



IALA GUIDELINE

GNNNN

HOW TO PROMOTE SAFETY CULTURE IN VTS

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1. INTRODUCTION

Vessel Traffic Service (VTS) personnel contribute to precise and unambiguous delivery of VTS by implementing harmonized and standardized procedures. Safe provision of VTS further relies on the attitudes, norms and behaviours of VTS personnel. The latter is referred to as safety culture. The promotion of safety culture in VTS operations is thus essential to ensure the safety and efficiency of vessel traffic in VTS areas.

2. DOCUMENT PURPOSE

The purpose of this Guideline is to assist competent authorities and VTS providers in the promotion of safety culture by describing general elements and activities and further provide links to the most relevant IALA guidance.

3. DEFINITION OF SAFETY CULTURE

There are numerous definitions of safety culture. One of the most frequently cited is from the Health and Safety Commission (HSC) [1] now known as the Health and Safety Executive (HSE):

“The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of an organisation’s health and safety management.”

The safety culture working group of the Civil Air Navigation Services Organization (CANSO) reviewed several different safety culture definitions and developed a definition for air navigation services [2]. Based on this definition, safety culture in VTS may be defined as follows:

“Safety culture in VTS refers to the enduring value, priority and commitment placed on safety by every individual and every group at every level of the organization. Safety culture in VTS reflects the individual, group and organisational attitudes, norms and behaviours related to the safe provision of vessel traffic services.”

4. ELEMENTS OF SAFETY CULTURE

Organizations making safety a priority often share common characteristics that may be defined through the following elements, as shown in Figure 1 [2][3]:

- Learning Culture
- Informed Culture
- Just Culture
- Flexible Culture
- Reporting Culture
- Risk Perception
- Attitudes to Safety
- Safety-Related Behaviour

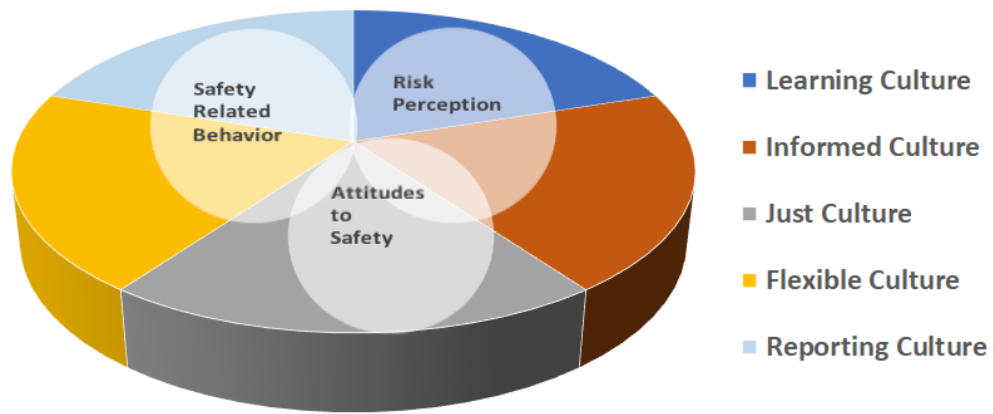


Figure 1 Elements of a safety culture

4.1. LEARNING CULTURE

To be a learning culture an organization must possess both the willingness and the competence to draw the right conclusions from its safety information system and the will to implement major reforms.

Reports contribute to safety when an organization learns from them. Learning will occur from both reactive and proactive safety assessments and is promoted by an inherent organizational willingness to adapt and improve.

Actions to promote a learning culture may include:

- Establish incident investigation training
- Share and publish safety information and incident investigation findings
- Develop means to propose more efficient, practical, or safer ways to operate

Sample goals and targets for promoting a learning culture may include:

- Percentage of compliance with relevant audit actions/notices
- Quality assurance process in place to improve quality of incident investigations
- Evidence of process in place to identify repeat systemic factors from significant incidents
- Number of staff identified needing investigation training compared with actual number trained

4.2. INFORMED CULTURE

An informed culture is a culture in which those who manage and operate the system have current knowledge about the human, technical, organizational and environmental factors that determine the safety of the system as a whole.

An informed culture is a culture where people understand the hazards and risks inherent in their areas of operation. Personnel are provided with the necessary knowledge, skills and job experience to work safely, and they are encouraged to identify the threats to safety and to seek the changes necessary to overcome them. An informed culture relies on having a strong reporting culture.

Actions to promote an informed culture may include:

- Communicate safety values and goals
- Communicate results from risk assessments

Sample goals and targets for promoting an informed culture may include:

- Number of risk assessments conducted against those planned
- Evidence that risk issues have been considered and mitigated as part of a major change project
- Number of new worker inductions conducted against number planned

4.3. JUST CULTURE

Just culture is described as an atmosphere of trust in which people are encouraged to provide essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour.

An informed culture relies on a reporting culture which in turn relies on a Just Culture. All employees must clearly understand and recognize that it is unacceptable to punish all errors and unsafe acts regardless of their origins and circumstances while it is equally unacceptable to give blanket immunity from sanctions to all actions that could, or did, contribute to organizational accidents. A prerequisite for engineering a just culture is an agreed set of principles for drawing the line between acceptable and unacceptable actions.

Actions to promote a just culture may include:

- Establish formal fair and just culture management review process
- Establish formal reward and recognition process

Sample goals and targets for promoting a just culture may include:

- Evidence of a formal fair and just culture management review process applied consistently
- Evidence of a formal reward and recognition process applied consistently
- Evidence of formal communication of the outcomes from performance management decisions particularly for breaches of safety critical rules

4.4. FLEXIBLE CULTURE

A flexible culture is a culture in which an organization is able to reconfigure in the face of high tempo operations or certain kinds of danger, often shifting from the conventional hierarchical mode to a flatter professional structure.

A culture of safety is flexible, in the sense that decision-making processes vary, depending on the urgency of the decision and the expertise of the people involved.

Actions to promote a flexible culture may include:

- Verify training compliance is up to date and that staff are trained through the development of a skills matrix
- Establish emergency scenario training

Sample goals and targets for promoting a flexible culture may include:

- Percentage of operators trained against the skills matrix
- Evidence of emergency scenario training held
- Examples of succession plans for key roles
- Evidence of competency certificates in place

4.5. REPORTING CULTURE

A reporting culture is described as a culture where managers and operational personnel freely share critical safety information without the threat of punitive action, making people willing to report errors and near misses.

The issue is not whether the organization has a reporting system; it is whether, as a matter of practice, errors, near misses, hazards and risks are reported. A reporting culture depends, in turn, on how the organization handles blame and punishment. If blame is the routine response to error, then reports will not be forthcoming. If, on the other hand, blame is reserved for truly egregious behaviour, involving recklessness or malice, reporting in general will not be discouraged.

Actions to promote the reporting culture may include:

- Standardized incident and near miss reporting
- Simplified safety hazard reporting
- Implementation of key performance indicators

Sample goals and targets for promoting a reporting culture may include:

- Corrective actions completed within agreed timeframes
- Percentage of planned corrective actions which have been finalized
- Number and quality of safety hazards reported
- Percentage of near misses to incidents reported over a specified period
- Actual number of safety observations/interactions completed compared with number planned
- Percentage of quality safety observations/interactions assessed based on minimum standard over a specified period

4.6. RISK PERCEPTION

Individuals at all organizational levels need to have the same perceptions and judgments of the seriousness of risks, as these perceptions affect risk behaviour and appropriate decisions with regard to safety issues.

It has been found that misperceptions of the seriousness of risks occur frequently at all levels in an organization [3]. The perception of risk or people's judgments of riskiness is influenced by different attributes of hazards. Misjudgements of risks may cause risk behaviour and inappropriate decisions with regard to safety measures and ordinary occupational accidents as well as large-scale accidents [4].

Actions to enhance risk perception may include actions promoting a reporting culture and a learning culture.

4.7. ATTITUDES TO SAFETY

Research shows that attitudes in relation to safety, risk and production can be associated with risk perception and safety-related behaviours. This especially applies to the management's attitudes to safety.

Actions to enhance attitudes to safety may include actions promoting a learning culture and a just culture.

4.8. SAFETY-RELATED BEHAVIOUR

Safety-related behaviour has to do with directly complying with procedures, rules and regulations, but also to aspects such as coaching, recognising, communicating, demonstrating, and actively caring.

Having accurate risk perceptions does not necessarily result in correct risk and safety-related behaviours. Ignorance or deliberate violations to safety rules and procedures are often due to employee attitudes towards risk and safety [3].

Actions to enhance safety-related behaviour may include actions to promote a flexible culture and a reporting culture.

5. IALA GUIDANCE PROMOTING SAFETY CULTURE IN VTS

All IALA VTS guidance documents could be perceived as promoting the development of a safety culture, whether directly or indirectly. Some guidelines, however, are more relevant in the context of promoting the elements of safety culture including guidelines on reporting, training and assessment:

- C0103-5 Vessel Traffic Service Revalidation Process
- G1018 Risk Management
- G1052 Quality Management System for AtoN Services Delivery
- G1101 Auditing and Assessing a VTS
- G1118 Marine casualty - incident reporting and recording including near-miss situations as it relates to VTS.
- G1131 Setting and Measuring VTS Objectives
- G1141 Operational procedures for VTS
- G1167 VTS Management

6. ASSESSING SAFETY CULTURE

The different aspects of safety culture can be assessed using a combination of several different methods including questionnaires, interviews, observations and audits (see Figure 2).

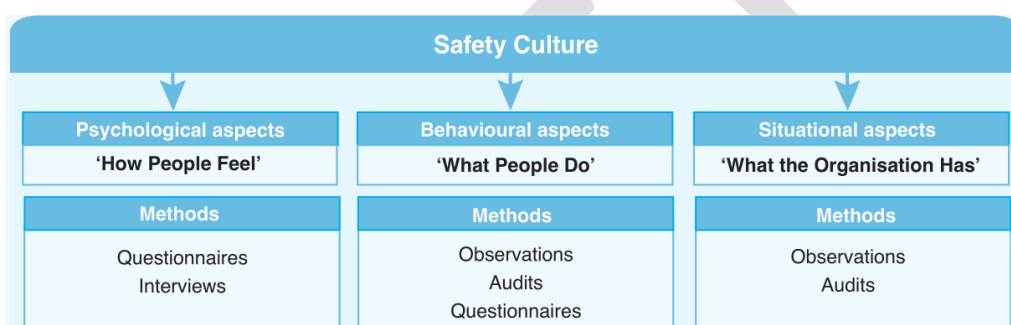


Figure 2 Possible assessment tools [2]

Several tools have been developed and are available as guidance for the assessment of safety culture. Some examples of such tools are listed in Table 1.

Table 1 Examples of assessment tools

Title of tool(kit)	Developer/ Owner (Author)	Country (origin)	Sector (origin)	Pragmatic	Analytic	Academ ic
Score Your Safety Culture Checklist	Transport Canada (James Reason)	Canada	Transport (and healthcare)	Simple checklist		
Hearts & Minds programme – Understanding Your Culture Checklist	Energy Institute (Shell in collaboration with Leiden and Manchester Universities)	UK - Netherlands	Offshore	Safety culture maturity ladder with 5 stages - assessment of 8 factors (18 questions) in workshop		
Safety Climate Assessment Toolkit and User Guide (LSCAT)	Loughborough University, Health & Safety Executive (HSE), and a number of offshore organizations	UK	Offshore		Employee attitude survey	Face-to-face interviews and focus discussion groups Structured observation

Title of tool(kit)	Developer/ Owner (Author)	Country (origin)	Sector (origin)	Pragmatic	Analytic	Academic
Safety Health of Maintenance Engineering (SHoMe) Tool	UK Civil Aviation Authority (developed by Health and Safety Engineering Consultants (HSEC))	UK	Aviation maintenance		Questionnaires (with software and guide)	
Nordic Occupational Safety Climate Questionnaire (NOSACQ)	Consortium of some Scandinavian institutes	Scandinavia	Construction		Safety climate questionnaire (50 questions)	
IAEA Guidance for Use in the Enhancement of Safety Culture	International Atomic Energy Agency (IAEA)	International	Nuclear	3 stages of development of safety culture - assessment of 5 factors by individuals or group	Contains information	Contains information

7. ABBREVIATIONS

CANSO	Civil Air Navigation Services Organization
HSE (HSC)	Health and Safety Executive, former Health and Safety Commission (HSC)
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
VTS	Vessel Traffic Service

8. REFERENCES

- [1] HSC (1993)
- [2] CANSO (2008), Safety Culture Definition and Enhancement Process
- [3] Reason, J (1997), Managing the Risks of Organizational Accidents
- [4] Rundmo, T (1997), Associations between risk perception and safety. Safety Science 24 (3), 197-209