

LEADING & LAGGING INDICATORS

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Most of us have heard of the saying “if you can’t measure it, you can’t improve it”, as a result, most businesses require that metrics and indicators be established and regularly reported on. Reporting metrics have become an essential part of any management process and forms the basis for most continuous improvement process. This is no different for environmental and safety systems. Monitoring environmental and safety performance provides a useful way for a business to see how they are performing. Typically, safety and environmental indicators are comprised of lagging and leading indicators. The remainder of this Insight will provide an overview of these indicators and their potential application.

What is a lagging indicator?

Lagging indicators are typically “output” or “an after the event” measures (Intrafocus, 2019). Lagging indicators measure a company’s environmental and safety incidents in the form of past incident or accident statistics (Middlesworth M, 2018). Some examples of environmental lagging indicators include the number of environmental incidents or breaches, environmental costs incurred, amount of waste generated, the number of fines and violations etc. Examples of safety lagging indicators include injury frequency and severity, safety recordable injuries, lost workdays and worker’s compensation costs.

Traditionally, lagging indicators are the bottom line numbers used to indicate progress toward compliance with environmental and safety rules. Essentially, lagging indicators tell you how many people got hurt and how badly or how many



Source: <http://www.arbelatech.com>

environmental breaches occurred. Generally, lagging indicators are easy to quantify and understand (GEMI, 2019). However, they do not identify the root causes of the incidents and accidents, or tell you how well your organisation is doing at preventing incidents and breach. Also, lagging indicators may not occur with enough frequency to be reliable indicators of performance (De Cieri, H. et al, 2015).

What is a leading indicator?

A leading indicator is a measure preceding or indicating a future event used to drive an outcome, or more simply they measure “inputs”. They include the implementation of activities, practices and measures carried out with an expectation to lead to improved environmental and safety performance (GEMI, 2019). Examples of leading indicators include environmental and safety compliance audits, environmental and safety training and employee perception surveys.



Measuring performance using indicators

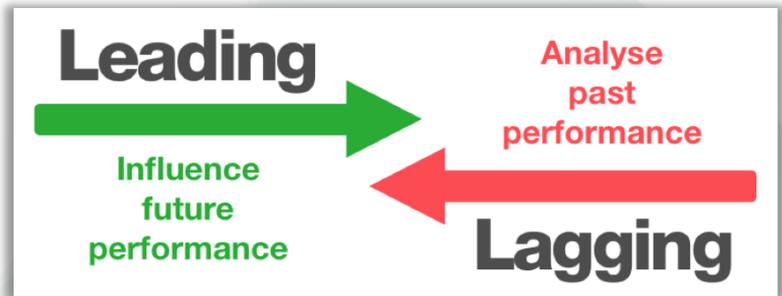


To measure performance successfully, it is a matter of using an appropriate mix of both lagging and leading indicators to provide a full picture, rather than using one over the other. Both leading and lagging indicators have their advantages and disadvantages, which is why it is best practice to use both.



The great thing about leading indicators is that they are proactive in nature; they report what employees or business are doing to prevent incidents or improve the environment. They can provide early warnings by enabling risks or potential failures to be detected and mitigated before something bad happens (De Cieri, H. et al, 2015). For example, instead of just monitoring reportable incidents, a leading indicator would monitor the number of audits or training initiative/session conducted over a period. Where the audit programs are implemented, and failure or improvement opportunities identified and action, typically we see a decrease in lagging indicators.

On the downside, leading indicators can be difficult to quantify, and the results may not address the concerns of some interested parties (such as the public), who may still want to know the quantities of chemicals released into the environment or the number of health and safety violations.



Difference between leading and lagging indicators

The main differences between leading and lagging indicators are shown in the table below.

| Leading Indicators | Lagging Indicators |
|--|--|
| Are actionable, predictive and relevant to objectives | Are retrospective, focusing on past behaviours and incidents |
| Identify hazards before an incident occurs | Identify hazards after an incident occurs |
| Allow preventative actions before the hazard manifests itself as an incident | Require corrective actions to prevent another incident |
| Allow response to changing circumstances through implementing control measure before an incident | Indicate that circumstances have changed require control measures to be implemented after the incident |
| Measure the effectiveness of control systems | Measures failure of control systems |
| Measures inputs and conditions | Measures outcomes |
| Direct toward and influence a wanted outcome or away from an unwanted outcome | Measure the current outcome without influencing it |
| Give indications of system conditions | Measure system failures |
| Measure what might go wrong and why | Measure what has gone wrong |
| Provide proactive monitoring of the desired state | Provide reactive monitoring of undesired effects |
| Are useful for internal tracking of a performance | Can be useful for external benchmarking |
| Identify weaknesses through risk control systems | Identify weaknesses through incidents |
| Are challenging to identify and measure | Are easy to identify and measure |
| Evolve as organisational needs change | Are static and measure past incidents |

Source: Adapted from 'Lead Indicators – Safety Measurement in the Construction Industry' (Australian Constructors Association, N.D).

So, the take away is: a leading indicator measures performance while a lagging indicator measures failure. Leading indicators can influence change while lagging indicators are not useful when a business is trying to influence what happens in future.

Are you tracking the right leading and lagging indicators?

If you're asking yourself what leading indicators to track, consider your organisation's industry. Tracking most of the same leading indicators as your peers is important because there is a strong likelihood that leading indicators tracked by industry peers would also apply to your organisation. In addition, it provides an opportunity for better benchmarking, both for internal performance assessments and for external stakeholder reporting (Manoukan, 2019)



How to use indicators successfully

To measure performance successfully, it is a matter of using an appropriate mix of both lagging and leading indicators to provide a full picture, rather than using one over the other. As demonstrated above, both leading and lagging indicators have their advantages and disadvantages, which is why it is best practice to use both. Where lagging indicators are used without leading indicators, it is impossible to know the cause of any improvement/decline in performance. Where leading indicators are used without lagging indicators a lot of good work can be done, but without being able to show the results. As such, one type of indicator without the other is only half of the story.

For leading and lagging safety indicators to be used successfully to improve environmental and safety performance, they should:

- allow accurate and detailed comparisons;
- lead to correct or help avoid erroneous conclusions;
- be well understood by everyone, especially those responsible for implementing change;
- have a quantitative basis (even when measuring a qualitative dimension);
- measure what they are supposed to, consistently, accurately and reliably;
- collect information that is relevant to the required management decisions and actions;
- adequately map and identify causal linkages (root causes, precursors, events and outcomes); and
- prompt an appropriate response, leading to the consistent focus on implementing change (ICMM, 2012).



Conclusion

If you are considering using leading and lagging indicators to track your environmental and safety performance or even making changes to the indicators you are using currently, consider the information above as a first step. Once you have established the appropriate mix of indicators for your organisation, ensure that there is follow up on the intelligence obtained from the leading indicators by implementing process change required to prevent incidents and accidents proactively. Integrate Sustainability has a well of experience in assist business to develop or review the environment and safety performance monitoring systems. If you need some advice or assistance with developing or reviewing your leading and lagging indicators contact us on 08 9468 0338 or enquiries@integratesustainability.com.au.



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■ environment ■ safety ■ community

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