Introduction:

Performance management is a process that links an organization’s objectives, the strategies to meet those objectives, its management systems, performance measurement and reporting. Performance measurement provides the means of determining the effectiveness of the performance management system and the basis for making improvements that will enable objectives to be achieved. The main purpose in measuring safety performance is to develop strategies that will eliminate future incidents.

Performance measurement was a theme that was continually raised during consultations at several levels:

- The use of the proper metrics within the WCB and LAE to measure their progress and outcomes with respect to activities they undertake (i.e. effectiveness and value);
- The measures used by the WCB and LAE to measure the performance of their client organizations; and
- OHS performance measurement within companies and other employers to track injury and illness prevention activities and outcomes.

The next section reviews the input that was received from various groups and individuals. This is followed by a summary of what the research is saying on the subjects of performance management, measurement and indicators with respect to occupational health and safety. The last section identifies some of the main issues and opportunities for improvement, and is intended to provoke discussion and the generation of ideas that will contribute to the development of the Nova Scotia Workplace Safety Strategy.

Consultation Overview:

Better Key Performance Indicators / Leading Indicators

These two sub-topics are intertwined and accounted for almost 60% of the comments on Performance Indicators. There was broad consensus that the NS Workplace Safety System is largely utilizing lagging and insurance based indicators. Significant discussion arose with regard to how the WCB uses prevention based and leading indicators in its current system. Moreover, it was noted that more data is needed to help the WCB assess its performance and set future goals and targets. Stakeholders specific concerns are as follows:
Lagging indicators do not tell the WCB or its stakeholders anything about how proactive the system is in improving safety results.

Insurance based indicators are largely rooted in financial targets and do not directly measure safety practice or prevention activities.

Lagging indicators are generally negative in nature (emphasizing negative outcomes) as opposed to offering positive feedback for good performance.

Lost Time Injuries (LTI’s) do not occur frequently enough for most small businesses to be of much value.

Lagging indicators tied to financial penalties provide an incentive for under reporting.

Simple indicators cannot provide sufficient data to do root cause analysis and provide data for researchers to test hypotheses.

Stakeholders wanted to augment the use of KPI’s. Their reasoning for this is as follows:

- KPIs support research projects to augment prevention efforts
- Provide fairer and more meaningful KPI’s for small businesses or those with low injury frequencies
- Provide data to help with identification of sources and causes of injuries or near misses
- Provide a means to reward good safety and prevention practices
- Measure attitudes and culture
- Combine leading and lagging indicators to assess the effectiveness of programs and initiatives
- Prevent injuries through reporting of incidents
- Have KPI’s for all employers, not just insured employers
- Enable root cause analysis
- Provide self-measurement and auditing tools for employers
- Measure prevention activities and efforts

Research Overview:

The purpose of the research was to review selected literature on occupational health and safety performance measurement, and by extension performance management. For organizations such as Workers’ Compensation Boards or government agencies charged with the responsibility for promoting prevention and influencing the actions of others, the literature on performance management and measurement is sparse.

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Nonetheless the literature canvassed provided a good overview of the important aspects of OHS performance measurement and provided insights that are beneficial for the development of Nova Scotia’s Workplace Safety Strategy.

The first area examined was occupational health and safety management and the factors influencing OHS performance in firms. Several studies looked at the use and value of Occupational Health and Safety Management Systems (OHSMS) which are based on concepts similar to those of quality management. OHSMS are defined as “…a combination of the planning and review, the management organisational arrangements, the consultative arrangements, and the specific program elements that work together in an integrated way to improve health and safety performance.”\(^2\) The success of OHSMS is variable and conditional on a number of factors such as the kind of system used, the commitment of senior management, its integration into general management systems and effective employee participation. The main factors impacting OHS performance in organizations are strong management commitment (or leadership) and open communication. OHSMS appear to be most appropriate in larger organizations where there is strong management commitment to OHS coupled with good employee relations. Smaller firms and those lacking the important attributes of management commitment and good employee communication are not appropriate for OHSMS and require different approaches to OHS management suited to their circumstances.

Performance measurement provides the means of determining the effectiveness of the performance management system and the basis for making improvements that will enable objectives to be achieved. Safety performance measurement assesses the results of the occupational health and safety management system related to the organization’s control of health and safety risks, based on its OHS policies, objectives and targets. It provides information on how the system operates in practice, remedial actions required, the basis for continuous improvement, and feedback and motivation. It provides information on both the level of performance and why the level is as it is.

There are a number of stakeholders with an interest in OHS performance measurement, and the types of measures and manner in which they are reported and used will differ with the stakeholders. Stakeholders look for a variety of information on OHS governance, processes and outcomes in a format suited to their particular interests and needs. In general OHS reporting must deliver high quality information necessary to meet stakeholder demands. With respect to WCBs data gathering has been done primarily to set up and manage claims and compensation, and to submit required reports. For WCBs with an injury prevention mandate the performance data to support performance indicators that relate to the impact and effectiveness of prevention initiatives is either lacking or when used raises questions of accuracy, validity, reliability, and comparability due to the lack of control groups to enable valid comparisons. The data that is most frequently collected and reported by such organizations is intended to

meet reporting requirements to Boards of Directors, key internal and external stakeholder groups, and to support planning activities.

It is important to be able to link performance measurement to the performance management framework that includes the strategic goals and mechanisms for achieving those goals. The data collected should be based not only on the need to meet operational reporting requirements, but also to support the performance monitoring, the measurement of the effectiveness of the prevention initiatives undertaken and provide direction for future plans. There is a clear message that performance measurement should be an important consideration in the development of any strategic plan to ensure that the proper metrics are planned and data requirements identified to enable monitoring and evaluation of programs and their contribution to the attainment of objectives.

A good performance measurement system will help identify where an organization is compared to where it wants to be, the progress that is necessary and reasonable, how progress might be achieved, and priorities and effective use of resources. The particular measures used need to be reliable, comparable across time and between entities for benchmarking, valid, easily measured, simple to implement, and measure effectiveness instead of simply a number of events which have no demonstrated effect on safety performance. There is no single set of performance measures that are appropriate across all organizations and they are not a collection of ‘one-off’ metrics, borrowed from others. Each organization must create and communicate performance measures that reflect its unique strategy, goals, and performance expectations.

The tools commonly referred to in the literature that reflect different aspects of performance measurement are benchmarking, performance monitoring, and auditing. They are not interchangeable but each has its place and when used properly they complement each other. Benchmarking is the process of measuring the performance of an organization’s methods, processes, procedures, products and services against those of organizations that consistently distinguish themselves as being in the same category of performance. Performance measurement applies to monitoring the progress that an organization is making with the implementation and outcomes of the range of actions that will enable it to meet its objectives. It requires the development of appropriate performance indicators. Auditing is a means of directly and comprehensively monitoring the implementation and effectiveness of a firm’s OHS management system by reviewing OHS management strategies to make sure that they comply with regulatory requirements and standards, and have been implemented effectively.

OHS performance indicators can be either lagging or leading, sometimes referred to as positive performance indicators (PPIs). Lagging indicators for OHS are viewed by some as measures of failure because the injuries or fatalities have already occurred and can only be compiled when something has gone wrong. Others suggest that in spite of their criticism lagging indicators may well provide the most accurate measure of performance, or lack of performance. A leading indicator is a measure of an organization’s ongoing health and safety initiatives, or of the workplace conditions
leading to illness and injuries. In general leading indicators signal future events or positive efforts towards preventing injury and illness. Leading indicators measure things that are in some way precursors to harm, particularly with respect to personal safety.

Most workplace injuries and fatalities are the result of personal safety hazards rather than process hazards. Process safety relates to the hazards arising from processing activities in which a plant is engaged. Indicators, whether leading or lagging, that are used for personal safety provide no useful insight into how well the organization is measuring process safety risks.

When measuring lagging indicators only performance at the last stage is being monitored whereas leading indicators are proactive measures of activities that give signals before incidents happen. They provide measurable feedback on the implementation and effectiveness of OHS processes or initiatives. However leading indicators (or PPIs) measure the number of events, actions and practices but fail to take into account their effectiveness. The issue is not whether leading or lagging indicators should be used, but rather using the appropriate indicators for what it is that is being measured. There is nothing wrong with using lagging indicators provided they are the correct ones and used in conjunction with the proper leading indicators to provide measures of both inputs and outcomes. What is required, the research indicates, is a set of measures providing information on a range of health & safety activities.

There is no simple answer to the question of what to measure – it depends on whether the measures relate to personal safety or process safety, whether it is at the firm, industry or system level, and what areas are critical to the organization’s ability to achieve its OHS objectives. “The single biggest mistake organizations make is having too few performance measures. The second biggest is having too many.” (Mark Graham Brown) The performance measurement system needs to cover each aspect of the OHS management system in order to turn uncontrolled risks to controlled ones. Behaviours that support and promote a positive OHS culture need to be included in the measurement system. Ideally no more than about 3 to 5 distinct performance measures should be developed for each intended key result area.

Reporting of OHS performance not only serves internal organizational needs related to the prevention of workplace injuries and fatalities, but it also serves a range of external stakeholders. OHS reporting must deliver high quality information necessary to meet the full spectrum of stakeholder demands. External stakeholders look for information on OHS governance, processes and outcomes. It is clear from this that an effective set of performance indicators at the firm level should be comprised of both lead indicators to measure what is being done to deal with hazards, and lag indicators to measure the outputs which are the injuries, illnesses and fatalities. Behaviour based safety programs should be linked back to risk assessment processes to identify and address conditions resulting in unsafe behaviour. Furthermore, stakeholders are interested in severity

3 “Keeping Score: Using the Right Metrics to Drive World Class Business”, Mark Graham Brown, MGB Management Consulting, Manhattan Beach, California.
measures of OHS outcomes due to their impact on both the duration and costs of workplace injuries. There is also a high demand for penalty information such as a brief description of the incident, penalties and steps taken to address the hazard and prevent reoccurrence.

One of the challenges in determining what to measure is the availability of meaningful data that can be used to determine rates and trends. The issue is whether, in the relevant time period, there are sufficient instances of the event being counted to generate a meaningful rate. If so it can be used to indicate how well a safety management system is working. However, if there are long time periods between countable events, rates become meaningless. Most measures will need to be reported monthly or quarterly to be of value in monitoring performance. The process of identifying and using performance measures should be dynamic reflecting current and future relevance and needs. It is an ongoing improvement process using a minimum number of measures relevant to an operation at the time.

The literature review examined five research projects, the most relevant of which related to an organization that has the responsibility for promoting workplace safety in Canada, and therefore has a mandate similar to the prevention component of the Nova Scotia Workers’ Compensation Board’s mandate. The Canadian Centre for Occupational Health and Safety (CCOHS) is mandated to promote the fundamental right of Canadians to a healthy and safe working environment. The project involved two major components - program evaluation and performance measurement. The program evaluation noted that, similar to the NS WCB, the ability of CCOHS to influence what happens in the workplace is indirect and therefore it is not possible to establish the number of injuries, illnesses and deaths prevented, let alone attribute any changes in numbers to CCOHS activities directly.

CCOHS’ strategic performance measurement activity at the time of the review was primarily used to support regular reporting to their Council of Governors and annual reporting to external stakeholders and Parliament, via their Annual Report. The Centre’s strategic performance measurement and reporting was more concerned with operational activities and their outputs, and less so with results achieved. The consultants believed that CCOHS would benefit from a more strategic approach to performance measurement and reporting, that overlaid and complemented the existing operational focus at the time. The consultants proposed that CCOHS utilize a logic model. This logic model would then provide the basis for the selection of strategic performance measures and a results-based focus in its performance reports to the Council of Governors and Parliament.

**Summary of Issues and Opportunities:**

There are a number of implications for the development of Nova Scotia’s Workplace Safety Strategy:

1. The new strategy will need to consider performance measurement from a number of perspectives. The implementation of the strategy will require the development of a
meaningful set of performance measures to help track the implementation and ongoing delivery of the initiatives, as well as determine their effectiveness. In addition good performance measures will enhance the WCB’s and LAE’s ability to report to stakeholders on the progress being made over time in achieving the strategy’s goals and objectives.

2. The performance measures should be a mix of leading and lagging indicators developed specifically for the elements of the strategy. Each should be tested to ensure that exhibits the characteristics required for a good performance measure as discussed earlier. The use of a logic model approach will help with linking injury prevention initiatives to critical success factors tied to the achievement of organizational objectives, and the selection of appropriate performance measures in each key area of the strategy.

3. Performance measures for the elements of the strategy should be developed jointly by WCB and LAE, particularly in those areas where the activities of the two organizations intersect. Examples of this would include the strategic targeting of inspections and the interaction between inspection/enforcement and those assisting workplaces that have deficiencies.

4. Because the data currently collected by the WCB is directed towards the insurance aspects of its business, considerable thought will be needed to determine additional data required to support leading and lagging indicators for prevention activities. A balance will need to be struck between the effort to collect additional data and the value it will provide for assessing the effectiveness of initiatives. In particular additional data requirements from clients will require a number of considerations including confidentiality, effort and cost to collect, and the perceived value (or lack of value) to the client organizations.

5. Performance measurement may also be warranted at the industry or sector level, particularly for those that have exhibited poor OHS performance over time. Several of the projects discussed in the previous section have been undertaken to develop industry sector specific measures, generally as a collaborative applied research project. A similar approach in Nova Scotia with targeted sectors, and the involvement of the research community, could help to develop and validate performance measurement tools for particular sectors. The process of undertaking such an initiative will help to focus greater attention on OHS within the sectors and by doing so generate benefits through increased awareness over and above those related to performance measurement.

6. Individual organizations, both insured and uninsured by the WCB will benefit from guidance on the development of both leading and lagging measures that will help them to monitor their OHS performance. The strategy will likely include among its initiatives mechanisms to provide guidance to these organizations on the development of an OHS performance measurement system. Several guidance notes are available from both the United Kingdom and the Australian Government that can be adapted for use in Nova Scotia. One of the guides has been developed specifically for small business.