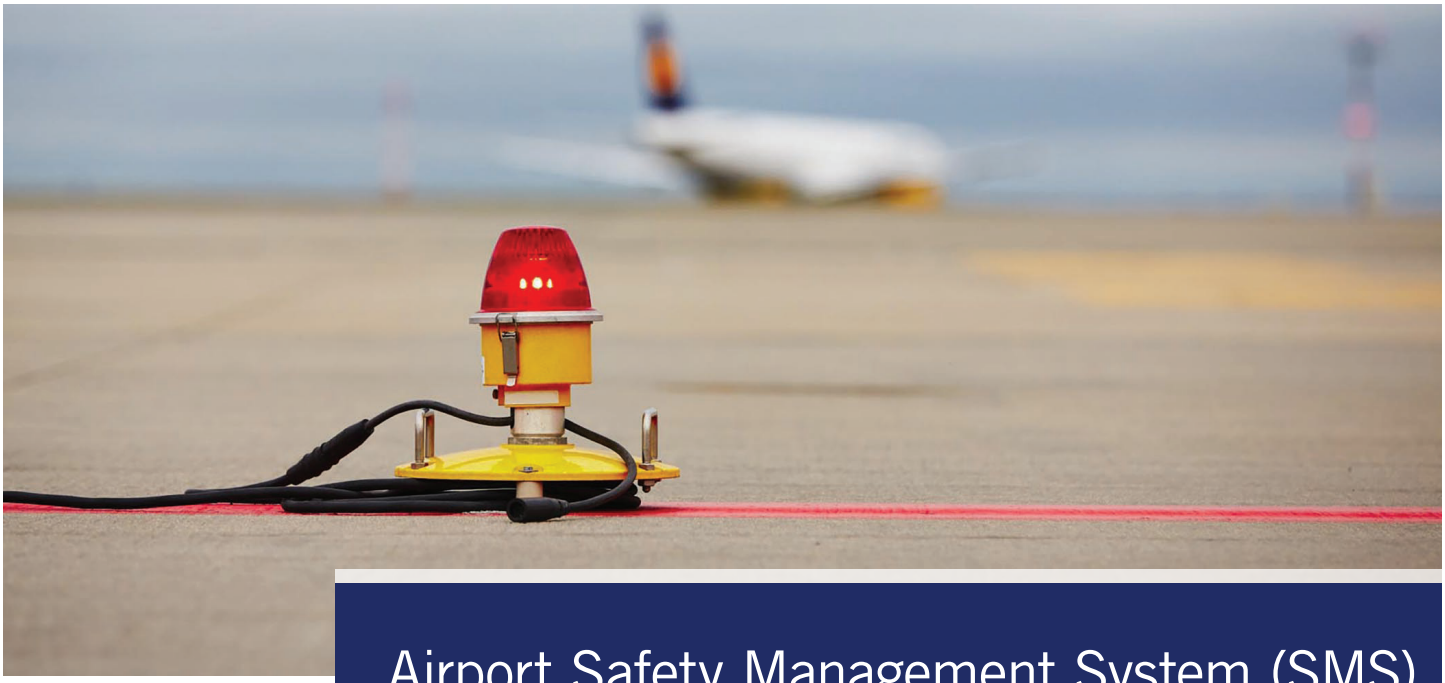

Airport Safety Management System (SMS)

SMS is becoming a standard throughout the aviation industry worldwide. Recognized by the Joint Planning and Development Office (JPDO), International Civil Aviation Organization (ICAO), and Civil Aviation Authorities (CAA), SMS has a regulatory mandate in many countries including Canada and the United States. In particular is ICAO's four pillars of compliance: Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion.

EDI has developed a world-class SMS solution based on Airport experience using IBM's Maximo Health, Safety, and Environment module with the inclusion of airport-specific configurations, workflows, and reports to address the unique regulatory requirements of SMS. The solution represents the integration of modern safety risk management and safety assurance concepts into a repeatable, proactive system. The Maximo SMS solution leverages the existing Maximo Asset Management platform which reduces the costs and resources to maintain and operate "stove-pipe" or stand-alone applications. The same centralized Information System can be implemented for critical safety processes:

- centralized electronic incident/hazard capture and tracking, audit management, safety case management and more
- automated notifications and escalations real time KPIs and reports
- supports other safety promotion processes

"The power that the tool brings is that through scheduled actions and scheduled items, and through a very powerful reporting tool, we're able to provide that feedback to the regulator. In a much more specific and a much more detailed manner. That once again was one of the big things that we needed, to make sure that our compliance was where it needs to be."

– Director of IT for Canadian Airport

Pre-Configured Solution to Support SMS

Based on multiple implementations at various airports, EDI has developed a pre-configured SMS solution. It is recommended that this base solution is deployed and allow users to adopt the new safety-related processes. The SMS solution has several key advantages:

- grouped applications into single SMS module configured objects/screens to match airport and SMS terminology

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- configured workflows for key processes developed standard data sets to support processes
- developed standard reports and KPI wildlife/ FOD reporting application
  - wildlife strikes
  - wildlife observations
  - FOD observations
- operating policies, operating procedures, and regulatory tracking
- qualifications and certifications tracking permit to work and enhanced safety plans

The EDI SMS solution uses IBM's Maximo as the base software platform and is supported by an underlying foundation of key applications that are needed to ensure that the identification and documentation of incidents, safety cases and audits are effective. These applications help provide consistent underlying data to be used in the coding of incidents, safety cases, audits, investigations, Root Cause Analysis (RCA), and the planning and execution of corrective actions (including work orders.) It is this data that drives much of the effectiveness of any reporting and analytics on these processes. They include hazards, locations, classifications, and the risk matrix.

Hazards

The Hazard Registry lists all of the identified hazards related to safety and environment. The registry is maintained by the respective coordinator at the direction of the safety and environment manager and is used to identify hazards associated with locations and assets. The Hazard Registry lists hazards and the identified mitigations, impacts, and causes associated.

The Hazard Registry is updated when a new hazard is identified that does not currently exist within the registry. New hazards can be identified as a result of an incident, audit, safety case, work order or independently of any of these processes. If a newly identified hazard is deemed valid, a coordinator requests a risk assessment be completed. Once completed, the risk assessment (which includes identifying the locations and mitigations to be associated) is forwarded to the coordinator who adds the hazard in the Hazard Registry.

Examples of hazards include:

- FOD on runway high voltage electric confined space
- Exposure to hazardous materials (hazard for each material)
- vehicle traffic
- etc.

Locations

Locations are used to specify and track the location of assets, events (like incidents,) or operations (like a job procedure.) Locations can be organized into logical hierarchical systems or network systems.

Using hierarchies or systems of locations provides the groundwork for gathering and tracking history. That history includes usage, maintenance and incidents at specific sites. With locations organized into systems, you can quickly find locations and can roll up histories into larger categories.

The SMS solution utilizes all of the locations and location hierarchies that have already been established in your Maximo EAM system, while allowing for the creation of new locations and location hierarchies. Locations are used on incidents, investigations, RCAs, safety cases, risk assessments, audits, audit findings, and work orders. They can also have numerous hazards associated with them.

Examples of Locations include:

- Runway 17 Left
- Taxiway A
- Terminal 1 Ramp
- Gate D45
- Baggage Claim Carousel 18

Classification

Classifications identify and characterize similar records in the system. A classification can describe a type of incident or event, such as an accident, wildlife strike, deficiency report, inspection finding, etc.

You use the Classifications application to create classifications and to establish classification hierarchies. You can also identify specific attributes (questions) to be captured for each record that has the classification applied. (For example, "Type of Wildlife" for a Wildlife Strike incident.) Classifications help simplify the task of creating records and managing and retrieving of historical data from applications.

You can also use classifications to define the workflow or escalation path for incidents. Classifications can be applied to incidents, investigations, RCAs, safety cases, risk assessments, audits and work orders.

Examples of Classifications include:

- Safety/Slip and Fall
- Safety/Vehicle Accident
- Environmental/Material Spill
- Environmental/Gas Emission
- Airside/Wildlife Strike
- Airside/FOD
- Airside/Near Miss

Risk Matrix

The Risk Matrix is used to identify consequences of hazards, to quantify the severity of those consequences, and to assess the probability of occurrence. Where there is a new hazard identified, an update to the Risk Matrix is usually required to identify all potential consequences of the hazard. Typically, a Risk Assessment is performed to identify the consequences of a hazard, which populates the Risk Matrix.

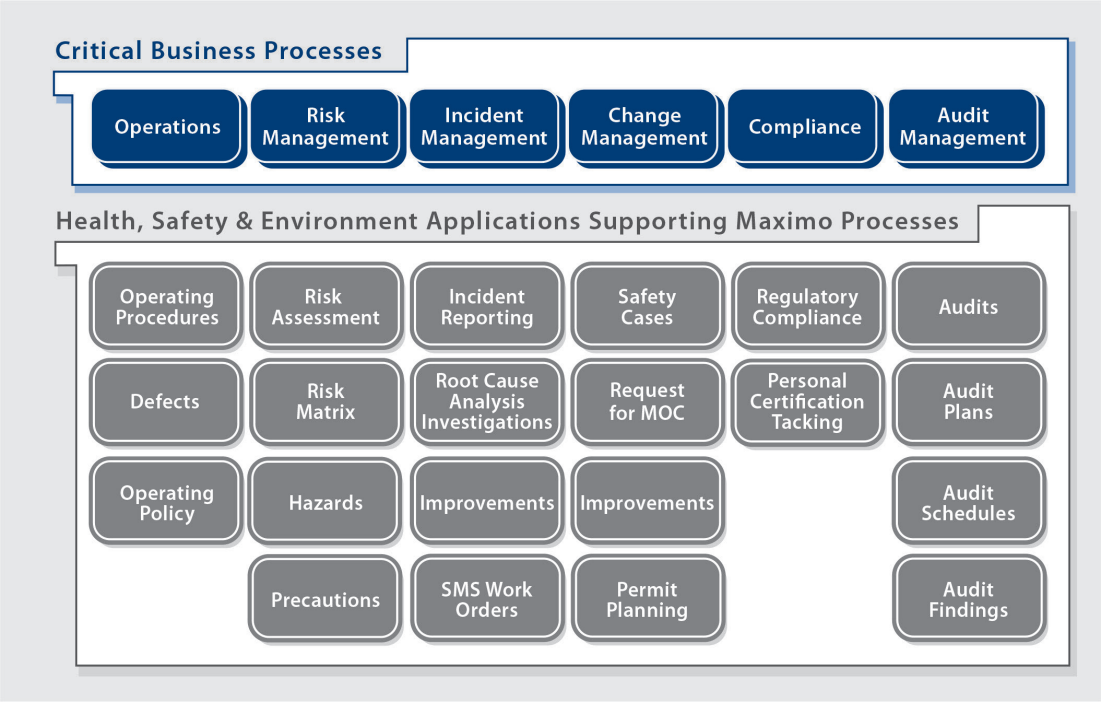
The data contained in the Risk Matrix can be used to supply organization or facility-level reports and to aid in the risk evaluation of incidents, safety cases, work orders via their association to specific assets, locations and operations.

Example of Risk Matrix entry:

- Consequence: FOD ingested into aircraft engine resulting in damaged engine
  - Severity: CATASTROPHIC
  - Likelihood: 1 - UNLIKELY
  - Risk Ranking: 4 - HIGH

The business processes that make up the Maximo SMS solution and provide the business with the detailed process control, documentation and historical information needed to ensure SMS is successfully implemented are:

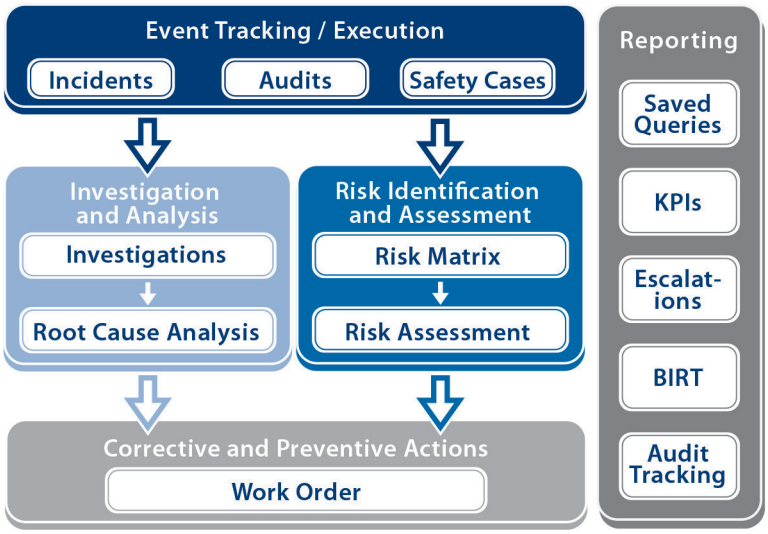
- InvesIncidents - any event that has a health,



safety, or environmental impact. The SMS Incident Management Process is intended to provide a consistent process for the documentation, management, tracking and reporting of any type of safety-related Incidents like a vehicle accident, a wildlife strike, or even an unsatisfactory condition noticed during a routine inspection.

- Investigations - an optional record in the incident process that captures the information necessary to prevent or minimize the impact of future similar defects (findings) and incidents. The SMS investigation process is used to schedule, manage, track, and report on specific incident or finding investigations.
- Root Cause Analysis (RCA) - used to determine the root causes of incidents (cause and effect,) as part of an investigation, in order to identify the necessary precautions and corrective actions to mitigate repeat incidents. The Root Cause Analysis Process is used to schedule, manage, track and report on specific Root Cause Analysis associated with an investigation.
- Safety Cases - a proactive evaluation of future planned changes, projects, or activities at the airport that could have potential safety-related risks and hazards associated with them. This evaluation provides an opportunity to identify preventive and/or corrective actions to complete prior to completing the change, project or activity. Safety cases are used to determine hazards, risks and risk mitigations associated with significant changes to aviation safety systems or equipment.
- Risk Assessments - used to determine the risks identified and hazards posed to aviation safety systems and equipment in order to initiate the risk mitigation steps through the corrective action plan process. A Risk Assessment identifies the hazards, consequences, precautions and ultimately "risk score" that a situation (safety case, incident, audit finding, location, or asset) carries.
- Audits - used to manage the inspection or examination of anything in an organization (location, asset, adherence to an operating procedure, etc.) to identify defects (findings) that might lead to or contribute to safety-related incidents. The audit module in the Maximo SMS system consists of applications for the following:
  - Audit Tasks
  - Audit Schedules
  - (Audit) Findings
  - Work Order Tracking

All of these records, generated as part of the business process, as applicable, become forever tied together from audit and reporting standpoint so the entire event can be reported on for regulators and audits at anytime.



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