

Safety Culture Improvement Metrics

This sheet is designed to provide an overview of safety culture improvement metrics. This sheet will include the rationale for the development of the metrics, how they were developed and how they can be used.

Safety culture metrics were developed to enable organizations to monitor changes in safety culture outcomes on a more continuous basis than is possible with existing methods. The metrics are based on the rationale that the safety culture of a department or organization is reflected in day to day safety practices. By tracking key practices it is possible to get an indication of the health of the safety culture. The extent to which it is possible to develop safety culture metrics is controversial. Many experts argue that it is not possible to obtain meaningful information about safety culture using a limited set of outcome indicators. It is important to note that the metrics do not assess safety culture, but the traces left by the culture. It is therefore important that safety culture metrics are not used as a safety culture assessment, as they can only provide a general indication of changes in the culture overtime.

The metrics focus on assessing the quality of a specific activity rather than the amount of the activity performed. This approach was adopted as it is likely that a change in the safety culture will be reflected in the effort employees put into completing activities. Also there are often systems in place that require employees to perform specific activities. In this situation when the culture is degrading employees are likely to continue to perform the activities at the same frequency but put less effort into the activity. In addition, the metrics do not attempt to assess the absolute level of safety culture but rather whether the metric has improved or dis-improved in comparison with the previous time period.

The safety culture metrics were developed by reviewing the attributes of a positive safety culture and developing observable indicators of each attribute. A wide range of safety culture frameworks were reviewed, including the IAEA attributes of a positive safety culture, James Reason's model of safety culture

and the CNSOPB policy statement on safety culture. Indicators were developed through discussion with operational safety experts. The experts proposed ways in which evidence of this indicator would be reflected in practice. An initial draft set of metrics were reviewed by an industry steering group. To date 20 metrics have been finalised and they are categorized under the four dimensions of a positive safety culture outlined in the CNSOPB safety culture framework (see table 1). The metrics are not specific to this model and could be re-categorized using other models, as there is significant overlap between safety culture models (see sheet 4 on composition).

Table1: Sample metrics

Dimension	Sample metrics
Leadership	<ul style="list-style-type: none"> • Speed of management response to employee safety concerns. • Quality of feedback employees receive when they raise a safety concern.
Empowerment and accountability	<ul style="list-style-type: none"> • Quality of employee peer observations. • Involvement of employees in the development of procedures.
Resilience	<ul style="list-style-type: none"> • Effectiveness of corrective action process. • Compliance with management of change process.
Vigilance	<ul style="list-style-type: none"> • Insight gained from management inspections/observations. • Quality of near miss reports.

Each metric contains three elements, namely a description of the relationship with safety culture, the data collection process and assessment criteria (see table 2). The section on the relationship with safety culture provides a rationale for the metric and explains how the metric is a reflection of the safety culture. The data collection section describes how to collect information about this metric. The assessment criteria provide guidance on how to judge if the metric has degraded, not changed or improved in comparison with the previous time period. The score (-1, 0, 1) associated with each of these outcomes is provided. In addition, to the information provided in table 2, there is also a more detailed description of the range in the quality of the

Safety Culture Improvement Metrics

metric to assist in making the judgement about the extent to which the metric has changed overtime.

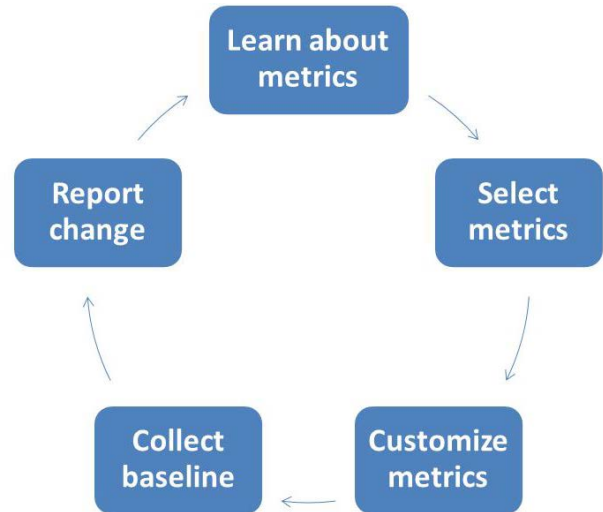
Table 2: Sample metric, Quality of peer safety observation reports

Dimension	Empowerment and Accountability		
Relationship with safety culture	The quality of peer observations reflects their commitment to and involvement in safety. Ideally recorded observations provide a detailed description of the discussion and the lessons learned. Poor quality observations are short or superficial.		
Data collection process	Take a random sample of cards/ reports (e.g. 50 cards) and count the number of high quality cards submitted and compare to previous reporting period.		
Assessment criteria	Degraded	No change	Improved
	Fewer high quality cards submitted	No change	More high quality cards submitted
	-1	0	1

A systematic process to implementing the safety culture metrics is recommended (see figure below). Organizations will firstly need to build capacity by educating managers and safety professionals about the metrics including how they relate to safety culture and how to use the metrics as an improvement tool. Senior managers will need to understand how to interpret the metrics. Secondly, the organization will need to select the metrics that they want to track. It is unlikely that an organization would decide to track all 20 metrics, as it is may not be worth the effort. Instead organizations should select a limited number of metrics (i.e. four or five) that they can capture using existing safety systems. Thirdly, the metrics will need to be customised to ensure they map onto the organization specific processes and language. Over time organizations may choose to increase the number of metrics being tracked or change the metrics that they are tracking. The fourth step involves collecting baseline metric data. Since the metrics are assessed based on a change over time some

period of time will need to be selected as a starting point to compare against. To ensure the reliability of the metrics, it is useful to test the reliability of data collection by getting two people to independently assess the change in the metrics. Finally, the change in the metrics overtime will be reported. Further investigation is required if metrics show degradation over time.

Systematic approach to implementing metrics



It is important to note that the safety culture metrics are new and therefore there is a lack of evidence to support their utility. Organizations should therefore use them with caution and view them as a learning opportunity rather than as performance indicator. The metrics are not a substitute for a safety culture assessment. The metrics track changes in a limited set of outcomes that may be related to changes in safety culture, they do not assess safety culture.

Key points:

- Metrics are new and should be used with caution.
- The metrics are designed to help organizations identify a degrading safety culture.
- Organizations should adopt a systematic approach to implementation.