

Implementing SMS



Carl Holt

Emirates Airlines, Group Safety - Manager Safety Management System



Scope

- Safety & SMS
- SMS Components
- Some Implementation Challenges & Suggestions



Safety:

“The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.”

ICAO Annex 19 - Definitions



Safety:

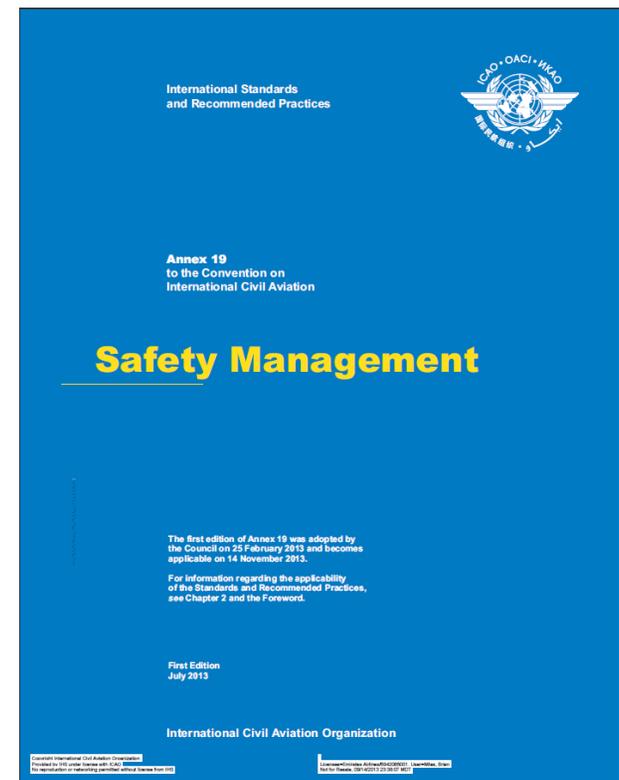
*“The state in which **risks** associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an **acceptable level**.”*

ICAO Annex 19 - Definitions

Safety Management System (SMS)



“A Safety Management System (SMS) provides a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.”



ICAO Annex 19 - Definitions

SMS - Safety Engagement



Components of an SMS



Safety Policy



International

International Standards and Recommended Practices

Doc 9859 AN/474

Safety Management Manual (SMM)

National

GCAA

CIVIL AVIATION

SAFETY MANAGEMENT

Company

Emirates

Safety Management

Revised 05 September

Safety Policy

We, the Senior Management of the Group, in support of the Corporate Value of Safety, and acknowledging our accountability for safety, support and endorse this Emirates Group Safety Policy. In this way, we demonstrate our commitment to the maintenance and continual improvement of the levels of safety, and the development of a generative Safety Culture within the Group:

- We will ensure compliance with all regulations, standards, and best business practice applicable to each business area.
- We will ensure, through Safety Communication activities, that all Group staff and contractors are aware of this policy and its principles, and that feedback and communication on safety related issues is provided.
- We will ensure that all necessary human and financial resources are provided to ensure that this policy is fully implemented.
- We will ensure that all elements of the regulatory Safety Management System are implemented within the airline.
- We will ensure hazards and risks are identified and managed by appropriate means.
- We will actively encourage all aspects of safety reporting, within a non-punitive reporting culture, where acceptable standards of behaviour are established and promulgated.
- We will conduct analysis and investigation of all safety related reports and events, to ensure that effective corrective and preventive actions are implemented.
- We will ensure that the results of analysis, investigations, and safety oversight activities are distributed to maximise the safety benefits from their outcomes.
- We will ensure that all management and staff are aware of their responsibilities with respect to safety performance.
- We will ensure that the departmental Safety Performance Indicators and Safety Performance Targets are linked to this policy.
- We will review this policy periodically to ensure its continued relevance and effectiveness.
- We will, through the Safety Training Programme, provide all staff with safety training, appropriate to their role, and
- We will ensure compliance with local regulations, and implementation of industry best practice in the areas of Health, Safety & Environment and Fire Protection & Prevention.

Timothy Clark
President Emirates Airline

Gary Chapman
President Group Services & dmta

Emirates dnata

Compliance with this policy is mandatory for all Group management and staff, and for our contractors and subcontractors.

IATA

ISAGO

IATA Safety Audit for Ground Operations

For Airlines

Emergency Response Planning (ERP)



Emirates

Incident Support Unit

Emergency Response
Procedures

GROUP SAFETY (GS)

Some of the Implementation Challenges



- Visibility of safety policy and delivery.
- Explanation of terminology e.g. ‘non-punitive’ & link to and application of ‘just culture’.
- Integration of Occupational / Workplace Health & Safety.
- Emergency response plans visibility & exercises.

Safety Risk Management

Choice of Safety Risk Management Tool(s)



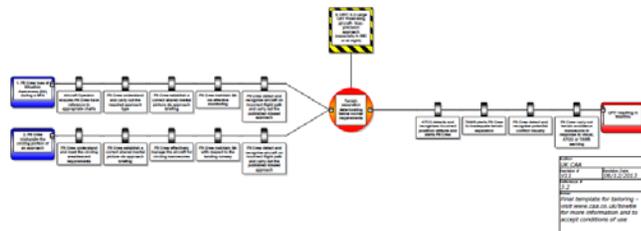
Question 2 What was the effectiveness of the remaining barriers between this event and the most credible accident scenario?				Question 1 If this event had escalated into an accident outcome, what would have been the most credible outcome?		Typical accident scenarios
Effective	Limited	Minimal	Not effective	Catastrophic Accident	Loss of aircraft or multiple fatalities (3 or more)	
50	102	502	2500	Major Accident	1 or 2 fatalities, multiple serious injuries, major damage to the aircraft	Loss of control, mid-air collision, uncontrollable fire on board, explosions, total structural failure of the aircraft, collision with terrain
10	21	101	500	Minor injuries or damage	Minor injuries, minor damage to aircraft	High speed taxiway collision, major turbulence injuries
2	4	20	100	No accident outcome	No potential damage or injury could occur	Pushback accident, minor weather damage
1						Any event which could not escalate into an accident, even if it may have operational consequences (e.g. diversion, delay, individual sickness)

Safety Events: e.g. 'ARMS' a 'proactive' risk assessment

Safety Risk Assessment Matrix						
		Risk Probability				
		Extremely Improbable 1	Extremely Remote 2	Remote 3	Reasonably Probable 4	Frequent 5
Risk Severity	Catastrophic A	1A Review	2A Review	3A Unacceptable	4A Unacceptable	5A Unacceptable
	Hazardous B	1B Review	2B Review	3B Review	4B Unacceptable	5B Unacceptable
	Major C	1C Acceptable	2C Review	3C Review	4C Review	5C Unacceptable
	Minor D	1D Acceptable	2D Acceptable	3D Review	4D Review	5D Review
	Negligible E	1E Acceptable	2E Acceptable	3E Acceptable	4E Acceptable	5E Acceptable

Note: Number / Letter code indicates Risk Index. Colour indicates Risk Index Category.

Safety Risk Assessments



Some of the Implementation Challenges

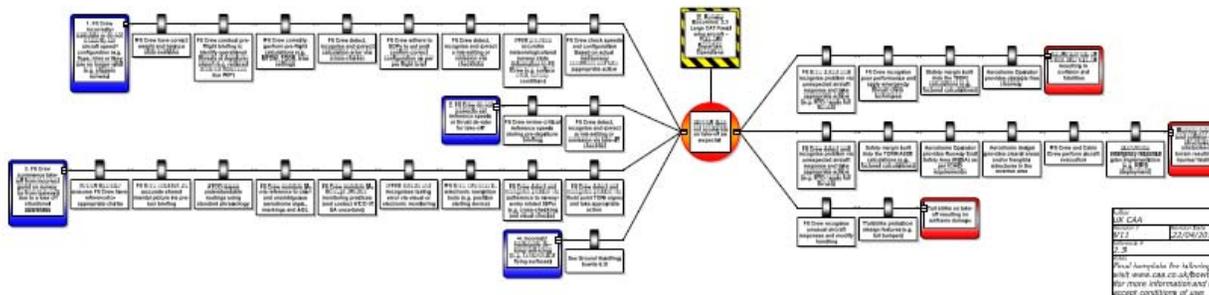
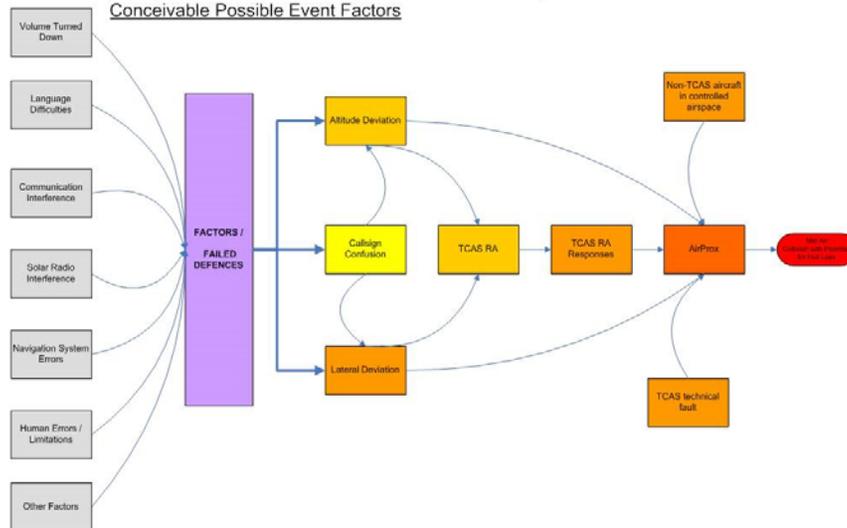


- Consistent definitions e.g. severity & probability.
- Understand any variations with other organizations.
- Barrier analysis: dependencies & effectiveness.
- How to present risk information to senior management.
- Who decides the acceptable level of risk (tolerability) and how.
- Validation of Safety Risk Controls – how is this to be done e.g. FODM; audits & links to SPIs/SPTs.

SPIs & SPTs



Example of 'Event Thread' for Mid-Air Collision Risk & Conceivable Possible Event Factors



Loss of Control

Runway Overrun / Excursion

CFIT

Runway Incursion / Ground Collision

Airborne Conflict

Ground Handling

Fire



Considerations for Setting SPIs/SPTs

What

- Should be measured?
- Are the definitions of the terms used?
- Are the estimates of data/reporting trends?
- Targets may be justifiable to set?

How

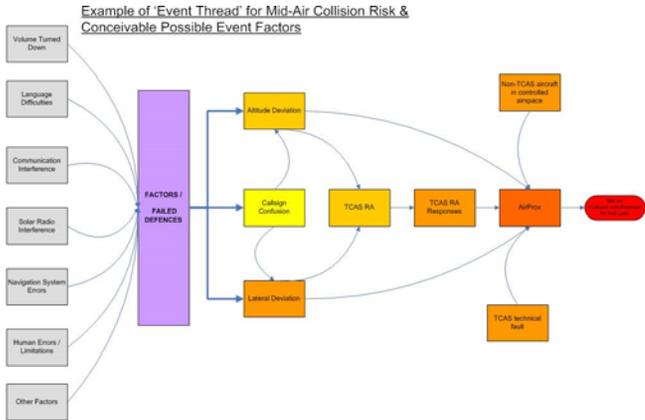
- Should the data be combined and sourced?
- Should information be base-lined?
- Should a target be specified?

Where

- Will the information come from? (ASR, FDM, ATC, etc.)
- Should the data be combined and sourced?

Why

- Is there safety justification/benefit?



Example of SPI / SPT Format



SPI	Title of SPI e.g. EGPWS 'Pull Up'; Turbulence Injury
Area of Safety Concern	E.g. CFIT; turbulence injuries
Safety Aim / Objective	Example – Zero instances of CFIT; risk to be as low as reasonably possible
Definition	International definition if possible otherwise document definition
Information Source(s) & Expected Reliability for Source	Where will be data come from? E.g. Air Safety Reports; Audits; Flight Data Monitoring
Data Source(s) for SPI	Data source for SPI e.g. SDCPS
Reporting Period	E.g. Weekly / Monthly / Annual
Data Display Criteria	E.g. Count; Rate by 1000 sectors; flight hours etc
Alert Level	E.g. 75% of SPT level; 1 standard deviation of 12 month rolling average
SPT	What (if any) SPTs to set – data collection; zero; reduction of 5% on previous year
Safety Action Plan	Outline of Safety Action Plan

Some of the Implementation Challenges



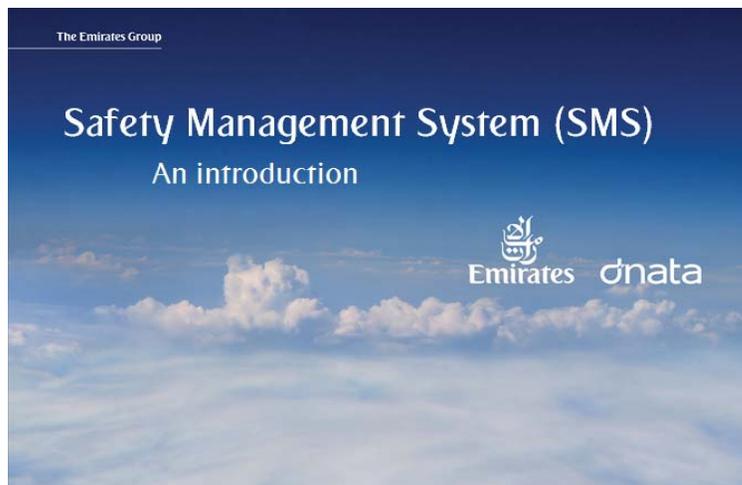
- **SPIs** – phased, risk based approach.
- **SPIs** - clear definitions (ideally internationally agreed), if not possible then knowledge of any differences of definitions e.g. deep landings.
- **SPIs** – influences on SPIs: internal / external / both (e.g. TCAS RA) – integration of Human Factors.
- **SPIs** – communication: International – State / Regulatory – Operator/Service Provider & link to SSPs
- **SPTs** – what to set: not yet; zero; reduction.
- **Safety Action Plans** – who does what; link to any external organizations e.g. ATC, regulators; link to validation of Safety Risk Controls.

Safety
Promotion



Safety Training & Education

Safety Communication



**Safety
Promotion**

Safety Training & Education: Levels & Content



Accountable Manager

Senior Manager

Manager / Supervisors

Individual

Safety Promotion

Safety Training & Education



The Emirates Group

Safety Management System (SMS)

An introduction

The Emirates Group

Example

Evaluate Probability
Select one option from the following choices 1 – 5. (Eg. 3)

Evaluate Severity
Select one option from the following choices A-D. (Eg. C)

Risk Severity	Risk Probability				
	Extremely Improbable 1	Extremely Remote 2	Remote 3	Reasonably Probable 4	Frequent 5
Catastrophic A	1A Review	1A Review	1A Review	1A Review	1A Review
Hazardous B	1B Review	1B Review	1B Review	1B Review	1B Review
Major C	1C Review	1C Review	1C Review	1C Review	1C Review
Minor D	1D Review	1D Review	1D Review	1D Review	1D Review
Negligible E	1E Review	1E Review	1E Review	1E Review	1E Review

Note: Number / Letter code indicates Risk Index. Colour indicates Risk Index Category.

Obtain Risk Index and Category
Combine the Risk Probability with the Risk Severity to produce the Risk Index. Based on the example above the Risk Index is 3C and the Category is "Review" as it is located in the amber region of the matrix.

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Engineering Quick Guide

What is SID?
SID is the Emirates Group's safety data system. It is a web based application for safety reporting. All Emirates Engineering employees can report a safety event using SID.

How do I access SID?
Click on the **Safety** tab from the Engineering Portal and from any groupworld page.

Why has SID been introduced?
SID has replaced a number of different safety data systems which had been previously used to capture and manage safety, hazard and injury reports across the Emirates Group. SID is also part of the Emirates Group compliance for the GCAA CAR Part X Safety Management System (SMS).

What are the available report types?
Engineering employees have access to four different report types. They are:
- Engineering Safety Report (ESR)
- Ground Safety Report (GSR)
- Workplace Hazard Report
- Workplace Injury Report

How do I submit a report?
Step 1: Select the required report from the drop-down list and click **Submit** as shown below.

How do I view my previous reports?
From the **My Events** tab you will be able to see the reports you have submitted and their status. Select the **Event ID** number to view your report.

Step 2: Complete the relevant fields and click **Submit**.

Step 3: Add any attachments (ensure that you have submitted the form before adding any attachments).

Emirates Engineering

29/09/2013 SID Quick Guide for Engineering V1.0

Objectives

- Learn about Group Safety
- Familiarise yourself with SMS components, structure and documents
- Understand the importance of identifying, assessing and reporting hazards
- Know how to report

Components of SMS

Group Safety

Safety Culture

Home | Audit | BI | Tools | Admin | Browse

My World

My Tasks | Actions For Me(?) | Actions Raised by Me | My Events

Event ID	Event Type	Task Name	Initiated Date
183872	Air Safety Report	Risk Assess.	01-Apr-2013 14:04
183959	Air Safety Report	Classification	01-Apr-2013 13:15
183966	Air Safety Report	Classification	01-Apr-2013 12:42
183965	Air Safety Report	Classification	01-Apr-2013 12:16
183963	Workplace Inj...	Investigation	01-Apr-2013 11:35
183962	Engineering Sa...	Risk Concur...	01-Apr-2013 11:25
183961	Air Safety Report	Classification	01-Apr-2013 11:17

Submit a Report

ASR Search

Welcome to the SID ASR search module, click here to open this. Please note the ASR search information is confidential and circulated to improve safety awareness amongst Emirates staff – the results should not be disclosed to, or discussed with non-emirate employees.

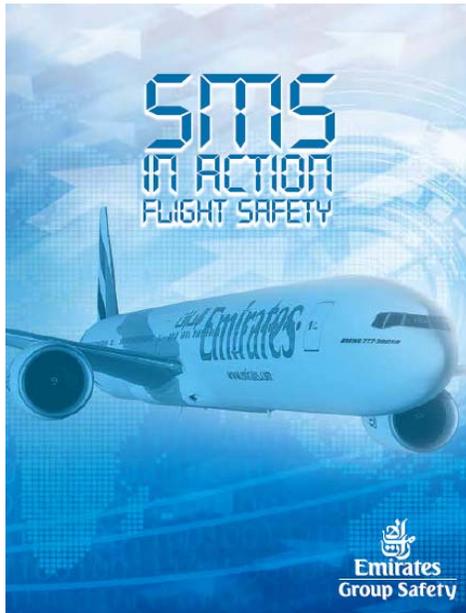
Want to know more?

Ask SID

All Incidents Raised Report

Safety
Promotion

Safety Communication



Safety Promotion

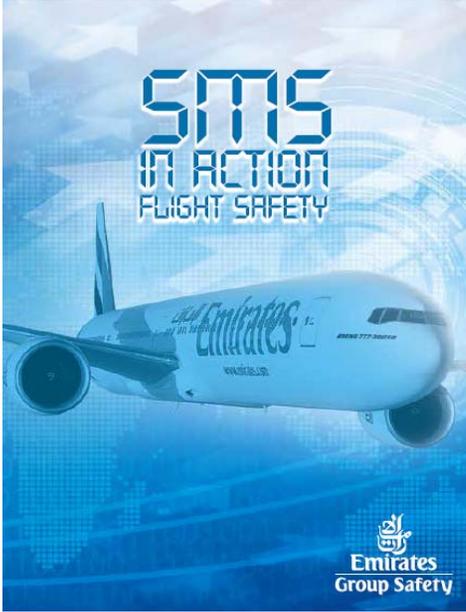
Safety Communication



Cabin Safety Weekly Summary

Addressees are reminded that the following information is confidential and circulated to improve safety awareness amongst Emirates staff. Under no circumstances should it be disclosed to, or discussed with non-Emirates employees.

Stay Healthy in the Heat



Flight Safety Weekly Summary

HAT THE FOLLOWING INFORMATION IS CONFIDENTIAL AND CIRCULATED TO IMPROVE SA UNDER NO CIRCUMSTANCES SHOULD IT BE DISCLOSED TO, OR DISCUSSED WITH NON EMIR.



Safety
Promotion

Some of the Implementation Challenges



- **Training** – define level(s) of training
- **Training** – content; language; recurrence
- **Communication** – varied methods appropriate to topic & audience
- **Communication** – partnerships & local empowerment

Summary



Safety Policy

Safety Assurance



Safety Risk Management

Safety Promotion

Thank You

