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Evaluating ISO 45001:2018 and OHSAS 18001:2007 with Insights for Occupational Health and Safety (OHS) Standards in the Construction Industry

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Abstract

This study provides a comparative analysis of two major OHS standards utilized in the construction industry: ISO 45001:2018 and OHSAS 18001:2007. Employing a systematic comparative analysis methodology, the study examines the scope, features, application areas, benefits, and challenges of implementing these standards in the construction industry. The findings highlight that while ISO 45001:2018 offers advanced integration capabilities and a proactive risk management approach, OHSAS 18001:2007 continues to be referenced in specific contexts. These insights underline the practical implications for construction companies aiming to adopt or transition between these standards. Furthermore, the research emphasizes the importance of aligning workplace safety practices with international standards to reduce occupational accidents and improve operational efficiency. The study's implications contribute to enhancing the understanding and practical application of OHS management systems in the construction industry.

Keywords: *Comparative analysis, ISO 45001:2018, OHSAS 18001:2007, occupational health and safety, construction industry.*

İnşaat Sektöründe İş Sağlığı ve Güvenliği (İSG) Standartları Açısından ISO 45001:2018 ve OHSAS 18001:2007'nin Değerlendirilmesi

Öz

İş sağlığı ve güvenliği (İSG) yönetim sistemleri, yüksek riskli inşaat sektöründe iş yeri güvenliğini artırmak için kritik bir rol oynamaktadır. Bu çalışma, inşaat sektöründe kullanılan iki önemli İSG standardı olan OHSAS 18001:2007 ve ISO 45001:2018'in karşılaştırmalı bir analizini sunmaktadır. Sistematik bir karşılaştırmalı analiz yöntemi kullanılarak, bu standartların kapsamı, özellikleri, uygulama alanları, sağladığı faydalar ve uygulanmasında karşılaşılan zorluklar incelenmiştir. Bulgular, ISO 45001:2018'in gelişmiş entegrasyon yetenekleri ve daha proaktif bir risk yönetimi yaklaşımı sunduğunu, ancak OHSAS 18001:2007'nin belirli bağlamlarda hâlâ referans alındığını ortaya koymaktadır. Bu analiz, inşaat şirketleri için bu standartları benimsemeleri veya bunlar arasında geçiş yapmaları adına pratik rehberlik sunmaktadır. Çalışma, iş yeri güvenliği uygulamalarının uluslararası standartlarla uyumlu hale getirilmesinin iş kazalarını azaltmak ve operasyonel verimliliği artırmak için önemini vurgulamaktadır. Çalışmanın bulguları, İSG yönetim sistemlerinin inşaat sektöründe daha iyi anlaşılması ve uygulanması konusunda katkıda bulunmaktadır.

Anahtar kelimeler: *Karşılaştırmalı analiz, ISO 45001:2018, OHSAS 18001:2007, iş sağlığı ve güvenliği, inşaat sektörü.*

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1. Introduction

Occupational health and safety (OHS) issues are crucial in the construction industry, which is known for its complex and high-risk operations. Globally, the construction industry accounts for a significant portion of occupational accidents and fatalities, highlighting the urgency of robust OHS measures. For instance, according to the International Labour Organization (ILO), the construction industry experiences some of the highest rates of workplace injuries and deaths worldwide, emphasizing the need for rigorous safety standards (ILO, 2024).

International legal authorities have established standards to minimize OHS risks and ensure safer workplaces. One such standard is OHSAS 18001:2007, widely adopted by construction companies as an occupational health and safety management standard. Developed by the British Standards Institution (BSI), OHSAS 18001:2007 was not classified as an ISO standard (BSI, 2024; OHSAS18001, 2021). To bridge this gap, the International Organization for Standardization (ISO) introduced a more comprehensive standard, ISO 45001:2018, which replaced OHSAS 18001:2007 in 2018 as the new international benchmark for OHS management systems (ISO45001, 2018).

Although the literature provides a consistent overview of studies on OHS standards, there is a notable lack of research that comprehensively addresses both ISO 45001:2018 and OHSAS 18001:2007 within the construction industry. This academic gap is particularly significant given the critical role these standards play in improving workplace safety and operational efficiency. This study aims to fill this gap by presenting a comparative analysis of ISO 45001:2018 and OHSAS 18001:2007 standards, focusing on their scope, features, application areas, benefits, and the challenges encountered during implementation in the construction industry. The analysis aims to provide practical guidance for construction companies to effectively implement OHS standards, ultimately contributing to safer and more efficient workplaces.

The structure of the study is as follows: The first section introduces the study by detailing the problem, objectives, and methodology, as well as providing explanations of ISO 45001:2018 and OHSAS 18001:2007. A comprehensive literature review highlights the academic gap this research seeks to address. The second section outlines the five fundamental steps of the comparative analysis method used. The third section presents the findings and the discussion of these findings, focusing on the standards' scope, features, application areas, benefits, and implementation challenges in the construction industry. Finally, the fourth section concludes with practical suggestions for construction companies to enhance their OHS management systems.

1.1. ISO 45001:2018

The implementation of ISO 45001 in the construction industry is essential for ensuring the occupational health and safety of employees. As shown in Figure 1, ISO 45001:2018 is an international standard that sets forth the requirements and guidelines for OHSMS (ISO45001, 2018). It aims to provide a framework for organizations to improve employee safety, reduce workplace risks, and create better, safer working conditions. The standard was published by the International Organization for Standardization (ISO) in 2018. In 2024, an amendment to ISO 45001:2018 was published. This amendment, known as ISO 45001:2018/Amd 1:2024, reflects changes related to climate action in OHSMS (ISO45001, 2024). It is a response to the growing awareness of the impact of climate change on workplace safety.

Additionally, ISO/AWI 45001 is currently under development and is set to replace ISO 45001:2018 (ISO/AWI45001, 2024). Drafting has already started for this new version, which will continue to provide requirements and guidance for OHSMS. The development of these standards and guidelines is overseen by the ISO/TC 283 technical committee, which focuses specifically on OHS management (ISO/TC283, 2013). This committee plays a crucial role in shaping the future of health and safety standards in the construction industry and beyond.

1.2. OHSAS 18001:2007

OHSAS 18001:2007 specifies the requirements for establishing and maintaining an OHS management system. It is derived from the British standard for occupational health and safety. It is a standard prepared by the British Standards Institution (BSI) for occupational health and safety management systems, as depicted in Figure 1 (BSI, 2024; OHSAS18001, 2021). It enables organizations to control or reduce OHS risks, prevent work-related injuries as well as illnesses among employees, and provide safe and healthy workplaces for employers and employees.

Figure 1. ISO 45001:2018 and OHSAS 18001:2007 (BSI.ISO45001, 2024; BSI, 2024; ISO/AWI45001, 2024; ISO/TC283, 2013; ISO45000, 2024; ISO45001, 2018, 2024; OHSAS18001, 2021).

OHSAS 18001:2007, as it was developed by BSI, is not an ISO standard. To address this gap, ISO has developed a more comprehensive standard for OHSMS, which is ISO 45001:2018 (BSI.ISO45001, 2024). In 2018, OHSAS 18001:2007 was replaced by the new international standard for OHS management, ISO 45001:2018 (ISO45001, 2018). OHSAS 18001:2007 has been invalid since September 2021 and is no longer in effect. Instead, ISO 45001:2018 is now used due to its more current and broader scope (ISO45000, 2024).

Construction companies with OHSAS 18001 certification have completed the transition to ISO 45001 as of March 2021. As a result, the OSHAS 18001 certification is no longer being issued. This is because ISO 45001 is built upon the success of previous international standards in the field of OHS management, such as OHSAS 18001 (ISO45000, 2024).

1.3. Literature Review

In the scope of literature review, this study examines existing research on the application of ISO 45001:2018 and OHSAS 18001:2007 standards for occupational health and safety (OHS) in the construction industry. The focus of delivering OHS in the construction industry is a primary concern for researchers and professionals. The integration of OHSAS 18001 and the International Organization for Standardization (ISO) standards has gained attention among researchers in the construction industry.

1.3.1. Background of ISO 45001

The literature has widely discussed the implementation of ISO 45001 in the construction industry, and several notable studies have been conducted to explore various aspects of this implementation, as shown in Figure 2. For example, a study by Kleinová & Szaryszová (2014) presents a comprehensive examination of the changes and challenges associated with the new health and safety standard ISO 45001, while another study by Morgado et al. (2019) has mapped the occupational health and safety management systems in Portugal and provided an outlook for the adoption of ISO 45001:2018. Furthermore, a study by Lee et al. (2020) has focused on the implementation of ISO 45001 in South Korea, considering the strengthened demands for OHSMS.

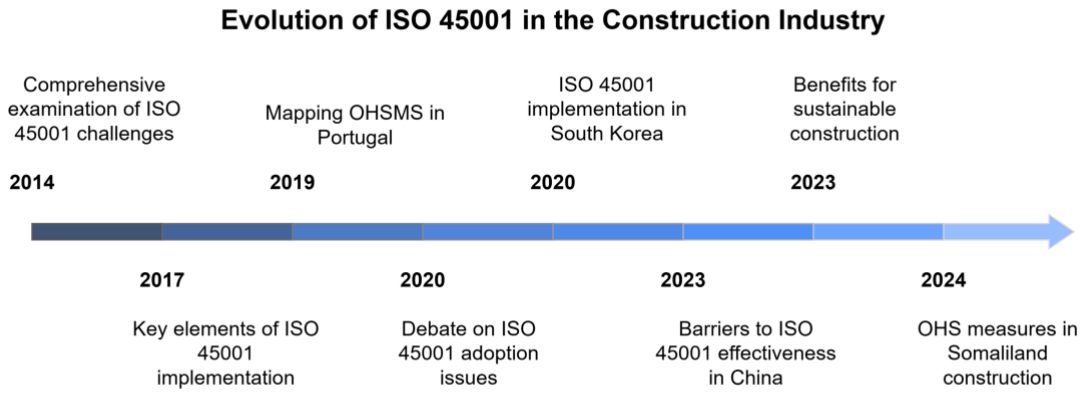

Figure 2. Evolution of ISO 45001 in the construction ındustry (Created by author).

Darabont et al. (2017) shed light on the key elements of implementing an occupational health and safety management system using ISO 45001 standard, while Neag et al. (2020) engaged in a debate on issues regarding the adoption of the new ISO 45001:2018 standard. Other studies have also provided valuable insight into the effects of implementing ISO 45001 in different industries, such as manufacturing and food industries as shown by Jannah et al. (2020).

A series of studies have explored the benefits and challenges of implementing ISO 45001 in various industries, including the defense industry and automotive industries. One study conducted by Malinda and Soediantono (2022) explored the benefits of implementing ISO 45001 occupational health and safety management systems in the defense industry. Moreover, several studies have assessed the impact of implementing occupational health and safety management systems in the construction industry. Liu et al. (2023) conducted an extensive analysis of the barriers to the effectiveness of ISO 45001 certification in Chinese certified organizations. Kineber et al. (2023) systematically reviewed the benefits of implementing occupational health and safety management systems for the sustainable construction industry. Additionally, an assessment of factors affecting the implementation of occupational health and safety measures in the construction industry was conducted in a study by Abdi & Hareru (2024) in Somaliland.

1.3.2. Background of OHSAS 18001

Several studies have explored the implementation of the OHSAS 18001 standard in construction. These studies provide valuable insights into the challenges and benefits of implementing OHSAS 18001 in this industry, as shown in Figure 3. Pheng & Pong (2003), as well as Pheng & Kwang (2005), have conducted research on integrating ISO 9001 and OHSAS 18001 for construction, and on the integration, costs, and benefits of ISO 9001, ISO 14001, and OHSAS 18001. Omran et al. (2008) provided an assessment of the implementation of OHSAS 18001 in the construction industry in Malaysia. Additionally, Fernández-Muñiz et al. (2012) and Abad et al. (2013) have examined issues such as occupational risk management, safety climate antecedents and consequences, objective drivers and consequences on safety performance, and labor productivity related to OHSAS 18001 implementation in construction companies.

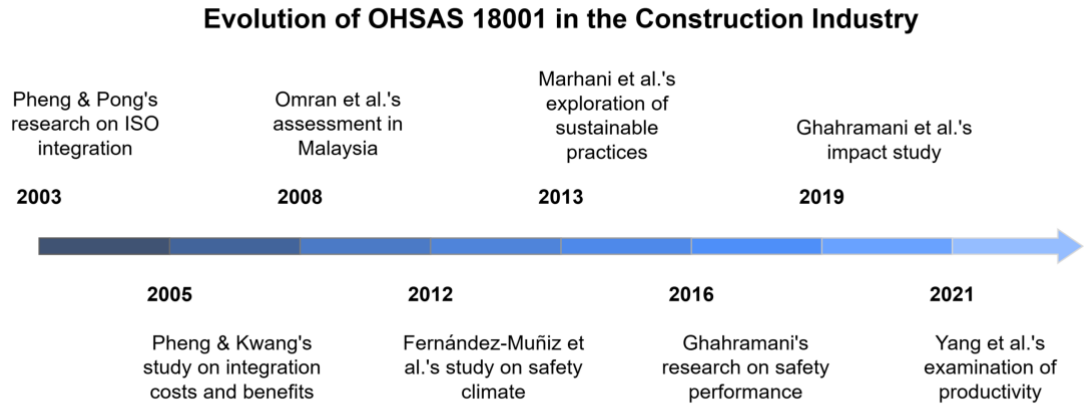

Figure 3. Evolution of OHSAS 18001 in the construction ındustry (Created by author).

Moreover, Marhani et al. (2013, 2018), Ghahramani (2016), and Ghahramani et al. (2019) have explored various aspects of OHSAS 18001 implementation in the construction industry, including sustainable construction practices, factors influencing the maintenance and improvement of OHSAS 18001, effectiveness on safety performance, and the impact on employee safety productivity.

Other studies have considered issues such as implementing an occupational health and safety management system and making occupational health and safety management systems work. Additionally, factors influencing safety performance and firm productivity in OHSAS 18001 certified organizations have been examined (Bayram, 2022; Bevilacqua et al., 2016; Dufour et al., 2020; Heras-Saizarbitoria et al., 2019; Lo et al., 2014; Rajaprasad & Chalapathi, 2015; Rivero, 2006; Thalange, 2013; Uhrenholdt Madsen et al., 2020; Yang et al., 2021).

2. Material and Method

The construction industry employs a significant portion of the global workforce but remains one of the most hazardous industries due to its inherent complexities and site-specific challenges. This highlights the critical need for the effective implementation of OHS standards. This study focuses on comparing two key OHS standards widely used in the construction industry: ISO 45001:2018 and OHSAS 18001:2007. To achieve this goal, a comparative analysis method was employed, systematically examining the similarities and differences between the two standards. The methodology used in this analysis is presented visually in Figure 4, which outlines the sequential steps of the process, from formulating research questions to interpreting results. Microsoft Visio and Napkin software were utilized for the development of these figures, chosen for their ability to provide clear and professional visual representations (Napkin, 2024; Visio, 2024).

Comparative analysis, as defined by Wright (1988), is the systematic examination of two or more elements to identify their similarities and differences in detail. It is widely utilized in academic research across various disciplines (Ajvazi & Czimber, 2019; Miettinen & Nurminen, 1985). As noted by Basurto & Speer (2012), a well-structured comparative analysis is most effective when carried out through a series of predefined steps. This approach not only ensures a logical and organized process but also

enables the researcher to derive meaningful conclusions with greater efficiency and clarity. Similarly, studies such as Dallı et al. (2023), Dönmez & Uşma (2023), Rose & Mackenzie (1991), and Saloot et al. (2016) emphasize the importance of adhering to these steps to enhance the depth and validity of the analysis.

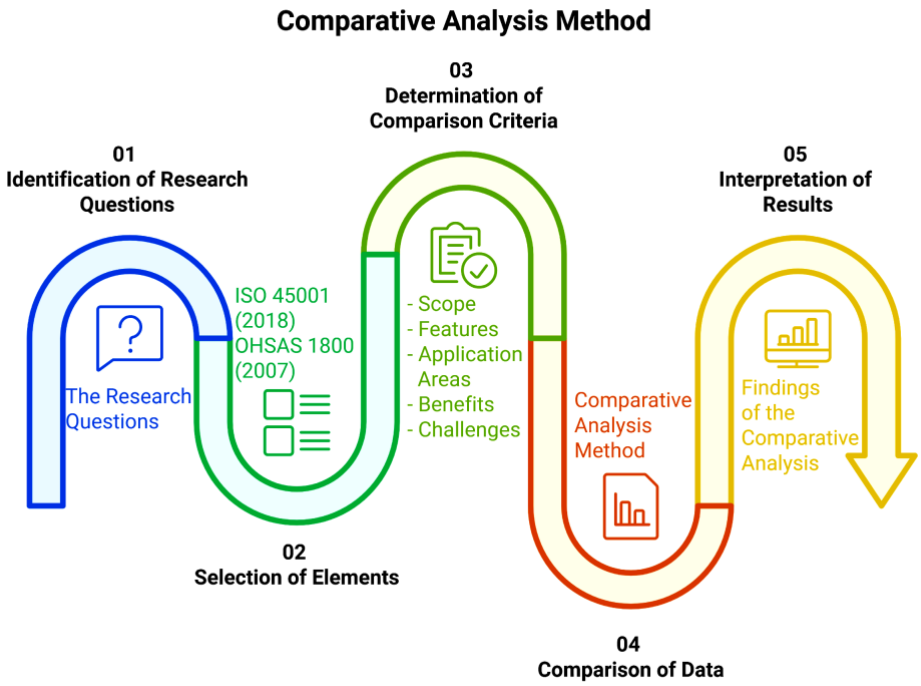

Figure 4. Comparative analysis method of the study (Created by author).

Within this study, this method was chosen specifically for its potential to explore nuanced differences between OHS standards and to provide actionable insights for the construction industry. The comparative analysis process followed five fundamental steps, which are detailed below:

a. Identification of research questions:

The study addressed the following key questions:

- Are there academic studies that compare ISO 45001:2018 and OHSAS 18001:2007 standards in the construction industry and provide guidance for construction companies?
- What is the current status of these two standards in the construction industry?
- How are these standards implemented in construction practices?

These questions were formulated based on a thorough literature review and identified gaps in existing research.

b. Selection of elements:

The two OHS standards, ISO 45001:2018 and OHSAS 18001:2007, were selected as the primary elements for comparison due to their widespread adoption and relevance in the construction industry.

c. Determination of comparison criteria:

The analysis criteria included the scope, features, application areas, benefits, and implementation challenges for both standards. These criteria were identified based on their importance in evaluating the practical impacts of the standards on occupational health and safety in the construction industry.

d. Comparison of data:

Quantitative data for each criterion were systematically compared. This involved analyzing both standards using a structured approach to highlight their unique advantages and limitations.

e. Interpretation of results:

The results from the comparison were analyzed to provide an overall evaluation of the standards. This interpretation aimed to derive actionable insights and practical recommendations for construction companies seeking to adopt or transition between these standards.

3. Findings and Discussion

3.1. Findings

This section presents the findings of the comparative analysis between ISO 45001:2018 and OHSAS 18001:2007. As illustrated in Figure 5, this analysis highlights the scope, features, application areas, benefits, and challenges of implementation in the construction industry for both standards, based on the selected criteria in the method.

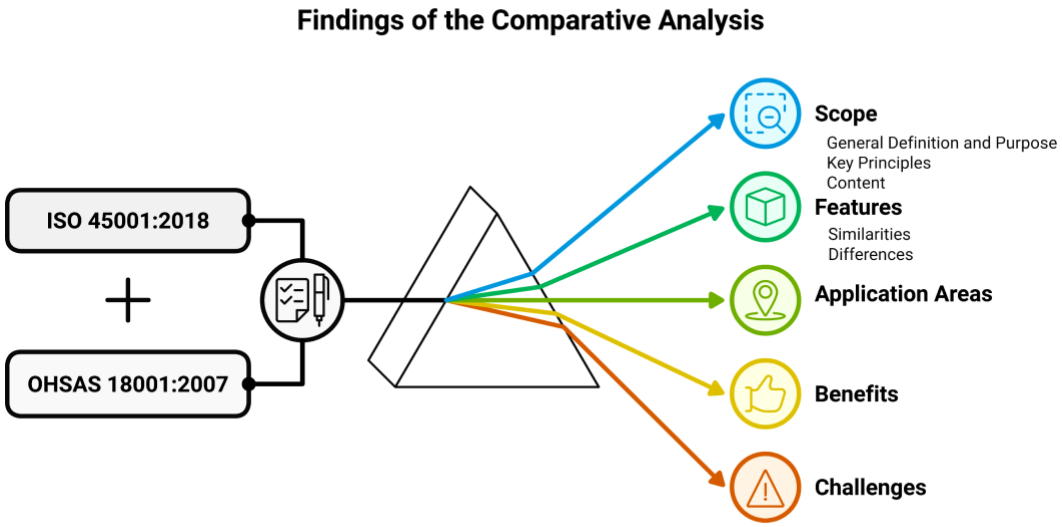

Figure 5. Findings of the comparative analysis (Created by author).

3.1.1. Scope

The scope of ISO 45001:2018 and OHSAS 18001:2007 involves the establishment and maintenance of OHS management systems, aiming to enhance workplace safety and health conditions. Although both standards share similar objectives, distinct differences in their definitions, principles, and content influence their application in the construction industry, as depicted in Figure 6.

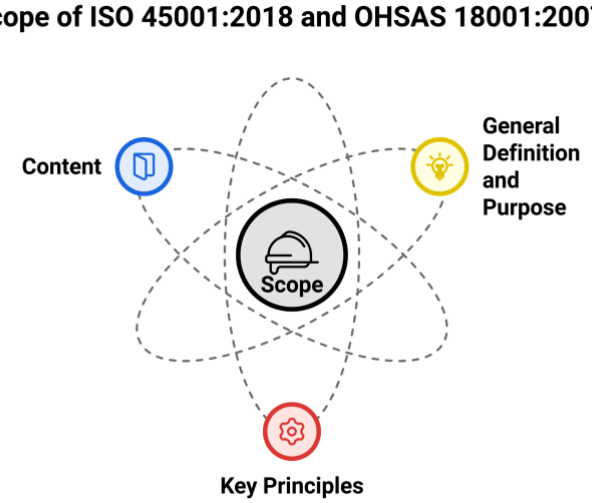

Figure 6. Scope of ISO 45001:2018 and OHSAS 18001:2007 (Created by author).

General Definition and Purpose

ISO 45001:2018 aims to improve OHS by proactively preventing workplace accidents and managing risks. This standard outlines specific steps that construction companies should undertake to ensure legal compliance and safeguard employee health, such as identifying hazards, engaging employees in safety processes, and implementing preventive measures. On the other hand, OHSAS 18001:2007 provides a foundational framework for establishing an OHS management system. It focuses on minimizing occupational accidents and diseases by guiding construction companies in formulating OHS policies, conducting risk assessments, implementing controls, and performing periodic reviews.

Key principles

ISO 45001:2018 is built upon key principles such as leadership engagement, employee participation, continuous improvement, risk-based thinking, and a certifiable OHS structure. These elements create safer workplaces by fostering collaboration and innovation in OHS practices. Meanwhile, OHSAS 18001:2007 emphasizes key principles like leadership commitment, risk assessment, and compliance with legal standards. While both prioritize continuous improvement, ISO 45001:2018 integrates these principles more comprehensively into operational and strategic frameworks.

Content

ISO 45001:2018 is structured around a highly adaptable framework that includes sections on scope, references, terms and definitions, leadership, policy, planning, support, operation, performance assessment, improvement, and continuous improvement. This allows seamless integration of OHS management into broader business processes in construction companies. Conversely, OHSAS 18001:2007 employs a simpler structure, divided into four main parts: general information, policy development, planning, and implementation and improvement. While effective, this structure offers fewer opportunities for dynamic adaptation and integration with other management systems.

3.1.2. Features

ISO 45001:2018 and OHSAS 18001:2007 standards both focus on OHSMS. Both standards aim to prevent occupational accidents and occupational diseases, to increase occupational safety awareness, and to establish and maintain occupational health management systems. However, they exhibit notable similarities and differences that influence their application and effectiveness in the construction industry, as illustrated in Figure 7.

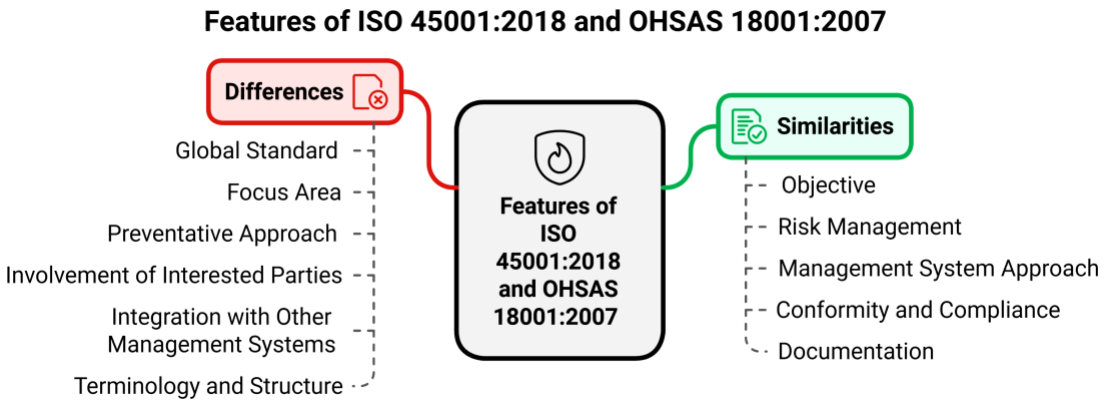

Figure 7. Features of ISO 45001:2018 and OHSAS 18001:2007 (Created by author).

Similarities

There are similarities between the ISO 45001:2018 and OHSAS 18001:2007 standards. These are explained below in basic terms:

- **Objective:** Both standards aim to improve OHSMS. Their aim is to ensure the safety of employees by preventing occupational accidents and occupational diseases. Both standards aim to guide

construction companies in the field of OHS and to continuously improve their performance in this regard.

- **Risk Management:** Both standards attach great importance to the identification, assessment, and control of risks. These standards offer a systematic approach to identifying hazards and minimising risks.
- **Management System Approach:** Both standards utilise a management system approach that includes policy development, planning, implementation, control, and improvement. Moreover, these standards emphasise the principles of leadership, employee involvement, OHS policy, risk management and continuous improvement.
- **Conformity and Compliance:** Both standards aim to ensure compliance with legal and other requirements. This ensures that construction companies comply with legal regulations and continuously monitor their OHS performance.
- **Documentation:** Both standards emphasize the importance of documentation. This is important for the implementation and performance monitoring of construction companies.

Differences

There are differences between the ISO 45001:2018 and OHSAS 18001:2007 standards. These are explained below in basic terms:

- **Global Standard:** ISO 45001 is a global standard developed by ISO. OHSAS 18001 is a standard developed by The British Standards Institution (BSI) and is not an official ISO standard, although it has global recognition.
- **Focus Area:** ISO 45001:2018 focuses on identifying and managing OHS risks more effectively by adopting a risk-based mindset. On the other hand, OHSAS 18001:2007 offers a more goal-oriented approach, enabling construction companies to achieve the goals they set. This has significant impacts on the implementation processes and result orientations of both standards.
- **Preventative Approach:** ISO 45001 takes a more proactive approach to risk management. It focuses on identifying and preventing risks before they occur. OHSAS 18001, on the other hand, takes a more reactive approach, and risks are usually managed after they occur.
- **Involvement of Interested Parties:** ISO 45001 encourages employees and other interested parties to actively participate in the OHS management process. OHSAS 18001 does not have such a strong emphasis.
- **Integration with Other Management Systems:** ISO 45001 is designed to integrate with other ISO management system standards (e.g., ISO 9001 Quality Management and ISO 14001 Environmental Management). OHSAS 18001 does not have this level of integration.
- **Terminology and Structure:** ISO 45001 uses a more dynamic structure and new terminology not included in OHSAS 18001.

3.1.3. Application areas

The application areas of ISO 45001:2018 and OHSAS 18001:2007 play a critical role in ensuring workplace safety and the effective implementation of OHSMS in the construction industry. While ISO 45001:2018 focuses on enhancing OHSMS performance, OHSAS 18001:2007 provides a framework for establishing and maintaining OHSMS. Although both standards share core objectives, ISO 45001:2018 provides a more adaptive and comprehensive framework suitable for addressing the dynamic challenges of the construction industry. As illustrated in Figure 8, the specific application areas of these standards within the construction industry are detailed below:

- **OHS Policy Development:** Construction companies should develop a policy stating and communicating their commitment to OHS to all employees. This policy must outline specific objectives and commitments, serving as the foundation for a robust OHSMS.
- **Risk Management:** Construction companies should identify hazards and risks that may be encountered in construction projects. They should assess these hazards, determine risk levels, and take necessary precautions.

- **Employee Participation:** Construction companies should encourage their employees to actively participate in OHS processes. OHS committees can be established by construction companies, and regular meetings can be held to obtain employees' opinions.
- **Training and Awareness:** Construction companies should provide regular OHS training to all employees. These trainings help employees recognize potential hazards and learn how to deal with them.
- **Monitoring and Evaluation:** Construction companies should regularly monitor and review OHS performance. Continuous monitoring should be ensured by construction companies through incident reports, internal audits, and performance indicators.
- **Emergency Planning:** Construction companies should develop comprehensive emergency plans for possible emergencies. These plans should be regularly tested and updated by construction companies.
- **Continuous Improvement:** Construction companies should ensure continuous improvement of the OHS management system. Improvement opportunities should be identified by construction companies, and necessary steps should be taken.

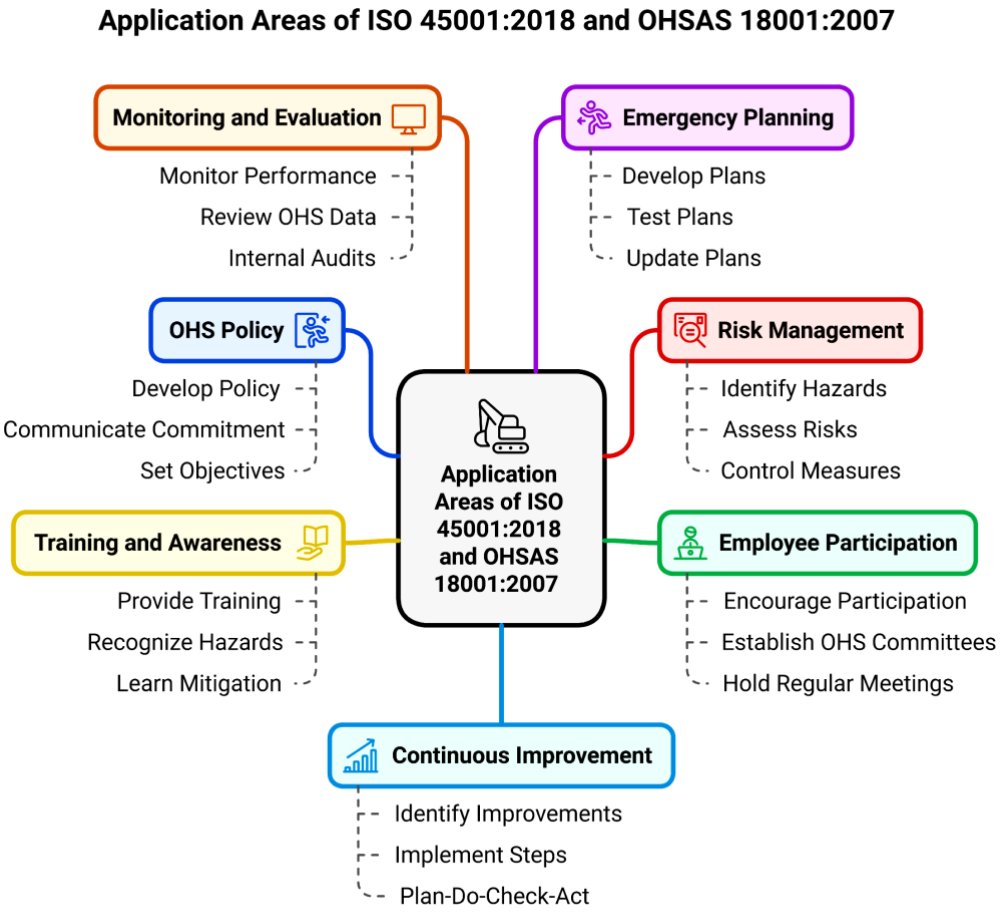

Figure 8. Application areas of ISO 45001:2018 and OHSAS 18001:2007 (Created by author).

3.1.4. Benefits

The adoption of ISO 45001:2018 and OHSAS 18001:2007 offers multiple benefits for construction companies and their employees, significantly enhancing workplace safety and operational efficiency. These benefits, shown in Figure 9, are outlined below with specific emphasis on their impact in the construction industry:

- **Reducing Occupational Accidents and Diseases:** Both standards emphasize risk management and hazard control, which are essential for minimizing occupational accidents and diseases. These standards help to identify hazards, assess risks, and implement effective control measures in

construction projects, reducing occupational accidents and diseases. This not only increases the safety of employees but also ensures that construction companies fulfill their legal responsibilities.

- **Increasing Employee Involvement:** Both standards encourage the active participation of employees in the construction industry in OHS processes. This allows for more effective management of OHS risks by receiving employees' opinions and suggestions.
- **Ensuring Legal Compliance:** Both standards support construction companies to comply with legal and other requirements. Compliance with legal regulations prevents construction companies from facing criminal sanctions. This increases the effectiveness of OHSMS in construction companies.
- **Improving Work Efficiency:** The implementation of both standards helps construction companies to ensure safe working conditions. A safe and healthy working environment increases labor productivity and improves the overall performance of the construction company.
- **Enhancing Prestige and Competitive Advantage:** Construction companies that implement ISO 45001:2018 and OHSAS 18001:2007 standards demonstrate that they provide safe and healthy working conditions. This increases their prestige and ensures customer loyalty. In addition, compliance with OHS standards gives construction companies a competitive advantage and creates new business opportunities.
- **Fostering Continuous Improvement and Innovation:** Both standards encourage the PDCA (Plan-Do-Check-Act) cycle. This approach enables construction companies to continuously review and improve their OHSMS. It also improves the OHS performance of construction companies by identifying innovative solutions and improvement opportunities.

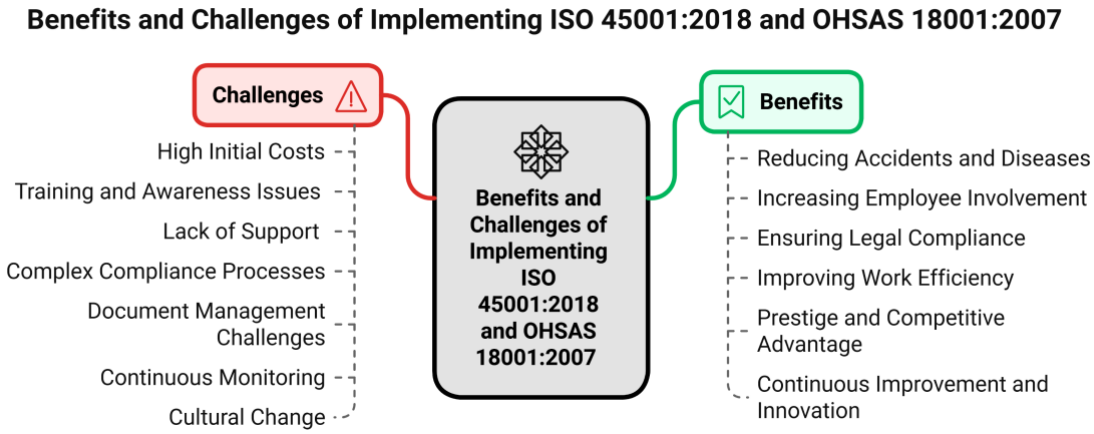

Figure 9. Benefits and challenges of implementing ISO 45001:2018 and OHSAS 18001:2007 (Created by author).

3.1.5. Challenges

The implementation of ISO 45001:2018 and OHSAS 18001:2007 standards by construction companies to improve their OHSMS provides a range of benefits but also several challenges. Recognizing and overcoming these challenges ensures effective implementation and sustainability of these standards. As highlighted in Figure 9, these challenges are presented below in basic items:

- **High Initial Costs of Implementation:** Implementation of ISO 45001:2018 and OHSAS 18001:2007 standards can create high initial costs for construction companies. These costs can be challenging for small and medium-sized construction companies due to budget constraints.
- **Training and Awareness Challenges:** In order to implement OHS standards, employees need to have sufficient knowledge and skills. However, in a dynamic industry such as the construction industry, it may be difficult to provide continuous training to all employees and keep this training up-to-date. In addition, it may take time for employees in construction companies to adapt to new procedures and adopt a safety culture.
- **Lack of Management and Employee Support:** Successful implementation of both standards in construction companies requires the full support of management and employees. However, it can

be difficult to secure this support, especially at management levels that are not directly involved in OHS. Employees' resistance to change and difficulty in adapting to new practices may also negatively affect the process.

- **Complexity of Compliance and Audit Processes:** In order to comply with both standards and to ensure the continuity of this compliance, regular audits are required in construction companies. These audit processes can be time-consuming, high-cost, and complex.
- **Document Management Challenges:** The effective implementation of OHSMS in construction companies requires comprehensive document management. However, given the size and complexity of construction projects, it can be difficult to keep all documentation organized and updated. This can also complicate compliance and audit processes.
- **Continuous Monitoring Requirements:** Both standards require continuous improvement and monitoring of OHSMS in construction companies. However, it can be difficult to manage these continuous improvement processes effectively due to the intense workload and project-based working structure of construction companies.
- **Cultural Change Resistance:** A cultural change is required to fully implement OHS standards in construction companies. This change includes the adoption of OHS by all employees. However, achieving this cultural change requires a long-term effort and can take time.

3.2. Discussion

This study demonstrates the critical role that ISO 45001:2018 and OHSAS 18001:2007 play in advancing OHS within the construction industry. Both standards provide structured frameworks that contribute significantly to reducing occupational risks, improving employee participation, and fostering safer working environments. Furthermore, their emphasis on continuous improvement and compliance not only ensures legal adherence but also enhances the reputation and operational efficiency of construction companies. These findings align with existing literature that underscores the importance of systematic risk management in creating resilient OHS practices.

Despite their benefits, challenges persist in implementing these standards effectively. High initial costs, the complexity of compliance audits, and the continuous need for training pose obstacles, particularly for small to medium-sized enterprises. Resistance to change among employees and management further complicates the process, highlighting the need for targeted communication and leadership strategies. In addition, achieving cultural transformation in adopting OHS standards remains a long-term effort, requiring sustained commitment from all organizational levels.

To overcome these challenges, construction companies should prioritize strategic solutions such as integrating technology-driven tools for document management, automating compliance tracking, and introducing flexible training platforms. These approaches not only streamline processes and reduce costs but also enable companies to fully harness the potential of these standards, creating safer, more efficient, and more resilient work environments in the construction industry.

4. Conclusion and Suggestions

This study presents a comparative analysis of ISO 45001:2018 and OHSAS 18001:2007 in the construction industry, underscoring the importance of OHS standards. By examining the scope, key features, application areas, benefits, and implementation challenges of both standards, the findings highlight the critical role of integrating OHS management systems into construction companies.

Although OHSAS 18001:2007 was replaced by the international standard ISO 45001:2018 in 2018 and became invalid in September 2021, both standards have significantly contributed to improving OHSMS and fostering a sustainable safety culture. Their implementation not only helps construction companies comply with legal obligations but also enhances operational efficiency and prestige by ensuring the safety and health of employees.

ISO 45001:2018 adopts a more proactive and dynamic approach compared to OHSAS 18001:2007 by emphasizing risk identification, risk management, and encouraging employee participation in OHS

processes. This inclusive methodology has reshaped OHS management, making it more integrated and effective. While OHSAS 18001:2007 provided invaluable guidance for reducing workplace accidents over many years, the adoption of ISO 45001:2018 has established a more robust and adaptable framework for managing workplace safety.

Both standards focus on the continuous improvement of OHS performance and ensuring legal compliance. While construction companies may encounter challenges during the implementation of these standards, strategies such as comprehensive training programs, regular risk assessments, and fostering active employee participation can effectively address these challenges.

In summary, ISO 45001:2018 and OHSAS 18001:2007 standards make significant contributions to reducing workplace accidents, improving employee well-being, and enhancing business performance in construction companies. Adopting OHSMS not only ensures compliance with legal requirements but also supports long-term organizational success. Therefore, prioritizing OHS management enables construction companies to strengthen their competitive advantage and sustainability in the industry. Practical steps for effective implementation include leveraging digital technologies, establishing continuous training systems, and fostering a safety-first culture through leadership commitment. These measures will help overcome implementation barriers and maximize the benefits of OHS standards.

4.1 Suggestions

The adoption of ISO 45001:2018 and OHSAS 18001:2007 standards by construction companies is crucial for the effective implementation of OHSMS in the construction industry. As outlined in this study and illustrated in Figure 10, construction companies should consider the following suggestions:

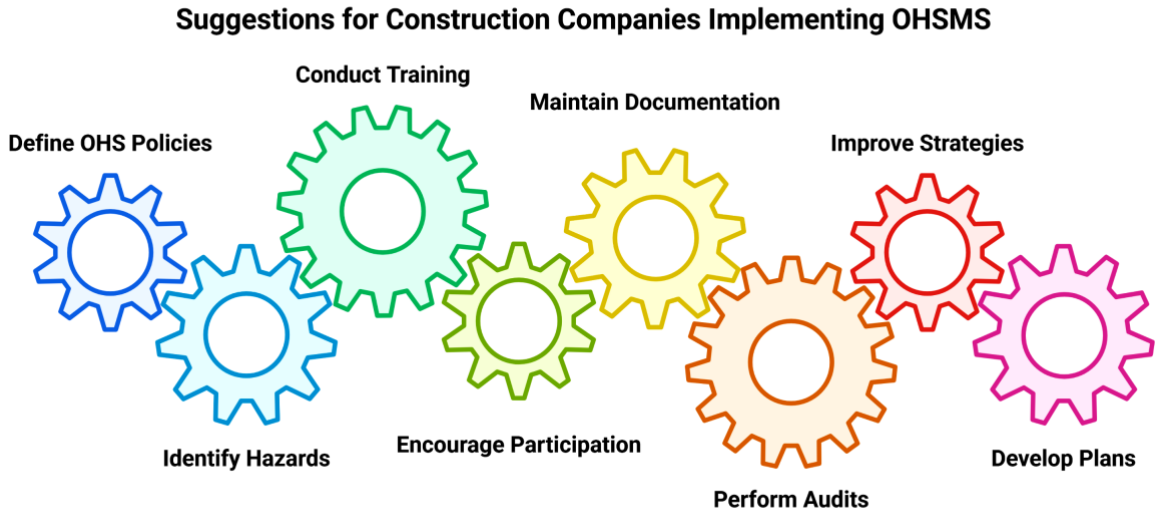

Figure 10. Suggestions for construction companies implementing OHSMS (Created by author).

- Define clear OHS policies, provide necessary resources, and engage employees.
- Systematically identify hazards, assess risks, and implement control measures.
- Conduct regular training programs to equip employees with essential safety skills.
- Encourage active employee participation in OHS management processes.
- Maintain and update OHS documentation to ensure compliance and readiness for audits.
- Perform regular internal audits and evaluate OHSMS performance.
- Continuously improve OHSMS effectiveness and adopt proactive safety strategies.
- Develop and practice comprehensive emergency preparedness plans.

By incorporating these suggestions, construction companies can overcome the challenges associated with implementing these standards and establish safer, healthier, and more productive work environments.

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This study adheres to national and international standards of research and publication ethics. Ethics Committee approval was not required for the scope of this research. AI-assisted language editing tools were used exclusively to enhance clarity and ensure alignment with academic conventions. These tools played no role in the research design, data analysis, or intellectual interpretation. All academic contributions and insights presented in this study are the result of the author's original scholarly work.

Author Contribution and Conflict of Interest Declaration Information

The article was written by a single author. There is no conflicts of interest.

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