SMS Optimised Practice/Good Practice Submission			
ANSP	NAV CANADA	Date of submission	August 2024

SoE Study Area	14. Management of Change
	Organizational Change Risk Assessment
In use since	2020
ANSPs using this practice	Unknown

Assessing the impact of organizational changes on operational safety can be challenging given these changes are more likely to introduce latent conditions into the organization that can ultimately lead to direct hazards within and associated risks in the operational environment. A method was needed to identify, assess and manage the risk associated with latent conditions introduced through organizational change.

When managing an air navigation system for safety, efficiency and reliability, many factors come into play. Training, selection, personnel allocation and, of course, technology are important but what role do organizational factors play? Organizational factors are those that are characteristic of the organization as a whole, rather than of the individuals in it. Examples of organizational factors would be culture, climate, morale, communication patterns, effectiveness of supervision, trust, cooperation, and similar matters. These are distinct from, though shaped by, individual factors such as aptitude, skill, training, workload, etc. NAV CANADA adapted the following factors from a paper by Ron Westrum, Ph. D, entitled, *Organizational Factors in Air Navigation Systems Performance, A* Review.

Organizational Factors:

I. Collective Efficacy: This variable reflects the degree to which the organization as a whole sees itself as a team and feels it is pursuing common goals. "Alignment" is another word for the same phenomenon. This includes both the identification of company personnel with the rest of the company and the sense of empowerment that such identification yields.

II. Task-Resource Congruence: When people assume or are assigned responsibilities, their ability to perform them depends on the resources assigned or allowed by higher echelons. Yet sometimes employees will be asked to "make bricks without straw" when the necessary resources are withheld or removed. If production pressures increase but resources do not match, a classic double bind exists. Such double binds are not uncommon. Honesty suffers, while the work group skimps on performance. To avoid the double bind, resources must match responsibilities.

III. Free-Flowing and Effective Communications: Communications play a central role in identifying and addressing impediments to the achievement of overarching goals. The key here is a communication effort, both internal and external, that responds to the needs of the organization rather than internal pressures, hierarchical needs, or rule-oriented practices. Communication takes place rapidly and without constraints imposed by conflicts, fear, or overwork.

IV. Clear Mapping of organizational performance: Organizations differ greatly in regard to having a clear map of their problems. Some organizations provide a system-wide assessment on a regular basis. Some have such assessments only as a response to external prodding. Mapping provides indications of impediments as well as a focus for improvements. Performance indicators need emphasis and numerical expression. Unless performance is measured, declines may be missed and management will not be able to determine the current state or know whether it's getting better or worse. Nor can management decisions be evaluated in the light of their impact on performance.

V. Organizational Learning: Organizational learning includes a set of activities that take into account not only past experience, but also the experience of others. The organization learns not only from doing but also from thinking ahead about problems not yet encountered.

VI. Clear Lines of Authority and Accountability: Every member of the organization should clearly understand who is responsible for what tasks since uncertainty can postpone action, and confusion can lead to a neglect of key issues.

VII. Organizational Emphasis on Objectives: The emphasis on objectives is one of the key elements in a strong company culture. This emphasis is a matter of action and resources as well as symbols. An organization can be quite "effective" by a different set of criteria without being oriented to overarching objectives.

The normal hazard identification and risk assessment method in use at NAV CANADA was adapted with the consideration of organizational factors. These factors are used, one by one, to guide the assessment in identifying the risks associated with an organizational change. In addition to these factors, tailored likelihood and severity scales were developed to support the risk assessment process. For example, the severity scales considered areas such as people management, organizational capability, legal and regulatory, safety management and safety culture. Examples are provided below.

Figure 1 Likelihood of Consequences

Level	Description		
	Occurrences per timeframe (within department [Note 1])	Probability (within a year)	Occurrence per Use/Activity
Frequent	The consequence may be expected to occur once or more per week.	**>90%**	1 in 10 (10^{-1}) times
Probable	The consequence may be expected to occur less than once a week but once or more per month. E.g. 3 times per month.	**61-90%**	1 in 100 (10^{-2}) times
Occasional	The consequence may be expected to occur less than once per month but once or more per year. E.g. a few times per year.	**31-60%**	1 in 1000 (10^{-3}) times
Remote	The consequence may be expected to occur less than once per year but more than once per decade. E.g. twice per decade.	**10-30%**	1 in 10,000 (10^{-4}) times
Improbable	The consequence may be expected to occur once or less per decade. E.g. once in 15 years.	**<10%**	1 in 100,000 (10^{-5}) times or less

Figure 2 Severity Examples

Consequence Category	Severe	Major	Moderate	Minor	Minimal
	Event or circumstance with potentially disastrous impact leading to an inability to achieve the overarching objectives.	Event or circumstance that can be endured with proper management, however achievement of overarching objectives is impaired.	Event or circumstance that requires management to institute enhanced monitoring of controls to assure continued delivery of overarching objectives.	Event with consequences that can be readily absorbed but requires management effort to minimize the impact on achievement of overarching objectives.	Some loss that can be managed with existing management procedures having a negligible impact on achievement of overarching objectives.
Legal and Regulatory	Non-compliance(s) that would threaten our operating certificates.	Repeated and significant changes required to Corrective Action Plans (CAPs) for major findings.	Major findings against CARs or our quality systems.	Minor finding against CARs or our quality systems.	Opportunities for improvements identified.
	Fines of more than $100 000 for violations of laws or regulations.	Fines of $100 000 or less for violations of laws or regulations.	An order to correct practices so that they comply with legislation or regulations (an 'order to comply').	Increased external regulatory or legal oversight.	
Safety Management	Safety hazards and deficiencies are not identified hence safety risks are not reduced to ALARP	Safety hazards and deficiencies and risk controls are not consistently identified and implemented.	Safety hazards and deficiencies are identified but risk controls do not reduce all safety risks to ALARP.	Safety hazards and deficiencies are not addressed in a timely manner.	The occasional safety hazard is not addressed in a timely manner.

The process follows a typical risk assessment workflow where the appropriate stakeholders are gathered to identify the hazards, the causes of those hazards, existing defences, and the consequences with likelihood and severity being assigned. Risk controls are identified wherever the resulting risk is not ALARP and post-implementation monitoring activities are also identified as appropriate. An example from a recent risk assessment in light of organizational changes within the safety department is provided below. As can be seen, in the example below, the organizational factor was listed for the hazard to indicate which factor the hazard is associated with and the probability and severity were evaluated against the tailored scales in Figures 1 and 2.

No	Organizational Factor	Hazard * (The following Hazard ...)	Causes * (Due to these Causes ...)	Consequences * (May result in the following Consequences ...)	Existing Defence Analysis (What do we currently have to alleviate this hazard)	Risk Control (What more can we do)
NC003	Task-Resource Congruence: Focuses on ensuring that we have the right number of people with the requisite knowledge and skills to achieve our goals.	Insufficient resources to successfully fulfill our commitments	1) The restructuring results in loss of personnel with the requisite knowledge and skill sets. 2) Employees taking on additional responsibilities and tasks. 3) Management challenged with balancing competing priorities. 4) Increase in employees on short-term and long-term disability due to stress and exacerbation of mental heath issues. 5) Increase in voluntary departures: retirements, job changes.	1) Achievement of departmental goals threatened. Initial Risk: Moderate/Probable Residual Risk: Minor/Remote Risk Level: Low 2) Reduction in the department culture of cooperation and collaboration Initial Risk: Moderate/Occasional Residual Risk: Minor/Remote Risk Level: Low 3) Disengagement of employees (e.g. absenteeism, reduced productivity) Initial Risk: Moderate/Occasional Residual Risk: Minor/Remote Risk Level: Low 4) Further reductions in personnel due to 4 and 5 in causes. Initial Risk: Moderate/Occasional Residual Risk: Minor/Occasional Risk Level: Low 5) Degradation of departments' core activities. Initial Risk: Minimal/Remote Residual Risk: Minimal/Remote Risk Level:Low 6) Degradation of support activities (e.g. business tools, documentation, etc.) Initial Risk: Minimal/Probable Residual Risk: Minimal/Occasional Risk Level: Low 7) May create "Siloed" teams to conserve workforce on departments' priorities. Initial Risk: Moderate/Occasional Residual Risk: Minor/Remote Risk Level: Low	1) Employee wellness programs.	1) Clear and realistic department priorities in both the short and medium terms in support of department goals. 2) Department plan developed in alignment with department priorities. 3) Conduct department risk assessment. 4) Reconfirmation of core activities, products, services and goals. 5) Document and review roles and responsibilities with the new team for clarification and understanding. 6) Succession planning. 7) Communicate our core activities to other departments and stakeholders. **Post Implementation Monitoring** 1) Periodic review of outputs of 1) and 2)

A tool kit has been developed to support departments in applying the Organizational Change Risk Assessment Process and facilitation, and follow-up monitoring is provided by the Safety and Quality department.

Latest developments:

In recent years, especially during the COVID and post-COVID period, a series of changes were made to the Technology department (merging of Engineering and Technical Operations), and the management structure of the Operations department within NAV CANADA to meet the future demands of service delivery. Organizational change risk assessments were conducted for both of these changes and were sponsored by the two respective Vice Presidents. For both, the risk controls were identified with OPIs (Office of Primary Interest) across various departments within the company. The remaining risks of the organizational changes after the implementation of the risk control measures were assessed to be low.

In FY2023, a peer review of the tool kit within NAV CANADA indicated that the definitions of the severity scales could be improved to make it easier and faster for the participants of the risk assessment to understand the definitions in a short period of time. A short version of the tool kit was therefore created to maintain all essential components of the process while requiring less time for users to familiarize themselves.

By submitting this document, your organisation is willing for the proposed Optimised or Good Practice to be shared with other ANSPs.

For Optimised Practices, this document should be sent together with the SoE in SMS questionnaire, to: soe_2023@eurocontrol.int

Submissions for consideration as Good Practices may be sent by the above date. They may also be identified during the survey interview sessions with the survey team, following which a Good Practice submission document will be requested.