

Considering Aviation Safety System Performance Indicators

Sofema Aviation Services www.sassofia.com looks at typical performance indicators within an Integrated Operation

Flight Operation

Ground Operations

Maintenance

The following list serves as an introduction to a range of indicators which may be employed within your organisation to support the development of Key Indicators and to facilitate the measurement of Safety Performance across the business.

Using Data derived from the Compliance Quality Audit Program to support the Performance Metrics of the Safety Management System.

1/ Internal audits/compliance monitoring: all non- compliances

- a) Total number of findings per audit planning cycle & trend
- b) % of findings which have a safety significance.

2/ Internal audits/ compliance monitoring: significant non-compliances

- a) Number of significant findings versus total number of findings
- b) Number of repeat findings within 2 audit planning cycles

3/ Internal audits/ compliance monitoring: responsiveness to corrective action requests

- a) Average lead time for completing corrective actions per oversight planning cycle & trend

4/ External audits/ compliance monitoring: all non- compliances

- a) Total number of findings per audit planning cycle & trend

b) % of findings which have a safety significance.

5/ External audits: significant non-compliances

- a) Number of significant findings versus total number of findings
- b) External audits: responsiveness to corrective action requests
- c) Average lead time for completing corrective actions per oversight planning cycle – trend Compliance
- d) Consistency of results between internal and external audits/compliance monitoring
- e) Number of significant findings only revealed through external audits

Using Data derived from the various oversight evaluations performed on the SMS system

6/ Strategic management

a) The degree to which safety is considered in the organization's official plans and strategy documents - For example - to add as a final agenda item to all meetings

"Is there anything discussed during today's meeting which has a bearing on Safety or impacts in some way our SMS - If yes please identify an action and a responsible person."

b) the frequency with which the organization's official plans and strategy documents are reviewed with regards to safety – A typical meeting periodicity of the Safety Review Board would be – 3 months.

Important is the validity of the agenda to include all relevant areas and for the each identified action item to be allocated to a responsible person.

7/ Management commitment

a) The number of management walk-arounds related to oversight and implementation of the SMS process – Organisation Wide per month/quarter/year

Note there should be established criteria to provide a framework for the engagement with the SMS process

b) Number of management meetings dedicated to safety per month/quarter/year

A typical meeting periodicity of the Safety Review Board would be – 3 months.

Important is the validity of the agenda to include all relevant areas and for the each identified action item to be allocated to a responsible person.

8/ Turnover rate of key personnel

a) It is important for the business to retain its key workers and the average length of time an employee stays with the company is a measure of the overall employee satisfaction

b) All departing employees should have an exit interview to analyse the reasons for leaving.

9/ Oversight & supervision

To encourage positive feedback and reporting of Safety System positive behaviours and to show recognition within the organisation of such behaviour

a) To measure the number of cases where managers and supervisors provided positive feedback on safety-conscious behaviour of employees your staff per month/quarter/year

10/ Reporting

a) To measure the raw number of reports received per month/quarter/year & trend

b) To measure the response time for example % of reports for which feedback to reporter was provided within 10 working days

c) % of reports followed by an independent safety review

11/ Hazard identification – Risk Register Review

a) The number of accident/serious incident scenarios analyzed to support Safety Risk Management (SRM) per month/quarter/year

12/ SMS Risk Register Development

- a) The number of new hazards identified through the internal reporting system per month/quarter/year & trend

13/ SMS Risk Register External Factors

- a) The number of findings from external audits concerning hazards that have not been perceived by personnel/ management previously per month/quarter/year & trend

14/ Internal Safety Reports

- b) number of safety reports received from staff per month/quarter/year & trend

15/ Risk Mitigations

- a) Number of new risk controls validated per month/quarter/year
- b) % of overall budget allocated to new risk controls

16/ Training & Competence Management

- a) % of staff for which a competence profile has been established
- b) % of staff who have had safety management training
- c) Frequency for reviewing competence profiles
- d) Frequency of reviewing the scope, content, and quality of training programs
- e) Number of changes made to training programs following feedback from staff per month/quarter/year
- f) Number of changes made to training programs following analysis of internal safety reports per month/quarter/year

17/ Management of Change

- a) Number of organizational changes for which a formal safety risk assessment has been performed per month/quarter/year & trend & % of total
- b) Number of changes to Standard Operating Procedures (SOPs) for which a formal safety risk assessment has been performed per month/quarter/year & trend & % of total

- c) Number of technical changes (e.g., new equipment, new facilities, new hardware) for which a formal safety risk assessment has been performed per month/quarter/year & trend
- d) Number of risk controls implemented for changes per month/quarter/year & trend & % of total
- e) Aggregate value of % of changes (organizational/SOP/technical etc.) that have been subject to risk assessment

18/ Management of Contractors and Subcontractors

Contractors should be assessed before initial engagement and thereafter in accordance with a dynamic performance-based analysis of their service delivery.

- a) % of contractors whose safety performance has been assessed before engagement
- b) % of contractors whose safety performance has been assessed per month/quarter/year & trend & % of total
- c) % of contractors integrated with your company's safety reporting scheme
- d) % of contractors for which safety training has been provided
- e) % of contractors that have implemented training control procedures
- f) % of contractors that have a feedback system on safety issues in place with their customer
- g) Number of safety reports received from contractors per month/quarter/year & trend
- h) number of safety actions initiated following assessment of safety performance or safety reports received per month/quarter/year & trend

19/ Emergency response planning (ERP)

- a) Number of emergency drills per year
- b) Frequency of reviewing the ERP
- c) Number of Personnel trained on ERP per month/quarter/year
- d) Number of meetings with main partners and contractors to coordinate ERP per month/quarter/year

20/ Safety Promotion

- a) Number of safety communications published (per month/quarter/year)
- b) Number of trainings performed (per month/quarter/year)
- c) Number of safety briefings performed ((per month/quarter/year)

21/ Safety Culture

- a) The extent to which personnel consider safety as a value that guides their everyday work (e.g., on a scale from 1= low to 5=high)
- b) The extent to which personnel consider that safety is highly valued by their management
- c) The extent to which human performance principles are applied
- d) The extent to which the personnel take initiatives in improving organizational practices or report problems to management
- e) The extent to which safety-conscious behaviour is supported
- f) The extent to which staff and management are aware of the risks your operations imply for themselves and for others.

21/ Accident/Incident Related to Ground-Handling

- a) Number of incidents with ground handlers per month/quarter/year & trends
- b) Number of mass and balance errors per ground handler per month/quarter/year & trends
- c) Number of dysfunctions per ground handler per month/quarter/year & trends

22/ Air Operators

- a) Pilots Reports (PIREPS) per 100 take offs
- b) deferred items per month and aircraft
- c) In Flight Shut Down (IFSD) per 10,000 FH
- d) In Flight Turn Backs (IFTB) and deviations per 1000 take offs
- e) Number of MOR/ ASR/SDR- filed with the Civil Aviation Authority dispatch reliability:
- f) Number of delays of more than 15 minutes due to technical issues per 100 take offs
- g) Number of cancellations per 1000 scheduled flights due to technical issues
- h) Number of rejected take offs per 1000 take offs due to technical issues

23/ Maintenance planning/rostering related accident/incidents

- a) % of work orders for which a detailed planning has been made
- b) Maintenance Engineer Fatigue / Maintenance Error
- c) % of work orders with a difference > 10% between the expected lead time and the actual processing time
- d) % of work orders with a difference > 10% between the estimated work force and the actual needs
- e) maintenance error per 1000 Man Hours of Work

- f) % of work orders that required re-work
- g) Number of duplicate inspections that identified a maintenance error
- h) number of safety reports related to ambiguous maintenance data
- i) number of investigations performed following components removed from service significantly before expected life limit was reached

24/ Flight Operations

- a) Number of Traffic Collision Avoidance System (TCAS) resolution advisories per 1000 flight hours (FH)
- b) runway excursion per 1000 events
- c) number of unstabilized approaches per 1000 landings
- d) Number of runway incursions per 1000 take-offs
- e) Number of Ground Proximity Warning System (GPWS) and Enhanced Ground Proximity Warning System (EGPWS) warnings per 1000 take-offs
- f) Number of cases where flight preparation had to be done in less than the normally allocated time
- g) Number of short fuel events per 1000 flights
- h) Number of fuel calculation errors per 1000 flights
- i) Number of extensions to flight duty periods per month/quarter/year & trends

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