

Ground Handling Safety Management Systems (SMS) – Part 1

Introduced by Sofema Aviation (SA)

The implementation of a Ground Handling SMS under Regulation (EU) 2025/20 requires a methodical, scalable approach driven from the top down by the Accountable Manager.

By establishing a clear Safety Policy, defining targeted safety objectives, and rigorously identifying and mitigating operational and human-factor hazards, ground handling organisations can successfully protect personnel, aircraft, and infrastructure while fostering a mature, proactive safety culture.

The aviation industry recognizes that ground handling operations form a highly critical interface in the overall safety of air transport.

- In accordance with the framework established by Commission Delegated Regulation (EU) 2025/20, organisations providing ground handling (GH) services must assume full responsibility for the safe provision of their services.
- To achieve this, it is mandatory for these entities to develop, implement, and maintain a robust Safety Management System (SMS).

This document explores the foundational elements of a Ground Handling SMS, focusing on scalable implementation, the pivotal role of the Accountable Manager, the development of a formalized Safety Policy with clear objectives, and the critical processes of hazard identification and safety risk assessment.

Scalable SMS Implementation (ORGH.MGM.200)

According to point ORGH.MGM.200, a ground handling organisation is required to develop and implement a management system that is strictly proportionate to the type and complexity of its activities, its size, and its operational context.

- The ultimate goal of this system is to manage safety risks effectively, aim for continuous improvement, and foster a healthy safety culture throughout the organisation.

The Concept of Scalability

All organisations, regardless of their operational footprint, are exposed to safety risks, some of which can be highly significant.

- All foundational elements of a management system must apply to every organisation. However, the concept of "scalability" means that an operating management system does not need to be inherently complicated, excessively time-consuming, or overly expensive to be highly effective.

- Scaling an SMS does not mean arbitrarily choosing to apply certain elements while ignoring others; rather, it is about intelligently adapting the system to the organisation's specific operational context.

To determine how to scale an SMS, the organisation must evaluate a multidimensional set of factors regarding its context and the key risks it must manage:

Organisational Size: This involves evaluating the total number of employees, the number of stations where ground handling services are provided, the variety of services offered, the volume of flights serviced or passengers, and the number of aircraft operator customers.

Operational Complexity: The organisation must look at its hazard log, the complexity of its mitigation measures, the ratio of personnel to the complexity of assigned tasks, and the intricacies of its communication layers.

- Furthermore, it must consider the risks associated with the operating environment (e.g., congested aerodromes, extreme climates, mountainous regions) and the risks inherent to its specific business model (e.g., short turnaround times, commercial pressures, or high reliance on contracted services).

External and Internal Factors: Elements such as the economic and commercial environment, societal expectations, the existing safety culture, and the maturity of existing procedures must also be weighed.

Small vs. Complex Organisations

An organisation that maintains up to 25 full-time equivalent (FTE) employees on an annual average is classified as a "small GH organisation". For these entities, the SMS framework remains the same as for complex organisations, but the processes and procedures can be significantly simplified and combined.

- For instance, safety risk management can be efficiently performed using standard hazard checklists that are integrated directly into the organisation's daily activities, without the need for complex safety software.
- Conversely, complex structures are exposed to complex risks that require a highly robust, data-rich safety risk management process. Complex organisations must analyze collective data showing trends and frequencies of contributing factors, and their communication at operational interfaces will be significantly more demanding.

Maturity Levels

A ground handling organisation's SMS is expected to mature gradually through four defined levels:

1. **Present:** The components of the management system are defined and documented.

2. **Suitable:** The components are appropriate and meaningful for the specific size and complexity of the organisation's activities.
3. **Operating:** The organisation can evidence that the SMS components are actively in use and producing outputs.
4. **Effective:** The system achieves the desired outcomes, positively impacts safety, and continuously improves towards achieving established safety objectives.

2. The Accountable Manager's Role

A cornerstone of any effective SMS is the establishment of clearly defined lines of accountability and responsibility throughout the organisation.

- At the apex of this structure is the Accountable Manager, who holds direct safety accountability for the overall activities of the organisation.
- It is vital to distinguish between "accountability" and "responsibility." In the English language, "accountability" refers to an obligation that cannot be shared or delegated to another person. "Responsibility," on the other hand, refers to an obligation that can be delegated and shared, meaning individuals can be assigned specific duties or tasks.
- The Accountable Manager is part of the senior management team and holds the ultimate accountability for safety within the organisation. Their role is defined by several critical functions:

Resource Allocation: They are accountable for ensuring that all activities can be adequately financed and carried out in accordance with applicable regulatory requirements.

- They must guarantee that the organisation is appropriately structured and staffed with suitably qualified personnel.

Policy Endorsement: The Accountable Manager is directly responsible for signing the organisation's Safety Policy, thereby formalizing the highest level of management's commitment to safety.

Safety Promotion: Along with the rest of the senior management team, the Accountable Manager is expected to continually promote the safety policy to all personnel, establish safety performance standards, and take overall accountability for the organisation's outcomes.

Note - For organisations operating across multiple Member States, the Principal Place of Business (PPOB) is defined as the location where the Accountable Manager exercises their role, where corporate financial functions are executed, and where the effective control of business strategy and continuity takes place.

- This ensures that the Accountable Manager maintains tangible, physical oversight over the operations they are ultimately accountable for.

3. Developing a Formalized Safety Policy and Defining Safety Objectives

The management system must be documented, and its guiding philosophy must be enshrined in a formal Safety Policy.

- This document serves as the primary instrument for communicating the organisation's approach to safety.

The Safety Policy

The Safety Policy must be a clear statement expressing senior management's commitment to safety and the implementation of the SMS. To be effective and compliant, the Safety Policy should:

- Be signed by the Accountable Manager.
- Clearly identify safety as the highest organisational priority, explicitly placing it above commercial, operational, environmental, or social pressures.
- Reflect commitments to proactive and systematic safety management, including the provision of appropriate resources.
- Emphasize the responsibility of all ground handling personnel to comply with applicable regulations, standards, and procedures.
- Be communicated with visible endorsement throughout the entire organisation.
- Be periodically reviewed to ensure it remains relevant to the organisation's evolving context.

A critical element of the Safety Policy is the promotion of a "just culture." The policy must encourage non-punitive, free, and frank reporting of any safety-related occurrences, hazards, or near misses.

It must clearly delineate between acceptable and unacceptable behaviors, indicating the conditions under which disciplinary actions would not apply (e.g., inadvertent errors) versus those that constitute intentional acts or reckless conduct.

Defining Safety Objectives

The Safety Policy is supported by specific safety objectives that address the organisation's most significant operational risks.

- These objectives form the basis of the organisation's safety performance monitoring. For a business environment that is continually evolving, due to changing activities, crises, or operational deficiencies, these objectives must be regularly updated.

The organisation must establish safety performance indicators to measure whether these objectives are being met.

- Indicators can include the volume of safety reports generated, the number of occurrences resulting in aircraft damage, trends identified through safety audits, and feedback from staff cultural surveys.

4. Hazard Identification and Safety Risk Assessment in Ground Operations

The core operational engine of an SMS is the safety risk management process.

- The ground handling organisation must establish a formal process to identify safety hazards, assess the associated risks, and implement effective mitigation measures to reduce those risks to an acceptable level.

Hazard Identification

A robust hazard identification process relies on a combination of reactive, proactive, and predictive methods of safety data collection.

- The organisation must systematically collect, record, analyze, and generate feedback about hazards that may affect ground handling services.
- Importantly, identified hazards must include those generated by human factors, as well as those stemming from complex organisational set-ups or operational interfaces (e.g., contracted third-party services or multi-layered supply chains).

Safety Risk Assessment

Once hazards are identified, the organisation must conduct a formal analysis of the risks in terms of their likelihood and the severity of their potential consequences.

- Many organisations utilize the ICAO Safety Risk Matrix to facilitate this.
 - **Severity:** Graded from 'A' (Catastrophic) down to 'E' (Negligible).
 - **Likelihood/Probability:** Graded from '5' (Frequent) down to '1' (Extremely improbable).

Based on this matrix, risks are classified into a tolerability index:

- **Intolerable:** Requires immediate action to mitigate the risk or stop the activity. Preventative controls must be enhanced to bring the risk index down.

- **Tolerable:** The risk can be tolerated based on existing mitigations, though it may require a specific management decision to accept the risk.
- **Acceptable:** The risk is acceptable as is, and no further mitigation is required.

The results of these assessments, along with the required controls and the personnel responsible for applying mitigation measures, must be recorded in a hazard log or Risk Register.

Addressing Human Factors and Fatigue

The ground handling environment relies heavily on human performance. Industry data highlights that human or operator errors are responsible for over 90% of accidents involving damage to aircraft and infrastructure on the ground.

- Common root causes include poor training, failure to follow standard procedures, communication breakdowns, and work pressure.

To optimize human performance, the SMS must account for human factors. A widely used concept in aviation is the "Dirty Dozen"—twelve common preconditions for human error. The Dirty Dozen consists of:

1. Lack of communication
2. Distraction
3. Lack of resources
4. Stress
5. Complacency
6. Lack of teamwork
7. Pressure
8. Lack of awareness
9. Lack of knowledge
10. Fatigue
11. Lack of assertiveness
12. Norms ("the way we do things around here").

Organisations are strongly recommended to conduct analyses of these human factors within their specific operations to build targeted countermeasures.

*The regulatory reference for integrating human factors into safety risk management is **GM3 ORGH.MGM.200(b)(2)(ii) General requirements for the management system — HUMAN FACTORS AND SAFETY HAZARDS**.*

This Guidance Material supports Annex I (Part-ORGH) to Commission Delegated Regulation (EU) 2025/20.

It highlights that human or operator errors account for over 90% of accidents involving damage on the ground and explicitly recommends analyzing human factors (using tools like the "Dirty Dozen") to target root causes and implement mitigation measures.

To effectively analyze human factors and build targeted countermeasures within specific operations, a ground handling (GH) organisation can implement the following strategy:

1. Adopt a Human Factors Framework

- **Utilise the 'Dirty Dozen':** Use the "Dirty Dozen" framework (which includes factors like fatigue, stress, distraction, pressure, and lack of communication) as a standard taxonomy to categorize risks during safety risk assessments.
- **Ergonomic Task Mapping:** Evaluate physical and cognitive workloads for high-risk tasks, factoring in environmental stressors (such as noise or severe weather) and the ergonomic design of the workspace or ground support equipment.

2. Enhance Safety Reporting and Investigation

- **Update Reporting Tools:** Ensure the internal safety reporting system is designed to capture human performance data alongside technical or operational failures.
- **Deep-Dive Root Cause Analysis:** Train safety investigators to look beyond the immediate unsafe act to identify latent organisational factors, such as aggressive turnaround schedules, confusing procedures, or inadequate supervision.

3. Develop Targeted Countermeasures

- **Fatigue Risk Management:** Proactively organize shift patterns to avoid severe disruptions to sleep cycles (e.g., minimizing alternating day/night duties) and build in adequate rest breaks, particularly for roles requiring high concentration.
- **Procedural Design:** Redesign standard operating procedures and checklists to minimize reliance on memory. Ensure these procedures are realistic, co-developed with front-line personnel, and account for typical human performance limitations.
- **Balanced Resource Allocation:** Maintain an appropriate ratio of experienced full-time employees to temporary or seasonal workers to ensure operational teams possess sufficient competence and are never left unsupervised in critical roles.

4. Foster a Just Culture and Continuous Training

- **Human Factors Training:** *Integrate human factors awareness into all initial and recurrent training programs. Teach staff how to recognize the onset of human errors and equip them with assertiveness techniques to speak up when safety is compromised.*
- **Implement a Just Culture Policy:** *Clearly separate inadvertent mistakes from reckless conduct to encourage open, non-punitive reporting, ensuring that personnel do not fear unwarranted disciplinary action when reporting errors.*

Fatigue Management: Fatigue is explicitly recognized as a major hazard.

- Fatigue can be induced by harsh environmental conditions (e.g., extreme weather, noise), heavy physical labor, excessive duty hours, personnel shortages, or disruptive shift patterns.
- Organisations must ensure a minimum level of control to prevent fatigue by planning activities safely.
- Mitigation measures include integrating regular rest breaks, providing adequate time between shifts to allow for sleep, avoiding alternating day/night duties, and implementing special procedures (like additional supervision) if operational urgencies require extended working hours.