

SAFETY MANAGEMENT

Some transportation operators in the air, marine, and rail sectors are not managing their safety risks effectively, and many are still not required to have formal safety management processes in place. Moreover, those operators that have implemented a formal safety management system (SMS) are not always able to demonstrate that it is working and producing the expected safety improvements.

The situation

SMS is an internationally recognized safety management process that allows companies to identify hazards, manage risks, and make operations safer—ideally before an accident occurs. Although the issue of safety management has been on the Watchlist since 2010 and industry awareness about SMS has slowly increased since that time, Transportation Safety Board of Canada (TSB) investigation reports continue to note deficiencies and concerns in the air, marine, and rail sectors of transportation.

When formal safety management processes are absent or ineffective, safeguards break down: operational changes go unassessed, hazards remain unidentified, risks are mismanaged, and mitigations measures are not validated. This allows unsafe conditions to persist—often unnoticed—until an accident occurs.

Without a requirement for a formal SMS and effective regulatory surveillance, systemic safety issues such as poor hazard identification, weak risk assessment, and mitigations unvalidated for effectiveness, remain unaddressed. Ultimately, absent or ineffective SMS increase the likelihood of catastrophic accidents—putting people, property, and the environment at risk.

The call for change

Watchlist issues are complex and require coordinated action from operators, regulators and other stakeholders. While some progress has been made, much more is needed.





Air sector

Progress in aviation has been limited. SMS requirements still do not apply to operators under Canadian Aviation Regulations (CARs) subparts 702 (aerial work), 703 (air taxi), and 704 (commuter); CARs Subpart 406 (flying training units); and non-certified aerodrome operators.

Over 90% of Canadian commercial aviation operators are not required to have a formal safety management process like an SMS. Many are smaller operators that continue to miss opportunities to improve safety.

Number of occurrences (2010–2025)

From 2010 to June 2025, commercial air operators that were required to have an SMS (those operating under CARs Subpart 705) were involved in 90 accidents, resulting in 13 fatalities. In contrast, commercial air operators that were not required to have an SMS (those operating under CARs subparts 702, 703, and 704) were involved in 766 accidents and 221 fatalities. Flight training units, operating under CARs Subpart 406, were involved in a further 319 accidents that resulted in 21 fatalities.

Moreover, of the 27 investigations from 2010 to June 2025 in which the Board has made findings relating to safety management, 17 involved air operators that were not required to have an SMS. These operators also represented 17 of the 30 fatalities in those investigations.

Active recommendations

In response to several investigations, the TSB has made the following recommendations:

- Promoting proactive safety management processes and safety culture ([A19-03](#))
- SMS assessments ([A16-13](#))
- Implementation of formal SMS ([A16-12](#))

Action taken

Although some progress has been made on the three TSB recommendations, efforts by both the regulator and industry have been fragmented. Transport Canada (TC) is reviewing SMS policy with the aim of modernizing and expanding requirements. Until this review is complete and new regulations are implemented, it is unclear whether these measures will effectively address safety management gaps in the air industry.

Additionally, many industry associations are promoting SMS and providing tools to support their members. Also, numerous operators not required to have an SMS are making efforts to implement scaled



systems. However, TC does not currently monitor the effectiveness of a voluntary SMS, and these initiatives are often constrained by limited resources, expertise, cost, and operational complexity.

Action required

This issue will remain on the Watchlist until:

- TC implements regulations requiring all commercial operators to have formal safety management processes; and
- operators that do have an SMS demonstrate to TC that it is effective—that changes in operations are assessed for risks, hazards are being identified, and effective risk-mitigation measures are being implemented and validated.

Marine sector

Effective vessel safety requires an SMS supported by a strong safety culture, where shore staff and crew communicate openly to assess risks, identify hazards, implement mitigations, and validate mitigation effectiveness. This ensures both sides have current information and can proactively reduce risk.

The *Marine Safety Management Systems Regulations* require almost all Canadian commercial vessels to develop, implement, and maintain a documented SMS that addresses both shore-based and on-board operations. While these regulations strengthen the framework for safety management, their effectiveness depends on TC's ability to verify compliance during inspections, presenting a challenge for smaller vessels that are not subject to mandatory periodic inspections.

Over the past five years, the TSB has investigated nine occurrences where vessels had an SMS that met the requirements of the International Safety Management (ISM) but failed to identify, assess, or mitigate hazards, highlighting gaps between regulatory compliance and effective safety management.

Action taken

TC's *Marine Safety Management Systems Regulations* came into force in July 2024 and require all commercial vessels, other than small fishing vessels, to have an SMS. The regulations classify the fleet into five tiers, with SMS requirements and oversight particular to each tier. Compliance will be verified through risk-based inspections by marine safety inspectors.

Action required

This issue will remain on the Watchlist until:



- operators that do have an SMS demonstrate to TC that it is working—that hazards are being identified and effective risk-mitigation measures are being implemented and then validated for effectiveness.

Rail sector

Federally regulated railways have been required to have an SMS since 2001, and regulatory requirements were significantly enhanced in 2015. However, the expected changes in safety culture and safety improvements with the implementation of SMS have not yet been demonstrated by the industry.

Between 2010 and 2025, the TSB made findings related to safety management systems in 37 rail investigations. These investigations show that railway companies are not always using their SMS when there is a change to operations, and that they are not effectively identifying hazards, mitigating risks, and evaluating mitigation for effectiveness.

More than 20 years after the *Railway Safety Management System Regulations* were first implemented in Canada, operators have yet to demonstrate that their SMS effectively reduces risk to the public, property, and the environment. The TSB has found that freight railway operators' SMS do not reliably identify safety concerns, drive improvements, or measure effectiveness. TC's SMS audits have also highlighted persistent deficiencies in assessing operational risks, a critical first step in the SMS process.

Active recommendations

In response to several investigations, the TSB has made the following recommendations:

- Risk management through hazard identification, data trend analysis, and risk assessments ([R22-03](#))
- Auditing of SMS ([R14-05](#))

Action taken

- In its latest response to Recommendation [R14-05](#), calling for audits of sufficient depth and frequency to confirm SMS effectiveness, TC:
 - implemented the use of key performance indicators in its audits and revised them in April 2024 following stakeholder consultations and feedback
 - indicated that it is advancing an in-depth review of the *Railway Safety Management System Regulations* to codify effectiveness principles, and
 - established a targeted audit framework.
- In response to TSB Recommendation [R22-03](#), which called for TC to ensure Canadian Pacific Railway demonstrates that its SMS can effectively identify hazards, assess risks, and implement



and validate mitigation measures, TC followed up with the operator to monitor progress, and identify and resolve non-compliance.

Action required

This issue will remain on the Watchlist until operators demonstrate to TC that their SMS is effective.