



WORKING PAPER

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

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Theme 2: Improving aviation safety

Topic 2.2: Management of aviation safety

MANAGEMENT OF AVIATION SAFETY

(Presented by Canada)

SUMMARY

Transport Canada committed to the implementation of safety management systems (SMS) as a method of proactively managing the projected increase in aircraft incidents and accidents as a result of increased air traffic movements. An SMS approach is required because there will always be hazards and risks and proactive management is required to identify and control these threats to safety before they lead to mishaps. This working paper will outline the need to develop a common understanding of exactly what SMS means to each country, the relationship between operators and regulators under SMS, guidance material for operators, performance versus prescriptive regulations and the benefits of an SMS approach.

Action by the Conference is in paragraph 7.

1. INTRODUCTION

1.1 In 1999, Transport Canada committed to the implementation of safety management systems (SMS) as a method of proactively managing the projected increase in aircraft incidents and accidents as a result of increased air traffic movements.

1.2 Since then the International Civil Aviation Organization (ICAO) has supported this initiative with the announcement of upcoming amendments to the ICAO Annexes introducing SMS requirements in all areas of civil aviation.

¹ French version provided by Canada.

1.3 This working paper looks at the Canadian model of SMS and sets out several areas of interest that would benefit from an international forum.

1.4 Canada is a global leader in the development and implementation of SMS. From a regulatory perspective, Transport Canada has introduced requirements for all civil aviation document holders to implement a SMS. It is expected that by 2008 all Civil Aviation document holders will be required to implement a SMS.

1.5 An SMS approach is required because there will always be hazards and risks and proactive management is required to identify and control these threats to safety before they lead to mishaps. As flight safety issues involve all aspects of the “system” it is imperative that all areas of the organization participate in the SMS.

2. DEVELOP A COMMON UNDERSTANDING OF EXACTLY WHAT SMS MEANS TO EACH ICAO CONTRACTING STATE

2.1 It is evident that Transport Canada has a national perspective and understanding of SMS that bridges the civil aviation spectrum. The Canadian definition is that “...a safety management system is a businesslike approach to safety. A safety management system is a systematic, explicit and comprehensive process for the management of safety risks, that integrates operations and technical systems with financial and human resource management, for all activities related to an air operator or an approved maintenance organization’s certificate.”

2.2 As with all management systems, a safety management system provides for goal setting, planning, and measuring performance. It concerns itself with organizational safety rather than the conventional health and safety at work concerns. A company’s SMS defines how it intends the management of air safety to be conducted as an integral part of the company’s business management activities. An SMS is woven into the fabric of an organization. It becomes part of the culture; the way people do their jobs.

2.3 The international understanding of SMS and what it is varies. There are different interpretations about the actual content of the SMS and the accountabilities. Transport Canada’s model comprises six basic components: a safety management plan, training, documentation, safety oversight, quality assurance and emergency response preparedness.

2.4 Accountability is the cornerstone of the Canadian model. The nomination of the accountable executive is intended to provide the direction and leadership required to foster an appropriate “safety” culture and provide adequate resources to successfully manage the safety risks inherent to the organization.

2.5 Canada’s model builds on the work of leading safety experts and international bodies, who have been advocating that greater attention be paid to aviation safety at an organizational level. This means that problems, hazards, incidents and accidents are not only reported, but the associated risks are analyzed and appropriate action is taken. However, greater emphasis needs to be applied to develop a common harmonized interpretation of SMS.

2.6 It is also possible that a “flexible” approach to SMS development needs to be applied whereby more developed States have more stringent requirements. Whereas less developed States employ

a less rigid interpretation of SMS. It may also be necessary to develop implementation plans for SMS development that provide a starting point for implementation that reflects the national culture and idiosyncrasies.

3. THE RELATIONSHIP BETWEEN OPERATORS AND REGULATORS UNDER THE SMS

3.1 During the development stages of SMS it is critical that operators and regulators work together to develop the SMS. Most organizations do not have the expertise to successfully interpret the SMS requirements. As such the input of the regulator in defining the intent of the regulation will be critical to success.

3.2 Canada has been proactive in working with organisations in the development and implementation stages of SMS. This has included project work with most of the major airlines. This work has provided a plethora of information and has allowed Transport Canada to modify its approach to SMS. The information gleaned from these projects has also been used to develop guidance material, refine regulations and develop the Transport Canada regulatory assessment protocol.

3.3 Transport Canada has also begun work with small operators across Canada. The group includes air operator and approved maintenance organizations and airport operators. The lessons learned from this project will be used to improve regulations, guidance materials and to tailor the SMS programme according to the “size and complexity” of the organization.

3.4 In addition, communication of the regulatory and operational objectives of SMS is invaluable. Transport Canada conducted a national “Education and Awareness” campaign designed to foster a basic awareness. This was later supplemented by a communication strategy that included conferences, discussion groups and national forums. Change management is paramount in this effort and making people aware is a key element in managing any concerns.

4. SMS GUIDANCE MATERIAL FOR OPERATORS

4.1 A key challenge is providing adequate guidance to the industry regarding SMS. Transport Canada has a series of guidance booklets designed to build awareness of SMS. These include *Introduction to Safety Management Systems (TP 13739)*; *Safety Management Systems for Flight Operations and Aircraft Maintenance Organizations (TP 13881)*; *Risk Management and Decision Making in Civil Aviation (TP 13905)* and *Safety Management Systems for Small Aviation Operations (TP14135)*. The material represents a progressive growth in SMS knowledge. This approach is required to tailor the knowledge and the SMS to the size and complexity of the organization.

4.2 Additional information should include a guide to audit methodologies such as the *Safety Management System Assessment Guide (TP 14326)*. From the Canadian perspective this has become the de facto standard for SMS. It comprises basic expectations relating to what an SMS should contain and the criteria for understanding whether the system meets the minimum regulatory requirements.

4.3 In effect, the industry needs a clear set of instructions defining SMS and the regulator’s expectations. As such the materials should be continuously improved upon and changes should reflect actual operational inputs.

5. PERFORMANCE VERSUS PRESCRIPTIVE REGULATIONS

5.1 The Canadian Aviation Regulations are performance-based. Essentially, this means the regulator establishes the objective and the operator determines how they will meet the objective. In an SMS environment this will be critical to the successful implementation and on-going progress of the System. For example, a large operator's SMS will be substantially more complex than that of a small operator. Data collection and storage is an excellent example of this; any company that receives more than fifty flight safety reports per year will need an electronic storage system. For a two-person organization a manual filing system will be just as effective.

5.2 A prescriptive set of requirements will not provide the flexibility required to continuously improve the system. In fact, it could be argued that a companies initial SMS will be sufficiently different once implemented and effective because of the inputs and outputs of the system. For example, as the system becomes more proactive it will focus on identified and targeted risks rather than reactive systems. In effect, parts of the system will become dormant and may eventually become redundant. The regulatory approach must be able to accommodate these changes.

6. WHAT ARE THE BENEFITS OF THE SMS APPROACH?

6.1 Implementing an effective SMS is a worthwhile endeavour and will certainly improve safety throughout civil aviation. One of the challenges facing organizations is demonstrating the tangible and less tangible benefits. It has been the Canadian experience that organizations that manage risk proactively substantially improve their safety performance and efficiency.

6.2 Some of the proven benefits resulting from a better understanding and therefore proactive management of operational risks are:

- a) reduced incident and accident rates;
- b) greater operating efficiencies such as fewer returns to gate and flight cancellations;
- c) improved employee morale as a result of being empowered and seeing results through the SMS;
- d) reductions in insurance rates;
- e) tangible savings for operators as a result of knowing the operational risks and preventing incidents, resulted in substantial savings; and
- f) less regulatory presence due to the operator's management of his/her own day-to-day activities. The regulator oversees the effectiveness of the systems.

7. ACTION BY THE CONFERENCE

7.1 The Conference is invited to:

- a) describe and promote the principle of performance-based, rather than prescriptive, regulations wherever practicable;
- b) solicit input on SMS activities from Member States, with a view to identifying those aspects that are common and can be harmonized; and
- c) develop Recommended Practices to promote and encourage the broad adoption of those features of SMS that are common among the varying regulatory environments that are based on data gathered through the preceding input.

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