

# Measuring and Improving Safety Climate in Your Organization

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## INTRODUCTION

Safety Culture is often talked about in general terms, but in application, tools and metrics are needed in the hands of transit agencies to measure, track and improve safety in their organization. Safety Culture is an encompassing term for a larger organization that includes worker perceptions of safety, work and organizational factors, and the safety climate of individual work groups.

There are semantic differences between the use of the words “Culture” and “Climate” in the field of organizational psychology. Safety Culture could be described in simple terms as the underlying values and beliefs in an organization, that is generally not changed easily, quickly or by very much at a time. Safety Climate is sometimes what people mean when they refer to the culture of safety, and it is what has been reported as measured and changed in different organizations. Safety Climate could be described as a term for the immediate environment and perceptions around the employees in a work group that either facilitates or impedes their ability to promote safety.

Before discussing factors and metrics relating Safety Climate, a brief discussion is necessary of the underlying goal and process we are trying to achieve with a positive Safety Culture or Climate. A positive Safety Culture in an organization is one that moves maximizes safety potential regardless of external pressures and leaders, is one that respects dangers, has a culture of reporting, is just and flexible, and is one that learns from its mistakes (Reason, 1997). Achieving this underlying culture promotes safety at all levels and at all times. Safety is hand-in-hand with Quality in an organization, and as such, the same basic principles are important in high-performing organizations.

Management commitment, employee empowerment, and a fair reward/penalty system are needed for success. Every business has room for improvement, but keeping any eye toward these principles in setting plans, policies and procedures around safety can help as a guide.

Safety is critical in the rail industry, as it is in other industries requiring high reliability with a high cost to failure such as also exists in aviation, chemical/petroleum and healthcare industries. A large amount of work around human error and reliability has focused on these primary industries. One popular model, presented by Reason (1990) is the so-called “Swiss Cheese” model of accident opportunity. The theory identifies three stages that may lead to an accident that start with Originating Influences, which is modified by Shaping Factors and then ultimately Immediate Circumstances. A culture of safety is critical as an Originating Influence in this process. Addressing issues around the organizational culture and climate presented to workers can help eliminate the opportunity for accidents at their root.

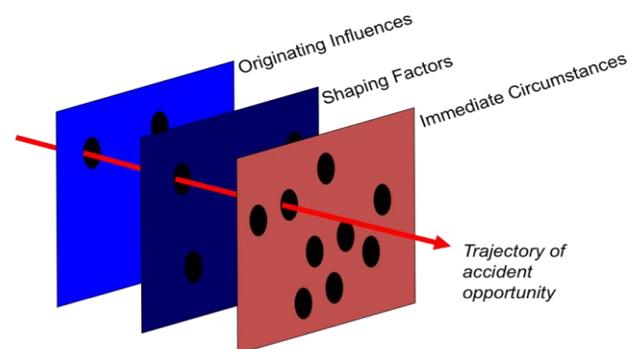


Figure 1. Model of Factors Contributing to Accident Opportunity

The goal of this paper is to introduce readers to measurable factors of Safety Climate that can be used to track organizational progress. Also presented, are some tools developed from research that can be applied to quantify and address issues to improve Safety Climate in different organizations.

## SAFETY CLIMATE MEASURES

Decades of research by Zohar (1980), DeJoy et al. (2004) and others have identified key metrics of Safety Climate, which can be used as indicators of factors present in the work environment that are either promoting a positive climate or holding it back. Most of the work in measuring Safety Climate has been through the use of workplace surveys. The survey results have been used to determine what specific questions asked of workers that will give a reliable insight into the both particular aspects and the overall organizational Safety Climate.

One of the early and present leaders in the field of Safety Climate research is Dov Zohar. Zohar (1980) began breaking down the generalities into specifics by identifying 8 possible components of Safety Climate that could indicate a positive climate around safety:

- 1) Importance of Safety Training
- 2) Management of Attitudes Towards Safety
- 3) Effects of Safe Conduct on Promotion
- 4) Level of Environmental Risk
- 5) Effects of Work Pace on Safety
- 6) Status of the Safety Officer
- 7) Effects of Safety Conduct on Social Status
- 8) Status of the Safety Committee

A large body of work subsequently developed in the US around the topic of Safety Climate in the 1990's. DeJoy (2004), through survey research, identified several key factors which can explain more than half of workers' perceptions of safety in an organization: 1) Coworker Support, 2) Organizational Support, and 3) Communication.

An instrument developed by DeJoy was adopted and used by the National Institute for Occupational Safety and Health. These same survey items were modified and used in a 7-item scale developed by Jorgensen et al. (2007). This scale is the one chosen and used by Sound Transit in evaluating Safety Climate. The following are the questions asked of workers on a 4-point scale form "Strongly Agree" to "Strongly Disagree":

- 1) New workers quickly learn that they are expected to follow good safety practices.
- 2) There are no significant compromises or shortcuts taken when worker safety is at stake.
- 3) Where I work, workers and supervisors work together to ensure the safest possible working conditions.
- 4) Workers are told when they do not follow good safety practices.
- 5) The safety of workers is a big priority with supervisors where I work.
- 6) I feel free to report safety violations where I work.
- 7) Safety remains a priority even when the job runs behind schedule.

## MEASURING SAFETY CLIMATE

Measurement and evaluation of Safety Climate can be incorporated into an existing assessment structure or implemented separately without much difficulty. A popular method, and the one used by Sound Transit, is an on-line survey of employees. This can be done with internal IT support or if this is not readily available, several web-based survey tools can be used for very little cost.

A key point of measuring Safety Climate is the dependence on the immediate environment to the measures. Depending on the size and structure of an organization, this may make it difficult for a survey to assess the overall climate. The survey responses should be segregated by defined work group or department to provide the most accurate information. The results can be combined for an overall picture of course, but one should be careful in making generalizations across the organization from those numbers.

Ideally, the surveys are developed so that results from several of the questions asked can be combined into a larger factor that provides a stronger key measure of the climate. However, in practice, it may be difficult to do this for those not trained and working as researchers. To use the tools in this way, a proper sample must be obtained and the resulting responses need to be analyzed to determine whether the key factors hold together correctly statistically. Sound Transit, in using survey results, has chosen to simply use the responses to each question as a measure of how the agency is doing in that area. This information can be extremely helpful in pointing to areas to target resources for improvement.

Surveys are not the only way that Safety Climate can be assessed. Another way evaluation can be easily built-in is by inclusion in an annual safety program review.

One tool used by Sound Transit is the OSHA 33 safety program evaluation form. Several items in this form relate factors of Safety Climate. The questions from Jorgensen et al. (2007) could easily be added to this assessment. One way of getting a picture is by using the established Safety Committee, and having the members of this group complete the assessment form. The responses and resulting discussion around the answers can be extremely useful in targeting areas for improvement.

Another way to gather information through existing activities can be through internal audits and investigations. Including items relating Safety Climate during audit and investigation interviews can help provide valuable information and insight into areas of the business that may have a positive or negative effect on performance.

### **IMPROVING SAFETY CLIMATE**

The real challenge in any business is effective implementation of positive change. The information from assessment and evaluation of Safety Climate is only becomes valuable when it is used to guide improvement. As with other key elements of organizational culture, the process begins at the top, with management commitment. The leaders in the organization need to be engaged, and provided with current information on safety metrics. The upper management also should deliver messages on commitment to safety and define measurable performance expectations around safety for managers and workers. Feedback on work around these expectations should be consistently provided through penalties and rewards. Employees should also be rewarded and empowered to provide input and feedback.

Another key element necessary for implementing improvements is providing the Safety Department with sufficient organizational status, authority, independence and resources to implement programs and effectively oversee work. With these key elements in place, an organization is set-up with the basis for effectively making improvements around Safety Climate.

The management of organizational change and safety management are fields in their own with much guidance and theory in recommended practice. One somewhat new approach is to use concepts developed in the field of marketing and apply them to other aspects of behavior such as social change and even safety. Using marketing in this way has been termed Social Marketing.

By using the principal four P's of marketing it adapts thinking around safety to a receiver-centric approach:

- 1) Product- What you want people to do and its benefits?

- 2) Price- What it costs them, negatives from their perspective?
- 3) Place- Where you want them to change the behavior?
- 4) Promotion- How you can communicate with the specific audience most effectively?

One reason to consider this approach is that it helps think it terms of the perception of the people who can actually implement desired changes. It can also help in the development of approaches that guide the Safety function toward being looked at as also providing proactive beneficial improvements, rather than simply a reactive policing-type function. Effectively using the marketing approach can help target the people who will benefit most and who are ready for change. It aims to activate people to a specific action, and is strategic in defining the most efficient use of resources. A developed social marketing strategy around safety will also be integrated and work in staged implementation.

One publicly available tool to aid in the development of social marketing plans is called CDCynergy, produced by the US Centers for Disease Control and Prevention. This program is a step-by-step guide through some of the basic steps to implementing a strategy for change around a specific topic:

- 1) Define the problem (SWOT analysis)
- 2) Conduct market research (audience and budget)
- 3) Create marketing strategy
- 4) Plan the intervention
- 5) Plan program evaluation and monitoring
- 6) Implement intervention and evaluation

### **CONCLUSION**

Safety Climate is measurable and can be defined and evaluated by performance in specific topic areas. There are several methods for measuring Safety Climate that are readily available and can be implemented with a low level of cost and time. The resulting metrics can help focus on the areas with the greatest potential for improvement. Using Safety Climate measures as part of on-going program evaluation activities can provide a measure of progress and organizational improvement.

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