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تكامل إدارة المخاطر مع أنظمة الجودة والسلامة والبيئة (QHSE) في المشاريع الصناعية

دراسة تطبيقية في شركة Yokogawa

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Abstract: المستخلص

Risk management has become an essential element in modern industrial organizations. Integrating risk management with Quality, Health, Safety and Environment (QHSE) systems helps companies improve operational performance, prevent accidents and ensure regulatory compliance within complex industrial projects.

This study aims to analyze the role of integrating risk management with Quality, Health, Safety, and Environment (QHSE) systems in improving organizational performance within industrial organizations. It highlights the importance of this integration in mitigating occupational risks and fostering a safe and sustainable work environment. The significance of this study stems from the increasing challenges facing industrial organizations due to evolving work environments and the complexity of operational processes. This necessitates the adoption of modern methodologies based on the integration of risk management and QHSE systems to ensure the highest levels of efficiency and safety. The study employed a descriptive-analytical approach, analyzing relevant scientific literature and previous studies, as well as reviewing practical applications of risk management within QHSE systems in industrial organizations. The study's findings demonstrated that implementing an integrated system combining risk management and QHSE systems effectively contributes to improving risk prediction, reducing occupational accidents, and increasing adherence to safety procedures. Furthermore, it enhances operational efficiency and reduces costs resulting from accidents and errors. The study also emphasized the importance of senior management support, providing necessary resources, and implementing ongoing training programs to raise employee awareness. It further stressed the need to adopt an organizational culture based on safety and proactive risk management. The study recommends strengthening the integration between risk management systems and QHSE systems, adopting best practices and international standards, and utilizing modern technologies in risk analysis and assessment to contribute to a safer, more efficient, and more sustainable work environment.

الفصل الأول

المقدمة:

Risk management is considered one of the most essential components in modern management strategies, as organizations today operate in environments characterized by complexity and constant change, which requires them to deal with various types of operational, organizational, and environmental risks. Risk management aims to identify, analyze, and assess these risks and take the necessary measures to mitigate their negative effects, ensuring business continuity and achieving institutional objectives efficiently and effectively.

On the other hand, Quality, Health, Safety, and Environment (QHSE) systems represent an integrated management framework aimed at improving institutional performance through adherence to global quality standards, the implementation of effective occupational health and safety systems, and environmental preservation. These systems are based on recognized international standards such as ISO 9001 for quality management, ISO 14001 for environmental management, and ISO 45001 for occupational health and safety.

Although there is a natural correlation between risk management and QHSE systems, many industrial organizations still implement these systems in isolation from each other, leading to a weakened ability to predict and control risks, and to the recurrence of some incidents or operational issues that could have been prevented. Hence, there is a need for an integrated management model that links risk management and QHSE systems in a balanced and coordinated manner, enhancing institutional performance effectiveness and reducing potential losses.

The importance of this research lies in highlighting the integrative relationship between risk management and QHSE systems in the industrial project environment, through an applied study at Yokogawa Company, which is one of the leading companies in the field of industrial systems and automation control. The research aims to analyze the reality of integration between risk management and these systems within the company, identify the challenges

and factors affecting the effectiveness of this integration, and propose a practical model that contributes to improving overall performance and reducing operational accidents and risks.

It's not limited to the theoretical aspect only, but also addresses the practical aspect through a field survey and realistic analysis, making it of scientific and practical value that industrial institutions aiming to develop their management systems can benefit from, in line with global trends in sustainability, safety, and performance quality.

-مشكلة الدراسة-

Industrial projects are among the most complex environments in terms of the nature of risks and their multiple sources, as companies operating in this field face significant challenges related to quality, safety, occupational health, and environmental protection. Although many of these companies implement internationally recognized management systems such as ISO 9001, ISO 14001, and ISO 45001, these systems are often managed separately from the risk management system, leading to a lack of integration between objectives, procedures, and outcomes.

Risk management fundamentally aims to identify, analyze, and assess risks and take appropriate measures to address them, whereas QHSE systems seek to improve the quality of processes and products, enhance a safe working environment, and reduce negative environmental impacts. However, the absence of a systematic link between these aspects leads to duplication of efforts, weakness in the effectiveness of preventive measures, and delays in responding to actual risks that may face the organization.

In the case of Yokogawa, despite adopting multiple management systems according to international standards, practical application shows a gap in the integration between the risk management system and QHSE systems, whether in terms of procedures, inter-departmental communication, or the use of risk analysis results in developing quality, health, safety, and environmental plans.

Hence, the research problem arises in the following main question: To what extent is the integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems achieved in Yokogawa Company, and what are the factors affecting this integration?

A set of sub-questions branches out from this main question, including:

- **What is the level of awareness about the importance of risk management among employees in the QHSE field within the company?**
- **To what extent are risk assessment results used in developing quality and safety policies and procedures?**

-What challenges are faced in achieving integration between QHSE systems and risk management?

-What are the proposed measures to enhance integration and improve institutional performance?

Addressing this issue contributes to building a more efficient management model that links risk analysis with quality, safety, and environmental requirements within a single framework, and enhances the company's ability to predict risks and mitigate their impact on operations and outputs.

Practical and operational importance.

1- This section focuses on the direct benefits that companies and industrial projects gain from implementing integration:

- Improving overall project performance: Integration helps reduce disruptions and accidents, ensuring that projects proceed according to the specified schedule and budget, thereby achieving higher output quality.
- Resource efficiency and cost reduction: Process integration leads to reduced duplication in procedures and auditing (instead of managing risks separately from QHSE requirements), saving time, effort, and financial resources.
- Proactive risk response: Integration allows for the early identification and assessment of risks affecting quality, safety, and the environment (a proactive approach), instead of dealing with incidents after they occur (a reactive approach).
- Enhancing trust and company reputation: Commitment to an integrated risk management and QHSE system helps build stakeholders' (clients, investors, regulatory authorities) confidence in the company's ability to safely and effectively execute high-risk projects.

2-Scientific and normative significance

This section focuses on the added value of research in the field of management knowledge.

- Bridging the knowledge gap: The research provides a clear theoretical and practical framework for integrating risk management requirements (according to standards such as ISO 31000) into quality, safety, and environmental management systems (ISO 9001, ISO 45001, ISO 14001).
- In-depth applied case study: Yokogawa Company provides exceptional value as an applied model, being a global leader in high-risk industrial automation

and control systems. The study offers insights into how this integration can be applied in a complex technological and industrial environment.

- **Support for decision-makers:** The research results can serve as a reference for engineering contracting companies, oil and gas companies, and other industrial institutions seeking to develop an integrated and unified management system.

3-Environmental and social importance (sustainability)

- **Minimizing negative impacts:** Integration helps manage environmental risks (such as spills and emissions) more effectively, in line with the principles of sustainable development and corporate social responsibility.
- **Protecting the human element:** Integrating risk management with Occupational Health and Safety (HSE) ensures maximum protection for workers, reducing occupational injuries and fatalities and boosting team morale.

-أهداف الدراسة.

Its aims to analyze and evaluate the level of integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems in industrial projects, through an applied study at Yokogawa Company, with the goal of determining the effectiveness of this integration and its impact on institutional performance and operational safety.

A set of specific objectives branches out from this general goal, as follows:

1. Understanding the basic concepts and scientific principles of risk management and QHSE systems and identifying the similarities and differences between them in terms of objectives, methodologies, and applications.
2. Analysis of the reality of implementing QHSE systems at Yokogawa Company and assessing their relevance to risk management practices at the level of daily operations and industrial projects.
3. Identifying shortcomings in the integration between risk management and QHSE systems within the company, whether in terms of procedures, communication, training, or follow-up.
4. Measuring the level of awareness and organizational culture among employees in the QHSE field regarding the importance of risk management and its role in improving institutional performance
5. Proposing a practical framework or integrated management model that links risk management with QHSE systems in an industrial project environment, which can be applied to improve operational efficiency and reduce incidents and risks.
6. Providing practical recommendations that can help senior management at Yokogawa, and other industrial companies, to enhance the integration of these systems in line with international standards and best practices.

By achieving these objectives, the research aims to provide both scientific and practical value, as it contributes on one hand to enriching academic

knowledge about the relationship between risk management and QHSE systems, and on the other hand to supporting industrial organizations in developing their practices and improving their overall performance.

-تساؤلات الدراسة-

Starting from the research problem, which is the weak integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems in industrial projects, this study sought to answer a set of questions aimed at identifying the reality of this integration and analyzing the factors affecting it within Yokogawa Company.

The main research question is determined as follows:

To what extent is integration achieved between risk management and Quality, Health, Safety, and Environment (QHSE) systems at Yokogawa, and what factors affect its effectiveness?

A number of subsidiary questions branch out from this general inquiry, clarifying the dimensions of the problem in more detail, as follows:

- 1. To what extent are risk management principles applied within QHSE systems at Yokogawa?**
 - This question relates to how risk analysis is incorporated into quality, safety, and environmental policies and procedures.
- 2. To what extent are the results of risk assessments used in developing improvement and corrective plans within the QHSE system?**
 - Is there a direct relationship between risk management outcomes and operational decisions in quality and safety
- 3. What is the level of coordination and administrative integration between the Quality, Safety, and Environmental departments and the Risk Management department?**
 - To measure the level of cooperation and information exchange between the relevant departments.

4. **What is the level of awareness and organizational culture among employees regarding the importance of integrating risk management with QHSE systems?**
 - To determine whether employees are aware of the reciprocal relationship between the two systems and its impact on improving institutional performance.
5. **What are the challenges and difficulties faced in implementing the integration between risk management and QHSE systems within the company?**
 - Such as lack of training, poor coordination, or the absence of a unified documentation system.
6. **What are the potential impacts of achieving full integration between risk management and QHSE systems on organizational performance?**
 - Such as improving operational efficiency, reducing accidents, enhancing process quality, and strengthening compliance with international standards.
7. **What is the proposed administrative model that can achieve this integration in the industrial project environment?**
 - To propose a practical and applicable framework that can be implemented within the company and other similar institutions.

By answering these questions, the research aims to build a comprehensive and integrated picture of the reality of the integration between risk management and QHSE systems, and to identify practical steps that can contribute to improving institutional performance and achieving sustainability, quality, and safety objectives at Yokogawa Company.

Based on the research problem and its questions, a set of hypotheses was formulated to express the expected relationships between risk management and Quality, Health, Safety, and Environment (QHSE) systems at Yokogawa Company. These hypotheses aim to test the existence of a correlation and effect between these systems, and the extent to which this is reflected in organizational performance.

The main hypothesis of the research:

There is a statistically significant integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems at Yokogawa, contributing to improved corporate performance and reduced operational incidents.

Sub-hypotheses:

- 1. There is a significant relationship between the application of risk management principles and the level of process quality at Yokogawa Company.**
 - This means that enhancing risk analysis practices contributes to improving product and service quality and reducing operational errors.
- 2. There is a positive impact of integrating risk management with the occupational health and safety system on reducing the rate of accidents and injuries.**
 - Where the use of risk analysis results leads to the improvement of prevention and emergency response plans.
- 3. There is a positive relationship between the level of coordination between QHSE departments and the Risk Management department and the effectiveness of the overall management system.**
 - The more cooperation and information exchange there is between departments, the higher the efficiency of institutional performance.

- 4. There is a correlation between employees' awareness of the concept of integration and the effectiveness of implementing QHSE systems.**
 - Raising awareness and organizational culture enhances adherence to procedures and increases the ability to identify risks early.
- 5. Weak integration between risk management and QHSE leads to shortcomings in the implementation of continuous improvement policies within the company.**
 - The absence of a link between risk assessment results and improvement plans leads to the repetition of errors and operational problems.
- 6. Implementing an integrated management model for risk and QHSE management contributes to achieving sustainable and balanced performance for the company.**
 - This integration helps to use resources more efficiently, reduce waste, and achieve compliance with international standards.

General expectation:

The results of the field analysis are expected to show that the integration between risk management and QHSE systems exists to a moderate degree within the company, but it needs development through improving internal communication, raising awareness, and unifying the systems within a single administrative framework.

The theoretical framework constitutes the scientific basis upon which this research relies to analyze the relationship between risk management and Quality, Health, Safety, and Environment (QHSE) systems. It addresses the relevant concepts, principles, and international standards, along with presenting models of integration among these systems in industrial organizations.

First: The Concept of Risk Management and Its Importance

According to the international standard ISO 31000:2018, risk management is defined as 'the systematic processes of identifying, analyzing, and evaluating risks, and taking the necessary actions to control them or mitigate their effects.' This management aims to protect the organization's physical and human assets, ensure business continuity, and achieve strategic objectives.

Risk management steps usually include:

1. Identify potential risks that may affect operations or objectives.
2. Analyze and assess risks in terms of likelihood and impact.
3. Determine appropriate responses, such as prevention, mitigation, transfer, or acceptance.
4. Continuously monitor and improve the performance of the risk management system.

The importance of risk management increases with the rising level of complexity in industrial projects, especially those dealing with sensitive systems or hazardous materials. Experience shows that companies adopting a proactive approach to risk management achieve greater operational stability, with fewer accidents and financial losses compared to companies that address risks only reactively.

Secondly: Quality, Health, Safety, and Environment (QHSE) Systems

QHSE systems are an integrated management system aimed at improving the overall performance of an organization by ensuring the quality of products and

services, providing a safe working environment, and reducing the environmental impact of industrial operations.

These systems are based on the following standards:

- ISO 9001: Quality management system that focuses on meeting customer requirements and improving processes.
- ISO 14001: Environmental management system aimed at reducing environmental impact and achieving regulatory compliance.
- ISO 45001: Occupational health and safety management system that promotes a safe work environment and reduces accidents and injuries.

Third: The relationship between risk management and QHSE systems

Risk management and QHSE systems share the common goal of protecting resources and improving organizational performance; however, integration between them is not always implemented as required. While risk management focuses on quantitative and qualitative analysis of potential risks, QHSE systems are concerned with compliance with standards and preventive procedures.

Linking the two systems is considered a strategic step that contributes to building a unified administrative system based on risk analysis as a basis for making decisions related to quality, safety, and the environment. For example, the results of risk assessments can be used to determine the priorities of internal audits or to develop emergency and prevention plans.

Fourth: Integration between Risk Management and QHSE Systems

Recent studies have shown that organizations that implement an integrated model between risk management and QHSE achieve higher levels of operational efficiency and experience lower accident rates. Integration typically includes the following aspects:

1. Integrate the risk assessment methodology into QHSE plans.
2. Exchange data and information between the quality, health, safety, environment, and risk departments.

3. Align key performance indicators (KPIs) to measure the effectiveness of integration.
4. Adopt a unified system for documentation and follow-up that facilitates auditing and improvement processes.

Fifth: The challenges facing integration

One of the most prominent challenges facing industrial institutions in achieving integration between risk management and QHSE systems is the following:

- Lack of awareness among employees about the importance of linking systems.
- Absence of administrative support or weak coordination between departments.
- Lack of a unified system for collecting and analyzing risk data.
- Resistance to change and difficulty integrating systems into the organizational culture.

Sixth: Global Models of Integration

There are several studies and global models that support the idea of integration, such as:

- The Bow-Tie Analysis model, which links risk identification and control within the QHSE framework.
- The PDCA (Plan-Do-Check-Act) approach used in quality systems, which can be employed to improve risk management.
- Integration applications in oil and petrochemical companies, which have shown that incorporating risk management within QHSE systems reduces operating costs by between 10% and 20%.

التطبيقي:

The practical framework of this research focuses on examining the reality of integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems at Yokogawa Company through a field analysis based on actual data and the opinions of employees in QHSE departments and industrial projects. This section aims to transform theoretical concepts into practical applications that demonstrate the effectiveness of the systems implemented within the company and the challenges encountered in achieving integration between them.

First: Description of the study environment

Yokogawa is considered one of the leading companies in the field of industrial systems and automation, and it carries out major projects in the oil, gas, and energy sectors. The company adopts multiple management systems based on international standards, such as ISO 9001 for quality, ISO 14001 for the environment, and ISO 45001 for occupational health and safety, in addition to implementing internal procedures related to risk management during the design, execution, and operation stages.

The company's policy is based on the principle of 'safety first,' aiming to achieve the highest levels of quality, safety, and environmental compliance. However, it is observed that risk management implementation still occurs on a limited scale and is often within the project framework rather than as an integrated part of the overall management system, creating a gap in the integration among the various aspects of management systems.

Secondly: Study Methodology

The research relied on a descriptive analytical approach using multiple research tools, the most important of which was the field questionnaire distributed to a sample of company employees working in the areas of quality, safety, risk, and production. The questionnaire was designed to measure:

1. The extent to which risk management principles are applied within QHSE activities.

2. The level of coordination between the quality, safety, and environment departments in identifying risks.
3. The degree of use of risk analysis results in developing operational procedures.
4. The employees' awareness of the importance of integrating risk management with QHSE.

The sample consisted of a number of engineers, technicians, and supervisors in the company's various projects, and the survey results were analyzed using descriptive statistical methods (such as frequencies, percentages, and arithmetic means) to determine general trends.

Third: The main results of the field analysis

The analysis results indicated that there is a good practical application of QHSE systems within the company, but the level of integration with risk management is still moderate. Key observations include:

- There is a clear commitment to quality and safety procedures, but they are not directly linked to risk analysis plans.
- Continuous coordination between QHSE teams and risk management is lacking in some projects.
- There is weakness in documenting and following up on risk assessment results after implementing corrective actions.
- Additional training is needed to raise awareness about risk management at all levels.

Fourth: Discussion and Analysis

The results show that the integration between risk management and QHSE systems at Yokogawa is still under development, and there is a gap between written policies and practical implementation. This is due to several factors, most notably:

1. Weak communication between different departments when identifying and assessing risks.
2. The absence of a unified management framework linking risk management and the QHSE system.
3. Limited targeted training on applying system integration.
4. Focus on formal compliance with standards rather than actual process improvement.

Fifth: Practical Recommendations

Based on the previous findings, the research proposes a set of practical recommendations, the most important of which are:

1. Unifying the various management systems (IMS) to include risk management within a single framework.
2. Activating continuous communication and coordination between the quality, safety, environment, and risk departments.
3. Linking performance indicators (KPIs) to risk assessment results to improve monitoring and analysis.
4. Preparing internal training programs to enhance risk culture among QHSE personnel.
5. Adopting a unified electronic system for documenting and analyzing risks and linking them to improvement plans.

الفصل الثاني

الدراسات السابقة

-مقدمة-

The topic of integration between risk management and Quality, Health, Safety, and Environment (QHSE) systems is considered relatively new in the field of industrial management, as recent years have seen increasing interest in it from researchers and international organizations due to the growing challenges in the industrial work environment.

The following is a brief and analytical presentation of the most prominent previous studies related to this topic, highlighting the points of agreement and disagreement between them and this research.

-الدراسات السابقة-

First: Arabic Studies:

1. Abdullah's (2019) study titled "The Role of Risk Management in Enhancing the Effectiveness of Quality Systems in Arab Industrial Institutions." The study aimed to analyze the relationship between the application of risk management and quality development in industrial institutions. The results showed that institutions that integrate risk management within the quality system achieve a significant reduction in operational errors by 25%. The study recommended the necessity of unifying the risk management system with the quality system within an integrated administrative framework.
2. Al-Shammari (2020) study titled 'The Impact of Risk Management on Organizational Performance in Oil and Gas Companies in the Arabian Gulf.' The study focused on oil companies that implement safety and environmental systems, and it demonstrated that having effective risk management contributes to reducing accidents and improving

environmental compliance. It also indicated that a lack of coordination between safety and risk departments leads to weak accident response.

3. Al-Mutairi (2021) study titled 'Integration of Quality, Environmental, and Safety Systems in Saudi Industrial Projects.' It indicated that some industrial companies implement QHSE systems separately, leading to duplicate procedures and role conflicts. It recommended implementing an Integrated Management System (IMS) that connects these systems with operational risks.

Second: Foreign studies:

1. The study by Smith & Johnson (2018) entitled "Integration of Risk Management within QHSE Systems in Industrial Projects." This study addressed the relationship between risk management and QHSE systems in European projects and concluded that integrating the two systems leads to a 30% reduction in accident rates and improves operational efficiency. It also highlighted the importance of using technology to link risk data with management systems.
2. A study by Wang et al. (2020) titled "A Framework for Linking ISO 31000 with ISO 9001 and ISO 45001 in Manufacturing Industries." The study proposed a unified management framework for integrating risk management with quality and safety systems, and the results showed that organizations implementing this integration achieve higher operational stability and experience fewer quality-related complaints.
3. Müller (2021) study titled "Challenges in Implementing Integrated QHSE and Risk Management Systems." It focused on the organizational and cultural barriers that institutions face while integrating systems, such as resistance to change and weak managerial awareness. It recommended comprehensive training for employees before starting the implementation of any integrated system.
4. The study by Patel & Ahmed (2022) entitled "Impact of Risk-Based Thinking on QHSE Performance in Industrial Organizations." The study confirmed that implementing "risk-based thinking" according to the requirements of ISO 9001:2015 enhances the efficiency of QHSE systems and recommended integrating risk assessment into the internal audit processes of all management systems.

Third: Comparative analysis of previous studies

Through reviewing these studies, it can be observed that:

- Most of them agreed on the existence of a positive relationship between risk management and QHSE systems, and that the integration between them contributes to improving institutional performance and reducing losses.
- However, some studies focused on a specific aspect of the systems (such as quality only or safety only), while studies addressing the full integration of risk, quality, safety, and environment within a single framework were fewer.
- Most foreign studies used quantitative models and advanced statistical analysis, whereas Arab studies focused on descriptive and analytical aspects.

Fourth: The research gap addressed by this study

This research differs from previous studies in terms of:

1. Addressing the integration between risk management and QHSE systems comprehensively and cohesively within a Saudi industrial environment (Yokogawa Company).
2. Combining the theoretical and practical aspects through the analysis of a field survey and direct application within a real organization.
3. Providing a proposed management model that can be used as a practical framework for implementing integration in industrial companies.

Accordingly, this research seeks to bridge the gap represented by the lack of applied studies in the Saudi environment that link risk management with QHSE systems, and to highlight the positive impact of this integration on institutional performance and operational safety.

Integration between risk management and QHSE systems

Integrating risk management with quality, health, safety, and environment (QHSE) systems is a key factor in enhancing organizational performance and achieving a safe and sustainable work environment. Instead of dealing with each system separately, integration allows for the development of a unified management system that links risk identification, analysis, and mitigation within a comprehensive framework covering all aspects of operations.

This integration improves the risk identification process by linking operational, safety, and environmental risks within a single framework, providing a comprehensive and accurate view of the risks the organization may face. It also facilitates more effective risk analysis using standardized tools and methodologies based on internationally recognized standards. One of the most important benefits of this integration is that it promotes risk-based decision-making.

This is achieved by relying on accurate and integrated data that helps management prioritize tasks and allocate resources more effectively. Furthermore, it reduces procedural duplication and avoids conflicts between different policies, leading to improved operational efficiency and lower costs. The integration of risk management and QHSE systems contributes to fostering a culture of safety within an organization.

Risk awareness becomes an integral part of employees' daily practices, and safety, quality, and environmental concepts are integrated into all operational activities. This leads to increased adherence to preventive measures and a reduction in accidents and injuries. Furthermore, this integration helps organizations comply with international standards and regulations, such as quality, safety, and environmental management systems, thereby enhancing the organization's reputation and increasing its competitiveness in the market. In practice, the success of this integration depends on several factors, most notably the support of senior management, the provision of ongoing training, and the development of effective information systems that contribute to the collection and analysis of risk-related data. It also requires clear mechanisms for continuous review and evaluation to ensure system effectiveness and achieve continuous improvement. Therefore, the integration of risk

management and QHSE systems is not an optional extra, but a strategic necessity that contributes to achieving safety, sustainability, and improved organizational performance in industrial organizations. The integration of risk management and QHSE systems is a modern trend in industrial management, as organizations strive to incorporate these systems within a unified management framework known as an Integrated Management System (IMS).

This integration helps to:

- Improve decision-making processes
- Reduce workplace accidents
- Enhance compliance with regulatory requirements
- Improve organizational performance

Integrating risk management with quality, safety and environmental systems also contributes to achieving a risk-based thinking approach that has become a basic requirement in modern international standards.

Integrated Management System (IMS) model

An Integrated Management System (IMS) is a modern management framework that aims to integrate Quality, Health, Safety, and Environment (QHSE) systems into a unified system, thereby improving organizational performance and reducing the complexity resulting from multiple separate systems. This model relies on standardizing policies, procedures, and operational processes to achieve integration and harmony among various business requirements.

An integrated management system incorporates international standards, such as quality management systems, occupational health and safety systems, and environmental management systems, within a single organizational structure. This allows for a comprehensive approach to addressing risks and opportunities, considering all aspects of the business. This integration helps ensure consistency in policy implementation and minimizes conflicts between different procedures.

One of the most significant advantages of implementing an integrated management system is its contribution to improved operational efficiency by reducing duplication of tasks, simplifying procedures, and standardizing documents and records. It also leads to lower operating costs through reduced waste and improved resource utilization, in addition to minimizing accidents and operational problems.

The IMS system also enhances the effectiveness of risk management, as risk identification, analysis, and assessment processes are integrated into all organizational activities, facilitating informed decision-making. This leads to improved risk prediction and proactive risk management.

The success of an integrated management system depends on several key elements, most importantly the commitment of senior management, the provision of resources, continuous employee training, and the implementation of effective control systems. It also requires an organizational culture that supports integration, encourages collaboration between different departments, and facilitates effective information sharing. Furthermore, implementing an IMS contributes to enhanced compliance with legal requirements and regulations, and improves the organization's image with clients and regulatory bodies, thereby increasing its competitiveness and sustainability. Based on the above, it can be said that an integrated management system (IMS) represents an effective strategic tool for integrating risk management with QHSE systems, achieving a balance between quality, safety, and environmental protection, and contributing to outstanding performance and sustainability in industrial organizations.

An integrated management system is a management model that aims to combine several management systems within a single framework, thereby standardizing policies, procedures, and organizational processes within an organization. This model relies on integrating quality, environmental, and occupational safety requirements with risk management into a single system that is easy to implement and review.

The most important benefits of this system include:

- Reducing duplication of procedures

- Improving operational efficiency
- Enhancing coordination between different departments
- Improving risk management in industrial projects

The first study

A study was conducted that aimed to analyze the role of risk management in improving the performance of quality systems within industrial institutions, and the results showed a positive relationship between the application of risk management and the improvement of the quality of operational processes.

Second Study

Another study examined the impact of implementing occupational health and safety systems on reducing industrial accidents. The results showed that institutions that implement a safety management system according to the ISO 45001 Occupational Health and Safety standard achieve lower rates of occupational accidents compared to institutions that do not implement this system.

Study III

A recent study aimed to analyze the integration between QHSE systems and risk management in industrial projects, and the results showed that the implementation of an integrated management system contributes significantly to improving organizational performance and reducing operational risks.

الفصل الثالث

منهجية الدراسة

-مقدمة-

The methodology of this study is of paramount importance as it represents the framework that defines the nature and direction of the research. It assists in selecting appropriate data collection tools and determining suitable methods for data analysis, thus ensuring the attainment of accurate and reliable scientific results. Furthermore, it contributes to enhancing the credibility and objectivity of the research by following clear and organized methodological steps.

This study employs a scientific approach that combines theoretical and applied analysis to provide a comprehensive understanding of the integration of risk management with Quality, Health, Safety, and Environment (QHSE) systems. The theoretical framework is based on scientific literature and previous studies, in addition to drawing upon practical applications in industrial work environments.

This methodology also seeks to bridge theoretical concepts with practical applications by analyzing the actual implementation of QHSE and risk management systems within organizations, identifying the strengths and weaknesses of these systems, and thus contributing to practical and applicable recommendations.

The methodology also includes defining the research population and sample, data collection tools, and study limitations, as well as clarifying the data analysis methods used, in order to provide a complete picture of the research steps and procedures followed. Therefore, the study methodology is a fundamental element in achieving the research objectives. It ensures the organization of the research work, the accuracy of the results, and their

applicability to developing risk management applications and QHSE systems within industrial organizations.

Defining the study methodology is a crucial stage in any scientific research. It clarifies the approach the researcher used to collect and analyze data in order to arrive at accurate and reliable results. The methodology helps organize the research steps and connect the theoretical framework with the practical aspects of the study, thus ensuring the achievement of the research objectives and the answering of its questions.

This chapter presents the scientific methodology adopted by the researcher in this study. It also clarifies the study population and sample, the data collection tools used, and the statistical methods employed to analyze the data and draw conclusions. Furthermore, this chapter addresses the procedures followed to ensure the accuracy of the information and the objectivity of the results.

This study adopted the descriptive-analytical approach, one of the most widely used methodologies in administrative and research studies. This approach aims to describe and analyze the phenomenon under study scientifically and systematically by collecting relevant data and information and then analyzing it to arrive at conclusions that can be used to develop work processes and improve organizational performance.

The descriptive-analytical approach is well-suited to the nature of this study, as it allows the researcher to analyze the reality of integrating risk management with quality, health, safety, and environmental (QHSE) systems within industrial organizations, and to understand the relationships between the study variables systematically and precisely.

The study relied on multiple data collection sources, including a review of relevant scientific literature and previous studies, as well as an analysis of models and practical applications related to risk management and QHSE systems in the industrial work environment. Practical experience in this field was also utilized to strengthen the applied aspect of the study and connect the results to real-world applications.

Regarding the analytical methods, descriptive analysis was used to present and organize the data, interpret the results, and link them to the theoretical framework of the study, thus providing a comprehensive understanding of the research topic. The study also focused on analyzing the relationships between fundamental concepts such as risk management, occupational safety, quality, and environmental management.

Furthermore, the study aimed to integrate theoretical and applied aspects by employing scientific concepts to analyze the realities of industrial organizations, identify the challenges facing the implementation of QHSE and risk management systems, and propose appropriate solutions.

Accordingly, the methodology employed in this study contributes to providing accurate and reliable results that can support decision-makers and improve the implementation of risk management and QHSE systems within industrial organizations.

This methodology was chosen due to its suitability to the nature of the study, which addresses the integration of risk management with quality, health, safety, and environmental (QHSE) systems within industrial organizations. This methodology allows for an understanding of the relationship between risk management and the implementation of QHSE systems, as well as identifying the extent to which this integration reduces accidents and risks and improves the work environment.

The study also adopted an applied approach, drawing on practical experience in QHSE within industrial companies and examining actual practices related to risk management and the application of safety and quality standards. These practices were analyzed to identify strengths and weaknesses and to propose a set of recommendations that could contribute to developing risk management systems and improving occupational safety levels.

The research population refers to all individuals or entities connected to the subject of the study from whom the necessary data and information can be obtained to achieve the research objectives. Defining the research population is a fundamental step in scientific studies, as it helps identify the target group from whom data will be collected and analyzed.

In this study, the research population consists of employees in the field of Quality, Health, Safety, and Environment (QHSE) within industrial organizations, given their direct connection to the study topic and their practical experience in implementing risk management systems. This includes QHSE engineers, safety supervisors, quality engineers, and other related roles that contribute to the implementation of these systems within the work environment.

Selecting this population is appropriate for the nature of the study, as its members possess the necessary knowledge and experience to provide accurate and realistic data on the extent of risk management integration with QHSE systems and the challenges that may arise from this implementation in industrial organizations.

Furthermore, accurately defining the research population contributes to the credibility of the results, as it helps ensure that the collected data reflects the actual practices within the organizations, thus enhancing the generalizability of the findings and their application in improving organizational performance. A representative sample from this population was selected to ensure a diverse range of opinions and perspectives, contributing to a more comprehensive and objective analysis of the study.

Accordingly, defining the research population in this study aims to guarantee data quality and analytical accuracy, thereby supporting the research objectives and answering its questions scientifically and systematically.

The research population in this study comprises employees in the fields of Quality, Health, Safety, and Environment (QHSE) and risk management within industrial and engineering service companies, as well as engineers, technicians, and supervisors who play a direct role in implementing safety and risk management systems in the workplace.

The research population also includes employees in organizations that implement QHSE systems who possess knowledge or experience in risk assessment procedures, occupational accident management, and workplace improvement processes. The importance of selecting this population lies in its close relevance to the study topic, as its members possess the practical experience and knowledge necessary to provide accurate information about the current implementation of risk management and its integration with QHSE systems within organizations.

Research boundaries are crucial elements in scientific studies, as they define the framework within which the study is conducted and specify the aspects the researcher focuses on, thus clarifying the scope of the expected findings.

Research boundaries help clearly define the study's scope, contributing to guiding research efforts and focusing on aspects most relevant to the study's subject. They also clarify for the reader the framework within which the results can be interpreted, preventing generalizations beyond this specific area.

The boundaries of this study are multifaceted, including thematic boundaries. The study focuses on the integration of risk management with Quality, Health, Safety, and Environment (QHSE) systems within industrial organizations, without expanding into other areas not directly related to the research topic.

Regarding human resource boundaries, the study is limited to QHSE personnel within industrial organizations, given their direct connection to the study's subject and their experience in implementing risk management systems.

As for spatial boundaries, the study was conducted within the work environment of industrial organizations, which represents the practical field for implementing QHSE systems, allowing for a realistic understanding of the nature of these systems. The temporal boundaries refer to the period during which the study was conducted and data collected, reflecting the current state of risk management and QHSE system implementation during that time.

It is also worth noting that the study adopted a descriptive-analytical approach, meaning its findings are based on an analysis of available data without delving into experimental methods or advanced statistical analysis. This is a limitation of the study that must be considered when interpreting the results.

Therefore, defining the research boundaries contributes to clarifying the scope of the study and enhancing the accuracy of interpreting its results. It also helps future researchers to address aspects not covered in this study.

The limitations of this study are comprised of several key aspects, including thematic, spatial, temporal, and human limitations. Thematically, the study focuses on the integration of risk management with quality, health, safety, and environmental (QHSE) systems, and the extent to which this integration improves safety levels and reduces risks in the workplace within industrial organizations.

Spatially, the study is limited to industrial companies and engineering service companies that implement QHSE systems, with the aim of understanding the reality of risk management implementation within these organizations. The study may also include companies operating in the energy or industrial sectors that are concerned with implementing quality and occupational safety standards.

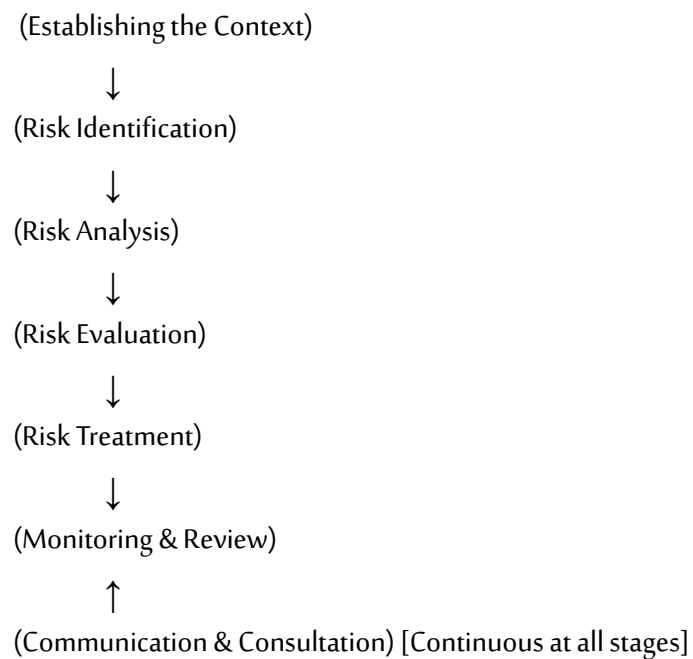
Given the difficulty of studying all members of the research population, researchers typically select a representative sample to appropriately reflect the population. This allows for data collection and analysis to arrive at results that accurately reflect the reality of the study population.

In this study, a random sample of employees in the fields of Quality, Health, Safety, and Environment (QHSE) and Risk Management within industrial and engineering service companies was selected. This selection was based on their direct relevance to the study topic and their experience in implementing safety and risk management systems within the workplace.

The study sample consisted of 50 participants, including engineers, supervisors, and specialists in QHSE. A questionnaire was distributed to them to collect data on the extent of risk management implementation and its integration with QHSE systems within their organizations.

This sample was chosen because of its ability to provide realistic and direct information on the study topic. The sample members possess practical experience in occupational safety and risk management, which helps in obtaining accurate data that contributes to analyzing the research topic and arriving at scientific results that can be used to develop risk management systems and improve the work environment within organizations.

ISO 31000 Risk Management Process Model



Risk Management Course in Industrial Enterprises

Identify risks



Risk Assessment



Develop treatment plans



Implementation of preventive measures



Monitoring and Follow-up



Continuous Review and Improvement

↻ The cycle returns again

Occupational Safety and Health Policy (OH&S Policy)



(Planning)



(Support)



(Operation)



(Performance Evaluation)



(Continual Improvement)

↻ (Continuous Cycle - PDCA)

Figure Explained

This diagram illustrates a model of an Occupational Health and Safety Management System (OHSMS) according to ISO 45001, which is based on the Plan-Do-Check-Act (PDCA) cycle. The process begins with establishing an OHSMS policy that reflects senior management's commitment to protecting employees.

This is followed by the planning phase, which includes identifying risks and opportunities and setting objectives. Next comes the support phase, which involves providing resources, training, and awareness. The operational phase follows, during which safety procedures are implemented in the workplace.

The performance evaluation phase measures the system's effectiveness through reviews and audits. Finally, the continuous improvement phase aims to constantly develop the system, enhance safety levels, and reduce occupational accidents.

الفصل الرابع

النتائج والتوصيات

-مقدمة

This chapter aims to present a systematic and organized overview of the study's findings by analyzing the responses of the research sample and extracting indicators that reflect the reality of integrating risk management with quality, health, safety, and environmental (QHSE) systems within industrial organizations.

The results are presented in a way that clarifies participants' attitudes and opinions, linking them to the study's objectives and questions. This facilitates a precise scientific interpretation of the findings. Tables and graphs are used to present the data in a simplified and clear manner, making it easy to understand and analyze.

This chapter pays particular attention to analyzing the relationship between study variables, such as job title and years of experience, and their impact on the perceived importance of risk management and its integration with QHSE systems. This aims to achieve deeper and more comprehensive results.

Furthermore, this chapter seeks to connect the findings to the theoretical framework and previous studies, interpreting them in light of existing scientific literature. This enhances the study's credibility and gives it a deeper scientific dimension. In light of these findings, this chapter will conclude with a set of practical conclusions and recommendations that can contribute to developing and implementing risk management systems and enhancing safety levels within industrial organizations.

The analysis of this data aims to identify the extent to which risk management is implemented and integrated with quality, health, safety, and environmental

(QHSE) systems within organizations, as well as to determine the impact of this integration on reducing occupational accidents and improving workplace safety.

This chapter also presents the most important findings derived from analyzing the opinions of the sample members, followed by a set of recommendations and proposals that can contribute to developing risk management systems and enhancing the application of QHSE standards within industrial organizations. This will help improve performance efficiency and achieve a safer and more sustainable work environment.

The data were analyzed using appropriate descriptive methods, including classifying and organizing participants' responses to facilitate interpretation and the drawing of conclusions. Frequencies and percentages were used to measure the attitudes of the study participants toward the various themes.

The results of the analysis were presented in illustrative tables to highlight differences in participants' opinions based on their job titles and years of experience. This helps provide a comprehensive picture of the reality of integrating risk management with QHSE systems within industrial organizations.

The data analysis showed that the majority of participants agreed on the importance of implementing risk management in an integrated manner with quality, health, safety, and environmental systems. They indicated that this integration contributes to improving safety levels and reducing occupational accidents.

The results also showed a positive relationship between employees' level of experience and their awareness of the importance of risk management. Those with more experience were more aware of the importance of implementing integrated systems and their role in improving organizational performance.

On the other hand, the data revealed some challenges facing the implementation of this integration, such as insufficient training, weak awareness, and the lack of advanced risk management systems in some organizations, which affects the effectiveness of implementation. The data were analyzed in light of the study's objectives and questions, which helped connect the results to the theoretical and applied framework and provide a logical interpretation of the findings.

Accordingly, the data analysis contributed to a clear understanding of the reality of integrating risk management with QHSE systems, identifying

strengths and weaknesses, and supporting the formulation of appropriate recommendations for improving performance within industrial organizations.

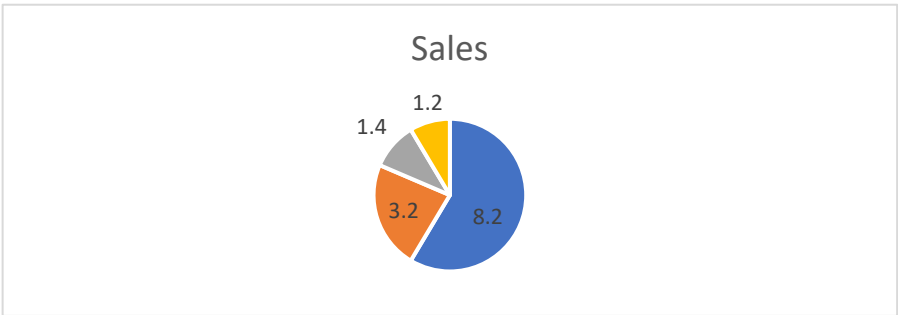
After collecting data from the study sample through a questionnaire, the researcher analyzed this data to understand the participants' opinions on the study topic, which concerns integrating risk management with quality, health, safety, and environmental (QHSE) systems within organizations.

The data was analyzed by organizing and classifying the responses in a way that facilitated a clear understanding of the results. The focus was on determining the extent to which risk management systems are implemented within organizations and the degree to which employees adhere to occupational safety procedures and quality and environmental standards in the workplace.

The participants' opinions on the importance of integrating risk management with QHSE systems in reducing occupational accidents and improving safety levels within organizations were also analyzed. The results of the analysis showed a growing awareness among employees of the importance of effectively implementing risk management, as this contributes to strengthening the safety culture and improving organizational performance. The study results also indicated that organizations that implement integrated risk, quality, health, safety, and environmental management systems have a higher level of organization and the ability to deal with potential risks, leading to a reduction in occupational accidents and an overall improvement in the work environment.

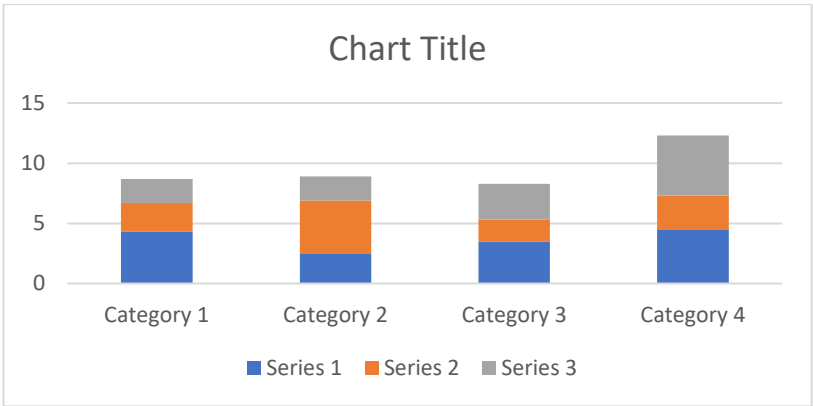
First: Demographic Analysis of the Study Sample

	number	ratio %
Engineer	28	40%
Technical	20	29%
Supervisor	14	20%
Boss	8	11%
the total	70	100%



The table shows that the majority of participants in the study are engineers, at 40%, followed by technicians at 29%, which reflects the nature of work in industrial projects.

Sample distribution by years of experience



	Number	Ratio
under 5 years	18	26
5–10 years	30	43
More than 10 years	22	31

The results indicate that most of the participants have 5 to 10 years of experience which shows that the study sample has sufficient practical experience.

Second: Risk Management Axis Analysis

phrase	arithmetic mean	standard deviation	Evaluation
Identifying risks in projects	3.8	0.72	high
Risk analysis using clear tools	3.6	0.80	Middle
Periodic risk assessment	3.9	0.70	High
Documenting the results of the risk assessment	3.7	0.75	High
Training employees in risk management	3.2	0.90	Middle

The results show that the level of risk management application in the company is generally high but risk management training still needs to be strengthened.

Third: Analysis of the QHSE Systems Axis

phrase	average	deviation	Evaluation
Implementing the quality system	4.1	0.60	high
Adherence to safety procedures	4.3	0.55	high
Environmental protection in projects	3.9	0.70	high
Conducting an internal audit	3.8	0.65	High

The results indicate that the level of application of quality safety and environmental systems is high within the company.

Fourth: Analysis of the Integration between Risk Management and QHSE

phrase	average	deviation	Evaluation
Linking risk outcomes to safety measures	3.5	0.78	middle
Cooperation between different departments	3.4	0.82	middle
Using risk analysis results to improve performance	3.6	0.75	middle

The results show that the level of integration between risk management and QHSE systems is average within the company.

Testing the relationship between variables

variable

Correlation coefficient

Risk Management & QHSE

0.71

The correlation coefficient value indicates that there is a strong positive relationship between risk management and QHSE systems.

Cronbach Alpha Stability Test

Axis

Value

Risk Management

0.82

QHSE

0.85

Systems integration

0.79

The above values indicate that the questionnaire has a high degree of stability.

This study relied on a descriptive, theoretical, and applied analysis of the integration of risk management with Quality, Health, Safety, and Environment (QHSE) systems, rather than primarily on statistical analysis or field surveys. Therefore, the findings presented in this study are based on an analysis of information gleaned from scientific literature and previous studies, in addition to practical experience in the field of risk management and QHSE systems.

The study results also showed that integrating risk management with QHSE systems is a crucial factor in improving performance levels within industrial organizations. This integration contributes to providing a comprehensive framework that helps identify, analyze, and address risks more efficiently and effectively.

The results indicated that implementing an integrated system contributes to reducing occupational accidents and injuries by adopting proactive approaches that rely on risk assessment before they occur, rather than relying on reactive measures after they happen. Furthermore, it was found that organizations that adopt this integration achieve a higher level of compliance with safety procedures and international standards. The study also showed that having an Integrated Management System (IMS) contributes to reducing redundancy and duplication in procedures and enhances coordination between different departments, leading to improved operational efficiency and reduced costs resulting from errors or accidents.

On the other hand, the results indicated that senior management support is one of the most important factors influencing the successful implementation of QHSE and risk management systems. This support contributes to providing the necessary resources, fostering a culture of safety within the organization, and encouraging employees to adhere to preventive measures.

The results also emphasized the importance of continuous training and raising employee awareness, as a lack of risk knowledge can increase the likelihood of accidents, while effective training contributes to improving professional behaviors and reducing risks.

The study also showed that using modern systems and digital technologies in risk management contributes to improving data accuracy and speed of decision-making, thus enhancing the organization's ability to deal with risks effectively and in a timely manner. Based on the above, it can be concluded that integrating risk management with QHSE systems leads to a safer work environment, improved organizational performance, and enhanced sustainability, making it one of the most important strategic factors that industrial organizations should adopt to achieve excellence and competitiveness.

Accordingly, the study's findings are presented in the form of a scientific and interpretive analysis illustrating the relationship between risk management and the implementation of quality, health, safety, and environmental systems within industrial organizations, with a focus on practical applications that contribute to reducing risks and improving the work environment.

In this context, the study recommends strengthening the integration of risk management with quality, health, safety, and environmental (QHSE) systems by adopting an integrated management system (IMS) that ensures the standardization of policies and procedures and achieves coordination among the various departments of the organization.

The study also recommends the importance of senior management supporting the implementation of risk management systems by providing the necessary human and financial resources and establishing clear policies that reflect the organization's commitment to achieving the highest levels of safety and quality.

The study emphasizes the need to develop continuous training programs for employees aimed at raising risk awareness and promoting a culture of occupational safety, thereby contributing to reducing accidents and injuries in the workplace.

Another important recommendation is to implement modern methods in risk analysis and assessment, such as using predictive models and digital technologies, which helps improve the accuracy of risk identification and timely decision-making.

The study also recommends strengthening internal monitoring and auditing processes on a regular basis to ensure the effectiveness of QHSE and risk management systems, address shortcomings, and achieve continuous improvement.

Furthermore, industrial organizations should foster a culture of communication and cooperation among different departments, which contributes to the exchange of risk-related information and improves coordination in implementing preventive measures. The study also recommends paying attention to environmental aspects by implementing environmentally friendly practices and minimizing the negative impacts of industrial activities, in line with sustainability requirements and international standards.

Finally, the study emphasizes the importance of leveraging global best practices and international standards in risk management and QHSE systems, and continuously developing these systems to keep pace with changes in the industrial work environment.

In light of the study's findings on integrating risk management with Quality, Health, Safety, and Environment (QHSE) systems, a set of recommendations can be offered to contribute to developing the application of risk management within industrial organizations and improving workplace safety. Among the most important of these recommendations are the following:

1. Strengthen the implementation of risk management systems within industrial organizations and directly link them to Quality, Health, Safety, and Environment (QHSE) systems to improve operational efficiency and mitigate potential risks.

This can be achieved by adopting an integrated management approach that ensures alignment between risk management processes and QHSE requirements. Organizations should focus on integrating risk-based thinking into all operational activities, enabling the proactive identification, assessment, and mitigation of potential risks before they escalate into incidents.

Furthermore, establishing clear procedures and standardized frameworks for risk assessment across all departments will enhance consistency and improve decision-making. The integration of these systems also facilitates communication and coordination between different functional units, leading to more efficient resource utilization and reduced redundancy in processes.

In addition, organizations are encouraged to adopt digital tools and technologies that support risk monitoring and real-time data analysis, significantly improving response speed and overall system effectiveness. Ongoing training and awareness programs should also be implemented to ensure that employees at all levels understand their roles in risk management and actively contribute to maintaining a safe and compliant work environment. Ultimately, enhancing this

integration will not only reduce workplace accidents and environmental impacts, but will also strengthen the organization's resilience, regulatory compliance, and long-term sustainability.

2. Provide ongoing training programs for employees in occupational safety and risk management to raise awareness of risks and how to deal with them properly. This can be achieved by developing structured and continuous training programs, tailored to different job roles and levels of responsibility within the organization. These programs should cover essential topics such as risk identification, risk assessment techniques, safe work practices, emergency response procedures, and the proper use of personal protective equipment. In addition, organizations should adopt a proactive approach by integrating practical training methods, such as simulations, practical exercises, and real-life case studies, to enhance employee understanding and preparedness. Regular refresher courses should also be conducted to ensure employees stay up-to-date with the latest safety standards, procedures, and regulatory requirements. Furthermore, fostering a strong safety culture requires encouraging employee participation and engagement in training activities, as well as promoting open communication where employees feel comfortable reporting risks and sharing their safety concerns. This contributes to improved overall awareness and reduces the likelihood of accidents. Organizations should also evaluate the effectiveness of training programs through performance reviews, feedback mechanisms, and incident analysis to identify areas for improvement. Through continuous improvement of training initiatives, companies can ensure they have a competent workforce capable of effectively managing risks and maintaining a safe working environment.

.3Supporting senior management in implementing QHSE systems within organizations, as management commitment plays a crucial role in the successful implementation of occupational safety policies and procedures.

-Leading by Example (Visible Felt Leadership - VFL) Top management's commitment must be tangible, not just theoretical. When the CEO participates in Safety Walks and discusses risks with engineers and technicians, they send a strong message that safety is a top priority.

Active Participation: Attend monthly Safety Committee meetings and regularly review Key Performance Indicators (KPIs).

- Sustainable Resource and Funding

Management's commitment is measured by the availability of necessary resources, including:

Technology: Investing in digital monitoring systems and advanced protective equipment.

Training: Allocating budgets for specialized training programs (such as first aid, firefighting, or hazardous materials handling).

Human Resources: Hiring qualified QHSE specialists to ensure the effective implementation of systems.

- Integrating Safety into the Organization's Overall Strategy

Safety policies should move from being a separate department to an integral part of the organization's business goals.

A Just Culture: Encouraging employees to report near misses without fear of reprisal, which helps address the root causes of problems before a disaster occurs.

Linking to Incentives: Linking performance rewards to adherence to quality, safety, and environmental standards.

- Open Communication (Two-Way Communication):
Management's commitment is demonstrated by its ability to listen. Providing direct communication channels allows supervisors and technicians to report hazards (such as floor damage or electrical circuit malfunctions) and receive an immediate response from senior management.
- Accountability and Continuous Improvement (PDCA Cycle):
Senior management is primarily responsible for the "Plan, Do, Check, and Improve" cycle:

Accountability: Holding those who fall short accountable and rewarding those who excel in implementing QHSE standards.

Regular Review: Ensuring that implemented systems remain effective and align with new industry challenges.

- 4- Develop clear policies and procedures for risk management within organizations to ensure the identification of potential risks and the development of appropriate mitigation plans.

- Risk Identification Framework

Clear policies begin with defining "what constitutes a risk" and how to monitor it in an industrial work environment.

Multiple Monitoring Sources: Procedures should include diverse techniques such as safety walks, job hazard analysis (JSA), and risk assessment workshops.

Qualitative Classification: Classify risks as operational, environmental, health, or technical (e.g., electrical circuit malfunctions) to ensure they are accurately directed to the appropriate department.

- Risk Assessment Matrix

Establish standardized criteria for measuring risk severity and likeness.

Smart Prioritization: Clear policies inform supervisors and operators which risks must be addressed immediately (e.g., exposed wiring or damaged flooring) and which can be scheduled for routine maintenance.

Data-Based: Use numerical data and percentages to transform hypothetical threats into tangible performance indicators.

- Mitigation and Response Plans

A policy is incomplete without clear corrective actions:

Hierarchy of Controls: The policy begins with hazard elimination, then replacement, and finally includes engineering controls and personal protective equipment.

Emergency Plans: Establish clear procedures for handling incidents immediately after they occur to minimize human and material losses (such as first aid and evacuation protocols).

- Documentation and Periodic Review

Policies are dynamic and evolve as industrial projects develop:

Live Risk Register: Document every identified hazard, specifying the party responsible and the timeline for closure.

Lessons Learned: Update procedures based on near misses analysis to ensure they are not repeated in the future.

- Clarity and Accessibility

A successful policy is one that is as easily understood by the technician on-site as it is by the manager in their office:

Simplified Language: Use clear work instructions and visual aids at work sites.

Ongoing Training: Ensure that all employees are fully aware of the QHSE policies and procedures.

5. Promote a culture of occupational safety among employees by organizing awareness campaigns and training programs that contribute to raising awareness of the importance of adhering to safety procedures.

-Competency-Based Training Programs

Awareness begins with knowledge and empowerment, so training should not be limited to theory:

Hands-on Training: Such as first aid (CPR) courses, fire safety, and proper handling of electrical panels and circuits (110V/220V).

Simulation Scenarios: Placing employees in hypothetical hazard situations (such as a chemical spill or tripping on a damaged floor) to test their response speed.

-Ongoing Awareness Campaigns

Awareness is not a one-time event, but rather an ongoing process of communication:

Toolbox Talks: Short daily meetings (5-10 minutes) to discuss the risks associated with the day's tasks and remind technicians and engineers of safety procedures.

Visual Safety: Using explanatory posters and digital displays showing safety statistics (such as the number of days without incidents) to boost morale and collective responsibility.

3. Safety Incentive Programs

To foster a culture of safety, positive behavior should be rewarded:

Safety Hero Award: Recognize employees or supervisors who identify potential hazards (near misses) and contribute to addressing them before accidents occur.

Employee Involvement in Decision-Making: Include the opinions of technicians when developing new safety procedures. They are the most familiar with the challenges in the field, which fosters a sense of ownership and commitment to the system.

-Strengthening Work Authority

One of the most important pillars of a safety culture is empowering every individual in the organization, regardless of their job title (engineer, technician, or supervisor), with the authority to immediately stop work if they observe a hazard that threatens lives or property, without fear of administrative repercussions.

-Safety Culture Maturity

Awareness needs periodic evaluation to determine its development:

Surveys: Conduct regular surveys to measure employee satisfaction and understanding of QHSE systems.

Analysis of work behaviors: Monitoring the actual compliance with wearing protective equipment and following safe work protocols in industrial sites.

6. Utilize modern technologies in risk management, such as digital systems and risk analysis software, which help in monitoring incidents and analyzing their causes.

-Real-Time Monitoring Systems

Using technology enables engineers and supervisors to monitor industrial sites around the clock:

Internet of Things (IoT): Installing smart sensors to monitor temperature, pressure, or gas leaks, and sending instant alerts to smartphones before a disaster occurs.

Smart Cameras (AI Vision): Artificial intelligence technologies that can detect employees not wearing safety helmets or automatically detect obstacles and damaged flooring.

-Risk Analytics Software

Instead of simply recording incidents, software allows us to understand "why" they happened and how to prevent their recurrence:

Root Cause Analysis (RCA): Digital tools that help connect seemingly minor incidents to uncover deeper organizational problems.

Dashboards: Transforming numbers (such as the number of incidents or compliance rates) into interactive graphs that help senior management make decisions based on facts, not predictions.

-Mobile Safety Apps

Facilitating the reporting process is key to the success of any QHSE system:

Immediate Reporting: Enabling technicians to photograph hazards (such as a faulty electrical panel or broken tiles on the site) and upload them immediately via a mobile application with GPS location.

Swift Response: Immediate reporting to the relevant supervisor reduces processing time, significantly improving operational efficiency.

- Simulation and Virtual Reality Technologies (VR & Digital Twins)

Virtual Reality (VR): Training employees to handle high-risk situations in a completely safe virtual environment before they go into the field.

Digital Twin: Creating a digital version of the industrial facility to simulate catastrophic scenarios and test evacuation plans and the effectiveness of proposed safety systems.

- Automation and Artificial Intelligence in Predictive Risk Management

Predictive Foresight: Using artificial intelligence algorithms to analyze past "near-miss" incidents and predict when or where the next incident might occur, enabling proactive preventative intervention.

7. Conduct periodic risk assessments within the work environment to identify new risks and take appropriate preventive measures before incidents occur.

-Proactive vs. Reactive

The primary goal of periodic assessment is to uncover latent hazards that may not be apparent during normal daily use.

Identifying Emerging Hazards: Over time, equipment deteriorates (such as electrical circuit corrosion or loose floor tiles), and periodic assessment is the only tool to monitor this deterioration before it leads to an accident.

Reviewing Changes: Any change in personnel, the introduction of new equipment, or even a change in work shifts requires immediate assessment to ensure that no new hazards have emerged.

- Site Safety Walks Methodology

Periodic assessment should be based on direct observation and accurate measurement:

Planned Safety Walks: Allocate schedules (weekly or monthly) in which engineers and supervisors participate to thoroughly inspect the work environment.

Specialized Checklists (Smart Checklists): Use checklists that cover both technical aspects (such as the safety of 220V/110V wiring) and structural aspects (such as the safety of roofs and walkways) to ensure no detail is overlooked.

-Gap Analysis and Continuous Improvement: Periodic assessments serve as a measure of the effectiveness of current safety procedures:

Measuring Compliance: Ensuring that staff (technicians, engineers, managers) remain committed to previously established standards.

Updating the Risk Register: Periodic assessments update the database with current information, allowing for reprioritization based on the actual risks currently observed in the field.

-Inclusive Assessment: Assessments should not be limited to the QHSE team:

Operator Expertise: Technicians are best positioned to notice subtle changes in machine performance or site defects, so involving them in periodic assessments increases the accuracy of the results.

Raising Awareness: The assessment process itself is a training opportunity for employees to learn how to identify hazards themselves.

-Corrective and Preventive Action (CAPA) Assessment without action is a wasted effort, so it must conclude with:

A Timeline Action Plan: Identifying who will perform the repair, when, and how.

Verification of Closure: Ensuring that the preventive action taken (such as repairing the damaged floor or replacing a circuit breaker) has effectively eliminated the hazard or reduced it to acceptable levels.

8. Enhance integration between different departments within organizations, such as quality, safety, and operational management, to ensure the effective implementation of risk management systems.

- Breaking Down Organizational Silos

The goal is to create a common language across different departments (Quality, Safety, Operations, and Maintenance):

Unified Objectives: Operations management must recognize that "rapid production" is worthless if it lacks "quality" or threatens the "safety" of technicians.

Cross-Departmental Coordination Meetings: Hold regular meetings that include the site engineer, safety supervisor, and quality manager to discuss shared challenges, such as the impact of floor damage on equipment speed and employee safety simultaneously.

- Shared Data Flow

Effective integration depends on information transparency:

Unified Digital Platform: Using an Integrated Management System (IMS) allows the quality officer to view risk reports submitted by the safety officer, helping to predict how a technical malfunction (such as 110V/220V power fluctuations) might affect the quality of the final product.

Cross-Reporting: Encourage technicians and engineers to report any malfunction, regardless of their specialization. The risk of failure is a matter of "safety" but it hinders "operations" and affects "quality".

- Unified KPIs

Instead of separate KPIs for each department, integrated indicators should be created:

Safety Efficiency Index: Measuring production volume (operations) with zero accidents (safety) and zero defects (quality).

Shared Accountability: Linking the performance evaluation of department managers to their cooperation in addressing identified hazards at the sites.

- Cross-Training

Promoting mutual understanding between different disciplines:

Joint workshops: Training process engineers on QHSE principles and safety supervisors on the fundamentals of technical operations, creating a comprehensive awareness of the work environment.

Understanding Roles: When technicians understand that their adherence to safety procedures is part of the "quality" of their work, their level of automatic compliance increases.

- Collaborative Mitigation

When a new hazard is detected in the work environment:

Task Forces: Forming a team from different departments to develop a comprehensive mitigation plan; for example, repairing an electrical or engineering fault requires coordination between maintenance (for execution), safety (for site security), and operations (for scheduling downtime).

.9Leverage international expertise and experiences in the field of risk management and implement global best practices in QHSE systems.

- Adopting International Standards (ISO Standards)

ISO specifications are considered the "global language" of quality and safety. Adherence to them ensures that the organization operates according to the highest internationally recognized standards:

Integrated Management System (IMS): Combining ISO 9001 (Quality), ISO 14001 (Environment), and ISO 45001 (Occupational Health and Safety) creates a robust structure that reduces redundancy and improves control efficiency.

ISO 31000 Framework: Using this global standard for risk management provides a clear methodology for proactively identifying, assessing, and addressing risks.

- Benchmarking

Learning from global industry leaders helps raise the bar:

Global Case Studies: Analyze how major companies (such as SABIC, Aramco, or Schneider Electric) address electrical circuit risks or construction site safety.

World-Class KPIs: Adopt metrics that go beyond the mere "number of incidents" to include the "Lost Time Frequency Rate" (LTIFR) and compare it to global averages in the same industry.

- Implementing the "Best Available Techniques" (BAT)
Methodology: Modern global practices focus on using technology to minimize human intervention in hazardous areas:

Automation and Engineering Safety: Replacing hazardous manual processes with automated systems, a global trend to reduce human error.

Digital Permit Systems (e-PTW): Replacing paper work permits with global digital systems that ensure no work (electrical or mechanical) begins until all safety requirements are strictly met.

- Knowledge Transfer and Competency Building: International expertise must be transformed into local skills:

International Professional Certifications: Encourage engineers and technicians to obtain international certifications such as NEBOSH or OSHA, ensuring a standardized level of awareness and knowledge within the organization.

Strategic Partnerships: Collaborating with international consulting firms to conduct external audits aimed at uncovering "blind spots" that the internal team might not see.

- A Culture of "Learning from Failure" (Learning from Global Incidents): Leveraging lessons learned from major industrial accidents around the world (such as the Bhopal or Deccan accidents):

Global Safety Bulletins: Monitoring international technical reports issued after major accidents to update internal prevention procedures and prevent the recurrence of similar scenarios.

10. Encourage further studies and research in the field of integrating risk management with quality, health, safety, and environmental systems to develop this field and improve the work environment in organizations.

- Bridging the Gap

Future research should focus on how to translate academic theories into tangible, practical tools for engineers and technicians on-site:

Applied Case Studies: Encourage researchers to conduct in-house studies (such as those conducted by Yokogawa or Engineering Solutions) to analyze

the impact of actual integration on reducing incidents and increasing productivity.

Developing Localized Assessment Models: Create risk assessment matrices that take into account the specific environmental and technical conditions of the area (e.g., the impact of high temperatures on 220V/110V electrical equipment).

- Exploring the Role of Smart Technology

The field urgently needs research that integrates data science and safety systems:

Predictive AI: Investigate how machine learning algorithms can be used to predict the risk of "imminent incidents" based on past maintenance and quality records.

Automation and Human Factors Safety: Research how digitalization impacts employee behavior (human factors) and their acceptance of digital security systems.

- Enhancing Sustainability and Organizational Resilience

Scientific research contributes to building resilient organizations capable of withstanding crises:

Return on Investment (ROI): Conducting economic studies that demonstrate that investing in QHSE integration reduces long-term operational costs (by minimizing fines, compensation, and material waste).

Developing a Culture of Safety: Studying the most effective psychological and social methods for changing employee perceptions and transforming safety into an automatic behavior.

- Creating Knowledge Sharing Platforms

Specialized Conferences: Recommending the organization of forums that bring together quality experts, safety engineers, and operations managers to exchange field experiences and research findings.

Professional Scientific Journals: Supporting the publication of journals that focus on best practices in systems integration, to serve as a reference for supervisors and managers when making decisions.

- The role of educational and industrial institutions

Partnership between universities and industry: Activating joint research programs that allow engineering students and quality specialists to access real data from industrial sites to solve real problems (such as improving floor safety or electrical circuit efficiency).

المراجع

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الملاحق

The appendices include a collection of documents and materials that support the study topic and were utilized in preparing this research. These appendices aim to clarify additional information that aids in a better understanding of the study topic, without including it in detail within the main research chapters.

The appendices of this study include some models and documents related to risk management and quality, health, safety, and environmental (QHSE) systems, which help clarify the mechanisms for implementing risk management within industrial organizations.

The appendices may also include some examples of risk assessment models, occupational safety policies and procedures, and models used in implementing QHSE systems within organizations. These documents serve as a supporting part of the study, contributing to clarifying the practical aspects related to the research topic.

Appendix(1)

Risk Assessment Model

The risk assessment process involves several key stages, including:

1. Risk Identification

This stage involves identifying all potential risks that could affect workflow, employee safety, or the surrounding environment.

2. Risk Analysis

This stage involves analyzing the risks by studying their probability of occurrence and their impact on the organization.

3. Risk Evaluation

This stage involves determining the level of risk for each risk by comparing the results with the organization's established criteria.

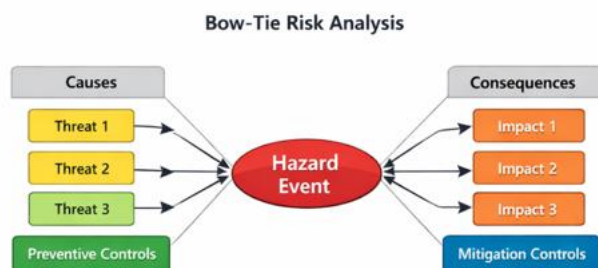
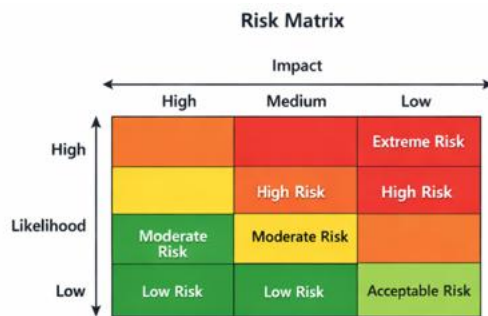
4. Risk Treatment

This stage involves developing appropriate procedures to mitigate risks or reduce their impact.

5. Risk Monitoring and Review

This stage involves periodically monitoring risks to ensure the effectiveness of the implemented measures.

Risk Matrix The risk matrix is used to determine the level of risk based on its probability of occurrence and impact.



The risk assessment model is used to identify potential hazards in the work environment and analyze their level of risk, with the aim of developing appropriate preventive measures to reduce these risks and ensure the safety of workers within the organization.

Potentially Hazardous Activity Level of Hazard Responsible Preventive Measures

Maintenance Work High Exposure to Electrocution Disconnect Electricity Source and Use of Personal Protective Equipment Safety Engineer

Work on site fall from high height use seat belts and site supervisor protections

Equipment Operation Mechanical Injuries Average Training for Safe Operation of Equipment Technical Supervisor

Handling Chemicals Exposure Average Use of Gloves and Protective Devices Safety Officer

Attachment (2)

QHSE Policy

The Corporation is committed to applying the highest standards of quality, health, safety and environment in all its operational activities, by providing a safe and healthy work environment for workers, improving the quality of services and products, and reducing the environmental impact resulting from industrial processes.

The Foundation seeks to achieve this by implementing an integrated management system based on international standards, such as:

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 45001 Occupational Health and Safety

Objectives of the Quality, Health, Safety and Environment Policy

QHSE policy aims to achieve a set of strategic objectives, the most important of which are:

1. Improve the quality of operations and services provided to customers.
2. Providing a safe work environment free from occupational accidents and injuries.
3. Reduce environmental impacts caused by industrial activities.
4. Comply with all laws and legislation related to health, safety and the environment.
5. Promoting a culture of safety and environmental responsibility among employees.
6. Apply the principle of continuous improvement in all operations.

Principles of Implementing a QHSE Policy

Implementing a Quality, Health, Safety, and Environment (QHSE) policy is not just a "manual" to be put on a shelf; it's an organizational culture aimed at reducing risks and improving performance.

Here's a breakdown of the most important principles that ensure the success of this policy in any organization:

1. Leadership Commitment

Policy starts at the top. If the executive doesn't believe in safety and quality, the employees in the field won't either.

- Providing resources: Financial and technical support to implement safety standards.

- Leading by example: Leaders' commitment to wearing personal protective equipment and following procedures before others..

2. Participation & Consultation

The policy cannot be imposed unilaterally. Staff must be involved in:

1. Identify risks in their work environment.
2. Provide suggestions for workflow improvement.
3. Feeling the **"right to refuse"** any unsafe action without fear of punishment.

3. Risk-Based Thinking

Instead of waiting for an accident to happen and then fixing it, we focus on prediction:

1. Identifying Risks: What Could Go Wrong?
2. Assessment: How serious is this?
3. Control: Setting controls (engineering or administrative) to prevent it from happening.
4. Continuous Improvement (PDCA Cycle)

The QHSE policy is based on the "Plan - Implement - Verify - Correct" cycle:

1. Plan: Setting goals (e.g. reaching zero accidents).
2. Implement (Do): Apply actions on the ground.
3. Check : Measuring results through inspections and audits.
4. Correct (ACT): Address gaps and develop policy based on results.

5. Legal and Legislative Compliance

Adherence to local and international laws (e.g. ISO 9001, 14001, 45001) is not an option, but rather a minimum requirement to protect a business from legal accountability.

6. Environmental Protection and Sustainability

Politics is not just about people, it includes:

1. Reduce waste in resources (energy, water).
2. Proper management of waste (especially hazardous).
3. Reduce carbon emissions.

A table summarizing the benefits resulting from applying these principles:

Principle	Interest Realized
Conscious Leadership	Build employee trust and loyalty.
Risk Assessment	Reduce costs resulting from accidents and compensation.
Quality Control	Increase customer satisfaction and reduce production waste.
Environmental Concern	Improve the company's reputation and commitment to social responsibility.

The strongest QHSE policy is one that ensures every employee goes home at the end of the day in the same healthy condition as when they came in, with a sense of pride in the quality of work they have done.

The organization relies on a set of fundamental principles in implementing its quality, health, safety, and environmental policy, including:

- Commitment to identifying and mitigating occupational and environmental hazards.
- Training employees on occupational health and safety procedures.

- Improving the efficiency of natural resource and energy use.
- Conducting periodic audits to ensure the system's effectiveness.
- Engaging all employees in implementing QHSE system requirements.

The Importance of Implementing the QHSE Policy

Implementing a quality, health, safety, and environmental policy contributes to numerous benefits for organizations, including:

- Reducing occupational accidents and injuries.
- Enhancing the organization's market reputation.
- Increasing operational efficiency.
- Promoting compliance with international standards.
- Supporting environmental sustainability in industrial projects.



الهيكل الكامل لنظام النظام الإدارة المتكامل QHSE

Through this policy, the organization seeks to achieve a set of key objectives, the most important of which are reducing occupational risks and minimizing accidents in the work environment, in addition to ensuring compliance with all regulations and instructions related to occupational safety and health and environmental protection.

Senior management is committed to supporting the implementation of quality, health, safety, and environmental (QHSE) systems by providing the necessary resources, ongoing employee training, and fostering a culture of occupational safety within the organization. This policy encourages all employees to adhere to safety procedures and report any hazards or incidents that may occur in the workplace.

The organization also conducts periodic risk assessments and takes appropriate preventive measures to mitigate risks, in addition to continuously improving performance by reviewing and developing QHSE systems in accordance with global best practices and international standards. The QHSE policy is a cornerstone of modern industrial organizations, contributing directly to a safe and organized work environment and improving the quality of processes and services. The importance of implementing this policy lies in its comprehensive framework that integrates quality requirements, employee protection, and environmental preservation within a single management system.

One of the most significant aspects of implementing the QHSE policy is its contribution to reducing occupational accidents and injuries through the application of preventive safety measures and the identification of potential hazards before they occur. This enhances employee protection and minimizes human and material losses.

This policy also helps improve the quality of products and services, as applying quality standards ensures a reduction in operational errors and increases efficiency and productivity within the organization. Furthermore, adhering to environmental considerations contributes to reducing negative environmental impacts, such as pollution and resource depletion, thus reinforcing the concept of sustainability.

The QHSE policy plays a crucial role in fostering a culture of safety and professional awareness among employees through continuous training and awareness of preventive measures. This leads to increased commitment to implementing safety systems within the workplace.

Implementing this policy also helps organizations comply with local and international regulations and legislation, enhancing their reputation and credibility with regulatory bodies and clients, which positively impacts their market competitiveness.

Moreover, integrating the QHSE policy with risk management improves decision-making within the organization by providing accurate information about potential risks and how to address them. This helps management develop effective plans to achieve strategic objectives.

Based on the above, it can be said that implementing the QHSE policy is not limited to achieving safety; it extends to improving organizational performance, reducing costs, and promoting sustainability, making it a fundamental element for the success and continuity of industrial organizations.

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University of

RESEARCH ON

THE IMPACT OF..... ON
IN

QUESTIONNAIRE BOOKLET

Ph.D. Candidate

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Dear Respondent,

I am a Master's candidate (Management) at the University of Midocean Currently, I
to examine the This study aimsam conducting a study titled " **The impact of Integreation of
Risk Mangament with(QHSE) Systeams in Industrial Projects: An applied study at Yokogawa Company"**

I would like to request your cooperation to answer this questionnaire. Any information obtained
will be kept confidential and only used for academic purposes. Your cooperation is highly
appreciated.

Thank you in advance for agreeing to participate in this study. If you have any questions, please
do not hesitate to contact my honorable supervisor, **Associate Professor Dr.....**, or myself
..... (Master Candidate).

Supervisor
Associate Professor
Faculty of
[@gmail.com](#)
Phone :

.....
Master Candidate
Faculty of
University Name
[@gmail.com](#)
Phone #

Section A:

A: Demographic Characteristics

Please tick (✓) the appropriate choice

1- **Gender:** Male ☐ Female ☐

2- **Age:** 20 - 30 years old ☐ 31 - 39 years old ☐
40 - 49 years old ☐ 50 years old and over ☐

3- **Years of Experience:** 5 years & less ☐ 5-10 years ☐
11-20 years ☐ 21 years & above ☐

Section B:

Please indicate your degree of agreement or disagreement with the following statements, so please sign (✓) for the choice that reflects your opinion by choosing one of the five alternatives.

The following set of statements measures Emotional intelligence and its effect on the Quality of Service in Egyptian banks. Please mark according to your level of agreement.						
Section A: Quality of Service						
Item No		1	2	3	4	5
	I. Risk Management Integration	Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
ASTI1	Risk management processes are integrated with the QHSE management system in the organization					
ASTI2	Risk assessment is regularly conducted as part of QHSE planning in industrial projects					
	II. Leadership and Management Commitment	Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
ASRII1	Top management supports the integration of risk management with QHSE systems					
ASRII2	Management ensures that risk-based thinking is applied in QHSE decision-making					

III. Communication and Awareness		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
ASRII1	Employees are aware of the risks related to QHSE activities in their work environment					
ASRII2	The organization provides training programs related to risk management and QHSE practices					
IV. Operational Control		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
ASAIV1	Risk control measures are implemented to prevent quality, safety, and environmental incidents					
ASAIV2	Procedures are in place to monitor and control risks during project execution					
V. Continuous Improvement		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
ASEV1	Lessons learned from incidents and risk assessments are used to improve QHSE performance					
ASEV2	Integrating risk management with QHSE contributes to improving overall project performance					
Section B: Project Performance (QHSE Perspective)						
Item No	I. Quality Performance	1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
BSAI1	The project meets the required quality standards.					
BSAI2	Rework and defects are minimized during project execution.					
II. Safety Performance		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
BSRII1	Safety procedures are effectively implemented on site.					
BSRII2	The number of accidents and injuries is minimized.					
III. Environmental Performance		1	2	3	4	5

		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
BMIII1	Environmental impacts are properly controlled during the project.					
BMIII2	Waste management practices are effectively implemented.					
IV. Time Performance		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
BEIV1	The project is completed within the scheduled time.					
BEIV2	Delays are effectively minimized during project execution.					
V. Cost Performance		1	2	3	4	5
		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
BSSV1	The project is completed within the approved budget.					
BSSV2	Cost overruns are effectively controlled.					

SECTION C: OPEN-ENDED QUESTIONS

C1) Please provide ANY other comments regarding this study.

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C2) Please provide any comments regarding any aspect that appears to be LACKING in this study.

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Gratitude:

We appreciate you for sparing your time to fill out the survey. Your involvement means a lot to us and we highly value it. The information you shared is significant to our analysis and will enable us to make improvements in our bank's performance.

Once again, we are very grateful for your contribution.

Sincerely

.....

Master Candidate

University Name

Cell #

This study aims to identify the importance of integrating risk management with Quality, Health, Safety, and Environment (QHSE) systems in industrial organizations, and its role in reducing occupational hazards and improving workplace safety. The study's significance stems from the growing need to implement integrated systems that contribute to increased performance efficiency and a safe and sustainable work environment.

The study employed a descriptive-analytical approach, reviewing scientific literature and previous studies related to risk management and QHSE systems, in addition to analyzing the practical aspects of using these systems in industrial organizations.

The study concluded that integrating risk management with QHSE systems significantly contributes to fostering a culture of occupational safety and improving the ability to identify and effectively address risks before they occur, leading to reduced accidents and losses and improved organizational performance.

The study also emphasized the importance of senior management support, continuous training, and the development of policies and procedures to ensure the effective implementation of risk management and occupational safety systems.

The study recommended strengthening the integration between risk management and QHSE systems, leveraging global best practices, and adopting modern risk analysis methods to contribute to a safer and more efficient work environment.

Midocean University

College of Management

Department of Risk Management

Title in English

Integration of Risk Management with (Quality, Health, Safety, and Environment (QHSE))
Systems in Industrial Projects: An Applied Study at Yokogawa Company

Prepared by:

Murtadha Abdullah Harbi Alshawi

Supervised by:

د. الفیصل عبد الحمید

د. فایز جرّاد

Year:2026