



DISCUSSION

Leading Indicators

Leading indicators have been studied in many types of systems, with varying results. For as many as three decades, the medical, nuclear, aviation, and maritime industries have developed increasingly sophisticated leading indicator measurement systems. Review of the safety metrics identified in several major studies undertaken over the past thirty years shows that there is general agreement about the factors that influence organizational safety (Dufort and Infante-Rivard, 1998; Zimolong and Elke, 2006):

- Consistent and authentic management commitment to and promotion of safety, including:
 - prioritization of safety over production
 - maintaining a high profile for safety in meetings
 - personal attendance of managers in safety meetings and safety audits
 - face-to-face meetings with employees that feature safety as a topic
 - jobs descriptions that include safety contracts
 - providing adequate safety resources
- Communication about safety issues, including:
 - effective channels of formal and informal communication about safety issues
 - regular communications between management, supervisors and the workforce
 - providing feedback to employees on safety issues
 - ability to anonymously report
 - improved safety training (quality, effectiveness, in native language)
- Involvement of employees, including:
 - Empowerment
 - delegation of responsibility for safety
 - encouraging commitment to the organization
 - including employees in problem identification and problem solving
- Hiring quality people
- Improving safety audit procedures
- Multicultural operations

Effective leading indicators should possess the following characteristics:

- The indicators should be worth measuring. They should represent important and salient aspects of the organization's safety management system;
- The indicators should be simple to understand. Management and the workforce should be able to understand what is being measured. Overly complex indicators and measurement processes should be avoided to reduce the chance of error and miscommunication.
- The indicators should be understandable by people who need to act. People who need to act on their own behalf or that of others should be able to readily comprehend the indicators and what can be done to improve the status of those indicators.
- Measurement of the indicators over time should reflect results of action; for instance, action taken will result in improvements in some aspect of ship safety; and
- The maintenance of the indicators should be cost efficient in terms of the man hours and technology required for gathering information.

This Ergonomic Design and Safety Toolkit Module discuss the benefits of performing a leading safety indicator assessment. It is intended to provide general information. For detailed discussion on the tools and techniques of performing a leading safety indicator assessment, please refer to the ABS Guidance Notes on Safety Culture and Leading Indicators of Safety (2012).