



DIRECTORS GENERAL OF CIVIL AVIATION CONFERENCE ON A GLOBAL STRATEGY FOR AVIATION SAFETY

Montréal, 20 to 22 March 2006

Agenda Item 2: Improving aviation safety 2.2: Management of aviation safety

SUCCESSFUL SAFETY MANAGEMENT SYSTEM (SMS)

(Presented by the IFATCA)

SUMMARY

Introducing safety management systems (SMS) into air traffic management (ATM) presents challenges to service providers, national regulatory authorities and operational air traffic services staff. The development of a safety culture within the ATM organization is an essential element of a successful SMS, which, in turn, impacts on management/labour relationships. Important issues face all stakeholders and as such there is a need for change in attitudes and the development of trust among all parties if SM systems are to succeed.

1. INTRODUCTION

1.1 Air Traffic Management is driven by the need to increase capacity of the air traffic services (ATS) system to meet the increasing demands of the airline industry. This has necessitated major structural changes within the provision and regulation of ATS, and includes such diverse developments as harmonization (both regional and global), the commercialization of ATS providers and the separation of the regulatory function from the provision of ATS. Safety within the ATS system has always been the overriding priority and the responsibility of the State. However, a move towards harmonization within regions has placed this status in doubt. An identified weakness is the way that different States have applied safety standards, prompting ICAO to mandate the use of safety management systems in an attempt to standardize the approach to safety.

1.2 Risk is ever-present and cannot be eliminated, but in the aviation system it must be reduced as much as is reasonably practicable. A good safety management system gives the service provider a management tool to ensure a systematic and proactive approach to safety throughout the whole ATM organization. A positive safety culture needs to be developed by ANSPs from board level to the

operational level. Ownership of SMS must be seen to be inclusive of all staff, if not it can be perceived that the SMS is in place only to protect management from responsibility for accidents or incidents, and thereby creating an atmosphere of distrust. Operational staff must be involved from the outset, as their operational input is essential to many SMS functions from safety assessment, hazard identification, risk analysis, incident reporting systems and competency issues.

1.3 Although the International Federation of Air Traffic Controllers' Association (IFATCA) is primarily concerned with the roles and responsibilities of controllers, it recognizes that interrelationships with other system elements is essential to ensuring safety of the ATM system is maintained to required standards. Everybody working in aviation should have a basic knowledge of safety management systems so that operational personnel and system experts are able to communicate on an equal footing when discussing the introduction of a new piece of equipment, a new procedure or a new human factors/resources related issue. Terms such as Target Level of Safety, Risk Management, Functional Hazard Analysis and Mitigation should be familiar ones.

1.4 A well-balanced SMS will provide a transparent, recorded system to manage safety and monitor system performance with the ability to input corrective/remedial actions when and where needed. It is necessary that a comprehensive reporting system(s) be in place that allows operation in a just environment that is non-punitive (excepting deliberate violations and gross negligence). By comparing agreed and established safety criteria with the performance indicators, system performance can be gauged and deficiencies identified.

2. DISCUSSION

2.1 Air navigation service providers may be subjected to a wide range of pressures including financial and operational which have the potential to conflict with safety initiatives. These pressures could increase if the service provision function should no longer be a State responsibility and is placed in the hands of an independent service-provider. A definite need exists to ensure that such conflicts of interest do not cause any reduction in safety levels. States must retain responsibility for ensuring that levels of safety achieved by the ATM service-provider are acceptable, both publicly and politically.

2.2 A healthy relationship between service provider and safety regulator is crucial to the achievement of safety objectives and the establishment of acceptable levels of safety. While this may be a simplistic observation, it highlights the requirement for safety regulators to be competent and experienced in the provision of ATM services. A comprehensive knowledge of safety management systems and associated procedures such as risk analysis and mitigations, safety cases, and safety assurance is required to ensure that proper oversight is achieved.

2.3 In any SMS, procedures should be in place for the development of a risk management process. A safety case should argue that a function is safe in a given context, and deal with hazard identification associated with each function that in turn, determines the risk, risk being the combination of the severity of an accident and the probability that it occurs. To reduce the risk to as low as reasonably practical, the severity and/or the probability have to be reduced.

2.4 Risk reduction arguments should be based on acceptable mitigations supported by objective argument and evidence. Mitigations can be related to equipment, procedures or people, but we should be aware that over-reliance on mitigating arguments particularly those involving controllers, could be detrimental to the process.

2.5 It is easy to make persuasive arguments in favor of controller mitigation resulting from his/her role in the ATM service. Some claims are acceptable (when relating to tactical control) because that is part of the controller task. Difficulties arise when talking about controller workload and use of controller support tools. If mitigation calls for the controller to take over extra function(s) in the event of a specific system failure, then his/her workload must be examined carefully as he/she could be unsuccessful due to high workload. Mitigation should be subject to the hazard identification and risk management process and take into account all that includes the controller as mitigator. An alternative to controller mitigation is likely to be expensive, but providers must not be persuaded solely on the cost factor.

2.6 Planning for safety is just as important a part of any project as planning for operational use. Consideration should be given to developing a safety plan that details:

- a) scope of the project/system being considered;
- b) planned safety activities for different project phases;
- c) when/at what stage in the project safety activities will be carried out; and
- d) staff responsibilities for contributing to the safety activities.

2.7 The introduction of controller support tools gives further cause for concern, where the tools will be used for capacity enhancements. The argument used for increasing controller workload may apply but the potential to increase capacity is significant and may exceed the average controller's capabilities. Controller mitigation as the sole means is not an option in this case and the risk management process will need to be considered in that light.

2.8 Every change to an existing system or introduction of a new system should be accompanied by a documented safety assessment. The safety significance or perceived insignificance of any amended/changed process may determine the amount of justification required to satisfy both the operator and the regulator that the system is safe, but all changes should undergo the same detailed scrutiny.

2.9 Performing a safety assessment early in a project can identify hazards that possibly impact system design. It is better that these hazards and their impact are identified early rather than incurring expense trying to change after hazards have been discovered. Only a fully documented safety case will provide arguments and evidence ensuring the procedures are safe at all stages.

2.10 IFATCA would expect that the safety regulator has a pivotal role to play in auditing service provider's safety cases to ensure that claims and mitigations were supported by objective argument based on substantial evidence. IFATCA believes an independent regulator should be made aware of all safety cases being processed and then to audit those involving major change or other developments. It is incumbent upon the service provider to assure the regulator that it meets both national safety requirements and his own requirements as derived from the SMS.

3. CONCLUSION

3.1 The Conference is invited to take into consideration that IFATCA believes that safety must be a priority throughout any service provider's organization. The SMS should be user friendly, not unduly bureaucratic and feature an incident reporting procedure based on the principle of "just culture."

Appropriate safety training should be provided to controllers and other operational staff to help ensure their participation in the SMS process is meaningful for them and the provider.

3.2 The safety case is an essential element of the safety management process for ATM. All changes to a system or the introduction of a new system should not be implemented until a satisfactory safety case has been produced with justified claims backed with strong arguments and reliable evidence to prove that the system is safe to operate. The level of justification is dependent on the complexity of the system and the number of involved stakeholders. Also, the existence of a safety case for system changes is not a guarantee of safety unless all the documented evidence is appropriate, reliable, and sufficiently detailed.

3.3 The role of safety regulation of ATM is key to the safety process therefore the development of a proactive safety culture is essential if safety management is to succeed. Safety regulatory personnel should be competent and experienced, have appropriate knowledge of safety management systems and safety oversight, and be an independent function of service provision.

— END —