



SAFETY CULTURE POLICY STATEMENT

Fundamentals of Safety Culture
as part of a Federally-Regulated Rail Safety Regime

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Developed in response to Recommendation 2 of the 2017-18 *Railway Safety Act* Review

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1.0 INTRODUCTION

Safety culture refers to the shared values, beliefs, attitudes, actions, and behaviours that demonstrate a collective responsibility and commitment to safety at all levels of an organization. Safety culture is determined by the safety values that are entrenched in the minds of managers and employees at all levels in the organization. It is demonstrated by the alignment of their actions, decisions and behaviours with the organization's safety policies, procedures, and practices.¹

In order to develop and maintain a positive safety culture, organizations must ensure that safety considerations are central to organizational functions. A positive safety culture is integral to the way the company, management and employees do business. It becomes part of an organization's fabric when safety is recognized as a core value and woven into standard practices.

Developing a positive safety culture requires constant learning and reinforcement. Therefore, the regulator plays an essential role in promoting safety culture as an integral part of effective safety management systems (SMS). Moreover, the regulator must institutionalize, through its own practices, its constant support for and promotion of a positive safety culture in the rail industry.

1.1 Purpose

This policy statement is intended to demonstrate Transport Canada's (TC) commitment to support and promote the development of a positive safety culture, and to provide a framework to define characteristics with positive and negative impacts on rail safety. Recognizing that culture drives human behaviours, an organizational commitment to safety culture development is key to addressing human and organizational factors that contribute to safety failures, ultimately improving the safety performance of the rail industry. This policy statement presents a definition and a framework to support a shared understanding of safety culture.

The 2018 *Railway Safety Act Review* entitled, *Enhancing Rail Safety in Canada: Working Together for Safer Communities*,² highlighted the importance of safety culture as a key component of a safe rail system and a necessary foundation for continuous improvement, effective technical compliance and robust SMS. The Report also highlighted the role and importance of the regulator in promoting safety culture. As such, this safety culture policy statement is intended to encourage the continued collaboration of the regulator, railway companies, industry associations, labour organizations, and academia to foster the development of a positive safety culture to pursue continued safety improvements in the rail industry.

Positive shifts in this domain requires strong commitments from leadership to take meaningful steps towards supporting and improving safety culture within individual organizations.

¹ FactorSafe Solutions (2015). Safety Culture Research and Development Program Gap Analysis Framework, Interim Report.

² *Railway Safety Act Review* (2018). *Enhancing Rail Safety in Canada: Working Together for Safer Communities* (<http://www.tc.gc.ca/en/reviews/railway-safety-act-review/enhancing-rail-safety-canada-working-together-safer-communities.html>).

Improving safety culture cannot be accomplished through a policy statement alone. As such, this policy statement is not intended to replace a railway company's own policy or industry-wide safety culture initiatives. It does, however, demonstrate TC's commitment to support an industry-wide effort to achieve a positive safety culture through the use of effective SMS.

1.2 Safety Management Systems and Safety Culture

Studies have shown a close connection between safety culture and effective SMS. Research suggests that an SMS cannot be effective without a good safety culture and an organization cannot have a positive safety culture without a robust SMS. This assertion is reinforced in safety culture studies undertaken by Eurocontrol, the Institute for Industrial Safety Culture (ICSI), and the US Department of Transport. The findings presented in Annex 1 demonstrate that SMS and safety culture must coexist to achieve safety performance excellence.

TC's approach is consistent with the findings of these studies. The publication of *Safety Management System Regulations, 2015*, outlining revised regulations, demonstrates the department's initiative to continuously improve the regulatory framework to lay the groundwork to further support the development of a positive safety culture in the rail industry. All twelve processes introduced in this publication support the attainment of safety culture improvements by reinforcing each positive element in the safety culture framework as described in section 3.³

While compliance with the *Safety Management System Regulations, 2015*, provides a sound basis from which a strong safety culture can be developed, it must be noted that it is not sufficient in isolation to achieve a strong safety culture.

2.0 WHY IS SAFETY CULTURE IMPORTANT?

Safety culture has a profound impact on employee and management actions with respect to safety, which consequently impacts overall safety levels within an organization. However, the importance of safety culture is often overlooked as it does not constitute a tangible concept. The concept of safety culture emerged following the Chernobyl accident in 1986 as it was recognized that descriptors were needed for intangible factors influencing the effectiveness of organizational safety management.⁴ A series of investigations into major disasters concluded that these events occurred despite the fact that there were multiple layers of defense explicitly intended to prevent accidents.⁵ The investigative bodies responsible for reviewing these accidents found that the disasters were not due to the lack of knowledge or insufficient technology to control the hazard,

³ SMS processes: (1) a process for accountability; (2) a process with respect to a safety policy; (3) a process for ensuring compliance with regulations, rules and other instruments; (4) a process for managing railway occurrences; (5) a process for identifying safety concerns; (6) a risk assessment process; (7) a process for implementing and evaluating remedial action; (8) a process for establishing targets and developing initiatives; (9) a process for reporting contraventions; (10) a process for managing knowledge; (11) a process with respect to scheduling; and, (12) a process for continual improvement of the safety management system.

⁴ Chernobyl Investigation report, <https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1250/>

⁵ Piper Alpha, <http://www.hse.gov.uk/offshore/piper-alpha-disaster-public-inquiry.htm>; Herald of Free Enterprise, <https://www.gov.uk/maib-reports/flooding-and-subsequent-capsize-of-ro-ro-passenger-ferry-herald-of-free-enterprise-off-the-port-of-zeebrugge-belgium-with-loss-of-193-lives>

but rather by other influences that impacted the organization's ability to effectively implement and utilize SMS.

Given the infrequency of major accidents, other indicators can be used to demonstrate the impact that safety culture can have on employee behaviours. For example, there is significant evidence suggesting that employee perceptions of their organization's safety culture negatively correlates with occupational injury rate statistics.⁶ In other words, in organizations where employees have positive perceptions of the safety culture, the occupational injury rate tends to be lower.

Every organization has its own unique safety culture, ranging from negative to positive on the safety culture continuum (i.e., on a scale of weak to strong). Specific aspects of an organization's safety culture can positively or negatively impact safety by either strengthening or undermining the effectiveness of SMS. Safety culture is important because awareness regarding the organization's placement on the safety culture continuum provides the knowledge required to implement necessary changes aimed at strengthening SMS.

3.0 SAFETY CULTURE FRAMEWORK

3.1. Current safety culture framework in the rail industry

The term Safety culture is a broad and abstract concept. As such, it is helpful to use a framework to promote a common understanding. While a number of industries and regulators have developed different methods to communicate and implement their safety culture, there are many commonalities in the paradigms used. See Annex 2 for further details regarding the emergence of safety culture.

The 2007 *Railway Safety Act* Review Panel Report entitled *Stronger Ties: A Shared Commitment to Railway Safety*, called for TC and the railway industry to take specific measures to foster safety culture improvements. As a result of this Report, a multi-stakeholder Safety Management Systems Working Group (SMSWG) was formed to address the Panel's recommendations (see Annex 2 for further details). The SMSWG adopted the following definition for safety culture, which continues to be used by the Railway Association of Canada (RAC) and its member organizations, railway companies, and other industries:

“The safety culture of an organization is the result of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and style and proficiency of, an organization's health and safety management system. Organizations with a positive safety culture are characterized by communications from various stakeholders founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventative measures.”⁷

⁶ Clarke, S. (2006). The relationship between safety climate and safety performance: a meta-analytic review. *Journal of occupational health psychology*, 11(4), 315-327.

⁷ HSE, UK Government, Human Factors, Common Topics, Common Topic 4, 1993 (<http://www.hse.gov.uk/humanfactors/topics/common4.pdf>).

Stemming from this work, the SMSWG proposed a framework with five characteristics based on a model developed by Professor James Reason, that is well-recognized and respected in the nuclear and transportation sectors. The five characteristics are: leadership and commitment to safety; two-way communication; employee/employee representative involvement; a learning culture; and a just culture.⁸ These five characteristics formed the foundation for the industry's conceptual safety culture framework and are applied using the following attributes:

Leadership and commitment to safety culture

- Clear leadership commitment to safety at the executive/senior level, as well as by line management
- Safety is a core value at all levels of the company
- Safety is integrated into all levels of the company through policies, processes, procedures, objectives and initiatives

Two-Way Communication

- Using diverse methods to promote management–employee communications (for example, safety meetings, town hall meetings, safety forums, briefings, mentoring, performance reviews)
- Various approaches to raise employee awareness and knowledge of safety (for example, through training, newsletters, communiqués, brochures, safety flashes)

Stakeholder / Employee / Employee representative involvement

- Involvement in risk assessments and investigations
- Participation in safety site visits, walkabouts, audits, etc.
- Empowered and proactive health and safety committees (for example, annual action plans for top causes)

A Learning Culture

- Continuous improvement through internal and external reviews
- Processes for monitoring safety trends (for example, trend analysis)
- Use of leading indicators (for example, near-misses, audit results, rule violations, health and safety effectiveness)

A Just Culture

- Company policies that encourage and recognize employees
- Internal escalation process for unresolved health and safety issues

⁸ Railway Association of Canada, *Safety Culture Progress in the Canadian Railway Industry*.

- Internal recourse for employees to deal with safety issues (for example, safety ombudsman)
- Complete and objective investigations

3.2 Updated Safety Culture Framework

Much has been learned since 2007 about the link between safety culture and effective SMS. Events such as the Lac Mégantic accident have provided valuable insight into safety system failures and the impact of a poor safety culture. These lessons learned culminated in the development of more robust SMS regulations in 2015, as well as other initiatives aimed at strengthening the regulatory framework in order to improve the safety record of the rail industry. This work was recognized in the 2018 *Rail Safety Act* Review Panel Report, which determined that TC "...had made progress and the safety of the rail system had improved in the last 5 to 10 years."⁹ However, "the Panel concluded that progress in safety culture by both railways and the Department is essential for continuous improvement to the rail safety regime, particularly with respect to human and organizational performance."¹⁰

As a result, TC has embarked on an initiative to review and update the safety culture framework to incorporate lessons learned and best practices from other industries, regulatory authorities, and academia. In support of this objective, TC conducted a literature review to determine how safety culture models have evolved since 2007. As a result of this literature review, TC has added "clear accountability for safety" to the updated safety culture framework, which originated from work completed by the Canadian Nuclear Safety Commission (CNSC).¹¹

The Review showed that the majority of current frameworks contain positive safety culture characteristics (i.e., they describe a desired or ideal safety culture). However, other studies of high risk industries in Canada, such as the energy sector (National Energy Board (NEB)) illustrated that in many investigations looking at major disasters, consideration of negative characteristics was equally important to understanding the failures that led to the accident.¹² Challenges to positive safety cultures, such as production pressure, complacency, normalization of deviance, and tolerance of inadequate systems can undermine the health of an organization's SMS. Acknowledging that these undesirable cultural characteristics may also present themselves in the railway industry, it is important to promote cultural aspects that strengthen safety while simultaneously addressing the aspects that undermine safety. The following sub-sections discuss positive characteristics of the safety culture framework and describe the aforementioned challenges, which TC has added to its safety culture framework.

⁹ *Railway Safety Act* Review (2018). Enhancing Rail Safety in Canada: Working Together for Safer Communities.

¹⁰ Ibid.

¹¹ Canadian Nuclear Safety Commission (CNSC), Safety Culture for Nuclear Licensees, Discussion Paper DIS-12-07, August 2012.

¹² National Energy Board (2014). Advancing Safety in the Oil and Gas Industry Statement on Safety Culture.

3.2.1 Positive Characteristics

The level of commitment to safety culture improvement within an organization influences the six characteristics highlighted in TC's framework. Learning and reinforcement is consistently required, even in organizations with a positive safety culture, to ensure that the organization continually improves by adapting safety systems that enable the organization to respond to the constantly shifting operating environment.

The following subsections provide a description of the positive characteristics of safety culture, including the recommended attributes organizations seek to achieve:

3.2.1.1 Leadership and Commitment to Safety Culture

Leadership and commitment is essential to establishing, fostering, and maintaining a positive safety culture¹³ due to its influence on the other five characteristics in TC's framework. It is demonstrated by setting a good example while striving for safety excellence, being visible in the workplace, and accessible to employees with respect to safety. Commitment to safety is also demonstrated by making the necessary resources available (for example time, money, people) to address safety and by encouraging employees to take responsibility for safety. In organizations with strong leadership, safety is integrated into all levels of the organization and is demonstrated through policies, processes, procedures, objectives, and initiatives, all of which formally communicate the company's values and expectations.

Managements approach and opinions, including attitudes, behaviors, and priorities, influences the nature of the relationships that are developed at all levels throughout an organization, between senior managers, supervisors, and employees.¹⁴ As a result, demonstrated commitments by senior-level involvement in safety initiatives are vital to the achievement of safety performance improvements and the attainment of safety objectives.¹⁵ For example, activities such as health and safety committee meetings, safety walkabouts, and audits include executives, managers, and employees to demonstrate commitment and to ensure that risks are heard, considered, and managed appropriately. Furthermore, strong leadership is beneficial to encourage collaboration, recognize efforts, and demonstrate support as safety culture gradually evolves to reflect the character of the organization's leadership.¹⁶

An expression of this commitment can be found in the organization's SMS processes for accountability, and for establishing and implementing safety policies. These processes formalize and enable activities that support a strong safety culture. For example, when the organization communicates its safety policy to employees, it is demonstrating the railway's commitment to promoting safety and the values that support a strong safety culture. This commitment is shown

¹³ National Energy Board (2014). Advancing Safety in the Oil and Gas Industry Statement on Safety Culture

¹⁴ University of Aberdeen (2003). The role of managerial leadership in determining workplace safety outcomes, Prepared by for the Health and Safety Executive 2003, Research Report 044.

¹⁵ HSE, UK (2011). Leadership for the major hazard industries, Health and Safety Executive, United Kingdom.

¹⁶ Reason, J. (1998). Achieving a safe culture: theory and practice, Safety Culture Excellence. Work and Stress 12, 293-306.

to be reinforced annually when the company advertises to employees the safety initiatives it is undertaking in the year ahead to improve the safety of its operations.

3.2.1.2 Two-Way Communication

Effective two-way communication between all levels of the organization is important to support collaboration and consistent approaches to safety. Further, it demonstrates management's leadership and commitment, ensures employee buy-in, and provides a way to assess the effectiveness of safety initiatives.

In a positive safety culture, safety is a part of everyday work conversations. Management is accessible and visible in the field, actively listens to all employees, and responds to questions and requests for information.¹⁷ For example, it can be demonstrated by the participation of both management and employees in forums such as safety meetings, town hall meetings, safety walkabouts, job briefings, coaching, and mentoring, training and performance reviews.

Employee awareness and knowledge of safety targets and initiatives is augmented through communications (such as newsletters, communiqués, brochures, training materials). Providing employees with mechanisms through which they can report contraventions and safety hazards, without fear of reprisal, enables management to proactively address existing safety risks and emerging issues. Feedback is then provided to employees regarding actions taken to address safety issues to maintain confidence in the safety reporting system.

3.2.1.3 Stakeholder/Employee/Employee Representative Involvement

A positive safety culture is characterized by the involvement of employees at all levels of the organization in the development and implementation of safety programs in pursuit of continuous safety improvements. It is understood that all employees' impact safety, and therefore, everyone within the organization has a role to play in identifying risks and suggesting remedial actions during risk assessment processes. In addition, all employees are included in the evaluation of the effectiveness of remedial actions that have been implemented in response to identified risks.

To encourage employee involvement in the identification of contraventions and safety hazards, organizations protect employees from reprisal of making such reports and involve employees in the development of the related reporting policy. Organizations also continually monitor and verify employee collaboration and consultation, in recognition of the importance of these activities.

In order to support openness and transparency, organizations are encouraged and support employee participation in safety site visits, walkabouts, audits, investigations, and the implementation and assessment of corrective actions, wherever possible. Moreover, employees are supported by Health and Safety Committees, consisting of representation of employees, labour organizations, supervisors, and management. These Committees provide a mechanism to demonstrate effectiveness in the identification and implementation of safety improvements.

¹⁷ FactorSafe Solutions (2015). Safety Culture Research and Development Program Gap Analysis Framework, Interim Report.

3.2.1.4 Clear Accountability for Safety

In a work environment with a positive safety culture, individual employees are not held accountable for system failings over which they have no control. It is recognized that competent people make mistakes. Human behaviours can be divided into three categories: human error; “at risk” behaviour, which can occur when a risk is not recognized or is mistakenly believed to be justified; and reckless behaviour where there is a conscious disregard for a substantial and unjustifiable risk.¹⁸ The response of the organization is tailored to each of the three error types. For example, in the case of human error the solution may be to redesign equipment or control interfaces, whereas increased training may be the solution to address risky behaviour. Disciplinary action is only appropriate in situations where reckless behaviour has occurred (see following section on Just Culture).

Accountability refers to the acknowledgement that everyone has a role to play in ensuring safety, and understanding what that role is. It is the responsibility of the managers and supervisors to understand their own role in maintaining safety, and to communicate it effectively to employees while ensuring that employees understand their own role. Employees at all levels who are unsure about their role in maintaining safety seek clarification.

In order to achieve clear accountability for safety, roles and responsibilities for all levels and positions in the organization are clearly defined, documented and understood.¹⁹ Roles and responsibilities relating to safety are included in documents such as job descriptions, policies and procedures, and are addressed in activities such as training, meetings and job briefings. Accountability for safety can be demonstrated by the organization nominating an accountable executive who is responsible for fostering, sustaining and achieving the highest level of safety.

It is acknowledged that aspects of clear accountability for safety permeate the other positive characteristics, but it is defined separately to provide clarity and express the importance of defining and reinforcing everyone’s role with respect to safety.

3.2.1.5 A Just Culture

A just culture is described as “an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour.”²⁰

A just culture is characterized by an understanding that employees do not willfully make mistakes or intend to undertake unsafe actions. Unsafe acts or incorrect actions usually result in the failure of, or the absence of, a barrier to prevent the unsafe condition, or a failure in the organizational and management mechanisms that support safe actions. The practice of just culture can be seen in an organization’s policies, procedures, and practices that enable and

¹⁸ Gregg S. Meyer and Edward P. Lawrence, *Just Culture: The Key to Quality and Safety*, Center for Quality and Safety, Massachusetts General Hospital, September 2010

¹⁹ Canadian Nuclear Safety Commission (CNSC), *Safety Culture for Nuclear Licensees*, Discussion Paper DIS-12-07, August 2012

²⁰ Reason, J. (1997). *Managing the Risk of Organizational Accidents*, Hants, England, Ashgate Publishing Ltd.

encourage employees to identify safety issues and improvement opportunities, as well as providing mechanisms to address unresolved safety issues.

Evidence of a just culture is also demonstrated in investigations that focus on root cause analysis and solutions rather than assigning blame to individuals and carrying out punitive action. In a just culture, there is no fear of reprisal unless unsafe acts are proved to be intentional and/or reckless. An organization demonstrates that it has a just culture by effectively implementing processes that protect employees from reprisals for reporting contraventions of safety rules or identifying safety hazards.

3.2.1.6 A Learning Culture

A learning culture is characterized by one of curiosity and continuous growth, a questioning attitude at all levels of the company, and of constant assessment of potential risks. A learning organization employs mechanisms for continuous improvement such as self-assessments and benchmarking, and uses both internal and external best practices to improve safety. Actions are taken to identify and analyze safety concerns and to investigate railway occurrences to determine root causes and contributing factors. Risk assessments are conducted to share information, to evaluate potential risks, and to identify remedial actions to reduce or eliminate identified risks.

An organization demonstrates that it adopts a learning culture by providing the skills, qualifications, and knowledge to employees who are responsible for safe operations. This enables employees to perform their duties safely and respond in a timely manner to inputs from the SMS (for example, when hazards are discovered and efforts are made to understand root causes and contributing factors of incidents). In addition, performance measures are in place and used to provide a picture of the organization's current safety level, to identify areas of weakness, and to proactively manage safety issues to prevent an incident.²¹

3.2.2 Challenges

The following subsections provide descriptions of four challenges to an effective safety culture, identifying how they can be characterized within an organization:

3.2.2.1 Production Pressure

Empirical safety culture assessment studies and reviews of major disasters have identified perceived production pressure as a challenge to safety culture development.²² A tension often exists between safety and production, given that safety precautions may require additional time and effort, and it can be tempting to trade safety margins to save time. Shared values and beliefs about the relative priorities of production and safety influence how employees resolve conflicts. Accordingly, organizations must be aware of this threat to safety and develop mitigation strategies.

²¹ University of Aberdeen (2003). The role of managerial leadership in determining workplace safety outcomes, Prepared by for the Health and Safety Executive 2003, Research Report 044.

²² Flin, R. Meams, K., O'Connor P., and Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science*, 34, 177-192.

3.2.2.2 Complacency

In safety-critical industries such as the rail industry, complacency can occur when there is a widely held belief that all hazards are controlled or that catastrophic events cannot happen. While occupational safety performance may be improving (for example, there may be a reduction in lost time injury rate); it is often assumed that all aspects of safety are improving, which may not be the case. Since occupational injuries occur more frequently than catastrophic events (for example, a derailment resulting in a release of hazardous goods followed by an explosion), there is a risk that personal safety becomes the sole focus of safety efforts, resulting in inadequate consideration of potentially catastrophic events. Complacency is characterized by overconfidence in the safety system and its performance, an attitude typified by the Lac Mégantic accident, whereby it was previously deemed as a virtual impossibility that a catastrophic event could happen given all of the defense mechanisms that would have to fail. This highlights the importance of remaining vigilant given the increased organizational risk when there has not been a catastrophic event for a sustained period of time.

Organizations with a reactive approach to safety (responding to accidents rather than focusing on prevention), are at increased risk of accidents due to complacency. Organizations believe that they are safe because they comply with regulations and therefore do not seek to learn from their own experiences or other organizations and industries.

In addition, there may be undesirable events (for example, non-main track derailments) that are not treated seriously because they have either become commonplace or because they do not include injuries, leaks, or damage to equipment. However, the same cause in different circumstances (for example, a derailment of a car carrying hazardous material) may result in serious physical injuries or fatalities.

3.2.2.3 Normalization of Deviance

Normalization of deviance can be defined as an acceptance of rule breaking. It may lead individuals to believe that non-compliance is admissible, as they believe that non-compliance is the correct or acceptable behaviour in the situation (resulting in faster performance). When management does not address and correct these behaviours in a timely manner, it may become commonplace to dismiss rules that are difficult to comply with. Especially if there is a lack of understanding about the rule's importance and/or if there has been no enforcement or reinforcement of the rule.²³

3.2.2.4 Tolerance of Inadequate Systems and Resources

Organizations may have to work with inadequate systems and resources (such as aging infrastructure, equipment that is not fit for purpose, or equipment in a poor state of repair).²⁴ The value of safety systems and resources is not recognized, and the lack of priority placed on safety may result in the consideration of a narrow range of hazards. This can also be characterized by an organization that fails to provide adequate human and financial resources, and adequate skills

²³ Reason, J. (1997). *Managing the Risk of Organizational Accidents*, Hants, England, Ashgate Publishing Ltd.

²⁴ Fleming, M. and Scott, N. (2012). *Cultural disasters: Learning from yesterday to be safe tomorrow*. Oil and Gas Facilities, Vol. 1, No. 3 (June). Society of petroleum Engineers. Houston, Texas

to manage risks. The organization may also be slow to react to changes in technology, and improvements to safety are largely driven by regulatory requirements and the results of accident investigations.

4.0 THE ROLE OF THE REGULATOR

The fundamental objective of the regulator is to ensure that railway operations in Canada are carried out in the safest possible manner. As such, TC shares a common goal with industry partners in its desire to promote a positive safety culture in order to enhance safety performance. In 2018, the *Railway Safety Act* Review Panel reaffirmed this sentiment by stating that “progress in safety culture by both railways and TC is essential for continuous improvement to the rail safety regime, particularly with respect to human and organizational performance factors.”²⁵

It is important to specify the role of the regulator in relation to the industry’s role in the promotion of a positive safety culture. For example, Railway companies are responsible for the creation and maintenance of a positive safety culture, and Transport Canada can support industry by setting clear expectations and by creating an evidence-based framework to ensure clear understanding of key concepts, and promoting best practice. Other Canadian regulators (for example, the Canadian Nuclear Safety Commission) have issued safety culture regulations to promote a positive safety culture and set out requirements for conducting safety culture assessments.²⁶ While this approach is an option, TC currently does not intend to create safety culture regulations.

The department promotes the development of a positive safety culture within the rail industry through SMS regulations and oversight. The SMS processes introduced in the *Safety Management System Regulations, 2015*, are consistent with the promotion of a positive safety culture. Specifically, they require leadership engagement, employee involvement, accountability, and learning from experience.

There is evidence that the culture of the regulator has an influence on the safety culture of the industry. As a key milestone, this safety culture policy statement intends to promote a shared understanding of safety culture and its relationship to SMS across the rail industry. TC will continue to focus on safety culture to promote and improve safety in the rail transportation sector.

5.0 CONCLUSION

This safety culture policy statement can be used by the regulator and industry to better understand the challenges and opportunities to achieving a positive safety culture. The principles can assist to identify and implement improvements. It provides a definition of safety culture and a framework that supports a shared understanding of safety culture characteristics. This framework builds on the initial framework produced in 2007 by the SMS working group. The

²⁵ *Railway Safety Act* Review (2018). Enhancing Rail Safety in Canada: Working Together for Safer Communities

²⁶ <https://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/published/html/regdoc2-1-2/index.cfm>

most notable addition to the framework is the inclusion of four challenges to a positive safety culture. These were included to raise awareness of the need to not only promote a positive safety culture, but to also create strategies to address these challenges. The importance of these challenges is highlighted by their presence in major disasters. It is likely that these challenges are present, to some degree, in all rail organizations, suggesting that strategies should be created proactively and updated regularly to monitor and manage safety culture considerations.

As discussed previously, an effective SMS promotes a positive safety culture, as both the SMS processes and the safety culture are well aligned. This includes taking action beyond the *Safety Management Systems Regulations, 2015*, to learn and incorporate evolving best practices. It is important that railway companies place an increased focus on continuous improvements to the safety management system processes, and also assess their effectiveness by setting objectives and establishing performance measures.

In addition to continuous improvement in SMS, there is a need for greater consideration of human and organizational factors. It is recognized that safety culture is greater than the sum of its parts and involves more than initiatives or programs. The subtle nature of safety culture means that improvement involves focusing on the less tangible aspects of safety, such as the relationship between management and employees.

For successful change to occur, leadership and commitment are critical in the necessary shift towards a just culture in the industry. The development of a positive safety culture is challenging in an environment that requires strict adherence to critical safety rules, and the use of disciplinary actions in response to unsafe acts can undermine these efforts.

Moving forward, railway organizations could examine and leverage the best practices used in other high hazard industries, as significant progress has been made regarding safety culture over the last ten years.

This policy statement demonstrates a commitment on the part of TC to support an industry-wide effort to achieve a positive safety culture based on effective SMS. Safety culture improvements on the part of railway companies and TC is essential to promote continuous progress of the rail safety regime. The rail industry in Canada is encouraged to adopt Rail Safety's Safety Culture Policy Statement, and use it as a holistic approach to improve safety within their respective organizations.

Annex 1: Links between Safety Management Systems and Safety Culture

This Annex provides some information about how two organizations in Europe, in addition to the US Department of Transport, address the link between SMS and safety culture. This information is compatible with TC's framework.

A. Eurocontrol consider that the safety health of an organization is the sum of two parts:

1. The system, processes and procedures and their implementation, to address risk and safety (SMS).
2. The shared values, beliefs and attitudes towards safety of the employees (Safety Culture).

The link between SMS and safety culture is described by Eurocontrol as follows: "The existence of safety culture and SMS is co-dependent towards achieving a high level of operational safety. Without a safety culture, dedication to uphold a high level of operational safety will not be sufficient for the organization to consider implementing safety systems, policies, processes and procedures. Likewise, without a SMS, commitment to uphold a high level of operational safety will be futile without actual actions being undertaken. Therefore, both the safety culture and SMS must co-exist together."²⁷

B. The Federal Transit Administration, US Department of Transport, considers that SMS is a tool for building and maintaining a strong safety culture²⁸. This can be illustrated by the safety challenges listed below, and how they can be improved by developing and implementing effective SMS.

Safety Culture Challenges	Effective Safety Management Systems
<ul style="list-style-type: none"> • Distrust, suspect different priorities • Decisions seem arbitrary or uninformed • Tough decisions seem to be avoided • There is a lack of transparency • People don't seem to be held accountable 	<ul style="list-style-type: none"> • Awareness and learning are valued • Decisions are based upon risk • Priorities and expectations are explicit and widely communicated • Transparent repeated processes • Clear and consistent accountability • Focus on achieving safety outcomes • Continuous improvement

²⁷ EUROCONTROL. (2008, December). Safety culture in air traffic management. Retrieved 28 August 2010, from <http://www.skybrary.aero/bookshelf/books/564.pdf>.

²⁸ Paulina Orchard, Federal Transit Administration, US Department of Transit, Safety culture and Safety Management Systems: The Role of Employee Safety Reporting, 2017 TRB Annual Meeting, January 2017.

This way of thinking about the link between SMS and safety culture is consistent with the approach described by Eurocontrol and will be useful moving forward in developing and implementing processes to improve safety culture.

C. The Institute for an Industrial Safety Culture (ICSI), a French non-profit organization founded in 2003, is a joint initiative between industry, academia and regional/local authorities.

On pages 18 and 19 of the [ICSI publication](#), it considers that there are three pillars that influence safety culture, of which SMS is one. The three pillars are as follows:

1. **Technical Aspects** – the design of equipment to ensure safety, for example equipment reliability and redundancy, automated protection systems etc.
2. **Safety Management Systems** – the formalization of processes, procedures and rules to promote and improve safety.
3. **Human and Organizational Factors** – the identification and integration of factors that are necessary in order for human activity to be conducted safely. For example:
 - Individual skills and fitness for duty
 - Group and teamwork behaviours
 - Extent to which the tasks and the environment consider human capabilities and limitations
 - Employee involvement in addressing safety

It is impossible to change the safety culture without considering technical design, SMS, and integration of human and organizational factors.

The ICSI describe a **two-way relationship** between safety culture and these three “pillars of safety” as follows:

The effectiveness of the technical systems and safety management processes will impact the way in which the employees perceive management commitment to safety, and so will impact safety culture e.g. defective technical systems, and/or rules and procedures that are difficult to apply will be perceived as signs that the organization attaches little importance to safety.

Conversely the organization’s safety culture **influences** the decisions that are made in terms of technical design and safety management processes. For example, in a good safety culture, operational staff are involved in the design process and in the development of procedures.

Annex 2: The Emergence of Safety Culture

- The 2007 *Railway Safety Act (RSA)* Review Panel Report, ‘Stronger Ties: A Shared Commitment to Railway Safety’ called for TC and the railway industry to take specific measures to foster improvements to their safety culture. In its Report, the Panel noted that “the cornerstone of a truly functioning SMS is an effective safety culture.” Furthermore they referenced the need for more effective safety management system oversight and tools to assist companies to develop effective SMS. As a result of this Report, a collaborative SMS Working Group made up of representatives from government, industry and labour was formed to address the Panel’s recommendations. The work of this group resulted in the development of a safety culture framework and the safety culture checklist.²⁹
- In spite of this collaborative work and the progress made with respect to safety culture awareness, the tragic 2013 event in Lac Mégantic served as a reminder that safety improvements and safety culture development can only be accomplished through constant vigilance and effort. Lac Mégantic compelled the Canadian rail industry to review their safety practices with a view to increasing its focus on safety culture improvements. Although several efforts to encourage the development and strengthening of organizational safety culture had been introduced and promoted by TC in the past, this accident showed that further work was required. It demonstrated that safety culture alone cannot prevent accidents, as such improving safety culture in the rail industry has to become a shared, common objective. To reinforce this message, in 2015 TC published a new more robust framework for SMS with the [Railway Safety Management Regulations 2015](#). This framework embodied the 12 processes necessary to accomplish safety improvements and to form the basis, if implemented and used effectively, of the development of positive industry wide safety culture.
- Industry efforts continued to advance in collaboration with Saint Mary’s University (SMU) and its ‘CN (Canadian National Railway) Centre for Occupational Health and Safety’, as well as the ‘CN professorship in safety culture’.
- The Railway Association of Canada (RAC) encouraged member railways to be proactive in maintaining effective SMS and supported them in strengthening their safety culture which included the nomination of a Chief Safety Culture Officer, the delivery of safety culture training to short line railways, and the formation of a steering committee. The goal of the steering committee was to continue advancing safety culture with engagement of its members, including class 1 railways, short lines and passenger railways, as well as safety culture experts.
- As part of the CN professorship and with funding from CN, SMU organized an international safety culture symposium in Halifax in 2014 which brought together

²⁹ Transport Canada. Achieving an Effective Safety Culture (<https://www.tc.gc.ca/eng/railsafety/rsc-615.htm>)

railways and industry, regulators, union representatives, and academics from across North America and Europe.

- In 2014, TC participated in a series of safety culture education and awareness sessions that were organized by the RAC across the country in an effort to actively deploy the safety culture assessment tool. Following these sessions, and with the support of the RAC, railways began conducting assessments using the tool in 2015.
- Since 2015, the RAC has completed five safety culture assessments (i.e., Central Maine and Quebec Railway, CANDO, GO Transit, VIA Rail and Southern Railway of British Columbia). In addition to these assessments, the 2018 RSA Review Panel was briefed on the results of one of these assessments by a short line railway (CANDO), and considered that its assessment had an important impact on understanding how to strengthen its safety regime.³⁰
- In 2015, TC published updated SMS regulations that further addressed SMS oversight issues. These updates included the additional detail and clarity to facilitate more effective implementation, enforceability, and expansion of the scope of application to local railway companies that operate on federally-regulated tracks. Additionally, changes included new requirements to enhance rail SMS including railway company appointment of an accountable executive; continuous monitoring and regular assessment of safety; non-punitive internal reporting by employees; as well as increased involvement of employees and their union organizations.
- In 2016, the Transportation Safety Board (TSB) of Canada held a Transportation Safety Summit that brought together senior executives from government and the transportation industry, in addition to some of their bargaining agents. The proceedings of this meeting noted the importance of establishing a safety culture that actively encourages people to provide data through safety management structures, and to make maximum use of the information emerging from them to improve safety performance.³¹
- In 2017, as part of the CN professorship, SMU organized another international safety culture summit in Halifax which once again brought together a diverse group of stakeholders, including participants from North America and Europe. Results of this summit included a summit statement on safety culture.

³⁰ *Railway Safety Act Review* (2018). Enhancing Rail Safety in Canada: Working Together for Safer Communities.

³¹ Transportation Safety Board of Canada, TSB Transportation Safety Summit 2016 Proceedings. Transportation Safety Summit, April 21-22, 2016, Ottawa, Ontario.