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Occupational health and safety management — Guidelines on performance evaluation

Management de la santé et de la sécurité au travail — Lignes directrices relative à l'évaluation des performances

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Foreword

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This document was prepared by Technical Committee ISO/TC 283, *Occupational health and safety management*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is intended to help organizations to effectively monitor, measure, analyse and evaluate occupational health and safety (OH&S) performance.

OH&S performance evaluation includes the processes that the organization uses to assess the adequacy of activities that are expected to achieve intended results. OH&S performance is normally evaluated by using a combination of processes and sources of information such as incident investigations, inspections, audits, qualitative and quantitative indicators, culture surveys and interviews.

This document gives guidance on performance evaluation processes, including:

— selection and use of performance processes including indicators;

— monitoring and measuring to obtain data;

— analysing the data to allow performance of evaluation;

— unintended consequences;

— limitations, such as under- and over-reporting, and data distortion.

This document can be used by organizations of all types, regardless of whether they have implemented a formal OH&S management system (see ISO 45001 and ISO 45002).

This document provides examples which demonstrate how to evaluate performance to drive continual improvement and support the organization in achieving its intended results.

This document recommends a balanced approach based on selection of performance evaluation processes and indicators, with emphasis on proactive (leading) OH&S performance indicators. It recognizes that over-emphasis on past performance (lagging) indicators, such as incidence and frequency rates, can undermine efforts to improve OH&S performance.

As every organization is unique, and intended results vary, there is not a standardized set of performance evaluation processes or set of indicators that fulfil the needs of all organizations. Therefore, every organization has to identify performance evaluation processes and indicators to suit its needs.

Effective performance evaluation can help the organization to demonstrate continual improvement, and therefore may need to be adjusted when the organization's performance changes. Effectiveness is the result of selecting the appropriate performance evaluation processes and properly implementing them. When performance evaluation processes are used inappropriately (e.g. in a way that is perceived to blame individuals for system deficiencies), they can produce unintended consequences. The most common of these consequences are discussed in this document.

This document is designed to complement ISO 45001 by providing performance evaluation approaches that align with requirements of that standard. This document can be used independently, by any organization, to improve OH&S performance.

Occupational health and safety management — Guidelines on performance evaluation

1 Scope

This document gives guidance regarding how organizations can establish monitoring, measurement, analysis and evaluation processes, including the development of relevant indicators for the assessment of occupational health and safety (OH&S) performance. It enables organizations to determine if intended results are being achieved, including continual improvement of OH&S performance.

This document is applicable to all organizations regardless of type, industry sector, level of risk, size or location. It can be used independently or as part of OH&S management systems, including those based on ISO 45001:2018, or other standards or guidelines.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 45001:2018, *Occupational health and safety management systems — Requirements with guidance for use*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 45001:2018 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
measurement
process to determine a value

Note 1 to entry: Measurement can relate to managing activities, processes, products, services, systems or organizations.

[SOURCE: ISO 45001:2018, 3.31, modified — Note 1 to entry replaced.]

3.2
indicator
variable that can be measured or described, representing the status or a characteristic of operations, processes, management, and conditions or outcomes

Note 1 to entry: Indicators are generally measurable and can be quantitative or qualitative.

Note 2 to entry: Lagging indicators relate to past performance.

Note 3 to entry: Leading indicators relate to factors that can influence future performance.

Note 4 to entry: Some organizations use the term “metric” instead of “indicator”.

Note 5 to entry: Significant indicators used to direct decision-making by top management are sometimes referred to as “key performance indicators (KPIs)”.

4 Performance evaluation

4.1 General

Performance evaluation is a process or set of processes that compares performance achieved by an organization against intended results. The organization’s intended results can include continual improvement of OH&S performance, achievement of OH&S objectives, and fulfilment of legal requirements and other requirements.

The organization should take into account that there are many sources of information that can provide input to performance evaluation (see 5.3). The organization should consider using a variety of sources of information as inputs to achieve a more comprehensive assessment, as a single source used in isolation can lead to an incomplete or inaccurate assessment.

Clause A.3 provides examples of processes that can help achieve intended results.

4.2 Why performance evaluation is important

The intent of performance evaluation is to assist the organization in determining the extent to which intended results are being achieved.

For example, performance evaluation allows the organization to determine:

a) if top management is demonstrating commitment to and support for OH&S;

b) which processes are achieving planned results and which are not;

c) the degree of variation in processes or activities that affect OH&S performance and the causes of those variations;

d) if there are opportunities or if there is a need for actions to improve processes.

Performance evaluation is essential to ensure effective management of OH&S performance and to contribute to the effectiveness of the organization’s decision-making process(es).

5 Performance evaluation process

5.1 General

When implementing the performance evaluation process, the organization should take into account:

a) its processes (e.g. purchasing, planning, manufacturing, service provision, logistics, training) relevant to its context and activities (e.g. working at height, permit to work, exposure assessment);

b) the effectiveness of OH&S management, including worker participation, hazard identification, assessment of risk and risk controls;

c) its conscious or unconscious assumptions about OH&S that influence organizational behaviour;

EXAMPLE It is a common erroneous assumption that incidents are always caused by unsafe behaviour by workers. Similarly, it is often erroneously assumed that a low incident rate always means the workplace is safe.

d) organizational culture that influences behaviours that affect OH&S (e.g. reporting OH&S incidents or issues is encouraged and supported, without fear of reprisal);

e) interdependencies within the system (e.g. the effectiveness of inspections can depend on the time available, training of inspectors and the willingness of workers to report issues to inspectors);

f) processes of the organization that can impact OH&S performance.

NOTE Examples of processes that can impact OH&S performance are provided in Clause A.1.

5.2 Elements of a performance evaluation process

The organization should undertake specific performance evaluation processes to determine if the intended results are being achieved. The organization should take into account the types of activities being undertaken when considering the frequency and nature of performance evaluation processes.

The organization should:

a) establish the intended results;

b) determine what should be done to achieve the intended results;

c) choose the performance evaluation processes, sources of information and tools (see 5.3);

d) determine the information needed (e.g. inspection results, evaluation outcomes, audit findings) and whether it is possible to obtain it (see 5.3);

e) monitor, measure, analyse and evaluate performance (see Clause 8);

f) take action based on evaluation of performance (see Clause 10);

g) review unintended consequences (see 6.5.4);

h) take action to address issues identified within the performance evaluation process and its results (see Clause 11).

5.3 Performance evaluation sources of information and tools

5.3.1 General

The organization should determine the most effective performance evaluation sources of information and tools to evaluate if intended results are being achieved. This activity should include consultation with workers or worker representatives.

The organization should consider OH&S processes such as training, risk assessments, contractor safety and management of change, or information acquired from incidents such as near misses, overexposure to airborne contaminants, injuries, chemical spills or illnesses. Further information on the selection and use of indicators is provided in Clause 6.

Subclauses 5.3.2 to 5.3.12 provide a list of the most common sources of information and tools; however, the list is not exhaustive. The organization should take into account that there are many sources of information that can provide input to performance evaluation (see 5.3). These sources of information may include non-OH&S business processes and activities.

The organization should identify additional sources of information or tools where appropriate due to the nature of work, type of OH&S hazards and exposures, and level of risk.

The organization should respect the confidentiality, protection of privacy and sensitive information of workers throughout the performance evaluation process.

5.3.2 Inspections

Inspections can provide organizations with relatively quick, efficient means for reviewing the status of OH&S risk control implementation, progress toward and achievement of objectives, and fulfilment of legal requirements and other requirements.

The organization can use inspections to:

a) observe and learn from workers how work is actually being done;

b) acquire both general and specific information (e.g. work conditions; if workers are using controls as intended; fulfilment of legal requirements and other requirements);

c) acquire information on more than one aspect of OH&S performance at one time (e.g. correct use of personal protective equipment (PPE); operation of ventilation systems and other controls; how workers interact and collaborate; safe use of machinery or equipment; opportunities for improvement);

d) gain insight into hazards and risks and why incidents happen, as well as to assess high-risk and non-routine work performances which were successful;

e) review information related to processes (e.g. procedures during equipment breakdowns).

The organization should consider if it is useful to implement regular inspections for specific OH&S objectives (e.g. daily checks of safety-critical equipment such as cranes, ventilation, chemical enclosures or safety devices on power presses).

5.3.3 Pre-activity and post-activity reviews

Pre-activity reviews (sometimes referred to as "pre-job reviews", "pre-task reviews" or "dynamic risk assessments") and post-activity reviews (sometimes called "post-job debriefs" or "after-action reviews") can be a rich source of performance evaluation information. The organization should consider the use of pre- and post-activity reviews, to acquire information on aspects such as:

a) resource issues, including the need for more workers or workers with different skills, equipment repair, availability and condition of safety-critical items such as ventilation systems, air quality monitoring and machine guards;

b) competence gaps and the potential need for training;

c) gaps in the fulfilment of legal requirements and other requirements;

d) current working conditions compared with those anticipated when the job was planned;

e) effectiveness of hazard identification and assessment of risks, and identification of opportunities;

f) effectiveness of existing controls, procedures and processes;

g) the protection of privacy and personal data as reported.

The organization should ensure that workers involved in the task participate in pre- and post-activity reviews, and determine the necessary actions to be taken to ensure information is comprehensive and accurate.

5.3.4 Exposure assessments and occupational health surveillance

The organization should use information from exposure assessment monitoring and health surveillance programmes to help evaluate the effectiveness of processes and controls (e.g. ventilation, hearing protection) and determine the level of exposure before harm to workers occurs.

The organization should compare exposures against established OH&S criteria and determine if levels are exceeded.

The organization should use health surveillance programmes to identify signs or symptoms of ill health.

To understand OH&S performance, the organization should measure and monitor exposure to health hazards, such as:

— chemical (e.g. liquids, gases, other airborne contaminants);

— biological (e.g. toxins, viruses, bacteria, fungi, animal bites);

— physical (e.g. excessive heat or cold, noise, radiation, vibration);

— psychosocial (e.g. work overload, bullying, stress);

— ergonomic (e.g. repetitive movement, tasks requiring awkward postures, manual handling).

The organization should take into account that it can take months or years before negative effects of exposure result in symptoms of ill health. The organization should combine the data from health surveillance and exposure assessments. The organization can take into account additional information resulting from worker information including vulnerable groups (e.g. pregnant women, disabled workers) and surveys to evaluate the effectiveness of controls and identify opportunities for improvement.

The organization should protect the confidentiality of the personal health surveillance data.

5.3.5 Health and safety meetings

If appropriate to its size and the number of workers, the organization can implement health and safety meetings at different levels of the organization (e.g. corporate, facility, department, work team). The organization should consider using the results of safety meetings as part of the performance evaluation process, to analyse information from other activities and sources, such as injury and ill health rates, incident investigations, exposure assessment data, results of surveys or findings from inspections. The organization should take into account the objectives of meetings to determine their frequency and who participates.

5.3.6 Focus groups

The organization should consider the use of temporary focus groups to gain insight and improve understanding of specific concerns and topics of interest. A focus group can consist of a small number of people more closely related to the issue of concern or with knowledge of the subject, and the organization should consider this mechanism when it needs to acquire a deeper understanding of a particular issue.

The organization can use short-term focus groups for activities such as identifying opportunities to improve OH&S performance, how a task is performed, or to explore the underlying causes of process failures, such as why workers are reluctant to report an incident. The organization should ensure the focus group is facilitated in an unbiased way and that the workers involved feel comfortable to share information.

EXAMPLE Focus groups can be used when an organization does not understand the results of a culture survey and wants to learn why workers responded in a certain way.

5.3.7 Surveys

The organization should consider using surveys to acquire insight on aspects such as organizational culture, evaluation of OH&S performance related to internal and external issues, needs of interested parties, work environment, health and well-being, or perception of effectiveness of processes and controls.

Surveys can be integrated into existing employee surveys and performed at different levels of the organization and with relevant interested parties, depending on the subject of the survey. The organization should consider the use of anonymous surveys, when appropriate (e.g. for potentially sensitive issues such as the work environment, psychological health and safety, psychosocial factors, effective leadership or potentially unsafe working practices).

NOTE Surveys can be helpful to quantify issues or clarify if concerns are limited to a small number of workers or more general. They can also provide qualitative indicators or information if they include open questions where responders can provide their insights.

5.3.8 Interviews

The organization should consider the use of formal and informal interviews with workers at all levels to gather information on hazards, the effectiveness of controls, performance of the management system or business processes, adverse health symptoms, recent experiences, how workers are feeling, their concerns

and ideas for improvement. The organization should provide interviewers with appropriate training and tools.

When carrying out interviews, the organization should take into account:

a) the importance of creating an environment where workers feel safe to answer (e.g. not being interviewed by their supervisors or by others with authority over them) without fear of adverse consequences (e.g. embarrassment, threats, stigma, any type of reprisal);

b) the literacy levels of the interviewees and the potential need for translators or interpreters;

c) the potential benefits of confidential one-to-one or small group discussions to encourage open and honest discussion;

d) the need for interviewers to mainly ask open-ended questions that cannot be answered with a simple yes or no rather than closed-ended questions to encourage the interviewee to share all relevant information;

e) the need for interviewers to ask non-judgemental questions without bias or directing answers to a pre-determined conclusion;

f) the importance of listening and documenting answers (if needed), accurately and objectively.

5.3.9 Injury and ill health tracking

The organization should consider the role injury and ill health tracking can play in performance evaluation.

If there are very low numbers of injuries and illnesses, the organization should consider if this is due to a reluctance to report, a lack of awareness of how to report or why something should be reported. This is an example of why it is important to use multiple performance evaluation sources of information to either support or contradict the results.

The organization should consider if workers are sufficiently aware of OH&S hazards, and should also consider including tracking near misses and less serious medical issues in addition to injuries and illnesses with more significance. The organization should track occupational health issues that cause workers to take time off work and establish processes to monitor instances of workers coming to work when they are unwell or unfit to work.

The organization can analyse this data in various ways, depending on the information it needs (e.g. by department, type of injury or ill health, body part, job classification, type of activity, time of day an incident happens).

5.3.10 Incident investigations

The information acquired from incident investigations can provide useful input to performance evaluation by identifying issues with processes, controls and underlying factors such as how work is organized, insufficient resources, or interactions between people (e.g. communication) or between people and processes (e.g. an activity or process interacting with another in a hazardous way).

The organization should use information acquired through incident investigations to understand what happened and why an incident, injury or ill health occurred. The organization can use incident investigations to understand the context surrounding the event, build knowledge, ensure the causes have been identified and ensure the most effective corrective actions are taken.

The organization should ensure incident investigations do not establish misconduct or worker error as the cause of the incident without considering organizational and other factors, such as pace of work, desire for increased productivity or resource level, that can lead to worker fatigue and cause workers to take shortcuts and jeopardize their own safety and the safety of others.

5.3.11 Audits

The organization can use the results of internal and any external audits as inputs to performance evaluation to identify process and system deficiencies, to identify opportunities for improvement and as the basis for indicators.

NOTE Further information on auditing is provided in ISO 19011.

5.3.12 Management review

Management review is part of performance evaluation processes.

The organization should use management review as a key source of information for performance evaluation, to determine the extent to which it is achieving its intended results, and any improvements needed.

The organization should take into account the information acquired from other processes and activities including monitoring, measuring, analysing and evaluating results, and consultation and participation of workers.

6 Performance indicators

6.1 General

The organization should use performance indicators to measure or describe the status or a characteristic of operations, processes, management, and conditions or results.

They can be selected and applied at several levels or functions in the organization. These can include:

a) the whole organization: evaluating overall OH&S performance;

b) top management: capturing the key OH&S issues top management needs to follow;

c) management of functions, areas or sites of the organization;

d) individual processes and tasks: evaluating if they achieve intended results.

The organization should also consider selection of indicators based on different type of hazards (e.g. physical, chemical, biological, psychosocial, ergonomic).

Indicators can demonstrate that the level of performance has improved, remained the same or deteriorated. If necessary, the organization should establish an action plan to ensure the intended result will be achieved. Indicators can measure the progress of the action plan towards achieving the intended result.

NOTE Examples of performance indicators are provided in Clause A.2.

6.2 Selection of performance indicators

The organization should base its performance evaluation process on its intended results in line with its OH&S policy.

When possible, the intended results should be clearly defined to determine if the level of performance is acceptable. The organization should define the roles and responsibilities of those with performance evaluation duties to avoid gaps and overlap. Those roles should be communicated to relevant interested parties.

The organization should monitor the extent to which the OH&S performance evaluation process meets the needs and expectations of interested parties (e.g. regulatory authorities, managers and other relevant workers, contractors).

The organization can use a variety of indicators that range from globally recognized indicators, which enable comparisons to be made with other organizations, to more specific ones that relate to the organization's context.

EXAMPLE In a large multinational company, to promote a culture that supports OH&S, several focus groups were held in each region with internal interested parties (human resources, workers, maintenance, etc.) to identify specific processes or activities to be monitored and to select suitable indicators. This provided a good opportunity to align indicators with different departments and with the intended results.

6.3 Key characteristics of indicators

The organization should ensure that indicators are:

a) meaningful, measurable, aligned to OH&S policy and relevant to the organization's intended results;

b) related either to information that is already available or information that can be obtained if not yet available;

c) responsive to changes in the characteristics that are being measured, so that the organization can act rapidly;

d) verifiable (i.e. results can be checked);

e) comparable (i.e. allow comparison of results with other results acquired using the same criteria, for example benchmarking);

f) capable of measuring both short- and long-term changes, measured as often as necessary.

The organization should ensure that the indicators chosen are understandable at an operational level and are communicated to relevant interested parties.

The organization should use indicators specific to different functions and OH&S processes, and should ensure that these different indicators are compatible and consistent.

Table 1 gives examples of indicators for different levels in an organization.

Organizations with several work sites or operating in different geographical areas should consider the need to adapt indicators to reflect differences in local context, while taking into account the benefits of indicators being similar to allow comparisons and aggregations across locations.

Table 1 — Indicators for different levels or functions in the organization

Level or function	Examples of indicators
Whole organization/ top management	— incidence rate of injuries and incidences of ill health, and their trends — aggregate results of health surveillance, respecting individual confidentiality — degree of worker involvement (e.g. participation of workers in performance evaluation and risk assessment activities, providing suggestions for improvement of OH&S)
OH&S management system (where one exists)/persons responsible for OH&S management	— extent of implementation of an OH&S management system — percentage of objectives achieved — percentage of equipment modifications that trigger an OH&S review of potential consequences — results of tests of effectiveness of OH&S improvement programmes
Individual departments/ managers	— degree of implementation of actions to address risks — percentage of risk reduced or eliminated, or opportunities implemented — effectiveness of site inspections
Processes and tasks, supervisors	— percentage of procedures updated according to schedule — percentage of monitoring equipment calibrated — percentage of available competent workers for an activity in relation to required numbers
Worker participation	— percentage of concerns or suggestions received — percentage of participation in health and safety meetings — percentage of incidents reported

6.4 Life cycle of indicators

The organization should take into account that indicators do not always provide the information required or stay relevant for a long time. As the organization's context changes (e.g. changes to processes, legal requirements, knowledge about hazards) indicators potentially cease to be relevant and others can require development. The organization should be aware that, after some time, indicators can fail to accurately measure performance or can cause unintended consequences such as under-reporting, misrepresentation or distortion of data. To prevent this happening, the organization should regularly review indicators to confirm that they are still valid and modify them to remain relevant if necessary (see Clause 11).

When establishing or revising processes, organizations often select quantitative indicators which measure the adoption of the process (e.g. percentage of incidents investigated, percentage of corrective actions achieved). As performance evaluation processes mature, the organization should adjust or expand the scope of its indicators to measure both the quality and effectiveness of the process. This can include greater use of qualitative indicators (e.g. conclusions from investigations).

Table 2 provides examples of how indicators can develop as the performance evaluation process matures.

NOTE A combination of initial, developing and mature indicators can be relevant and used by an organization at the same time for different aspects of OH&S performance evaluation.

Table 2 — Examples of how indicators can develop

Process	Initial indicator	Developed indicator	Mature indicator
Training	— number of workers attending OH&S training each year	— degree to which the training fulfils the training needs — feedback on the effectiveness of the training (worker survey) — number of workers completing training within specified time — number of workers in a target group to have completed specific OH&S training	— extent to which trainees apply training skills on the job — number of workers demonstrating increased knowledge and skills — observations from supervisors on the competency of workers who attended training
Injuries and ill health investigations	— number of injuries, number of incidences of ill health	— percentage or number of incident investigations completed and actions identified — quality of incident investigations	— effectiveness of actions taken to prevent injuries and incidences of ill health

6.5 Types of indicators

6.5.1 General

The organization should consider the different types of indicators available and how these interact and support each other at strategic, tactical and operational levels. The organization should use indicators of different types to provide information on its OH&S performance and to drive improvement.

The organization should establish clear definitions of indicators and apply these consistently to support effective monitoring, measurement, analysis and evaluation of OH&S performance.

When selecting leading indicators, the organization should ensure that the indicator reflects the performance of activities that can influence future OH&S performance, rather than simply measuring activities that do not impact OH&S performance.

Measuring the number of people trained, or the number of audits conducted, is of limited value unless the organization also measures the effectiveness of these activities and confirms that they lead to improved OH&S results.

When considering injuries and ill health, the organization should be aware that a variety of different factors can influence whether a given incident results in time away from work. These include personal circumstances, worker compensation systems, and the effectiveness of return-to-work strategies within the organization. This can result in injuries of the same type and the same level of severity being recorded differently within and between different organizations.

The organization should consider basing incidence and frequency rates on a variety of criteria such as:

a) first aid treatment only;

b) medical treatment only;

c) modified duties required;

d) injury and ill health leading to time away from work; time to full recovery;

e) fatalities.

The organization should not only consider the actual consequence of an incident but also consider what the potential consequence could have been. Specifically, it can be beneficial to focus on incidents that had a high potential of severity. The organization should avoid putting too much focus on injury and ill health rates, which should not be taken as an overall indicator of OH&S performance. Injury and ill health rates do

not always serve as a measure of effectiveness of high-risk controls intended to prevent less frequent and potentially more severe incidents. The organization should specifically assess the effectiveness of controls to prevent more severe incidents.

6.5.2 Leading and lagging indicators

Indicators are known by various terms in different sectors and, while there are distinctions, they can be broadly grouped into indicators that:

— measure actions taken to influence future performance and realize opportunities (leading indicators);

— measure past performance and events (lagging indicators).

Table 3 gives examples of leading and lagging indicators.

Table 3 — Examples of leading and lagging indicators

Type of indicator	Description	Examples of methodology	Examples of indicators
Leading indicator	— measures key issues that contribute to achieving intended results — focuses on inputs and processes — used to influence change and prevent risk	— quantitative data of key process variables or key inputs — qualitative data related to current or expected performance	— training provided to workers to ensure that they are aware of hazards and controls — number of worker-reported concerns and suggestions for improvement
Lagging indicator	— measures past results — usually provides numerical values — frequently used to compare with other organizations or national indicators	Counting, for example: — injuries — cases of ill health — incidents — nonconformities	Incidence rates of, for example: — injuries — occupational diseases

6.5.3 Quantitative and qualitative

Performance indicators can also be described as qualitative or quantitative. Table 4 gives examples of qualitative and quantitative indicators.

NOTE Maintaining documented information on past performance, such as that provided by quantitative lagging indicators, is often a legal requirement.

Table 4 — Examples of quantitative and qualitative indicators

Type of indicator	Description	Examples of methodology	Examples of indicators
Quantitative	— numerical indicator — uses data to calculate a number — can be from qualitative data, such as yes/no answers or from the application of a scale in surveys; the indicator will be numeric (e.g. number, percentage, rate)	— count, average, application of functions to obtain a number that represents the issue to be measured by the indicator — typical examples are absolute numbers, percentage and incidence rates	— percentage of workers completing safety training during the past year — percentage of workers that apply the safety procedures
Qualitative	— non-numerical indicator — uses qualitative information	— interviews — surveys based on free-text responses — focus groups — culture surveys — adequacy and effectiveness of inspections or incident investigations	— the indicators are the conclusions obtained from reports, individual interviews with workers and their representatives, and focus groups

6.5.4 Potential unintended consequences

The organization should take into account that indicators and the way they are used can produce both positive and negative unintended consequences. The organization should consider both existing and proposed indicators, and evaluate how the organization will adapt or respond to the indicator and how these adaptations can lead to unintended consequences.

The organization should identify factors that have the potential to discourage workers from reporting incidents, hazards, risks, or other situations because there is a possibility that reporting can lead to negative consequences to an individual or to multiple people, including workers.

The organization should take into account that both under- and over-reporting, or other types of inaccurate reporting, can lead to misleading indicator results and can undermine the organization's ability to manage OH&S. Such factors can undermine the effectiveness of performance evaluation processes.

Documented information to support performance evaluation should be kept to the minimum needed by the organization. Excessive documented information can produce an unnecessary overload of work to users.

The organization should take into account that unintended consequences can arise from how the indicator is chosen, defined or used.

Table 5 gives examples of potential unintended consequences.

Table 5 — Examples of unintended consequences

Factors affecting how an indicator is chosen, defined or used	Potential unintended consequences
Lack of worker participation	— reduced worker participation and trust in OH&S issues (e.g. workers not proposing opportunities for improvement)
Indicators not aligned to the organization's overall strategy	— top management does not support OH&S issues
Indicators related to the most frequent incidents only	— potential low-frequency incidents are overlooked, despite potential for a serious and long-term impact
Lack of communication with relevant interested parties	— inappropriate indicators are selected — results are misunderstood or misinterpreted
Complicated indicators	— lack of support if relevant interested parties do not understand them
Universal global indicators	— unreliable results if identical indicators are used across locations without taking into account different contexts (e.g. legal requirements, work practices, culture)
Indicator chosen based on cost	— selection of less-effective indicators leading to poorer decision-making and less favourable OH&S results
Financial and other incentives	— can lead to a distortion of results or to underreporting or overreporting — can lead to reporting incidents only by a limited group of workers

EXAMPLE 1 A construction company sets a performance evaluation indicator for the percentage of PPE supply to be maintained on site. A target was set to maintain 30 % above normal expected need. This target was appropriate for small projects and did not create an undue financial burden on the organization. However, the target created the unintended consequence of significant financial burden for large projects, without necessarily improving OH&S performance.

EXAMPLE 2 A utility company established an indicator to measure the amount of time it took the gas leak crew to arrive at the site of the gas leak. The intent was to determine if the service centres were properly located close to customers and if staffing was sufficient. The indicator had the unintended consequence of encouraging crew members to drive their truck at high speed to the worksite, increasing risk to them and to the public. Recognizing the unintended, undesirable effect, the organization discontinued use of the indicator, and implemented a separate process to periodically review the need to establish new service centres or provide additional workers.

6.5.5 Value and limitations of benchmarking

The organization can consider the use of benchmarking as part of its performance evaluation activities. Benchmarking enables comparison between different organizations. The organization should consider if benchmarking is useful to compare results and identify opportunities to improve performance evaluation processes. Benchmarking can be internal (e.g. other departments or sites) or external (e.g. other organizations or sectors).

The organization should take into account differences in context (e.g. some performance evaluation processes used in a small office are unlikely to be effective in a factory) and recognize that these can limit the value of benchmarking. The organization should take into account that processes for performance evaluation processes and their effectiveness are likely to vary across organizations.

7 Integration of OH&S performance evaluation into business processes

The organization should use performance evaluation to check that intended results are aligned with the organization's business plans and intended results.

Improved OH&S performance can also be used to help assess the performance of other business processes and drive their improvement. For example, performance evaluation that identifies ergonomic hazards can improve quality, productivity, and delivery of products and services.

Where practicable, the organization should integrate OH&S monitoring processes into business processes and incorporate them into business systems.

The organization should consider including monitoring and measuring business processes in the responsibilities of managers at all levels.

Examples of performance evaluation integration and alignment activities can include:

a) the process of selecting and implementing performance evaluation processes, including indicators, proactively assesses potential unintended consequences and negative impacts on other business areas;

b) OH&S management inspections and internal audits are integrated with other management systems (e.g. quality, environmental, energy management systems);

c) consistent methods are used to investigate incidents that affect OH&S, environment and quality performance;

d) equipment damage reports include potential OH&S and environmental impacts;

e) performance evaluation and corrective action processes are aligned across management systems, and common issues identified and addressed;

f) results of culture surveys addressing OH&S, including psychosocial factors and psychological health, safety and well-being, can also provide information about quality, environment, productivity and worker retention;

g) OH&S equipment is included in the general calibration programme;

h) worker exposure monitoring is integrated with indoor air quality monitoring workshops to address OH&S performance issues and encourage the identification of opportunities to improve products and services;

i) consideration of cost, quality, productivity and OH&S in performance evaluation processes (procurement, contractors, suppliers).

NOTE 1 Some monitoring and measurement processes in the organization are likely to be common across OH&S and other activities.

NOTE 2 Organizations with management systems meeting the requirements of more than one ISO Management System Standard can easily integrate processes which are common across the standards.

8 Monitor, measure, analyse and evaluate

8.1 General

OH&S performance evaluation should include monitoring, measuring, analysing and evaluating data from its daily operations and business processes. The steps are:

a) determine the status of systems, processes and activities by checking, supervising or critically observing them (monitor);

b) obtain raw, unprocessed data (measure);

c) analyse the data to obtain information that allows evaluation of the performance including the determination of the value of the indicators;

d) evaluate OH&S performance by comparing the information with the intended results.

If the organization undertakes high-risk work or non-routine work, it can monitor, measure, analyse and evaluate activities before, during and after the job, to acquire information on performance at each stage of activity. If the organization undertakes lower-risk work or has processes that are unlikely to vary to a great degree, the monitoring can be less frequent.

8.2 Uncertainty

The organization should take into account factors that can introduce uncertainty and affect performance evaluation results. Factors include:

a) context of the organization;

b) precision of the measuring method;

c) accuracy of the monitoring and measuring equipment used;

d) competence of the observer or interviewer;

e) inherent variability of process or characteristic being measured;

f) reliability of data provided by third parties;

g) reliability of reporting (e.g. low levels of incident reports can be caused by fear of reprisal);

h) whether there is a high-level reporting threshold (e.g. reporting only large volume chemical spills), which can give a misleading impression of performance;

i) interpretation of data.

The organization should consider the total uncertainty level before evaluating if performance has improved, remained the same or deteriorated.

8.3 Monitor and measure

The organization should determine the status of its systems, processes and activities through regular monitoring and measuring, as appropriate. The organization should identify processes that are critical to achieve the intended results that should be monitored and measured.

ISO 45001:2018, Clause A.9, provides the following guidance on monitoring and measuring:

— Monitoring can involve continual checking, supervising, critically observing or determining the status in order to identify change from the performance level required or expected. Monitoring can be applied to the OH&S management system, to processes or to controls. Examples include the use of interviews, reviews of documented information and observations of work being performed.

— Measurement generally involves the assignment of numbers to objects or events. It is the basis for quantitative data and is generally associated with the performance evaluation of safety programmes and health surveillance Examples include the use of calibrated or verified equipment to measure exposure to a hazardous substance or the calculation of the safe distance from a hazard.

The organization should ensure that monitoring and measurement equipment is verified or calibrated, against measurement standards traceable to national or international standards whenever possible.

8.4 Analyse

Analysis is the process of examining data to establish relationships, patterns, and trends. The results of monitoring and measurement cannot usually be interpreted directly. The organization should process the data to calculate the value of the indicator. This usually involves the application of statistical techniques such as determining an average and variability of a set of values, a rate of occurrence, or producing a graph, bar or pie chart to show trends.

Analysis can also produce qualitative information. The process uses logical methodologies to provide conclusions from monitoring. For example, monitoring health and safety meetings can produce a list of complaints or facts that can be analysed to extract hidden causes of incidents and ideas for improvement.

EXAMPLE A foundry monitors the exposure of their workers to airborne cadmium. To obtain the data, it contracts a specialized consultant who monitors and measures the concentrations of cadmium in the air. The company analyses the data to check if exposure is within acceptable limits and if the trends are improving.

8.5 Evaluate

Following analysis (see 8.4), the organization should compare the results of the performance evaluation process or the numerical value of an indicator with the intended results. The intended results can be a value set by the organization, a legal requirement or other requirement, or the results of a process. In some cases, there is neither a value for an intended result nor a requirement, and performance evaluation is driven by, for example, a trend, near misses, management of change or worker suggestions.

The organization should ensure that evaluation includes an overview of its OH&S performance as a whole to determine if the results show acceptable OH&S performance, are consistent with intended results, and if performance evaluation processes or indicators should be adapted, or relevant actions implemented.

NOTE Many organizations display a summary of OH&S indicators on their intranet to monitor and promote improvement of OH&S performance.

EXAMPLE The foundry in the example provided in 8.4 implemented the following steps as part of evaluation. The organization:

— compared the average concentration calculated for every worker to the established requirement and retained relevant documented information;

— used the comparison to determine if the controls are effective and if any further controls should be implemented (e.g. whether additional ventilation is needed, or tasks need to be improved);

— included all findings in the OH&S improvement plan.

9 Communication

The results of the performance evaluation should be communicated internally to workers and externally to other interested parties, in accordance with any existing OH&S communication plan developed by the organization and taking into account legal requirements and other requirements.

The communication of performance evaluation results should be updated during OH&S activities such as safety briefings, regular health and safety meetings, and management reviews.

EXAMPLE An organization communicates annually to workers and other interested parties the OH&S performance evaluation results for the last year. This activity is part of the company's communication plan which addresses:

— target audience:
  — company workers (including temporary workers and part-time workers);
  — workers of other organizations usually working on the premises (i.e. cleaning, maintenance, information technology external services);
— communication channels:
  — internal website;
  — internal meetings, led by middle-management, with participation of the top management;
— contents:
  — intended results (description of the objectives set for the period);

— OH&S results, in terms of the indicators assigned to each objective (intended result);

— trends of OH&S indicators for the last three years;

— participation indicators which are used to guide efforts to increase the involvement of workers;

— summary of external communication actions;

— OH&S objectives and plans for the coming year.

10 Act on results

The organization should prioritize actions after analysing and evaluating results, and consider, for example:

a) potential impact on OH&S performance;

b) fulfilment of OH&S legal requirements and other requirements;

c) alignment with the strategic direction of the organization;

d) opportunities to improve how OH&S is managed;

e) outcome and consequent impacts of external assessment of OH&S performance (e.g. fulfilling contractual requirements, government recognition, achieving or maintaining an OH&S certification).

EXAMPLE A logistics organization that has completed its OH&S performance evaluation, finds that there has been an increase in road traffic accidents, although there has been no increase in injuries to workers. The organization analyses the causes of the accidents and decides to take action to reduce risks by establishing a task force of drivers and managers to determine if vehicles should be fitted with sensors to reduce the likelihood of collision with other vehicles, or to detect and warn drivers who are becoming less alert because of fatigue. The additional cost of these preventive measures is compared with the likely reduction in incidents.

The organization assigns responsibility for implementation by:

— appointing a member of top management to ensure improvements are agreed and implemented in a timely manner;

— ensuring workers with purchasing roles are involved in determining criteria for future vehicle purchases;

— implementing targeted consultation and participation of workers to ensure actions are being taken to reinforce the organization's overall commitment to the health, safety and well-being of workers.

11 Review performance evaluation processes

The organization should review performance evaluation processes, including indicators and actions arising from performance evaluation, on a regular basis to determine whether:

— they are suitable, adequate and effective;

— the criteria, results or assumptions they are based on are valid;

— negative unintended consequences are occurring (e.g. under reporting of incidents to obtain a monetary incentive; pressuring workers to avoid punishment or embarrassment).

The review of performance evaluation processes can be triggered by several internal or external factors.

Internal factors can include:

— changes in the organizational structure;

— merging with another business;

— a hazard, risk or serious incident that triggers changes to operational processes;

— implementation of new processes, ways of working and organization of work (e.g. remote working, flexible working arrangements);

— outputs from consultation and participation of workers.

External factors can include:

— changes in legal requirements;

— improvements in monitoring and measurement technology;

— changes in customer needs and expectations.

A review of performance evaluation processes can be conducted during, for example:

— regular OH&S meetings;

— internal audits;

— management reviews.

The organization should take action to address issues identified during the review of the performance evaluation process.

Annex A
(informative)

Performance evaluation examples

A.1 Examples of processes and activities that can require performance evaluation and impact OH&S performance

Examples of processes that can be monitored and measured to analyse and evaluate OH&S performance include:

a) establishing objectives and planning actions to achieve them;

b) consultation and participation of workers and worker representatives;

c) determination of legal requirements and other requirements;

d) hazard identification and risk assessment processes;

e) occupational health surveillance;

f) occupational exposure monitoring;

g) actions for eliminating hazards and reducing risks;

h) safety inspections;

i) training of workers on OH&S;

j) communication;

k) culture surveys;

l) management of change;

m) emergency preparedness and response;

n) procurement;

o) outsourcing;

p) control of documented information (e.g. OH&S performance and investigation reports);

q) nonconformities and incident investigations;

r) internal audits;

s) management review;

t) verification that corrective actions have been taken and are effective;

u) improvement of OH&S performance.

Other business processes influencing OH&S performance can be monitored, measured, analysed and evaluated.

EXAMPLE Financing, scheduling, engineering, human resource management, logistics, management and supervision, design and development, supply chain management, production and maintenance, product life cycle management, customer relationship management.

A.2 Examples of performance indicators

Table A.1 — Examples of performance indicators

Process/activity	Examples of indicators
Top management commitment	— establishment of worker consultation and participation processes — number of hours made available for workers to participate in OH&S initiatives — responses in perception surveys
Consultation and participation of workers	— number or percentage of agreements achieved and implemented with workers or their representatives, where they exist — number of activities consulted — degree of use of collective participation tools (e.g. suggestion mailbox, forums) — degree of participation in specific activities or tools (e.g. participation in dedicated workshops)
Legal requirements and other requirements	— time needed to implement a new requirement measured against intended time — degree to which new requirements are implemented — number of regulatory inspections without findings — percentage of defect-free agency inspections
Hazard identification	— number of near miss reports or unsafe observations — number of safe conditions or behaviours observed — number of inspections completed — ratio of safe to unsafe observations — number of workers trained in hazard identification
Assessment of risks	— degree to which sources of risks have been analysed and their risks assessed — degree to which situations are included in the risk assessment process — percentage of risk situations updated in the last review — percentage of situations where new risks or changes in risks identified have been assessed — percentage of updated risk assessments due to potential exposures to chemical, biological and physical agents — percentage of samples below the occupational exposure limit — percentage of samples taken compared to the sampling plan — number of reports of odours or symptoms — number of workplaces specifically analysed — number of risks mitigated or controlled
Health surveillance	— degree of improvement of health conditions (e.g. percentage of reduction of cardiovascular risk, percentage of reduction of lead blood level in exposed workers) — indicators of fulfilment of the programme (e.g. number of medical or other activities fulfilled, number of analytics, number of people in the programme) — indicators of the results of the programme (e.g. number of workers approved for work (and of non-approved), number of cases with specific conditions and trends)

Table A.1 *(continued)*

Process/activity	Examples of indicators
Planning action	— degree of completion of the plan — status of every activity included in the plan — percentage of resources consumed, adequacy of resources, deviation from assigned resources
Actions to control risks	— completion of risk control actions (e.g. percentage achievement) — effectiveness of controls — percentage of ventilation systems that achieve acceptable flow rates — percentage of workplaces needing adaptation for workers with specific needs that have been adapted (e.g. for pregnant workers, workers with a disability)
Elimination of hazards	— percentage of hazards identified for elimination which have been eliminated — degree to which planned actions to eliminate hazards are completed on time
Lagging indicators	— rates of occurrence for incidents, work-related ill-health or occupational diseases — rate of occurrence of total number of incidents — rate of occurrence of incidents with medical attention or first aid (non-medical cures) — indicators for the severity of incidents of injury or ill health — number of days of sick leave, paid or unpaid (absolute or related to number of workers or total hours worked) — number of days of job restriction or transfer to other tasks (absolute or related to number of workers or total hours worked) — number of workers over-exposed to physical, chemical or biological agents (absolute or related to number of workers exposed or total hours worked by exposed workers)
Management of change	— number of incidents in which new purchases (e.g. equipment, materials, substances) are not checked against OH&S requirements — number of incidents in which safety data sheets for hazardous substances/chemicals are not obtained from providers or are out of date — degree to which contractors are providing OH&S documentation — percentage of required management of change reviews completed — percentage of workers required to attend training in the management of change process who have attended training — extent to which control measures have been implemented following a management of change review

Table A.1 *(continued)*

Process/activity	Examples of indicators
Emergency preparedness	— percentage of workers attending fire equipment training sessions — quality of training (worker feedback questionnaires from training sessions — results of tests of workers before and after training sessions (indicators of effectiveness of the training) — time taken to evacuate the facilities — number of incidents during emergency drills — percentage of required emergency response drills completed — all emergency response equipment is available and maintained — competent emergency teams are in place
Training	— number or percentage of training activities accomplished — percentage of relevant workers attending the activities — percentage of activities reprogrammed or cancelled — perceived quality of training, evaluated from worker feedback surveys — degree to which the level of knowledge has increased in workers attending the sessions — number of workers observed using skills learned during training (e.g. within a specified date of completing the training)
Communication	— percentage of target audience receiving the communication (e.g. opened the e-mail, attended the informative session) — percentage of target audience that accessed the information by periods of time (e.g. the same day, the same week, later) — quality of communication (e.g. number of clarification questions) — effectiveness of communication (i.e. extent to which the objective is achieved) — number or frequency of worker meetings — number of page views of OH&S information — number of audits of communication quality, in relation to simplicity and clarity (e.g. use of a readability index)
Continual improvement	— number of incidents or nonconformities registered — number of corrective actions
Corrective action	— percentage of corrective actions closed on time — number of corrective actions verified as effective — number of issues flagged in the last 30, 60 and 90 days — number of findings effectively addressed — number of repeat findings

Table A.1 *(continued)*

Process/activity	Examples of indicators
Maturity of OH&S management system	— percentage of system elements implemented — number and frequency of audits conducted — number of findings or instances of nonconformity — number of corrective actions — number and frequency of perception surveys — percentage of participation in perception surveys

A.3 Achieving intended results

Table A.2 — Examples of performance evaluation of processes to achieve intended results

Intended result	Action needed to achieve intended result	Performance evaluation process, source of information or tool
Objective: Enable the organization to manage change effectively	— develop a management of change process	— determine if the process was developed and documented
	— communicate the need for the new process and about its deployment including via team meetings	— monitor feedback from team discussions and allow anonymous submissions
	— train relevant workers	— identify training needs in consultation with workers — measure the percentage of workers trained — survey those trained to determine the effectiveness of training
	— deploy the process	— review implementation of the management of change process — review effectiveness of change management within the organization
Assure fulfilment of legal requirements	— define and communicate process to determine legal requirements — ensure that new or modified legal requirements are identified — assign roles and responsibilities related to the fulfilment of legal requirements — require operational departments to implement the process	— review implementation and effectiveness of the process — perform inspections for the fulfilment of legal requirements — establish indicator for the number of noncompliances identified per month
	— define and communicate reporting requirements to provide management oversight of the fulfilment of legal requirement issues	— audit implementation and effectiveness of the reporting process — monitor reports to determine the fulfilment of legal requirements status across the organization

Table A.2 *(continued)*

Intended result	Action needed to achieve intended result	Performance evaluation process, source of information or tool
Increase confidence of workers to report incidents without fear of retribution	— leadership communication campaign emphasizes learning from incidents instead of blame — discussions between managers and their teams at team meetings	— review leadership response to incidents and communications to the workforce during audit — monitor feedback from team discussions
	— introduction of confidential reporting line	— monitor use of confidential reporting line
		— annual organizational culture survey
Annual improvement	— review indicators and targets each year	— ensure indicators and targets have value for the organization and are appropriate to the current context

A.4 Case study example

A.4.1 Description of the context

NOTE The described methodology is in line with the German guideline VDI 4056 of the German Engineers Association VDI (Verein Deutscher Ingenieure e.V.). For more details, see Reference [3].

A German-based global energy company decides to introduce leading indicators for maturity evaluation related to OH&S. The aim is to evaluate the effectiveness of their OH&S activities that are not based on accidents since they refer to the past. The overall objective of the company is no harm to the workers.

The fundamental idea is to foster ownership for health and safety within the organizational units. Therefore, the maturity evaluation is carried out by the site management teams responsible for the respective organizational units (e.g. plants, sites, departments). The management team themselves decides on the results of the evaluation with respect to strengths and weaknesses. This approach is different to an audit, where the auditor decides what is right or wrong. The self-evaluation accelerates the process of self-awareness and is based on trust. In addition, the results of the evaluation enjoy high acceptance as they have been achieved by the management team itself, who then follows up on them.

To ensure comparable and reliable results of the maturity evaluation, the energy company sets up a methodology based on leading indicators to allow a predictive estimation of the quality of OH&S processes. The methodology consists of four building blocks, as shown in Figure A.1 and described in A.4.2.

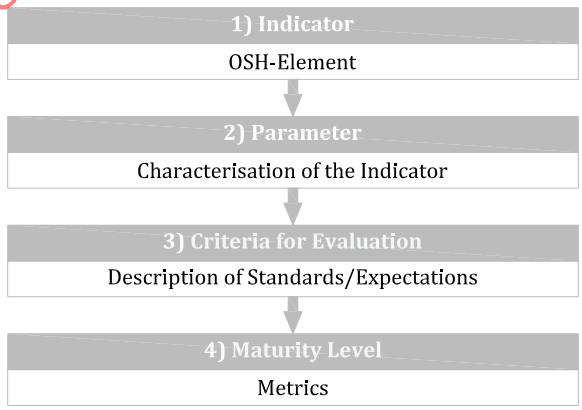

Figure A.1 — Building blocks of the maturity evaluation with leading indicators