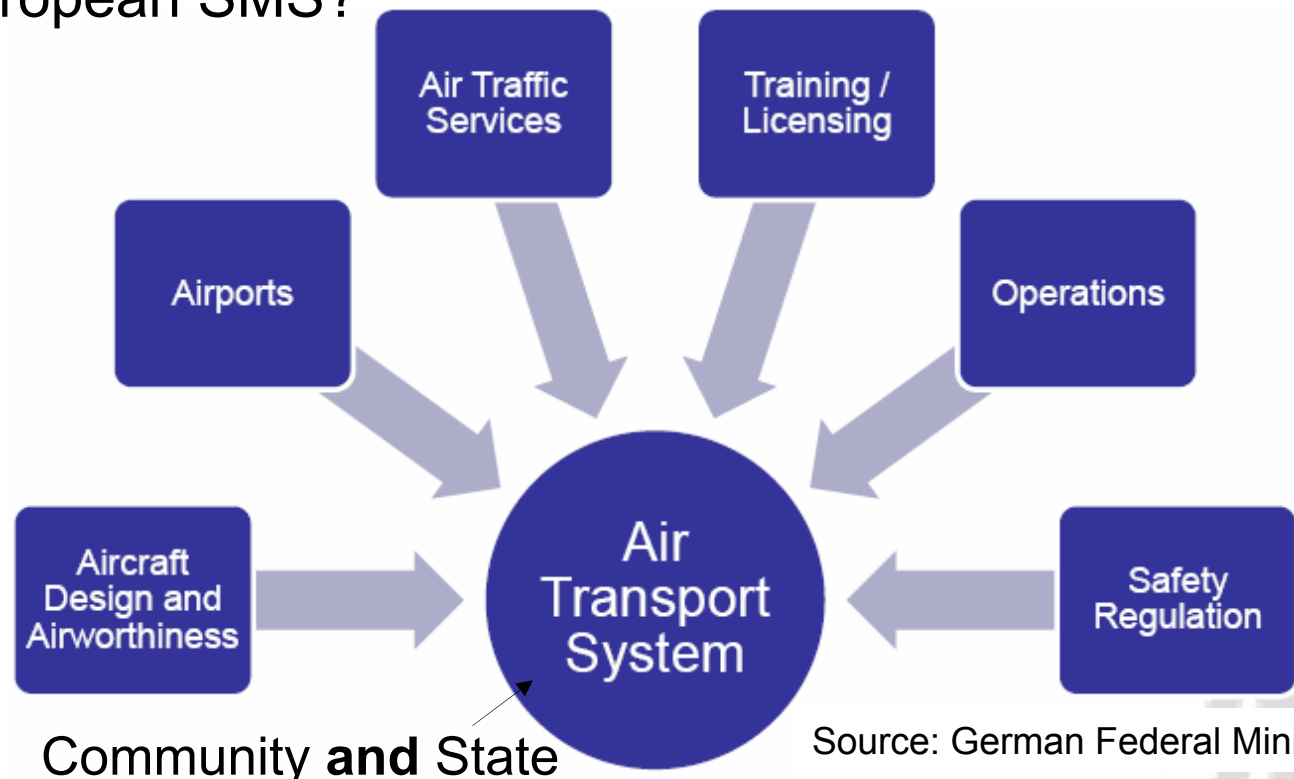
Towards a Successful SMS Implementation

- Clear time frame and regulatory guidance for SMS implementation to protect the airlines' investment in SMS
- Avoid unnecessary bureaucratic burden
 - Do not go unnecessarily above requirements which are described in existing documents like ICAO and IOSA.
- Keep national regulations in line with upcoming Implementing Rules
- Early involvement of all stake holders into the development of SMS regulations and implementation guidance material
- Support and practical guidance required for those implementing an SMS
- Make maximum use of best practices
- Research required in order to develop safety sensitive and robust SPIs

- Preparation for SMS Audits
 - What will be audited? (e.g. according to CAA-UK CAP 712?)
 - IOSA Audits required as well
 - Are there any pre-audits planned?

SMS: A Total Systems Approach

- Who oversees the Air Transport System: ICAO, EASA or NAA? All!
- As a result, the Community Safety Programme and the State Safety Programme have to be aligned
- European SMS Harmonization is required
- Link to non-European SMS?



Source: German Federal Ministry of Transport

European SMS Harmonization

- Coordination and interfaces between stake holders is required
 - Interfaces between the operator and its MRO providers, ground handling organizations, wet lease ...
 - Exchange of safety data to, from and between NAAs
 - ...
- It would be desirable to have a harmonized output in the EU from analyzed hazards and attributed risk levels
 - Common approach to SMS instruments (e.g. use of FDM, classification of occurrences, risk assesment tools, risk analysis matrix, ...)
 - EASA should develop a central SMS data bank
 - Safety departments should get access to ECCAIRS and other safety relevant data

But

- Airlines in individual Member States must have the freedom to mould their SMS into their business as they see fit
 - Airlines should be given certain amount freedom when developing their SMS (a system that works best for them), based on type of cultural aspects, operation, airline size etc.

Conclusions

- SMS is the right direction towards increased aviation safety

BUT

- SMS requires harmonized regulations
- SMS requires means to implement SMS in various areas of the operation
- SMS requires concrete, practical and usable guidance material based on best practices
- SMS requires effective safety tools including just culture
- SMS includes areas of research and development (R&D), e.g. SPIs
- SMS requires confidentiality in order to allow open risk communication
- SMS requires sufficient implementation time

- SMS regulation should be concrete but at the same time recognize different cultural (national, organizational, professional, safety) and organizational circumstances

- SMS has to promote safety, not hinder it

Thank you for your attention!

