

Safety Management Systems (SMS) Frequently Asked Questions (FAQ)

Here are some typical questions and answers regarding the implementation of safety management systems in civil aviation organizations. If you still have questions about SMS implementation, please send them to us at:

Safety Management Systems - Questions
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Safety Management Systems (SMS)

Regulations and Exemptions

Q1. How does a safety management system differ from traditional control methods?

SMS is a natural progression from traditional techniques, based on modern understandings of the nature of *organizational accidents* and how they occur. SMS has much in common with modern quality assurance practices, but places even more emphasis on proactive hazard identification and includes areas of the organization that may not be directly involved with day to day flight operations, but nevertheless have the potential to indirectly affect aviation safety.

One other notable difference is that while traditional safety and quality systems were managed at the certificate level—for example, having separate systems for Air Operators and Aviation Maintenance Organizations (AMOs)—SMS looks at the enterprise as a whole. While the majority of SMS activity will continue to be directed toward particular specialist functions, the system is also concerned with how those functions interrelate.

To a large extent, the effectiveness of SMS relies on the corporate culture. The aim of SMS is to achieve a culture wherein each individual contributes to and is responsible for safety, and where the reporting of safety concerns is actively encouraged.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q2. Is SMS a return to prescriptive regulation?

No. SMS is inherently performance based. The only prescriptive elements are certain reporting relationships and the basic requirements themselves. Organizations have a wide range of options for compliance, and are encouraged to identify the best means of compliance to meet their individual circumstances. In fact, the system should not be static, but should be continually evolving in response to changing needs.

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Safety Management Systems (SMS)

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Q3. Will the Transportation of Dangerous Goods Regulations be amended to facilitate SMS?

It is not necessary to amend the dangerous goods regulations, since SMS adds to the current requirements. As an enterprise-wide program, some components of SMS are already required in the Aviation Occupational Safety and Health (AOSH) regulations, and the CARs SMS requirements will overlap in some areas of the AOSH requirements. The same can be said of compliance with other requirements not specific to aviation, but affecting the performance of aviation related work, such as compliance with labour codes, etc.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q4. If most of the elements of a SMS already exist in most companies, why is Transport Canada requiring that companies implement this new system?

While the basic elements may be in place, a Safety Management System (SMS) is a systematic, explicit and comprehensive process for the management of safety risks, which integrates operations and technical systems with financial and human resource management, for all activities related to an enterprise. The process aims to improve the safety of an enterprise as a whole, by identifying and correcting any problems that could contribute to a reduction of safety margins.

Currently, certain elements may exist but they are not integrated, the quality assurance, accountability structures and the reporting culture need to be developed. Today's systems are predominately reactive in nature. What is needed is to move to proactive models.

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Safety Management Systems (SMS)

Regulations and Exemptions

5. What is the relationship between CAR 706 and CAR 573 when the certificate holder is the same?

The requirements for each certificate are described in the applicable sections of the CARs. The certificates are intended to be independent, so that separately certified elements of the same enterprise can operate without reliance upon each other. This is particularly important where the operator (under 706) wishes to contract certain kinds of work (e.g., the heavy maintenance of a particular type of aircraft) to an external maintenance provider, while performing other kinds of work using the in-house Approved Maintenance Organization (AMO). For this reason, some organizations may choose to establish distinct business lines, keeping the operational and maintenance activities totally separate in all respects. Others, particularly the smaller ones, may choose to integrate their operations to the extent that certain employees have responsibilities under both certificates.

Regardless of the degree of separation or integration, the SMS must be capable of identifying what functions are attached to which certificate, and also of ensuring that communications between the operational and maintenance functions are effective.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q6. To what level must an organization document its safety management system processes?

To the same level required with other procedures described in the relevant company manuals (e.g., the Operations Manual and Maintenance Policy Manual). To this end, much of the detailed procedure may be described in separate (unapproved) documents that are incorporated by reference. However, as in the case of other procedures, enough detail must be provided in the approved sections to exercise effective control over the unapproved documents.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q7. What are the requirements to be followed by an air operator that is not the holder of an Approved Maintenance Organization (AMO) Certificate?

Because the certificates are independent, there is no difference in principle between the responsibilities of operators with an AMO and those without. In all cases, the Air Operator is responsible for keeping the aircraft technical records, planning the scheduled maintenance, deciding what other maintenance needs to be done, and removing from service any aircraft that does not comply with the applicable airworthiness requirements. AMOs are responsible for correctly performing and certifying the requested work. In practice, operators without an in-house maintenance capability (and those with such a capability who choose to contract out certain kinds of maintenance) will require more detailed records of communications with their maintenance providers, whereas those who have all their maintenance performed in-house may be able to rely to a greater degree on previously established procedures that outline the responsibilities of the respective operations.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q8. When will the 705 Operators and Aircraft Maintenance Organizations receive their exemption letters for SMS?

Omnibus exemptions do not have a formal distribution requirement. Typically, they are forwarded to Transport Canada Civil Aviation Regional Managers for access by any organization or person affected that may want a copy. In this case, the exemption is published on the Internet.

For more information or to obtain a copy of the exemption, please contact Transport Canada's Civil Aviation Communications Centre at 1 800 305-2059.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q9. The recent update to Standard (Std) 573.06 of the Canadian Aviation Regulations (CARs) introduces training requirements related to safety management systems (SMS) (Std 573.06 (8)). While some of the training requirements were in place previously (e.g. Human Factors), there are some more specific requirements now being identified. CAR 107 specifies that SMS only applies to AMOs that can perform maintenance accomplished on aircraft operated under Subpart 705 of the CARs. The exemption only applies to AMOs that can perform maintenance accomplished on aircraft operated under Subpart 705 of the CARs.

Is Std 573.06(8) applicable to all AMOs?

Standard 573.06 (8) states:

"(8) Training of maintenance safety personnel

The person responsible for maintenance and all personnel assigned duties under the safety management system established pursuant to section 573.30 of the CARs shall successfully complete a safety related initial training course that includes the following subjects:

- (a) maintenance and flight safety philosophy;
- ...; and
- (g) incident investigation."

The training requirement apply to: (a) The person responsible for the maintenance (of an organization that has an SMS mandated by CAR 573.30); and (b) personnel assigned safety management system duties (of an organization that has an SMS, mandated by CAR 573.30)...

CAR 573.30 mandates an SMS "... in respect of an applicant for, or a holder of, an approved maintenance organization (AMO) certificate authorizing the holder to perform maintenance on an aircraft operated under Subpart 5 of Part VII ... "

Therefore, Std 573.06 (8) does not apply to all AMOs. It applies to "applicant for, or a holder of, an approved maintenance organization (AMO) certificate authorizing the holder to perform maintenance on an aircraft operated under Subpart 5 of Part VII". There are no new requirements as suggested in the question above.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q10. If there is an election called and parliament dissolves how will this impact the anticipated dates of regulatory promulgation?

The elections should not have a bearing on our implementation dates. It is business as usual for our various projects. As this is an endeavour that has already been endorsed by our present Minister of Transport and since regulations are already in effect to address safety management systems (SMS) for certain Civil Aviation Document holders, our role is to continue the implementation as per our commitment. For the other SMS regulations that are to be pre-published in the Canada Gazette Part I, depending on their completion and the end of elections, there may be delays, but these would only be temporary. Our initiatives are safety based and not politically motivated.

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Safety Management Systems (SMS)

Regulations and Exemptions

Q11. What is most significant about the finalized Canadian regulatory amendments related to SMS on June 15, 2005? Are Transport Canada's regulations and guidance material fully in place, or will further amendments/additions occur in 2006?

The regulatory amendments require larger aviation organizations to appoint executives who are accountable for safety and to institute safety management systems in their organizations. Transport Canada is taking a phased approach to implementation to manage the introduction and distribute the workload. Larger organizations must put the regulatory changes in place within three years meeting process milestones along the way.

Transport Canada's vision is that SMS will be implemented in all regulated civil aviation organizations by 2007. However, SMS implementation depends on the date regulations come into force and following which will be phased-in over three years. Some regulations are not forecasted to be fully in force until 2008.

Transport Canada has prepared guidance material to provide practical information to operators. This guidance material is intended to provide companies with an understanding of what the regulations require and assist those who wish to begin developing an SMS.

An up to date table of forecasted implementation dates is available on our Web site at www.tc.gc.ca/CivilAviation/SMS/implementation.htm or in Transport Canada's Safety Management Systems Civil Aviation Implementation Plan (TP 14235). Copies can be ordered online at <http://www.tc.gc.ca/Transact/>, Transport Canada's Online Publications Storefront or by calling Transport Canada's Civil Aviation Communications Centre at 1 800 305-2059.

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Safety Management Systems (SMS)

Accountable Executive

Q1. Who is the Accountable Executive?

The Accountable Executive is the individual having overall responsibility for a civil aviation organization. The *CARs* require that the Accountable Executive have the necessary financial and operational authority to act on behalf of the certificate holder, and to be at a level within the organization sufficiently high to exercise control over all certificates held.

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Safety Management Systems (SMS)

Accountable Executive

Q2. How are the responsibilities divided between the Accountable Executive and the existing key personnel?

For the most part, existing key personnel retain their current responsibilities. With certain limited exceptions, reporting relationships will remain as they were before the introduction of the new requirement.

The Accountable Executive operates at a level higher than the individual certificates. For example, within a large air carrier, a single Accountable Executive will have overall responsibility for all activities conducted under the Air Operation Certificate (AOC), Approved Maintenance Organization (AMO) certificate, Airworthiness Engineering Organizations (AEO) certificate and Approved Training Organization (ATO) certificate. The applicable functional heads, the certificate managers, for each of those certificates will be responsible to the Accountable Executive for the proper management of their particular operations.

In particular, the individual certificate managers are responsible for notifying the Accountable Executive of any safety related problems, and the actions necessary to correct or mitigate them. This includes, where applicable, the requirement for additional financial or other resources. The Accountable Executive is responsible for establishing and maintaining the overall corporate culture, and for providing the functional heads with the necessary resources to comply with the regulations and maintain the necessary levels of safety.

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Safety Management Systems (SMS)

Accountable Executive

Q3. What are the legal implications associated with the designation as an Accountable Executive?

The *Aeronautics Act* does not assign any personal liability to the Accountable Executive for the actions of others. However, certain sections of the *CARs* do assign specific management responsibilities to the Accountable Executive. If an Accountable Executive is not performing his or her duties satisfactorily, this may be grounds for suspension of one or more of the organization's certificates.

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Safety Management Systems (SMS)

Accountable Executive

Q4. Does Subpart 6, Accountable Executive, apply to manufacturers?

In short, Subpart 6 does not apply to manufactures.

A paragraph that would have required manufacturers to name an accountable executive (section 561.04) was published in the *Canada Gazette*, Part I on November 20, 2004. It was later removed because the provision for appointing an accountable executive was already contained in SMS-related amendments to Part 1 of the *Canadian Aviation Regulations* (CARs).

Accountable executive regulations (sections 106.01 and 106.02) published in *Canada Gazette*, Part I on March 5, 2005, would have applied to manufacturers. However, with the publication of *Canada Gazette*, Part II on June 14, 2005, Subpart 6 no longer applies to manufacturers. The reference to manufactures was removed because the publication of SMS regulations was preceding the publication of 561 regulations, and thus it was impossible to reference a regulation that was not yet in force. Therefore, manufactures do not, at this time, need to submit the name of an accountable executive.

That said, on December 14, 2005, an amendment to CAR 106, introducing the approved manufacturer certificate into CAR 106.01 as paragraph (d), was published with a coming-into-force date of **December 1, 2007**. Only at that time will Transport Canada be asking approved manufacturers to submit the names of their accountable executive. In addition, CAR 561 was finally published in *Canada Gazette*, Part II, also on December 14, 2005, and will come into effect on December 1, 2007.

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Safety Management Systems (SMS)

Accountable Executive

Q5. Is a president the same as a chief executive officer if the company only has one or the other?

The title of the person is not as important as whether or not all the questions posed in Appendix B of *Implementation Procedures Guide for Air Operators and Approved Maintenance Organizations* (TP 14343) entitled “Accountable Executive Selection Question List” can all be answered as yes.

Publications may be ordered online at <http://www.tc.gc.ca/Transact/>, Transport Canada’s Online Publications Storefront or by calling Transport Canada’s Civil Aviation Communications Centre at 1 800 305-2059.

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Safety Management Systems (SMS)

Accountable Executive

Q6. Who is the Accountable Executive of a government air service?

The accountable executive (AE) is the agent for cultural change. Cultural change, by definition, starts at the top of the organization. For example, Transport Canada operates a government air service, Aircraft Services Directorate, for which the Deputy Minister of Transport Canada is the Accountable Executive.

The responsibilities of the AE are defined in the regulations and have everything to do with effective control of resources. In most cases, despite having a large budget, this will not be the chief operating officer (COO) but someone higher in the company/organization who provides the COO with their operating budget.

On a practical note, neither Transport Canada's Deputy Minister, nor any other AE of a large certificate holder will have the time to go beyond a leadership and system oversight role to an operational role. The AE is not held personally liable nor is the intention to have the AE get directly involved in the operation, but to lead cultural change, know the operational risks and accept responsibility for their management and be the face on the certificate from a safety perspective.

The title of the person is not as important as whether or not all the questions posed in Appendix B of *Implementation Procedures Guide for Air Operators and Approved Maintenance Organizations* (TP 14343) entitled "Accountable Executive Selection Question List" can all be answered as yes.

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Safety Management Systems (SMS)

Accountable Executive

Q7. In Transport Canada’s guidance material entitled Implementation Procedures Guide for Air Operators and Approved Maintenance Organizations (TP 14343) there is an “Accountable Executive Selection Flow Chart”. One of the questions in the diamond asks if a board of directors controls the organization. What does controlled mean?

The question in the flow chart is intended to determine if the organization operates under the governance of a board of directors as opposed to any other organizational structure. The use of the word "controlled" is not the determining factor albeit it is whether or not the organization has a board of directors.

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Safety Management Systems (SMS)

Accountable Executive

Q8. The board of directors represents the shareholders and often the chairman of the board is the majority shareholder. Should this person be the accountable executive?

To determine the accountable executive all the questions in Appendix B of *Implementation Procedures Guide for Air Operators and Approved Maintenance Organizations* (TP 14343) entitled “Accountable Executive Selection Question List” must be answered as yes. If in the case of the chairperson all the answers to the questions are yes then the chairperson is the accountable executive.

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Safety Management Systems (SMS)

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Q9. To provide assurance to the accountable executives that this position will not involve the risk of personal liability, what applicable statutory or regulatory reference is available to substantiate the statement that any action taken against the accountable executive will not result in personal liability and that action is taken against the organization?

During the deliberations of the Canadian Aviation Regulations Advisory Council (CARAC) on the concept of “accountable executive”, Transport Canada Civil Aviation (TCCA) committed to the industry stakeholders that the position of accountable executive would not involve a risk of personal liability.

The amendment to the *Canadian Aviation Regulations* (CARs) that came into force on May 31st, 2005, and was published in the *Canada Gazette*, Part II on June 15, 2005, introducing the requirements for some certificate holders to appoint an accountable executive and to establish a safety management system, was drafted in such a way so as to clearly vest the certificate holders with the responsibility to comply to these new requirements.

None of the designated provisions contained within this amendment apply to the accountable executive.

Although, CAR 106.02(1)(a) stipulates that the accountable executive is accountable on behalf of the certificate holder for meeting the requirements of the regulations, including the establishment and adherence to a safety management system, the amendment to the CARs referred to above has been drafted to clearly establish that the certificate holder is ultimately responsible for ensuring compliance with the new requirements.

As an example, CAR 573.04(3)(d) indicates that the person responsible for maintenance shall, where a finding resulting from a quality assurance program established under subsection 573.09(1) or a safety management system referred to in section 573.30 is reported to them, notify the accountable executive of any systemic deficiency and of the corrective action taken. In effect, the accountable executive will in turn notify the certificate holder; however, it is the certificate holder who will be ultimately responsible, as per CAR 573.03(1)(g) to ensure that corrective actions are taken in respect of any findings resulting from a quality assurance program or a safety management system.

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The regulation requires the certificate holder to notify the Minister of the name of the person who has been appointed as the accountable executive. This requirement ensures there is a name of a person associated with the certificate holder accountable for promoting cultural change and managing the risks associated with the operations conducted under the certificate.

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Safety Management Systems (SMS)

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Q10. In a June 2005 news release, The Honourable Jean-C. Lapierre, Minister of Transport, said that no two safety management systems are alike because each SMS is tailored by the individual company to its policies, management and employee practices.

Why is the selection of an accountable executive non-negotiable despite the interest in flexibility?

The intent of the regulation is to appoint the person with "...control of the financial and human resources..." *Canadian Aviation Regulation 106.02 (2)*. Generally, there is only one person in an organization with this level of control.

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Safety Management Systems (SMS)

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Q11. At what level of detail does the accountable executive really have to be involved during an SMS assessment? To what extent are front-line personnel expected to understand and use SMS terminology to frame explanations of their roles and activities?

The accountable executive operates at a level higher than the individual certificates. For example, within a large air carrier, a single accountable executive will have overall responsibility for all activities conducted under the Air Operator Certificate (AOC), Approved Maintenance Organization (AMO) certificate, Airworthiness Engineering Organizations (AEO) certificate, and Approved Training Organization (ATO) certificate. The applicable functional heads, the certificate managers, for each of those certificates will be responsible to the accountable executive for the proper management of their particular operations.

In particular, the individual certificate managers are responsible for notifying the accountable executive of any safety related problems, and the actions necessary to correct or mitigate them. This includes, where applicable, the requirement for additional financial or other resources. The accountable executive is responsible for establishing and maintaining the overall corporate culture, and for providing the functional heads with the necessary resources to comply with the regulations and maintain the necessary levels of safety.

The accountable executive should understand how the SMS works, who the key personnel are and what are the significant safety issues in the organization. The extent to which the accountable executive will be involved in the system will depend on the individual and the size and complexity of the organization.

In regards to individual personnel they must have an awareness of the safety management system. They must understand their role, function and the companies SMS philosophy and approach. The depth of their knowledge will of course be a function of their role in the system. For example, an event analyst would be expected to be able to describe in their corporate SMS language how the system works. Whereas a line worker would be expected to have a less in depth knowledge but should for example know how to file a safety report, what the companies policies are and how the company provides communications.

The accountable executive and front-line personnel must know enough about SMS to be able to confidently and successfully complete the aforementioned required duties. Transport Canada is committed to having resources available to assist in this learning process. All personnel linked to a certificate holder are invited to participate in

Frequently Asked Questions

Transport Canada's Civil Aviation Safety Management Systems Information Sessions. These sessions occur bi-annually all over the country, with the next one being held May 2006 in Montreal. The objectives of these sessions are to provide registrants with: basic information on SMS implementation, an overview of the regulations, exemptions, and implementation phases; and the opportunity to exchange information and best practices. For more information on SMS Information Sessions—past and present—please visit our Web site: www.tc.gc.ca/CivilAviation/SMS/Info/menu.htm.

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Safety Management Systems (SMS)

Implementation

Q1. What is the plan for implementation of SMS?

The implementation of SMS involves a progressive development. Transport Canada is taking a **phased-in approach** to implementation. The four phases extend over 3 years.

Regulation In force Date	+ 90 Days	+ 1 Year	+ 2 Years	+ 3 Years
	Initial Certification	1 Year Follow up	2 Year Follow up	3 Year Follow up

Phase 1: Initial Certification

Within 3 months of the publication of the SMS regulation, initial certification requires that applicants provide Transport Canada:

- The name of the accountable executive;
- The name of the person responsible for implementing the SMS;
- A statement of commitment to the implementation of SMS (signed by the accountable executive);
- Documentation of a gap analysis between the organization’s existing system and the SMS regulatory requirements; and
- The organization’s implementation project plan, based on the requirements of the exemption and the certificate holders internal gap analysis.

Phase 2: One-Year Follow-up

At one-year, certificate holders will demonstrate that their system includes the following components:

- Documented safety management plan;
- Documented policies and procedures relating to the required SMS components; and
- A process for occurrence reporting with the associated supportive elements such as training, a method of collecting, storing and distributing data, and a risk management process.

Phase 3: Two-Year Follow-up

Two years after initial certification, the certificate holder will demonstrate that, in addition to the components already demonstrated during Phase 2, they also have a process for the proactive identification of hazards and associated methods of collecting, storing and distributing data and a risk management process.

Required components:

- Documented safety management plan;
- Documented policies and procedures;

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- Process for reactive occurrence reporting and training; and
- Process for proactive identification of hazards.

Phase 4: Three-Year Follow-up

One year following phase 3, certificate holders will demonstrate that, in addition to the components already demonstrated during phases two and three, they have also addressed:

- Training;
- Quality Assurance; and
- Emergency preparedness.

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Safety Management Systems (SMS)

Implementation

Q2. When will SMS implementation begin?

Transport Canada's vision is that SMS will be implemented in all regulated civil aviation organizations by 2007. However, SMS implementation depends on the date regulations come into force and following which will be phased in over three years.

CAR Part	Planned In-Force
Part I	In-Force: May 31, 2005 Published: June 15, 2005
Part III	
Airports (Group 1)*	November 2006
Airports (Group 2)*	June 2007
Heliports	June 2007
Water Airports	March 2008
Part IV	
Aeroplane and Helicopter Flight Training Units	March 2007
Part V	
Approved Maintenance Organization (AMO) (705 only)	In-Force: May 31, 2005 Published: June 15, 2005
Approved Maintenance Organization (AMO) (all AMOs)	March 2007
Aircraft Certification	September 2008
Part VII	
702, 703, 704	March 2007
705	In-Force: May 31, 2005 Published: June 15, 2005
Part VIII	November 2006

Updated: November 10, 2005

Transport Canada's Safety Management Systems Civil Aviation Implementation Plan (TP 14235) is available online at www.tc.gc.ca/CivilAviation/SMS/implementation.htm. Copies can be ordered online at <http://www.tc.gc.ca/Transact/>, Transport Canada's Online Publications Storefront or by calling Transport Canada's Civil Aviation Communications Centre at 1 800 305-2059.

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*The Part III *Notice of Proposed Amendment* (NPA) that will be tabled at the Special Civil Aviation Regulatory Advisory Council (CARAC) meeting in June 2005, no longer differentiates between international and non-international airports. The safety management system (SMS) regulations will be the same for these two groups; only the planned in-force dates for the regulations are different.

Areas highlighted in blue, in the left column, are those parts of the *Canadian Aviation Regulations* (CARs) that have completed the consultation process for SMS Notice of Proposed Amendments (NPAs).

Areas highlighted in orange, in the left column, indicate that the consultation process has not yet started or has not yet been completed for those parts of the CARs.

Areas highlighted in yellow, indicate dates that are currently forecasted for the specified activity. The planned in-force dates are predicated on:

- The timely acceptance of NPAs by *CARAC* Technical Committees; and
- Meeting the *Canada Gazette* Part I and II timings.

In addition:

- Delays in acceptance of NPAs by the *CARAC* Technical Committee or delays in the *Canada Gazette* Part I or II activities may require that the in-force dates for specific CARs Part regulations be revised to a later date;
- A number of NPAs have not as yet been submitted to the *CARAC* process and none of the NPAs have completed the *Canada Gazette* Part I or II process; and
- All in-force dates are subject to change.

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Safety Management Systems (SMS)

Implementation

Q3. What are the main challenges in implementing a safety management system, and how long will it take to implement?

While the procedural and organizational changes involved in introducing a SMS are relatively straightforward, full implementation will vary on the size of the organization. For example, it may take several years for a large organization to fully implement a SMS. However, implementing the system and procedures merely lays the foundation. The main challenge lies in bringing about the necessary changes in company culture. This could take several years, and in a sense may never be complete, since preserving the company culture is an ongoing task that forms an essential element of a SMS.

The difficulties encountered in accomplishing the necessary cultural change will vary greatly from one organization to another. Some organizations already have a healthy culture well established, while others will have a long way to go. As a general rule, once the basic SMS organization and procedures are in place, there should be indications of positive safety improvement within the next full audit cycle.

Additionally, as an enterprise-wide system, provisions must be made for the SMS processes to be subjected to internal, but independent, audits. Large organizations may find it worthwhile to devote a small unit to this task. For most organizations however, the workload involved will most likely not be sufficient to justify full-time employees for this purpose. Instead, they may find it more practical to assign the oversight as a part-time function, or to outsource this activity.

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Safety Management Systems (SMS)

Implementation

Q4. In a speech at the Global Aviation Information Network (GAIN) World Conference in September 2004, Merlin Preuss, Director General of Civil Aviation, Transport Canada said that basic principles of SMS seem simple, but that implementing them involves overcoming resistance to change (especially cultural change), scepticism and misunderstanding of concepts. He said then that Transport Canada was applying lessons learned while implementing SMS requirements for various categories of operators.

How has Transport Canada continued to experience such resistance in 2005?

What are some specific examples of related challenges that Transport Canada has overcome, and persistent challenges, in working with Canadian operators?

While the procedural and organizational changes involved in introducing a SMS are relatively straightforward, full implementation will vary on the size of the organization. For example, it may take several years for a large organization to fully implement a SMS. However, implementing the system and procedures merely lays the foundation. The main challenge lies in bringing about the necessary changes in company culture. This could take several years, and in a sense may never be complete, since preserving the company culture is an ongoing task that forms an essential element of a SMS.

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Safety Management Systems (SMS)

Enforcement

Q1. Is there an enforcement program as part of SMS to provide a deterrent to unsafe practices and non-conformances?

As Transport Canada and the aviation industry set out to implement Safety Management Systems (SMS), Civil Aviation Enforcement must be proactive in developing a flexible procedure in its approach to this evolving safety framework. The Enforcement policy remains the same in that Contraventions of the *Aeronautics Act* and the *Canadian Aviation Regulations* will still be investigated. However, the policy should provide means of promoting voluntary compliance with regulatory requirements, without necessarily resorting to punitive action by Transport Canada. This can be done by providing certificate holders governed by an SMS, the opportunity to determine, by themselves, proposed corrective measures to prevent recurrence of a contravention, as well as the best course of action to help foster future compliance.

When a certificate holder governed by an SMS allegedly commits a contravention that is not deliberate, specific investigative procedures will be used. These procedures will incorporate a delay in the completion of the investigative process, which is intended to allow the operator enough time to develop proposed corrective measures and an action plan that will adequately address the deficiencies that led to the contravention. The purpose of this approach is to nurture and sustain a safety culture, whereby employees can confidentially report safety deficiencies without fear of subsequent punitive action. Certificate holders management can then, without apportioning blame, and without fear of enforcement action, analyse the event and the organizational or human factors that may have led to it, in order to incorporate corrective measures that will best help prevent recurrence.

Transport Canada, through the interaction of the certificate holder's Principal Inspector will then evaluate the proposed corrective measures, or the systems currently in place to address the event, and if these are considered appropriate and likely to prevent recurrence and foster future compliance, the investigation will then be concluded with no further action. In cases where either the corrective measures or the systems in place are considered inappropriate, Transport Canada will continue to interact with the certificate holder to find a satisfactory resolution that would prevent further enforcement action.

In order to support the implementation of safety management systems, Aviation Enforcement Managers and Inspectors are encouraged to continue their dialogue with the other Transport Canada divisions, and the industry, and to establish open communications with those certificate holders proactively engaging in safety management systems.

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Transport Canada will not compromise safety, nor ignore any contraventions of the regulations, but will encourage the development of a safety culture as an essential element of the SMS framework.

The specific procedures established to facilitate implementation of the above policy are currently being reviewed and will be published when they are finalised.

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Safety Management Systems (SMS)

Enforcement

Q2. What will Transport Canada's response be when they are advised an employee of a certificate holder has been disciplined (fired) for reporting safety issues?

Each case will have to be taken on its own merit. The first place to start is with the company's disciplinary policy. Has the company involved their employees in the development of their disciplinary policy? Does it encourage proactive reporting? Does the company consistently follow their own procedures? Was the action of the employee a wilful act of the non-compliance with regulations and procedures or an honest mistake? It isn't Transport Canada that needs to answer these questions. The onus rests with the company to demonstrate through their documented policies, procedures and actions that they have a reporting culture that will enable them to manage their risks. If they cannot demonstrate that there is a reporting system in place that helps manage risks, the company does not have an effective SMS in place and they are in non-compliance.

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Safety Management Systems (SMS)

Assessments and Audits

Q1. How will the effectiveness of an individual organization's SMS be assessed?

The effectiveness of an organisation's SMS will be determined through the use of an assessment tool. The tool comprises a set of expectations and assessment criteria for determining whether an organisation has met the regulatory requirements and whether the programs they have put in place are effective. Effectiveness is determined through interviews and reviews of the organisation's SMS components. This would include assessing the level of knowledge of the SMS, considering whether individuals are using the SMS in the prescribed way and whether their inputs to the SMS are valid. For example, Transport Canada might choose to review the number, type and sources of internal reports submitted, the depth of analysis performed, and the effectiveness of the corrective action taken, as evidenced by the absence of recurrences of the reported problems. If we apply the "plan, do, check, act" quality cycle to the analysis, we can effectively assess whether the SMS has been planned, implemented, reviewed and monitored and continuously improved upon.

Transport Canada will assess the observations against a set of criteria that provide a framework for the assessor to determine whether a company, meets, exceeds or does not meet the minimum standards required for an SMS. If a company exceeds the minimum standards they will be given credit for being an exemplary system.

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Safety Management Systems (SMS)

Assessments and Audits

Q2. Will SMS replace Transport Canada audits?

The need for such audits, together with other forms of regulatory oversight, will remain. However, the existence of an effective SMS will be an important factor in assessing the optimum audit frequency of an organization. Organizations with a sound SMS can expect to be audited much less frequently than their less successful counterparts.

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Safety Management Systems (SMS)

Assessments and Audits

Q3. How will SMS affect the size and nature of Transport Canada audits?

Once SMS is fully implemented throughout the industry, it should enable changes to the focus of regulatory audits. Auditors will be able to concentrate on the operation of the SMS system and less on the details of the company procedures. A sound audit program must always address the organization as a whole, but the focus will change to one of confirming the effectiveness of the SMS. Overall, this should result in a reduction in both audit team size, and time on site. Coupled with the anticipated reduction in audit frequency, this should produce savings in resources and efficiency improvements, both for Transport Canada and for the industry itself.

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Safety Management Systems (SMS)

Assessments and Audits

Q4. With the introduction of SMS, who is responsible for performing the risk analysis?

Up to the point of identifying the root causes and contributory factors, the risk analysis may be performed by knowledgeable staff from any part of the organization. Large and multi-disciplinary organizations may have a specialist analysis unit devoted to this activity. Alternatively, the analysis can be done by the functional department directly affected.

Determination of the corrective action however, must be done under the authority of the applicable functional head. For example in the case of an Approved Maintenance Organization (AMO), that will be the person responsible for maintenance, and in the case of an Air Operator, it will be the Director of Flight Operations. The authority may be delegated to a subordinate manager, but the functional head remains responsible for the process.

Under no circumstances should the unit that will be responsible for follow-up or audit of the corrective action be involved in its selection. This exclusion is necessary to avoid a conflict of interest and ensure that future evaluation of the effectiveness of the action taken is not compromised by preconceptions about the correctness of the action taken.

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Safety Management Systems (SMS)

Assessments and Audits

Q5. How will Transport Canada deal with risk assessments, which could be subjective and may vary from organization to organization?

Risk assessments should be the result of sound information collection, logical analysis and thoughtful decision-making. Provided a risk assessment passes these tests, Transport Canada will accept it. If the risk assessment is seriously flawed, transport Canada will not accept it.

Risk assessments are inherently subjective, and that is not necessarily a bad thing. The variations may turn out to be reasonable and acceptable. In any case, the outside limits are established by compliance. Clearly, a decision to permit non-compliance with an existing requirement would be a violation in itself.

Short of actual non-compliance, even a decision to do nothing in a case where it might have been more prudent to take corrective action, is better than not to have evaluated the situation at all. At least, if the problem has been documented, the company has established awareness. Also, failure to take reasonable action in response to a real safety problem will be legitimate ground for a finding that the SMS is ineffective.

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Safety Management Systems (SMS)

Assessments and Audits

Q6. Will safety management system assessments be exempt from Access to Information and Privacy (ATIP) requests?

Unless the release of the assessment or parts there of fall under section 20(1)(b) and (d) (Third Party Information) of the *Access to Information Act*, Transport Canada shall not refuse to disclose records relating to an assessment.

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Safety Management Systems (SMS)

Assessments and Audits

Q7. What process will be in place if an organisation does not agree with their rating/score?

Any company that does not agree with their score will have the same rights to appeal as they do now. There are three scenarios that can be contemplated:

1. In instances where an organization cannot demonstrate that they have a safety management system in place that meets the standard 3 or minimum compliance, they will have to produce a corrective action plan that demonstrates how they will meet the standard.
2. In respect to issues where the company is deemed non-compliant and the findings are significant enough that enforcement or certificate action is taken, the company will have the right of appeal to the Transportation Appeal Tribunal of Canada (TATC).
3. In cases where a company has met or exceeds the minimum standard, but does not agree with the rating, the company may submit additional information (documentation or other evidence) during the assessment time frame to demonstrate their claim. Companies are given adequate time during the assessment process to demonstrate the effectiveness of their system. For example the documentation review commences two months in advance of the physical assessment. Where documentation is inadequate or missing the organization will be given notice that they should provide the information. Likewise in the physical assessment phase organizations will be given ample advance notice of required personnel and should make them available for the assessment process.

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Safety Management Systems (SMS)

Assessments and Audits

Q8. How far has Transport Canada progressed in the development of systems and training that enable inspectors to act/intervene at the operator's system level rather than the operational level, and why is this retraining so important?

A four-day training course was designed to train Transport Canada personnel. The first course was delivered in March of 2004 and 37 courses have been delivered to 650 Transport Canada employees nationally. By 2007, all delegated officers will have completed this training.

This training program, in its current form, references Transport Canada guidance material and tools as well as those of other civil aviation authorities. The training is delivered through lecture, video, and practical exercises.

As a part of Transport Canada's commitment to continuous improvement, the training is revised when regulations are promulgated, guidance material is developed, and as a response to participant feedback. To keep previously trained officers up to date on major issues, an additional day of training via videoconference will be scheduled.

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Safety Management Systems (SMS)

Assessments and Audits

Q9. How does Transport Canada ensure that SMS assessments do not become either oversimplified or subject to wide variations caused by subjective judgment of assessors?

In developing a new oversight methodology for SMS assessments, Transport Canada took steps to remove arbitrary and subjective decision making on the part of employees. While Transport Canada's assessment tool looks at the effectiveness of systems as well as compliance, it is also built around a standard framework. The framework is based on Transport Canada's regulations and establishes a series of expectations, scoring criteria and open-ended questions to ensure a standard interpretation.

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Safety Management Systems (SMS)

Assessments and Audits

This is a duplicate of question 11 under Accountable Executive.

Q10. At what level of detail does the accountable executive really have to be involved during an SMS assessment? To what extent are front-line personnel expected to understand and use SMS terminology to frame explanations of their roles and activities?

The accountable executive operates at a level higher than the individual certificates. For example, within a large air carrier, a single accountable executive will have overall responsibility for all activities conducted under the Air Operator Certificate (AOC), Approved Maintenance Organization (AMO) certificate, Airworthiness Engineering Organizations (AEO) certificate, and Approved Training Organization (ATO) certificate. The applicable functional heads, the certificate managers, for each of those certificates will be responsible to the accountable executive for the proper management of their particular operations.

In particular, the individual certificate managers are responsible for notifying the accountable executive of any safety related problems, and the actions necessary to correct or mitigate them. This includes, where applicable, the requirement for additional financial or other resources. The accountable executive is responsible for establishing and maintaining the overall corporate culture, and for providing the functional heads with the necessary resources to comply with the regulations and maintain the necessary levels of safety.

The accountable executive should understand how the SMS works, who the key personnel are and what are the significant safety issues in the organization. The extent to which the accountable executive will be involved in the system will depend on the individual and the size and complexity of the organization.

In regards to individual personnel they must have an awareness of the safety management system. They must understand their role, function and the companies SMS philosophy and approach. The depth of their knowledge will of course be a function of their role in the system. For example, an event analyst would be expected to be able to describe in their corporate SMS language how the system works. Whereas a line worker would be expected to have a less in depth knowledge but should for example know how to file a safety report, what the companies policies are and how the company provides communications.

The accountable executive and front-line personnel must know enough about SMS to be able to confidently and successfully complete the aforementioned required duties.

Frequently Asked Questions

Transport Canada is committed to having resources available to assist in this learning process. All personnel linked to a certificate holder are invited to participate in Transport Canada's Civil Aviation Safety Management Systems Information Sessions. These sessions occur bi-annually all over the country, with the next one being held May 2006 in Montreal. The objectives of these sessions are to provide registrants with: basic information on SMS implementation, an overview of the regulations, exemptions, and implementation phases; and the opportunity to exchange information and best practices. For more information on SMS Information Sessions – past and present – please visit our Web site: www.tc.gc.ca/CivilAviation/SMS/Info/menu.htm.

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Safety Management Systems (SMS)

Assessments and Audits

Q11. What does an operator gain from scoring bonus points in the Canadian SMS assessment method?

Scoring award levels are based on a set of defined expectations. The expectations relate to an element being assessed. For example, a safety management plan must contain a safety policy. An expectation of the safety policy is that it should contain a clear declaration of commitment and objectives. As safety management systems are progressive in their development, we expect to see continuous improvement in the system; we also expect to see a variation in the type of safety policy we see. Expectations are intended to provide a guide as to what would represent a good response. They are not intended as a checklist, nor are they all-inclusive. They are provided as indicators for understanding what a good element might contain and for standardizing the assessment process.

Each assessed element will be assigned a score from (1) to (5) based on a set of specific criteria. The assessed score shall be in increments no smaller than 0.5. The criteria are to be used as guidelines for scoring the various elements.

Until such time that the regulations are fully amended to reflect the Civil Aviation Safety Management System Model, Transport Canada will not assess components or elements not required by regulation. Nevertheless, organizations are encouraged to incorporate all SMS components or elements described in the guide's SMS framework in anticipation of future rule changes. Organizations that do not incorporate optional components or elements shall not be penalized and those component or element scores shall not be factored into the overall SMS score. The benefits to the operator of having an exemplary SMS may include extended audit/assessment cycles, increased delegation and less regulatory presence.

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Safety Management Systems (SMS)

Benefits

Q1. Will SMS be affordable to industry organizations who may be struggling economically, particularly for the small operators?

Apart from some initial training costs, SMS should not be particularly expensive to implement. The regulations will recognize that SMS must be tailored to the individual operation, so the changes required by a small operator should be relatively moderate and well within their financial capabilities.

The financial benefits of a safer organization are self-evident, less time lost due to work related injuries, etc. More immediately, SMS has the potential to identify inefficient and uneconomical processes, resulting in improvements in productivity, reduction in waste, etc. Rather than being an additional expense, a properly implemented SMS should result in a net improvement to a company's bottom line.

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Safety Management Systems (SMS)

Benefits

Q2. How can SMS be applied to a small operation and how can the costs be justified?

SMS principles and general performance requirements remain the same no matter the size of the organization implementing the system. However, the need for sophisticated and costly system support mechanisms will be greatly reduced in small operations. Properly implemented, SMS should reduce operating costs, so cost is not the ultimate factor.

Nevertheless, Transport Canada does recognize that small operators may face their own unique challenges in interpreting and implementing the new requirements. That is why SMS is being applied to the larger operators first. This will enable the companies with the greatest resources to do the initial work, and provide small operators with a model that can form the basis of their own, more simple, systems.

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Safety Management Systems (SMS)

Benefits

Q3. What is Transport Canada's response to a small operator who has operated for many years without accidents or serious incidents? Why should such an operator, with a perfectly clean record, have to implement SMS?

We are not talking about an additional program. Safe operators probably have most of the components of an SMS in place already. SMS means the explicit management of risks, integrated into every business decision. Therefore a small operator without accidents/incidents is already managing the risks. Our experience and research indicate that rather than being an additional expense, a properly implemented SMS should result in a net improvement to a company's bottom line.

It is important to recognize that the absence of accidents does not necessarily equate to safety—it can just as easily indicate plain old good luck. The fact is that a single operator simply does not have the necessary number of departures to generate statistically valid data on the basis of accidents alone. That even applies to a large fleet operator with high utilization, so it is certainly true of a typical 703 operation.

The foregoing statement can easily be confirmed by considering the effect of just one fatal accident on an operator's safety record. With that one event, the operator's statistics would go from being apparently perfect, to being many times worse than the national average. That is why we need SMS—we need to measure something other than accidents, because even one accident can be too many. Incidents are a better indicator, but if we limit that term to reportable incidents, we still do not have a large enough population.

The advantage of SMS is that it allows us to measure things that do occur often enough to be statistically significant—accident precursors. If we can correct those, we can prevent the accidents and incidents before they occur.

If the above rationale fails, perhaps an economic argument will succeed. Just as a sound reliability program and proper technician training can save money by eliminating unnecessary component changes, an effective SMS can more than pay for itself simply by identifying inefficient and ineffective organizational procedures.

Of course, some operators may never be convinced. Unfortunately, they will probably be the ones who need SMS the most, and will need the most intensive surveillance to make sure they employ it properly.

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Safety Management Systems (SMS)

Benefits

Q4. Under SMS, will Transport Canada Inspectors have fewer opportunities to evaluate industry's ability to provide safe, efficient transportation?

No, but the approach will be different. This is not an exercise in de-regulation. However, the existence of SMS within an organization provides the inspector with an additional tool to assess its safety.

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Safety Management Systems (SMS)

Benefits

Q5. With the introduction of SMS, is Transport Canada relying on industry to monitor and correct problems?

Transport Canada has always relied on industry to take an active role in problem solving. Resource limitations prevent Transport Canada from intervening directly at the operational level.

With the industry at its current size and complexity, the most effective use of resources is to establish standards and ensure they are maintained. SMS facilitates this approach, by allowing Transport Canada to focus more at the systems level, thereby providing the best opportunity to ensure that problems are averted before they occur, rather than attempting to react to them afterwards.

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Safety Management Systems (SMS)

Benefits

Q6. Once SMS is implemented, how will Transport Canada explain the industry self-auditing and self-reporting to the traveling public?

SMS is additional to the current system, and it increases the accountability of the certificate holder to improve safety performance. This is not an exercise in de-regulation, rather it strengthens the existing regulations by placing more responsibility and accountability on the industry.

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Safety Management Systems (SMS)

Benefits

Q7. Once SMS is implemented what mechanisms will be used to evaluate its contribution to aviation safety?

Essentially, the same tools as we have today will be used to evaluate SMS contribution to safety. On a company level, the SMS program itself should provide the necessary confirmation. On a national level, Transport Canada will have access to generic safety data, that will help to identify trends, and areas where attention should be concentrated. The final confirmation, which will be several years down the road, should be a gradual reduction in the accident rate.

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Safety Management Systems (SMS)

Benefits

Q8. How can the safety target goals within *Flight 2005* be met when the implementation of SMS, as indicated in *Flight 2005*, will not be completed by 2005?

The safety targets of *Flight 2005* are not predicated on SMS, but should reflect the other regulatory initiatives of the past few years. The full benefits of SMS will not be realized until several years after its introduction.

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Safety Management Systems (SMS)

Benefits

Q9. Can you elaborate on Transport Canada's concern about a future lack of sufficient technical personnel in civil aviation to conduct conventional oversight activities, and reasons for your confidence in SMS as the solution?

Once SMS is fully implemented throughout the industry, it should enable changes to the focus of regulatory audits. Auditors will be able to concentrate on the operation of the SMS system and less on the details of the company procedures. A sound audit program must always address the organization as a whole, but the focus will change to one of confirming the effectiveness of the SMS. Overall, this should result in a reduction in both audit team size and time on site. This should produce savings in resources and efficiency improvements, both for Transport Canada and the industry itself.

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Safety Management Systems (SMS)

Benefits

Q10. Have operators shown the positive link between safety and efficiency? Do operators typically have to modify their financial accounting systems to track SMS-derived safety improvements to the bottom line?

There are a variety of examples from flight training schools, to airports and different maintenance and flight operations that have shown a positive correlation between safety and efficiency. Transport Canada has no evidence that accounting systems are being modified to track SMS derived improvements at this time.

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Safety Management Systems (SMS)

Components

Q1. What is meant by a reporting culture?

Effective safety management requires a free exchange of safety information within an organization and between the organization and its safety partners. This applies both to actual incidents and accidents occurring within the organization, and to any hazards, accident precursors and systemic vulnerabilities that may be identified. Therefore, the organization must not only have a reporting system in place, but must also foster a culture that actively encourages its use by staff at all levels and in all departments.

Such a culture will not only avoid disincentives, such as “blaming the messenger” or penalizing individuals who make honest errors, but will also provide staff with positive confirmation that all reports are taken seriously and subjected to an appropriate risk analysis. This is not to imply that there should be a “blame free” environment. Rather, the idea is to achieve a “fair” or “just” environment that distinguishes between errors and wilful acts, and recognizes that sometimes even deliberate departures from official procedures can be well intentioned.

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Safety Management Systems (SMS)

Components

Q2. Why should an organization willingly allow the regulator to learn of mistakes through the organization's internal data collection? What is to stop the company from covering up to avoid repercussions? Also what prevents competitors from eventually hearing about the problems?

One of the concepts of SMS is a free and uninhibited reporting culture that encourages information to be collected and not used against the reporter in cases of unpremeditated and inadvertent violations.

The purpose of Transport Canada inspecting records is not to penalize the organization. Rather, TC inspects to confirm that the organization has responded appropriately to the problems reported.

With regard to the likelihood of competitors learning of problems, in normal circumstances Transport Canada will not make copies, except in the extremely rare circumstances where they are needed as evidence of deliberate wrongdoing. Since the information will not be taken into Transport Canada records, it will not be liable to requests under the Access to Information legislation. In addition, forthcoming changes to the Aeronautics Act will specifically exempt such information, even if it should find its way into TC records.

This exemption applies not merely to the content of the records, but also to information on a more macro level, such as the number of reports submitted on a given topic. A large number of reports is not necessarily an indicator of a problem, but may well be an indicator of a healthy safety culture. Of far more importance than the total number of reports, is the absence of recurrent reports on a particular topic, once the necessary corrective action has been implemented.

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Safety Management Systems (SMS)

Components

Q3. What role does risk analysis have with respect to reporting?

Every report received (and every major new initiative or significant change implemented by the organization) must be subject to a formal, documented risk analysis, which may lead to either a decision to accept the risk, or to take action to eliminate, reduce or mitigate the risk. The elimination or reduction of the risk involves the identification of the root cause of the problem, together with its contributing factors. Proper documentation is essential to permit follow up, and also to identify trends. The latter is particularly important in those cases where it is decided to accept a risk. While such a decision may well be appropriate in response to an isolated incident, if that incident were later found to be part of a trend, the decision may have to be re-assessed.

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Safety Management Systems (SMS)

Components

Q4. Will the *Aeronautics Act*, *Access to Information Act* and/or *Privacy Act* require amendments to ensure the non-disclosure of sensitive information?

Transport Canada is proposing amendments to the *Aeronautics Act* that if accepted will further facilitate the protection of sensitive safety information.

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Safety Management Systems (SMS)

Components

Q5. How important is the degree of freedom given to operators in Canada to implement SMS (versus more prescriptive requirements)? Does Transport Canada nevertheless discourage copying of another operator's basic safety policy (or similar practices) among operators?

A fundamental principle of SMS success is that the organizations build the system themselves. Transport Canada wants to engage organizations actively in finding their own solutions. The *Canadian Aviation Regulations* (CARs) are performance-based meaning that Transport Canada sets the performance objective and the organization determines the most appropriate way to achieve the objective. In Canada, there are multiple certificate holders operating in extreme and diverse environments, it would be unrealistic to expect that one size would fit all. For example, what works for Canada's largest air carrier would be completely inappropriate for a small airport located in the Canadian North. Likewise an SMS at one of the country's largest international airports would be overly complex for a small one-person air taxi operation.

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Safety Management Systems (SMS)

Components

Q6. Transport Canada is among organizations that show emergency-response plans as a basic element of SMS. Why was this included, and why has a similar link between SMS and aviation security been omitted?

No matter how effective an organization's SMS is, errors will happen. SMS will help mitigate the impact of the error through risk management, hazard analysis, risk profiling and other tools. However, emergency response preparedness is still required to help the organization moderate the impact of the event from an overall response perspective.

There are plans to introduce similar requirements into the aviation security regulations. However, the security requirements are outside of the scope of the *Canadian Aviation Regulations*. In practice, many Canadian certificate holders are already incorporating aviation security as well as occupational safety and health (OSH) and environmental requirements into their SMS analysis.

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Safety Management Systems (SMS)

International Leadership

Q1. How is Transport Canada playing a world leadership role in implementing safety management systems?

Transport Canada is working with the International Civil Aviation Organization (ICAO), the United States Federal Aviation Administration (FAA), the Civil Aviation Authority of China (CAAC) and other national civil aviation authorities to promote a shared understanding of SMS as well as help other authorities wherever possible. This includes work on regulations, guidance material, workshops and implementation activities. Transport Canada has supplied personnel and materials for SMS activities in China, South America, Central America, the USA and the ICAO.

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Safety Management Systems (SMS)

International Leadership

Q2. Why would you anticipate that SMS gradually would have a positive effect globally despite the diversity of cultures and operational practices, and how does the Canadian experience to date support this expectation?

The success of SMS is dependant on a transformation of the culture at both the industry and regulatory level. The development of an effective safety culture is predicated on a relationship of trust between the organization and the employee; the employee and the regulator; and the regulator and the industry. In some cases, this may already exist; in most cases it will take some time to establish a foundation that fosters the development of this relationship. Some of the tools that will promote this growth are reporting policies that are, to the extent possible, non-punitive; effective communications at all levels; and, feedback on the system's inputs, outputs and continuous improvements.

In Canada it has taken some time to develop the infrastructure at the regulatory level and to encourage organizations, in advance of a regulatory framework, to implement the programs necessary to promote cultural development. For example, Transport Canada has implemented a new [enforcement policy](#) that encourages the use of a SMS approach to the management of human and organizational risks. More specifically, an organization discovers a problem, notifies Transport Canada of the issue and states that event was not wilful or deliberate. They then take appropriate corrective action and no enforcement action will be taken against the organization.

As with all new initiatives, actions speak louder than words. In the past year, Transport Canada has demonstrated that a commitment towards the [enforcement policy](#) and the industry has become more receptive to SMS. Given that Canadian companies already have a fairly advanced safety culture and the regulator has a solid foundation upon which to promote SMS, it will, however, take additional time in other countries that are less advanced to build the foundation required to promote the effective implementation of SMS.

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Safety Management Systems (SMS)

International Leadership

Q3. In what ways has Transport Canada been open to assisting other civil aviation authorities and non-Canadian operators to adapt/replicate your SMS concepts, best practices and training programs (proactively or on request)?

Transport Canada has worked with many aviation authorities around the world to promote SMS. In the late 1990's, Transport Canada actively worked with the United States Federal Aviation Administration (FAA) and the United Kingdom Civil Aviation Authority in the promotion of human and organizational factors. This work has continued with Transport Canada's active participation in South America, Central America, the United States and China. Transport Canada continues to actively support the efforts of International Civil Aviation Organization (ICAO) Cooperative Development of Operational Safety and Continuing Airworthiness Program (COSCAP) - North Asia to promote and implement SMS in China. To date, Transport Canada has supplied experts in SMS, risk management and gap analyses and SMS evaluation. Guidance materials, regulations and expertise to encourage SMS implementation have been made available. Transport Canada is now working with the ICAO the development of the ICAO requirements for SMS and on issues related to implementation.

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Safety Management Systems (SMS)

International Leadership

Q4. Can operators and civil aviation authorities in developing (low-resource) countries also accelerate improvements in their safety performance and otherwise benefit by adopting SMS?

It is possible to accelerate improvements in safety performance and benefit from SMS in developing countries provided the country adopts a phased in approach to SMS. Unless the appropriate infrastructure is in place at a national level it would be very difficult to implement an effective SMS. National authorities must implement the basics: non-punitive policies, SMS awareness and education programs, and simple reporting programs. These small steps will generate enough information to start developing simple trend analysis information with which to move forward and develop basic safety performance goals. In most cases, a developing nation will not be able to adequately resource a complex SMS. As such, the rule of thumb should be: start small and continuously improve. Positive outcomes offer tangible benefits. Not only will this encourage continuous development and improvement but it will also encourage others to implement SMS.

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Safety Management Systems (SMS)

General

Q1. Are there any precedents for SMS in other countries and/or industries?

Transport Canada is probably the world leader so far as formal aviation regulation goes. However, there are several cases where aviation organizations have introduced similar systems voluntarily. For example, some areas within NAV CANADA have had a form of SMS since their inception.

If we look outside aviation, the chemical industry stands out as one where several companies have introduced similar systems. In the United Kingdom, Shell, Dupont and INCO have all introduced forms of SMS. With respect to the Accountable Executive requirements, some countries have gone much further, for example the UK, in reaction to a marine tragedy, has introduced “corporate killing” provisions into the criminal code, making senior corporate executives potentially liable for imprisonment.

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Safety Management Systems (SMS)

General

Q2. What support will Transport Canada provide to assist operators in implementing a safety management system?

A fundamental principle of SMS success is that the organizations build the SMS themselves. With SMS, Transport Canada wants to engage organizations actively in finding their own solutions. In addition, Transport Canada is committed to providing guidance material, some of which has already been published.

The following is a list of some of Transport Canada's SMS related guidance material:

Implementation Procedures Guide for Air Operators and Approved Maintenance Organizations (TP 14343)—This implementation procedures guide has been developed to assist organizations with the implementation of their safety management system. This guide will also provide information to assist organizations with the selection of an accountable executive.

Safety Management System Assessment Guide (TP 14326)—This assessment guide contains all the information needed to set up an assessment protocol for a certificate holder. It includes the process outline to conduct an assessment. Each step is summarized and the needed charts and tables are included. This guide should be used to set up the assessment—it has the master protocol, which is modified according to Transport Canada intelligence and past assessment history. The expectations with their associated questions are included along with the methods to develop observations and apply the measurement criteria. The guide concludes with the evaluation methodology and the Transport Canada scoring system.

Safety Management Systems for Small Aviation Operations—A Practical Guide to Implementation (TP 14135)—This package contains a guide and CD tool kit that should be used together. The guide provides practical guidance on how to develop and implement an SMS in a small aviation organization. The tool kit includes practical tools and sample files in MS Word and PDF format to help an operator develop a safety management system.

Safety Management Systems for Flight Operations And Aircraft Maintenance Organizations - A Guide to Implementation (TP 13881)—Prepared by the Commercial and Business Aviation Branch and the Aircraft Maintenance and Manufacturing Branch. This guide focuses on 705 airline operations and large Aircraft Maintenance Organizations. It provides an explanation of the main SMS components.

Introduction to Safety Management Systems (TP 13739)—This book explains the basic concepts and principles of safety management systems, the importance of establishing a safety culture in an organization and the main features of a well-integrated system. If you are new to SMS you should read this booklet first.

Publications may be ordered online at <http://www.tc.gc.ca/Transact/>, Transport Canada's Online Publications Storefront or by calling Transport Canada's Civil Aviation Communications Centre at 1 800 305-2059.

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Safety Management Systems (SMS)

General

Q3. How will SMS impact the day-to-day work of Transport Canada inspectors?

In general, it can be expected to result in a change of emphasis from direct operational oversight to oversight of the organizational systems and their effectiveness.

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Safety Management Systems (SMS)

General

Q4. Does not all this emphasis on the system tend to dilute the need for individuals to be responsible for their actions?

No. In fact, key to SMS, all employees including the Accountable Executive are responsible for specific actions. The traditional responsibilities of key individuals exercising specific privileges under the *CARs*, such as Pilots in Command, Air Traffic Controllers and AMEs, remain in effect and are an essential element of the system as a whole.

What SMS adds is the recognition that individuals do not operate in a vacuum. Typically human errors are not simply the result of a person's incompetence, even though that person may be ultimately legally responsible for it. More often, errors are the result of a wide range of factors, from the physical environment to the interaction with others. SMS is not concerned with apportioning blame, but with identifying and correcting the circumstances that can give rise to errors and omissions. The integrity of key individuals, indeed of all involved individuals, remains a major part of the process.

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Safety Management Systems (SMS)

General

Q5. Has the adoption of the SMS program itself undergone a risk assessment?

No, the decision to introduce SMS was taken before risk assessment became a requirement for regulatory change. The process is now sufficiently advanced that performing a formal risk analysis would be superfluous. We believe this is a case where the benefits are self evident, and where public consultation through *CARAC* will serve to provide an assessment of the costs and benefits involved. Of course, the NPAs that formally introduce SMS will be subject to RIAS as part of the normal legislative process.

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Safety Management Systems (SMS)

General

Q6. If the system fails what can Transport Canada do about it? For example, a company may have an SMS, but nevertheless suffers an accident. Let's say a pilot loses control during an Instrument Flight Rules (IFR) approach. Does Transport Canada fault the SMS? Is this a pilot error? In fact, has anything really changed in the way we deal with the situation?

First of all, the current regulatory framework will continue to exist. SMS is an addition to the current requirements, and cannot therefore be blamed for an accident. In fact, nothing will change with regard to the way we respond to a given accident, incident, or regulatory violation. However, an ineffective SMS may in itself be grounds for immediate certificate suspension.

Given what we now know about accident causation, it is unlikely that a loss of control accident can be traced to a single cause. SMS takes a comprehensive approach to safety and managing risks. SMS will prevent accidents by dealing with hazards and risks proactively. Transport Canada recognizes that we will never eliminate all risks and that even safe companies can have accidents. SMS will, however, result in an overall increase in safety of the industry.

Using the above example as a basis, SMS could have potentially helped to prevent the accident, provided the individuals concerned have reported previous similar situations that did not result in an accident. That would have enabled the problem to be analyzed and the root causes identified. Is it a matter of training or experience? Were the aircraft properly equipped and serviceable? Did company procedures play a part? Is management pressure a factor? Naturally, these and similar questions can only be answered if there is an effective reporting system, and that can only exist within an acceptable safety culture. Regrettably, sometimes the absence of a healthy safety culture may only be reported after an accident, but even that may provide evidence to support certificate action.

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