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Theme 2: Improving aviation safety

Topic 2.2: Management of aviation safety

SAFETY MANAGEMENT SYSTEMS

(Presented by the International Air Transport Association)

SUMMARY

Safety management systems (SMS) provide the organizational structure, resources, policies and procedures required for airlines to mitigate risk, thereby ensuring attainment of the highest possible level of operational safety. An SMS provides a systematic approach to manage operational risk through the integration of safety, quality and security management principles. Accordingly, IATA believes that all airlines should benefit from safety management systems and has therefore undertaken measures designed to assist in their development and implementation.

IATA recognizes that the design of individual safety management systems will depend upon the specific airline requirements. Nonetheless, in order to globally harmonize its SMS concept with airlines, IATA has developed an SMS template, which can be tailored to meet the needs of a particular operating environment.

1. INTRODUCTION

1.1 Aviation can never be entirely risk free. While risk can never be completely eliminated, it must be reduced to as low a level as is reasonably practicable to ensure maximum safety and operational efficiency. The primary requirement for a safety management system (SMS) is to establish a management system that has the necessary processes and procedures in place such that operational safety is maintained at this acceptable level (risk management) and specified operational results are always achieved (quality management). Unlike traditional methods, which typically identify safety deficiencies

after undesired events, safety management systems proactively identify and reduce causative hazards and their associated risks.

1.2 Given their importance to aviation safety, safety management systems are an integral component of the IATA Six Point Safety Programme, which focuses IATA's initiatives on those areas considered to be most critical to aviation safety. In addition to SMS, the individual segments of the Six Point Safety Programme include: safety auditing (IOSA); flying operations; infrastructure safety; safety data management and analysis; and cargo safety. In light of its place in the Six Point Safety Programme, safety management systems are of the highest priority within IATA and several measures have been undertaken to ensure that airlines realize the potential benefits that an SMS can offer.

1.3 To date, IATA has published *Safety Management Systems: The Senior Airline Manager's Implementation Guide*, which provides a high level account of SMS components and their integration into the airline's corporate structure. In an effort to continually refine the safety management system concept, IATA has formed an SMS task force comprised of safety, quality and security experts throughout the industry whose mandate is to revise the current literature and create an interactive risk assessment tool for airline managers.

1.4 The safety management system concept is a fundamental component of the IATA Operational Safety Audit (IOSA) and is harmonized with the organizational concepts contained therein. As a result, airlines undergoing IOSA adopt SMS principles, ensuring that the appropriate resources, policies and procedures are in place to systematically manage operational risk and ensure that the system consistently meets specified requirements and produces stated outcomes.

1.5 Effective implementation requires that an airline's management team be well-educated with regard to SMS concepts. Accordingly, IATA offers a comprehensive complement of SMS training programmes for airlines, airports as well as civil aviation authorities.

2. COMPONENTS

2.1 Given the disparity in airline organizations, cultures and operating environments, there can be no single SMS solution. While the objective to achieve the highest level of operational safety remains constant, each airline must consider its requirements and define the structure of its safety management system accordingly. Nonetheless, as IATA's SMS concept is harmonized with airlines and regulators globally, the following components are considered fundamental elements of an effective SMS:

2.1.1 A **Policy Statement**, which provides the airline's fundamental approach toward safety and promotes a positive safety culture. The Policy Statement, signed by the organization's Accountable Executive, must be based on a genuine commitment to safety by the airlines senior management team.

2.1.2 A **Statement of Accountabilities**, which clearly defines safety responsibilities of managers and employees at different levels in the organization, with effective deputation of responsibilities established for operationally critical areas when principal office holders are absent.

2.1.3 An **Accident Prevention Programme**, which ensures the capture, analysis and dissemination of information used to identify operational hazards, and raise awareness throughout the organization. Such a programme, will necessarily include an incident reporting system, flight data analysis as well as regular analysis of accident reports.

2.1.4 A **Risk Management Programme**, comprised of systematic risk identification, expressed in terms of severity and likelihood of occurrence. The objective being to quantify risk in order to devise effective mitigation strategies.

2.1.5 An **Emergency Response Programme**, consisting of contingency plans to ensure the proper response demanded of different parts of an organization when an emergency arises.

2.1.6 A **Continuous Improvement Programme** comprised of: a Safety Committee to assess achievement of SMS objectives on a quarterly basis; annual senior management reviews to ensure the appropriate allocation of resources; internal audits to ensure proper functioning of specific airline departments; as well as external audits such as IOSA.

3. THE FUTURE: A MULTI-DISCIPLINED APPROACH

3.1 Evolution of safety management systems requires continuous refinement of the principles employed in their development and implementation. Accordingly, IATA is currently involved in the integration of safety, quality and security management principles to ensure that airlines adopt a comprehensive approach to risk mitigation going forward. While quality, safety and security management work in partnership, the degree of integration is dependent upon the organizational culture of each airline.

3.2 Safety management is defined as the systematic management of the risks associated with flight operations, related ground operations and aircraft engineering or maintenance activities to achieve high levels of safety performance. Safety management is data driven and therefore depends upon robust flight data analysis, incident reporting and accident review programmes to ensure that causal factors are accurately identified and mitigated.

3.3 Quality management provides the organizational structure, accountabilities, corporate resources, processes and procedures necessary to establish and promote a system of continuous improvement, in order to proactively enhance safety throughout the organization. A QMS uses a different tool kit than the Flight Safety Department in order to achieve the same goal: an acceptable level of operational safety. The objective of QMS activity is to proactively identify weakness in the management system, corporate documentation, operational processes, procedures, and employee training to support the continuous improvement programme.

3.4 A security management system (SEMS) is an element of the corporate management responsibility, which sets out a company's security policies and its intent to manage security as an integral part of its overall business. As with other SMS components, SEMS utilizes a quality management approach to security that should become woven into the fabric of the organization and become part of its culture.

3.5 Given the intricacies involved with integration of the above disciplines, the mandate of IATA safety management systems task force is to develop the guidance required by senior airline executives to successfully integrate safety, quality and security management principles into an effective SMS. The deliverable will be a revised ***Safety Management Systems: The Senior Airline Manager's Implementation Guide*** publication by year end, which will provide a multi-disciplined approach capable of consistently managing risk in an increasingly complex environment.