

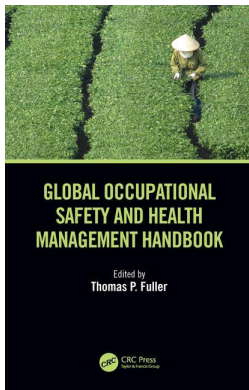
This article was downloaded by: 10.2.97.136

On: 28 May 2023

Access details: *subscription number*

Publisher: *CRC Press*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



Global Occupational Safety and Health Management Handbook

Thomas P. Fuller

Occupational Health and Safety Management Systems

Publication details

<https://test.routledgehandbooks.com/doi/10.1201/9780429056475-6>

Charles Redinger

Published online on: 01 Mar 2019

How to cite :- Charles Redinger. 01 Mar 2019, *Occupational Health and Safety Management Systems* from: Global Occupational Safety and Health Management Handbook CRC Press

Accessed on: 28 May 2023

<https://test.routledgehandbooks.com/doi/10.1201/9780429056475-6>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://test.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

6 Occupational Health and Safety Management Systems

Charles Redinger

Institute for Advanced Risk Management

CONTENTS

6.1	Approaches to OH&S Management	80
6.2	Basic Systems Concepts	80
6.2.1	Programs vs. Systems	81
6.3	OHSMS Standards.....	82
6.3.1	ISO's Drive to a Unified MSS Framework	83
6.3.2	ISO 45001:2018—OHSMS—Requirements with Guidance for Use	84
6.3.2.1	Scope.....	84
6.3.2.2	Normative References	84
6.3.2.3	Terms and Definitions.....	85
6.3.2.4	Context of the Organization.....	85
6.3.2.5	Leadership and Worker Participation	85
6.3.2.6	Planning	86
6.3.2.7	Support.....	87
6.3.2.8	Operation	88
6.3.2.9	Performance Evaluation.....	89
6.3.2.10	Improvement	89
6.3.3	ILO OHSMS:2001—Guidelines on Occupational Safety and Health Management Systems.....	90
6.4	Conformity Assessment.....	91
6.5	The Management System Framework Pyramid	92
6.6	Future Trends.....	92
	References.....	93

Managing occupational health and safety (OH&S) hazards and risk has traditionally been driven by governmental regulations, often referred to as command-and-control approaches. Over time, and with advances in organizational science, nonregulatory approaches for OH&S management have proliferated. This is seen in nongovernmental consensus standards, as well as innovative approaches developed by professional organizations and companies. A theme in these newer approaches is the application of system-based principles and methods to OH&S management. This is

observed with the evolution of formal OH&S management system (OHSMS) standards and guidelines.

This chapter provides an introduction to OHSMS concepts, principles, and frameworks. An overview of the International Organization for Standardization's (ISO) OHSMS, ISO 45001:2018, is presented along with several other legacy approaches. Closely linked to the use of OHSMS standards is what is referred to as conformity assessment, which deals with numerous important issues, namely, third-party certification. It is important to be clear that an OHSMS standard, such as ISO 45001:2018, can be implemented in an organization, but that third-party certification is not required.

6.1 APPROACHES TO OH&S MANAGEMENT

The reduction of workplace risk and meeting regulatory compliance are two dominant drivers that have shaped the historic development of OH&S management practices. A common term used to describe OH&S management practices up to the 1980s has been “traditional compliance-based” management approaches. This reflects that regulations imposed by national, regional, and local governmental agencies were a large driver that impacted how OH&S professional defined their duties and organizations arranged their OH&S structures and practices.

Two central purposes for governmental regulations are as follows: (1) to control externalities (costs) that organizations do not or are not willing to adsorb, whereby the costs are passed on to the public, which is also referred to as “risk transfer,” and (2) to provide warnings and protection in instances where activities are hazardous.

Organizations have found over time that compliance with governmental regulations does not necessarily provide the protections thought or desired, thereby leading to lower risks, increasing risk resilience, or helping overall OH&S performance. The challenge for many organizations has been to maintain regulatory compliance while introducing new beyond-compliance risk management and performance measurement practices as embodied in OHSMS approaches.

6.2 BASIC SYSTEMS CONCEPTS

Most organizations have some sort of OHSMS in place. That is, there is an identifiable OH&S process, there are inputs to the process, there are probably some sort of feedback loops, and there are outputs. The advent of formal management system standards (MSSs) provides robust means for characterizing and defining an OHSMS.

Research on the breadth and similarities of OHSMSs has been conducted (IOHA, 1998). This work identified more than 30 OHSMSs in use or being developed in the late 1990s. With the trend towards the development of international standards, there was a trend of national standards development efforts to defer to the international efforts. The International Occupational Hygiene Association (IOHA)-sponsored research found that many of the existing management system approaches at that time had many common elements.

Existing management system concepts can be traced to numerous sources. The most common source is plan–do–check–act model. While there are numerous definitions provided for a system, the common four elements presented are input,

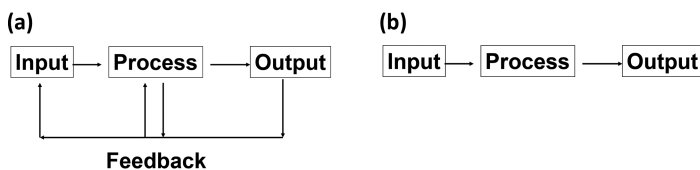


FIGURE 6.1 (a) Simple system diagram and (b) feedback.

process, output, and feedback. The relationship between these four elements is depicted in Figure 6.1a.

A question that often comes up when talking about an OHSMS is “what is the difference between a system and program?” One way to describe this difference is in terms of an information feedback loop. That is, feedback in a system is essential and an integral component of the system. Conversely, this is not the case with programmatic approaches where feedback is not necessarily part of a structural design. This is depicted in Figure 6.1b.

A system can be further characterized as being either open or closed. In the case of open systems, there are identifiable pathways whereby the system interacts—exchanging information with and gaining energy—from its external environment. This phenomenon is readily observed in biological systems. Conversely, closed systems do not have such pathways and thus limit their ability to adapt or respond to changing external conditions.

In traditional OH&S management approaches, the focus has been on trailing indicators, such as illness, injury, and fatality statistics. In a systems approach, regulatory compliance and trailing indicators are not neglected; however, commonly, there is a shift in focus towards performance variables and measurements from the input and process components of the system. These components can be thought of as being “upstream” from the system output, or leading indicators.

6.2.1 PROGRAMS VS. SYSTEMS

The distinction is made here between traditional programmatic approaches and newer systems approaches to OH&S management. A program is operationally defined as singular, vertical, and based on traditional command-control regulations. The focus is on compliance with the program standard/regulation, not the broader impact on OH&S performance in the organization. In this conceptualization, programs do not have strong, if any, feedback or evaluation mechanisms whereby the program is adjusted or modified.

Conversely, a systems approach—while not losing sight of programmatic requirements and opportunities for improvement—broadens in perspective to address the manner in which the program affects other programs, and the extent to which the program may or may not improve worker health and safety. Further, a systems approach is driven by OH&S improvement, more so than by programmatic regulatory compliance. A key distinction of a systems approach is that there are clear feedback and evaluation mechanisms whereby the system responds to both internal

and external events. A systems approach integrates individual programs within the business operations and the external environment and is thus more comprehensive than any single program.

6.3 OHSMS STANDARDS

Systems concepts have been used in managing OH&S arrangements for decades. A new era was entered with ISO's entry into the management system codification arena with 9001 in the late 1980s. At that time, there were few formal OHSMS approaches throughout the world. In the early 1990s, OH&S and environmental management professionals and standards developers began to consider how the ISO 9001:1987 principles could be applied to environmental and OH&S arrangements. ISO 9001 was updated in 2000 (ISO, 2000).

In 1994, an ISO Technical Committee devoted to "materials, equipment, and offshore structures for petroleum and natural gas industries" began to develop an integrated health, safety, and environment management system. This effort produced a draft standard but was not continued when ISO 14001:1996 was published. Around that time, several OHSMSs were also published (e.g., BSI 8800, Australia's SafetyMAP). By the late 1990s, numerous nation-states, along with professional organizations (e.g., the Japan Industrial Safety and Health Association, the American Industrial Hygiene Association (AIHA), the Chemical Manufacturers Association), had started to develop OHSMS standards and guidelines.

In the mid-1990s, OSHA in the United States began to consider rulemaking for a comprehensive OH&S program standard. Activities on this effort continued through the early 2000s. Over time, the priority of these efforts diminished and was off OSHA's agenda by 2003.

Researchers at the University of Michigan (UM) developed an ISO 9001-based OHSMS that was published by the AIHA in 1996. When it was published, the UM/AIHA OHSMS received a significant attention from various stakeholders and standards-making organizations (Mansdorf, 1996). After this, the UM group developed and published a universal OHSMS assessment instrument in 1999 (Redinger, 1999a, b). As part of the development of the assessment instrument, they developed a generic OHSMS model. This model has since been used widely throughout the world by standards-making bodies to assist their development efforts and by private companies (IOHA, 1998; European Union, 2002; ANSI, 2005).

In 1996, ISO considered the development of an OHSMS standard. It elected at that time to not proceed. It was during those deliberations that standards-making experts put forth the idea, and recommendation, that the International Labour Office (ILO) would be a more suitable international organization to develop standards and guidelines in this area. With this mandate, in 1997, the ILO began to conduct background research on management systems as a precursor to forming the tripartite group of experts that developed ILO-OSH 2001.

While the ILO was performing these background efforts, two developments occurred. First, ISO elected for a second time to not develop an ISO OHSMS. Second, in Britain, the British Standards Institute (BSI) published OHSAS 18001:1999, which followed the structure of ISO 14001:1996. This document was published specifically

for use as an auditable standard. In its introduction, OHSAS 18001:1999 stated that the document was developed “in response to urgent customer demand for a recognizable occupational health and safety management system standard against which their management systems can be assessed and certified.”

In 2000 in the United States, the AIHA solicited the American National Standards Institute (ANSI) to form a committee to develop an ANSI standard in this area. The committee (Z10) held its first meeting in 2002 and issued a standard in 2005. The second edition of ANSI Z10 was published in 2012.

In its fourth attempt, ISO was successful in starting the process to develop an ISO OHSMS. In 2013, an ISO Project Committee (PC 283) was formed and subsequently published ISO 45001:2018.

Dating back to the 1980s and 1990s, when management system approaches were generally evolving (e.g., ISO 9001:1987 and ISO 14001:1996) and popular in some areas, there was not universal acceptance of them. This general skepticism spilled into OHSMS development efforts and was based in concerns about (1) costs to develop, implement, and maintain a management system, and (2) costs and complexities to seek and maintain certification by an external third party. These concerns diminished in the early 2000s. By the time that ISO 45001:2018 was published, the rationale and acceptance of OHSMS was well established.

When ISO 45001:2018 was published in 2018, the British-based OHSMS, OHSAS 18001:2007, was generally considered as the dominant internationally used OHSMS, even though strictly speaking it was not an international standard; it had been formally adopted by numerous countries (e.g., Singapore and Korea) and was considered the *de facto* standard used in certification schemes.

While there are numerous OHSMS standards developed within specific countries, the focus here is on ISO 45001:2018 and briefly on the ILO OHSMS guidelines. But first, a brief background on the development of ISO’s “high-level” MSS framework.

6.3.1 ISO’S DRIVE TO A UNIFIED MSS FRAMEWORK

In an effort to bring uniformity to its management system efforts, ISO’s Technical Management Board (TMB) formed the ISO Ad Hoc Group on Management System Standards shortly after ISO 14001:1996 was published. This group published “Guidelines for the Justification and Development of Management System Standards” (ISO Guide 72) in 2001. This guide presented common MS elements as follows:

- a. Policy
- b. Planning
- c. Implementation and operation
- d. Performance assessment
- e. Improvement and
- f. Management review

These elements followed the structure of ISO 14001:1996 and were found many nation-specific approaches at that time.

In the early 2000s, the Ad Hoc Group on Management System Standards recommended the formation of the Joint Technical Coordination Group (JTTCG) to work on establishing consistency between ISO's various MSSs; the TMB subsequently formed the JTTCG on MSS. This group developed ISO Guide 83, "High Level Structure, Identical Core Text and Common Terms and Core Definitions for use in Management Systems Standards." This document was never formally adopted, but was issued in December 2011. In it was the recommendation to establish what is often referred to as ISO's "high-level MSS structure." These recommendations were subsequently adopted, and published in 2013, in Annex SL of ISO's *Directives* (also referred to as the *ISO Supplement*). Annex SL formally presented the new high-level and generic MSS that all future ISO MSSs were required to follow. This high-level MSS structure has ten sections, which are as follows:

1. Scope
2. Normative references
3. Terms and definitions
4. Context of the organization
5. Leadership
6. Planning
7. Support
8. Operation
9. Performance evaluation
10. Improvement

6.3.2 ISO 45001:2018—OHSMS—REQUIREMENTS WITH GUIDANCE FOR USE

The group (PC 283) that developed ISO 45001:2018 was required to follow the MSS structure presented in Annex SL. A brief description of the ten sections follows. For brevity, the term "ISO 45001:2108" will be simply stated as 45001 here. However, take note that it is important to be rigorous in indicating the year a standard was adapted or published, when referring to it.

6.3.2.1 Scope

This section covers the areas addressed in 45001. It does not contain any auditable requirements. 45001's scope states, "This document helps an organization to achieve the intended outcomes of its OH&S management system." Identified outcomes include continual improvement of performance, fulfillment of legal and other requirements, and achievement of OH&S objectives. An important point in the scope is that the standard "does not state specific criteria for OH&S performance, nor is it prescriptive about the design of an OH&S management system." The importance of this is the intent for the use of the standard as risk management tool rather than as prescriptive requirements, as seen in regulations.

6.3.2.2 Normative References

This section is required by ISO's MSS development criteria. No normative references are indicated for 45001.

6.3.2.3 Terms and Definitions

Thirty-seven terms and definitions are addressed in 45001. Several are highlighted here.

Worker (3.3) is defined as “person performing work or work-related activities that are under the control of the organization.” This definition is different than in earlier OHSMSs that focused on employees. Of particular interest are three “notes” to the definition that indicate inclusion of contract and temporary workers, as well as workers provided by agencies.

Injury and ill health (3.18) is defined as “adverse effect on the physical, mental or cognitive condition of a person.” New here is the inclusion of “cognitive condition.” Earlier OHSMSs included mental (18001) and psychosocial factors (ILO).

Risk (3.20) is defined as “effect of uncertainty.” This is a generic definition used throughout ISO’s MSS. To OH&S professionals, this at first seems like an odd definition since the common definition in OH&S is “combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health that can be caused by the event or exposure.” This more common definition is included in 45001 as “OH&S risk” (3.21). One way to think of the singular term “risk” is to think of it as indirectly related to OH&S risks such as the risk (or the “effect of uncertainty”) related to the provision of resources.

OH&S opportunity (3.22) is defined as “circumstance or set of circumstances that can lead to improvement of OH&S performance.” The notion of “opportunities” is new in 45001 and can be viewed as a more positive aspect towards improving performance versus how risk is traditionally viewed.

6.3.2.4 Context of the Organization

Examining, clarifying, and understanding organizational context establishes the foundation upon which the OHSMS is developed. A first step is to “determine external and internal issues that are relevant to its [the organization’s] purpose and that affect its ability to achieve the intended outcome(s) of its OH&S management system” (4.1). This includes gaining an understanding of the needs and expectations of workers and interested parties; new to 45001 from previous OHSMSs is “interested parties.” As indicated above related to OHSMS’s scope, requirements are included in this section related to formally establishing and stating the OHSMS’s scope.

Consideration of an OHSMS’s scope is a critical first step in development and implementation in an organization. These considerations include clarity on operations covered by the OHSMS, such as a single plant, multiple ones, or corporate-wide, and what activities are covered, such as possibly environmental, sustainability, or product safety.

6.3.2.5 Leadership and Worker Participation

These two pieces—leadership and worker participation—are historically considered linchpins of the OHSMS approach. Detailed requirements are included for each in

45001. Dating back to the earliest OHSMS approaches (e.g., BS 8800, OSHA guidelines, SafetyMap, 18001:1999), there has been ongoing refinement and clarification of these pieces, as seen in the ILO's OHSMS, 18001:2007, and ANSI Z10, to name a few.

In 45001, worker participation requirements are nested throughout the standard. In this section, these requirements are broadly summed up as “the organization shall establish, implement, and maintain a process(es) for consultation and participation of workers at all applicable levels and functions, and, where they exist, workers’ representatives, in the development, planning, implementation, performance evaluation and actions for improvement of the OH&S management system” (5.4). Key here is providing time, training, and resources, as well as removing barriers for effective participation. Clause 5.4.d suggests emphasizing the consultation of nonmanagerial workers in a range of activities, including OH&S policy (d.3); assigning organizational roles, responsibilities, and authorities as applicable (d.4); planning, establishing, implementing, and maintaining an audit program (d.7); and others.

All OHSMS approaches include top management leadership and commitment requirements; 45001 continues this. In section 5.1 (Leadership and commitment), 13 clauses contain auditable elements. Two clauses of interest are 5.1.j and 5.1.m. Clause j requires that “top management shall demonstrate leadership and commitment with respect to the OH&S management system by developing, leading, and promoting a culture in the organization that supports the intended outcomes of the OH&S management system.” The requirement related to “culture” is new in 45001, and while its importance cannot be understated, the practicality of demonstrating this is not trivial from an audit perspective. Clause m requires that “top management shall demonstrate leadership and commitment with respect to the OH&S management system by supporting the establishment and functioning of health and safety committees.”

Establishing, implementing, and maintaining an OH&S policy are required in this section (5.2). All earlier OHSMS approaches contained this requirement with varying degrees of specificity. Of interest in 45001 is a requirement that the policy contains “a commitment to eliminate hazards and reduce OH&S risks” (5.2.d) and is expanded on in section 8.1.2 “Eliminating hazards and reducing OH&S risks.” This idea is noble and resonates philosophically. However, practically, some experts argue that it is impossible to eliminate all hazards and that it is sounder to think in terms of the reduction or elimination of risks.

6.3.2.6 Planning

Requirements in this section have increased from earlier OHSMS approaches, and focus on actions to address risks and opportunities (6.1) and establishing OH&S objectives and plans to achieve them. New in 45001 is the requirement to consider OH&S opportunities as well as OH&S risks. On the surface, this new consideration is straightforward.

Robust requirements are included related to hazard identification (6.1.2.1), “the organization shall establish, implement, and maintain a process(es) for hazard identification that is ongoing and proactive.” From an audit perspective, consideration

needs to be given to what constitutes “ongoing.” In well-functioning OHSMSs, this issue points to establishing feedback channels for hazard identification-related data that arise from any number of activities, such as audits, accident reports, or worker complaints. The requirement to be proactive, while not absent in early OHSMS approaches, is clearly stated here. Of particular interest is the requirement that the hazard identification “process(es) shall take into account how work is organized, social factors (including workload, work hours, victimization, harassment, and bullying), leadership and the culture in the organization” (6.1.2.1.a). Language in this section makes clear that hazard identification extends into “locations not under the direct control of the organization” (6.1.2.1.e.3). As well, to multiemployer work locations, “situations not controlled by the organization and occurring in the vicinity of the workplace that can cause injury and ill health to persons in the workplace” (6.1.2.1.f.3).

A distinction is made between OH&S risks and “other risks to the OH&S management system” (6.1.2.2). OH&S risks refer to what could be considered tradition risks, such as a chemical exposure, slips, trips, and falls. Risks to the OHSMS refer to things that can affect OH&S performance, such as day-to-day operations and decision-making, regulatory changes, the organizational culture, and changes in resources, to name a few. A methodology for assessing OH&S risks is required, and this needs to “be defined with respect to their scope, nature, and timing to ensure they are proactive rather than reactive” (6.1.2.2).

Being proactive in identifying OH&S opportunities is an undercurrent in 45001. This is specifically seen in requirements for “assessment of OH&S opportunities and other opportunities to the OH&S management system” (6.1.2.13). Subclause “a” states that “The organization shall establish, implement, and maintain process(es) to assess OH&S opportunities to enhance OH&S performance, while taking into account planned changes to the organization, its policies, processes or its activities and (1) opportunities to adapt work, work organization and work environment to workers; and opportunities to eliminate hazards and reduce OH&S risks.”

The standard requires that action plan(s) be developed and that they address: identifying risks and opportunities; legal and other requirements; and preparation and response to emergency situations (6.1.4). A significant evolution here from earlier OHSMS approaches is that “the organization shall plan how to integrate and implement the actions into its OH&S management system processes or other business processes; and evaluate the effectiveness of these actions.” Key here is the inclusion of “business processes.”

6.3.2.7 Support

Activities associated with supporting an OHSMS include resources (7.1), worker competency (7.2), worker awareness (7.3), communication process(es) (7.4), and documented information (7.5).

While requirements for worker awareness on a number of items are found in earlier OHSMS approaches, 45001 has them bundled in one section (7.3). Included in them is a unique clause (7.3.f) that states “workers shall be made aware of the ability to remove themselves from work situations that they consider present an imminent

and serious danger to their life or health, as well as the arrangements for protecting them from undue consequences for doing so.”

As with earlier OHSMS approaches, 45001 contains robust communication requirements. Section 7.4.1 states that “The organization shall establish, implement, and maintain the process(es) needed for the internal and external communications relevant to the OH&S management system.” This includes determining what will be communicated; identifying the parties involved in communications, including contractors and visitors; how to communicate; and to take into account language issues. More rigorous from earlier OHSMS standards is a requirement that “the organization shall ensure that the views of external interested parties are considered in establishing its communication process(es)” (7.4.1). Unique here is considering external parties views in establishing the process(es).

6.3.2.8 Operation

The OH&S profession has done operational planning and control (8.1) since its earliest days. Requirements in this section are familiar with the profession. Two items clearly stated here are the requirement to “adapt work to workers,” and “at multiemployer workplaces...to coordinate relevant parts of the OH&S management system with the other organizations.”

As seen in other OHSMS approaches, use of the hierarchy of controls to eliminate hazards and control OH&S risks is highlighted (8.1.2). It is noted that “in many countries, legal requirements and other requirements include the requirement that personal protective equipment (PPE) is provided at no cost to workers.”

Management of change (8.1.3) has been central from the earliest days of the OHSMS approach. It is often cited as being one of the most crucial sections in an OHSMS. While all requirements of an OHSMS are important, advocates suggest that this piece is one to highlight in training and activities associated with increasing awareness (7.3). The standard states that

The organization shall establish a process(es) for the implementation and control of planned temporary and permanent changes that impact OH&S performance, including:

- a. new products, services, services, and processes, or changes to existing products, services and processes, including:
 - work locations and surroundings;
 - work organization;
 - working conditions;
 - equipment;
 - work force;
- b. changes to legal requirements and other requirements;
- c. changes in knowledge or information about hazards and OH&S risks;
- d. developments in knowledge and technology.

The organization shall review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary.

Requirements are included in 45001 for procurement (8.1.4), outsourcing (8.1.4.3), and emergency preparedness and response (8.2).

6.3.2.9 Performance Evaluation

Many requirements in this section are familiar and aligned with earlier-generation OHSMSs. Clause 9.1.1 states that “The organization shall establish, implement, and maintain a process(es) for monitoring, measurement, analysis and performance measurement.” This includes determining what needs to be monitored and measured, as well as the methods and their validity. Requirements for the “evaluation of compliance” are clearly stated in Clause 9.1.2, where it states “the organization shall: determine the frequency and method(s) for the evaluation of compliance [with legal and other requirements]; evaluate compliance and take action if needed; and maintain knowledge and understanding of its compliance status with legal requirements and other requirements.”

Internal audits of an OHSMS are required “at planned intervals to provide information” related to conformance with 45001, as well as with the organizations OH&S policy and objectives (9.2.10). Internal audit criteria need to be established, along with ensuring auditors selected to do audits are objective and impartial (9.2.2). Results need to be reported to “relevant managers” and workers, and where deficiencies (nonconformities) are found, they need to be addressed.

A critical legacy element in the OHSMS approach is management review (9.3). This standard contains robust requirements for this. It states “Top management shall review the organization’s OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy, and effectiveness.” Key here is the evaluation of the OHSMS’s suitability, adequacy, and effectiveness. Top management needs to determine whether maintaining the OHSMS is aligned with strategic objectives, and if not, should maintaining conformance to it be continued, and if it is, to ensure that proper resources and support are being given to it.

6.3.2.10 Improvement

The term “improvement” finds its way into 45001 from ISO’s MSS requirements. A number of “improvement”-related activities are bundled here: incident, non-conformity, and corrective action responses; and continual improvement. The standard states that “The organization shall establish, implement, and maintain, a process(es) including reporting, investigating and taking action to determine and manage incidents and nonconformities” (10.2). Specific requirements include timely response; conducting root cause analysis, with worker involvement; assessing potential historical trends; and ensuring that findings are feed back into the planning process.

A hallmark of the OHSMS approach is continual improvement. 45001 continues this trajectory, stating in 10.3 “The organization shall continually improve the suitability, adequacy and effectiveness of the OH&S management system: by enhancing OH&S performance; promoting a culture that supports an OH&S management system; promoting the participation of workers in implementing actions for the continual improvement of the system; and, communicating the relevant results of continual improvement to workers, and where they exist, workers’ representatives.” When implementing a management system, early in the process, ways to demonstrate conformity to this requirement should be given.

6.3.3 ILO OHSMS:2001—GUIDELINES ON OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEMS

The ILO began its OHSMS development activities shortly after ISO elected not to pursue development activities in this area in late 1996. The ILO's SafeWork division leads the agencies effort with the initial step of contracting a research study with IOHA on OH&S and environmental management systems in use or development in the late 1990s. With the study findings in hand, the ILO formed a 21-person working group of experts to develop the standard that followed its tripartite structure with seven experts each from government, labor, and industry. The working group efforts culminated with a 2-week meeting in 2001 in Geneva where the bulk of the standard was written.

As with OHSAS 18001:1999 and ISO 14001:1996, the ILO OHSMS has front-end sections that address scope and context issues, with the meet of the standard contained in section three, organized within five sections:

- Policy
- Organizing
- Planning and implementation
- Evaluation and
- Action for improvement

A unique feature of the ILO's OHSMS front end is Section Two that contains a model that governments or nation-state standards developers can follow in the development of OHSMS standards unique to individual countries or industries. This section is titled "A national framework for occupational safety and health management systems." A schematic of this structure is shown in Figure 6.2.

Strictly speaking, the ILO OHSMS is not a standard, but rather it is a guideline with recommendations. It contains a mixture of "should"- and "shall"-based clauses that makes auditing against it difficult. Use in third-party certification schemes is not precluded, but its introduction states that its "application" does not require certification.

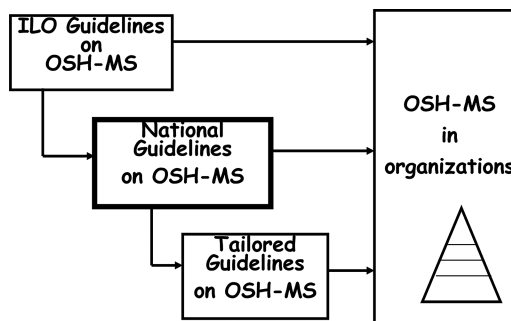


FIGURE 6.2 ILO framework schematic.

6.4 CONFORMITY ASSESSMENT

Conformity assessment refers to the activities associated with determining whether an implemented management system conforms with a formal OHSMS standard, such as ISO 45001. Activities and distinctions associated with conformity assessment are certification; auditing; first, second, and third parties; registrar; and accredited. It is important to understand and consider conformity assessment issues and how they relate to management systems because they are central to strategic considerations regarding the rationale for implementing and measuring the performance of a management system (NRC, 1995).

It is common to think of the term “certification” when discussing OHSMSs. A common misconception is that pursuing or implementing a management system necessarily means that certification must be pursued. This is not the case. Whereas some organizations do pursue certification of their management systems by a third-party registrar, many do not. Making the distinction between a management system and conformity assessment activities can reduce unnecessary confusion. Conformity assessment deals with the activities associated with determining how well a given system approach (e.g., 45001) has been implemented in an organization.

Conformity assessment frameworks commonly have three levels:

- Primary level—assessment
- Secondary level—accreditation
- Tertiary level—recognition

The primary level represents measurement and auditing activities. Workplace air sampling or safety surveys are examples of assessment activities, as are management system audits. The secondary level addresses the formal qualifications of the entities performing primary-level activities and the bodies that provide confirmation of the qualifications. An example is with Certified Safety Professionals (CSP) or Certified Industrial Hygienists (CIH) who perform workplace assessments. The CSP and CIH designations are given, respectively, by the Board of CSP (BCSP) and the American Board of Industrial Hygiene (ABIH). The certification function performed by the BCSP and ABIH represents secondary-level activities. With management system certification, registrars perform audits, a primary-level activity, and accreditation agencies, accredit them to perform the registration audits. Finally, an example of tertiary-level recognition is found in regulations that require certain activities be performed by CSPs or CIHs. With management systems, recognition is given by regulatory agencies who might give organizations with a certified OHSMS some sort of regulatory relief. And possibly more important here is recognition by the marketplace.

Each of the conformity assessment levels can be performed by first, second, or third parties. The designation first party refers to activities performed internal to an organization. An example is with self or internal audits. The second party refers to activities done at a given level by a customer or entity that may not be completely independent. An example is when a customer audits a supplier. Finally, the third

party refers to activities performed by an independent entity such as an accredited registrar who performs a certification audit of an OHSMS.

It is important to understand that management system auditing systems are framed within a broader conformity assessment system that ensures the audit, inspection, certification, registration, accreditation, and/or workplace compliance inspection system works. Critical features of a robust conformity assessment structure include the following:

1. Having a standard (e.g., 45001) against which assessments are made
2. A way to perform the assessment that there is an agreed upon measurement method (e.g., validated tools and protocols)
3. A strong accreditation mechanism whereby first, second, and third parties can be certified to perform assessments and
4. A Quality Assurance/Quality Control mechanism whereby assessor performance is evaluated and modified as needed—a means where affected parties can register complaints.

6.5 THE MANAGEMENT SYSTEM FRAMEWORK PYRAMID

This framework provides a powerful tool to help develop and implement an OHSMS. It is commonly presented in terms of four levels, or tiers, where Level 1 addresses policies, Level 2 addresses procedures and process descriptions, Level 3 addresses detailed work instructions and best practices, and Level 4 addresses records and documents.

It is common to create a matrix based on this framework when performing an initial gap analysis to see what OHSMS pieces are in place, and then when implementing it. The matrix contains four rows, one for each level/tier, and then columns for each OHSMS element, such as OH&S policy, internal audit, and management review. Each cell of the matrix is then examined to see whether documents exist for that cell. For instance, with OH&S policy, Level 1, does a policy exist? Does it need to be modified to conform with the OHSMS requirements? At Level 2, is there a procedure that addresses how the OH&S policy statement is created, maintained, revised? At Level 3, this might not be applicable in small organizations, but in larger ones, there may be a need to have specific policy development instructions in business units or plants. At Level 4, are there documents and records related to the policy development process that can be used to demonstrate conformance?

6.6 FUTURE TRENDS

The publication of ISO 45001 represents a significant milestone in the evolution of OHSMS standards development. As the first truly international OHSMS standard, and as an ISO standard, it promises to have a significant impact on worker health and safety throughout the world.

It is anticipated that there will be ongoing efforts to integrate OH&S performance improvement with other operational risk management activities, such as environmental and sustainability efforts. Integration efforts are noble and make sense; however, OH&S professionals need to be vigilant to ensure that worker health and

safety issues are not diminished through integration efforts. Another caution when developing and implementing an OHSMS in an organization is to not fall into a “checklist” mentality, or to get so focused on the OHSMS, and potentially lose sight of fundamentals of anticipation, recognition, evaluation, and control of occupational hazards and risks.

REFERENCES

- American Industrial Hygiene Association. (1996). *Occupational Health and Safety Management System: An AIHA Guidance Document*. Fairfax, VA: American Industrial Hygiene Association.
- American National Standards Institute. (2005). *American National Standard – Occupational Health and Safety Management Systems*. Fairfax, VA: ANSI/AIHA Z10-2005 and ANSI/AIHA Z10-2012.
- British Standards Institute. (1996). *Guide to Health and Safety Management Systems*. London, England: British National Standard, BS 8800:1996.
- British Standards Institute. (1999) *Occupational Health and Safety Management Systems – Specification*. London, England: BSI OHSAS 18001:1999 and OHSAS 18001:2007.
- European Union, European Agency for Safety and Health at Work. (2002). *OSH Systems and Programmes: The Use of Occupational Safety and Health Management Systems in the Member States of the European Union*. Luxembourg: Office for Official Publications of the European Communities.
- International Occupational Hygiene Association (IOHA). (1998). *Occupational Health and Safety Management Systems: Review and Analysis of International, National, and Regional Systems; and, Proposals for a New International Document*. Geneva: IOHA.
- International Organization for Standardization. (1987). *Quality Systems – Model for Quality Assurance in Design/Development, Production, Installation and Servicing*. Geneva: International Standard ISO 9001:1987.
- International Organization for Standardization. (1996). *Environmental Management Systems-Specifications with Guidance for Use*. Geneva: International Standard ISO 14001:1996(E).
- International Organization for Standardization. (2000). *Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing*. Geneva: International Standard ISO 9001:2000(E).
- International Organization for Standardization. (2013). *Directives, Part 1, Consolidated ISO Supplement, Procedures Specific to ISO* (4th ed.). Geneva: ISO.
- International Organization for Standardization. (2018). *Occupational Health and Safety Management Systems – Requirements with Guidance for Use*. Geneva: ISO 45001:2018.
- Mansdorf, Z., Mirer, F., Wright, M., Presentations given at the American National Standards Institute’s Workshop on International Standardization of Occupational Health and Safety Management Systems: Is there a need? *Workshop Proceedings*, Rosemont, IL, May 7 (1996).
- NRC, National Research Council. (1995). *Standards, Conformity Assessment, and Trade: Into the 21st Century*. Washington, DC: National Academy Press.
- Redinger, C.F., Levine, S.P. (1999a). Occupational Health and Safety Management System Performance Measurement: A Universal Assessment Instrument, AIHA, Falls Church, VA, ISBN-13: 978-0932627926.
- Redinger, C., Dalrymple, H., Dyjack, D., Levine, S., Mansdorf, Z. (1999b) *Occupational Health and Safety Management Systems: Review and Analysis of International, National and Regional Systems; and, Proposals for a New International Document*. Geneva: The International Labour Office.