

Midocean University

Management college

Bachelor of Project Management



The Impact of Drilling Quality Management Systems on Employee Performance in Dammam.

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Graduation Project – 1

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1.Chapter 1: Introduction

1.1. Research Background

The quality of drilling operations is a critical factor in the oil and gas industry, influencing both productivity and safety. As the complexity of drilling projects increases, so does the need for robust Quality Management Systems (QMS) to ensure efficiency and mitigate risks. This study investigates the impact of Drilling Quality Management Systems (DQMS) on employee performance, emphasizing how structured quality protocols can enhance operational outcomes and workforce morale.

The primary problem this research addresses is the correlation between the implementation of DQMS and employee performance metrics. Despite significant advancements in drilling technology and methodology, there remains a gap in understanding how these systems influence the human elements of the industry. Employees, being the cornerstone of any successful operation, are directly affected by the management systems in place. This study aims to bridge that gap by providing empirical evidence on the effects of DQMS on employee performance, motivation, and job satisfaction.

The objectives of this research are threefold:

to assess the current state of DQMS in the industry, to evaluate their impact on various aspects of employee performance, and to identify best practices that can be adopted to optimize both system efficacy and workforce engagement. By focusing on these objectives, the study aims to contribute valuable insights that can help industry leaders make informed decisions about quality management and employee development.

The significance of this research lies in its potential to improve both operational efficiency and employee well-being. Quality management systems are traditionally viewed through the lens of compliance and risk management; however, their influence on human resources is equally critical.

By understanding the interplay between DQMS and employee performance, organizations can foster a more motivated, competent, and satisfied workforce, which in turn can lead to better project outcomes and a safer working environment.

The rationale behind choosing this topic stems from the increasing emphasis on quality and safety in drilling operations. Historically, the focus of drilling operations was primarily on mechanical and technical aspects, with less attention given to the human factors. However,

recent incidents and accidents have highlighted the need for a holistic approach that incorporates quality management systems to enhance both machine and human performance. This research seeks to explore these dynamics and provide a comprehensive analysis of the benefits of integrating DQMS into the operational framework.

The importance of this study extends beyond the immediate benefits to the drilling industry. As global energy demands continue to rise, efficient and safe drilling operations become paramount. By improving our understanding of how DQMS impact employee performance, this research contributes to broader efforts in enhancing industrial safety, operational efficiency, and overall productivity. The findings could potentially inform policy decisions, training programs, and management practices, making a meaningful impact on the industry and society at large.

This introduction aims to provide a clear context for the project, beginning with a general overview and narrowing down to specific aspects of the research problem. By linking the study to previous research and highlighting its importance, the introduction sets the stage for a detailed exploration of the impact of Drilling Quality Management Systems on employee performance.

Research Problem

Understanding the impact of Drilling Quality Management Systems (DQMS) on employee performance is crucial for advancing both theoretical knowledge and practical applications in the oil and gas industry.

While previous studies have explored various aspects of quality management and employee performance independently, there is a notable lack of integrated research addressing how these systems specifically influence the workforce in drilling operations. This section aims to identify and elaborate on the theoretical and practical gaps that this study seeks to address.

Theoretical Gaps

Despite extensive literature on quality management systems and employee performance, there is limited research examining the direct relationship between DQMS and employee outcomes in the context of drilling operations. Most existing studies focus

on general quality management principles or specific technical aspects of drilling, leaving a gap in understanding how these systems affect employee motivation, efficiency, and job satisfaction. Additionally, there is a need for theoretical models that integrate quality management practices with human resource performance metrics in the drilling industry.

This gap hinders the development of comprehensive strategies that address both system efficacy and workforce engagement.

1.1.1. PRACTICAL GAPS

In practice, the implementation of DQMS often emphasizes compliance and technical precision, sometimes overlooking the human element.

There is a scarcity of empirical studies that provide actionable insights into how these systems can be optimized to enhance employee performance. Practical gaps also include a lack of standardized metrics for evaluating the impact of DQMS on workforce outcomes, which complicates the assessment and comparison of different management systems.

Furthermore, the industry lacks best practices for training and supporting employees in environments governed by rigorous quality management protocols. Addressing these practical gaps is essential for improving overall operational efficiency and employee well-being.

This study seeks to answer the main research question: How do Drilling Quality Management Systems impact employee performance and satisfaction in the oil and gas industry?

1.2. RESEARCH SIGNIFICANCE

The significance of this study is rooted in its potential to advance both theoretical knowledge and practical applications in the realm of drilling operations. By investigating the impact of Drilling Quality Management Systems (DQMS) on employee performance, this research seeks to uncover valuable insights that can lead to improvements in efficiency, safety, and overall effectiveness of drilling projects.

The findings from this study are expected to provide a deeper understanding of how DQMS influence various aspects of workforce performance, thereby offering practical recommendations for industry practitioners. Ultimately, this research aims to bridge the gap between theory and practice, contributing to the enhancement of drilling operations and the well-being of employees in the oil and gas sector.

1.2.1. AT THE PRACTICAL LEVEL

At the theoretical level, this study addresses several gaps in the existing literature. It contributes to the body of knowledge by exploring the intersection between quality management systems and human resource performance in a specialized industry.

The research seeks to develop a comprehensive model that integrates DQMS with employee performance metrics, providing a framework for future studies in this area.

This model will help in understanding the mechanisms through which DQMS influence various aspects of employee behavior, including motivation, job satisfaction, and productivity.

By filling these theoretical gaps, the study enhances our understanding of the broader implications of quality management systems beyond their technical and operational functions.

1.2.2. AT THE PRACTICAL LEVEL

At a practical level, the findings of this research hold significant potential to shape industry practices and policies. By pinpointing the specific ways in which Drilling Quality Management Systems (DQMS) influence employee performance, this study can inform the development of more effective management strategies that enhance both system efficiency and workforce engagement. The practical implications include the creation of best practices for training and supporting employees within the framework of quality management systems. Additionally, the research can provide actionable recommendations for industry leaders to implement DQMS in a manner that maximizes productivity, safety, and job satisfaction. By doing so, the study aims to contribute to the establishment of a more efficient and motivated workforce, ultimately leading to improved outcomes in drilling operations and a safer, more productive working environment in the oil and gas sector.

Additionally, the research aims to provide actionable recommendations for industry leaders on how to implement and adapt DQMS to enhance employee motivation and job satisfaction, ultimately leading to improved operational outcomes.

These insights can contribute to safer, more efficient drilling operations, which are critical to meeting global energy demands. In summary, the significance of this study is twofold: it advances theoretical knowledge by addressing gaps in the literature and developing a new integrative model, and it offers practical solutions for enhancing the effectiveness of DQMS in the drilling industry, thereby benefiting both the workforce and the broader operational goals.

1.3. RESEARCH QUESTIONS

The research questions serve as the guiding framework for this study, directly addressing the identified research problem and objectives.

Each question is designed to provide clarity and direction towards understanding the impact of Drilling Quality Management Systems (DQMS) on employee performance and satisfaction in the oil and gas industry.

1. What are the essential elements of Drilling Quality Management Systems (DQMS) used in the oil and gas industry?

This question aims to identify and define the key components of DQMS that are commonly implemented in drilling operations. It sets the groundwork for understanding the specific systems and practices examined.

2. In what ways do Drilling Quality Management Systems (DQMS) impact employee motivation and job satisfaction?

This question explores the human factors influenced by DQMS, focusing on how these systems affect employee motivation levels and overall job satisfaction. It seeks to uncover the mechanisms through which quality management systems enhance workforce engagement.

3. What is the relationship between the implementation of DQMS and employee performance metrics, such as productivity and safety outcomes?

This question investigates the quantitative aspects of DQMS implementation, examining the correlation between these systems and key performance indicators like productivity levels and safety records. It aims to provide empirical evidence on the effectiveness of DQMS in improving operational outcomes.

4. What best practices can be recommended for integrating DQMS into drilling operations to optimize both system efficacy and employee performance?

This question seeks to identify practical recommendations for industry practitioners. It explores effective strategies and approaches for incorporating DQMS into daily operations to maximize benefits for both the organization and its workforce.

5. How can the findings from this study be applied to enhance industry standards and regulatory frameworks related to drilling operations?

This question examines the broader implications of the research insights. It considers how the knowledge gained can contribute to improving industry standards, regulations, and guidelines related to quality management in drilling operations, promoting safer and more efficient practices.

1.4. RESEARCH OBJECTIVES

To identify and analyze the essential elements of Drilling Quality Management Systems (DQMS) used in the oil and gas industry.

This objective aims to review existing literature and gather empirical data to establish a foundational understanding of DQMS components and their implementation strategies. It addresses the research sub-question on the key components of DQMS.

To evaluate the impact of DQMS on employee motivation, job satisfaction, and performance metrics such as productivity and safety outcomes.

This objective focuses on conducting empirical research to assess how DQMS influence employee motivation levels, job satisfaction, and key performance indicators. It addresses the research sub-questions on the human factors and quantitative aspects of DQMS implementation.

To propose best practices for integrating DQMS into drilling operations and enhancing both system efficacy and employee performance.

This objective seeks to derive practical insights from the research findings to provide actionable recommendations for industry stakeholders. It addresses the research sub-questions on best practices for optimizing DQMS and the broader implications for industry standards and regulatory frameworks.

1.5. RESEARCH HYPOTHESES

The Main Hypothesis (H1):

There is a statistically significant relationship between the implementation of Drilling Quality Management Systems (DQMS) and employee performance outcomes in the oil and gas industry.

Sub-Hypotheses:

Ha:

There is a statistically significant positive relationship between the implementation of Drilling Quality Management Systems (DQMS) and employee motivation in the oil and gas industry.

Rationale: Based on the literature, DQMS are expected to provide structured processes and guidelines that enhance employee motivation by fostering a sense of accountability and recognition for quality work.

Hb:

There is a statistically significant positive relationship between effective DQMS and higher levels of job satisfaction among employees in the oil and gas industry.

Rationale: Quality management systems are designed to improve work conditions and reduce errors, which are known contributors to job satisfaction according to previous research in similar industries.

Hc:

There is a statistically significant negative relationship between perceived challenges in implementing DQMS and employee performance outcomes.

Rationale: Challenges such as complexity in compliance or inadequate training may hinder employees' ability to perform optimally, affecting productivity and efficiency.

Hd:

Training and support mechanisms within DQMS have a statistically significant positive impact on employee performance metrics such as productivity and error rates.

Rationale: Effective training programs and support systems are expected to equip employees with the necessary skills and resources to perform tasks efficiently, leading to improved performance outcomes.

He:

Best practices identified for optimizing DQMS effectiveness will have a statistically significant positive correlation with improved employee performance metrics.

Rationale: Practices that have been identified as effective in optimizing DQMS are likely to enhance employee performance by streamlining processes and promoting a

1.6. RESEARCH MODEL

Independent Variable: Drilling Quality Management Systems (DQMS)

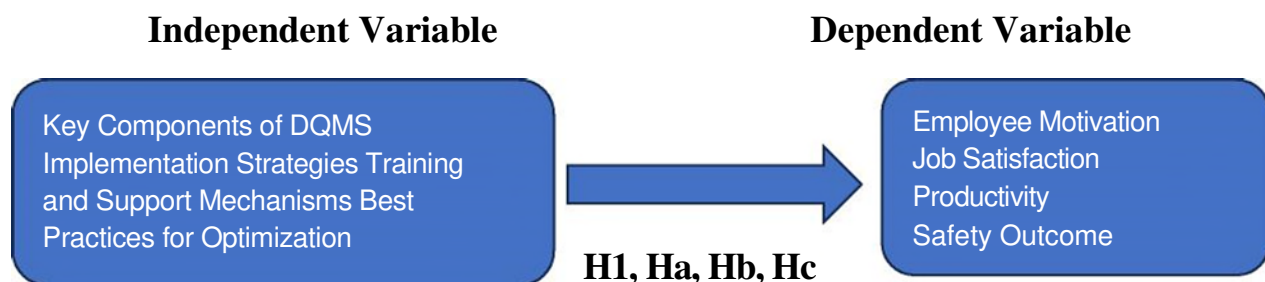
- **Dimensions:**

1. Key Components of DQMS
2. Implementation Strategies
3. Training and Support Mechanisms
4. Best Practices for Optimization

Dependent Variable: Employee Performance

- **Dimensions:**

1. Employee Motivation
2. Job Satisfaction
3. Productivity
4. Safety Outcome



Explanation:

Key Components of DQMS (IV Dimension 1):

These are the essential elements that constitute the DQMS. They are expected to influence how well the system functions and its overall effectiveness in the organization.

1. Implementation Strategies (IV Dimension 2):

The various approaches and methods used to implement DQMS in drilling operations. These strategies determine the extent to which DQMS are integrated into daily practices.

2. Training and Support Mechanisms (IV Dimension 3):

The training programs and support systems in place to ensure employees are well-equipped to utilize DQMS effectively. These mechanisms are crucial for the successful adoption and operation of DQMS.

3. Best Practices for Optimization (IV Dimension 4):

The identified best practices that help in optimizing the effectiveness of DQMS. These practices aim to enhance the overall performance of both the system and the employees.

4. Employee Motivation (DV Dimension 1):

The level of motivation among employees influenced by the presence and quality of DQMS. Motivated employees are likely to perform better and show higher engagement in their tasks.

5. Job Satisfaction (DV Dimension 2):

The extent of job satisfaction among employees working under DQMS. Job satisfaction is a critical factor that affects employee retention and performance.

6.Productivity (DV Dimension 3):

1. The productivity levels of employees, which can be influenced by the efficiency and effectiveness of DQMS. Higher productivity is a key performance indicator in the industry.

7.Safety Outcomes (DV Dimension 4):

The safety records and outcomes related to the implementation of DQMS. Effective DQMS are expected to reduce errors and accidents, thereby improving safety metrics.

1.6.1. RESEARCH DESIGN

This study adopts a mixed methods approach to comprehensively explore the multifaceted relationships between DQMS and employee performance.

The qualitative component involves in-depth interviews and focus groups with employees and managers to gather rich insights into their perceptions and experiences with DQMS.

Quantitatively, surveys will be administered to a larger sample of employees to collect structured data on variables such as motivation, job satisfaction, and performance metrics. This mixed-methods design allows for a holistic understanding of the research problem from both qualitative and quantitative perspectives.

1.6.2. EMPIRICAL STUDY

1. Selection of the Research Application Place:

The place for applying the research must be chosen carefully to ensure consistency with the research variables.

2. Industry, Organization, or Sector Summary:

The chosen industry for this study is the oil and gas industry, specifically focusing on drilling operations. This sector is selected due to its significant reliance on Drilling Quality Management Systems (DQMS) and the critical importance of employee

performance metrics such as motivation, job satisfaction, productivity, and safety outcomes.

3. Consistency with Research Variables:

The independent variable in this research is Drilling Quality Management Systems (DQMS), which encompasses key components, implementation strategies, training and support mechanisms, and best practices for optimization.

The dependent variable is Employee Performance, which includes dimensions such as employee motivation, job satisfaction, productivity, and safety outcomes.

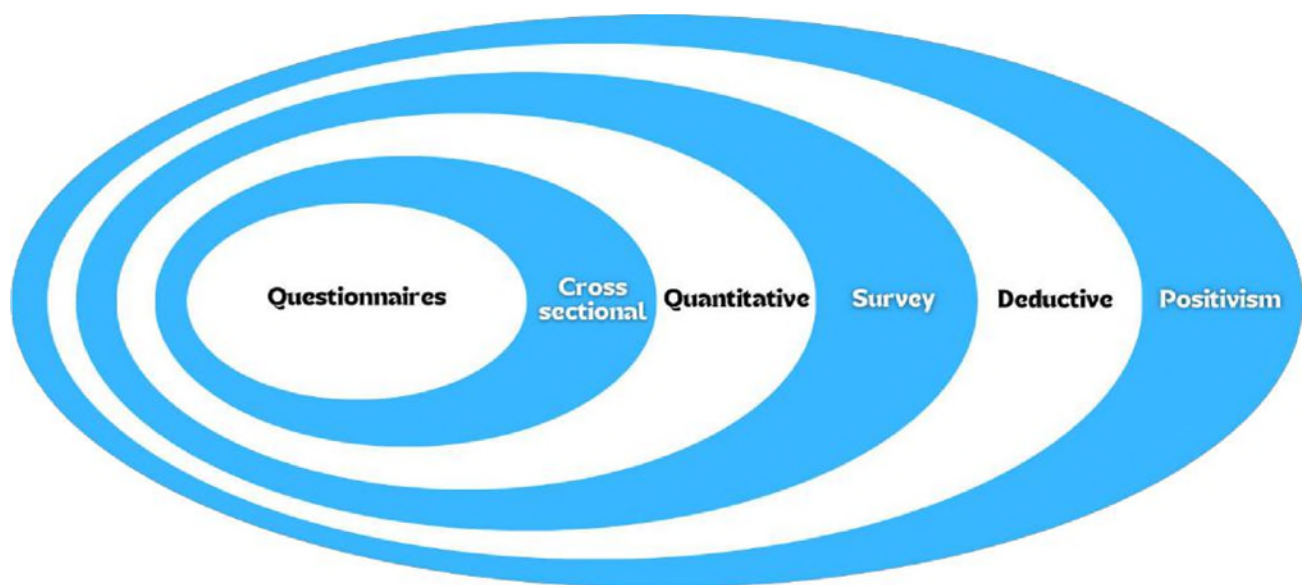
4. Use of References:

References from reputable sources, such as the organization's website or industry reports, will be used to provide context and support for the study. The link to the organization's website or relevant sources will be included in the reference list.

6. Nature of the Study:

This study will be theoretical, aiming to explore and understand the relationships between DQMS and employee performance in the oil and gas industry through a comprehensive literature review and analysis.

1.6.3. RESEARCH METHODOLOGY



1.6.4. DATA ANALYSIS TECHNIQUES

Qualitative Data Analysis:

- **Thematic Analysis:** Qualitative data gathered from interviews and focus groups will be analyzed using thematic analysis. This method will help identify recurring patterns, themes, and narratives that illustrate the impact of Drilling Quality Management Systems (DQMS) on employee performance and satisfaction. By systematically examining these qualitative insights, the analysis aims to uncover deeper understandings and nuanced perspectives regarding the influence of DQMS on the workforce.
- **Content Analysis:** Applied to qualitative data, thematic analysis systematically categorizes and interprets textual information. This approach provides detailed insights into specific aspects of employee experiences with Drilling Quality Management Systems (DQMS), uncovering key themes and patterns. By doing so, it highlights the various ways DQMS influences employee performance and satisfaction.

Quantitative Data Analysis:

- **Descriptive Statistics:** This method will be utilized to summarize survey responses, offering a comprehensive overview of key variables such as employee motivation, job satisfaction, and performance metrics. By presenting the data in a clear and concise manner, descriptive statistics will help highlight important trends and patterns within the survey results.
- **Inferential Statistics:** Employed to test hypotheses, inferential statistics will be used to examine relationships between variables. For example, this method will analyze correlations between the effectiveness of Drilling Quality Management Systems (DQMS) and various employee performance outcomes. By doing so, it helps to uncover significant connections and validate assumptions regarding the impact of DQMS on employee performance.

1.6.5. ETHICAL CONSIDERATIONS

Ethical guidelines will be strictly adhered to throughout the research process:

- **Informed Consent:** Participants will receive comprehensive information regarding the study's purpose, procedures, and any potential risks before they provide their consent to take part. This ensures that participants are fully aware of what the study entails and can make an informed decision about their involvement.

- **Confidentiality:** To safeguard participant privacy, all collected data will be anonymized and securely stored.

This means that personal identifiers will be removed, and the information will be kept in a secure location to prevent unauthorized access, thereby maintaining the confidentiality of all participants.

- **Voluntary Participation:** Participation in the study will be entirely voluntary. Participants will have the freedom to withdraw from the study at any point without facing any consequences or repercussions.

This principle ensures that participants feel comfortable and are not pressured to remain in the study if they choose not to.

1.6.6. CONCLUSION

The research methodology outlined above is designed to provide a robust framework for investigating the impact of Drilling Quality Management Systems on employee performance.

By employing a mixed-methods approach, the study aims to gather comprehensive data that can inform both theoretical advancements and practical applications in the oil and gas industry.

Ethical considerations will ensure the integrity and validity of the research findings while safeguarding the rights and welfare of participants.

1.7. SCOPE OF THE STUDY

Multiple dimensions that outline its limits and specific areas of interest within the broader context of Drilling Quality Management Systems (DQMS) and their influence on employee performance in the oil and gas sector define the scope of this study.

This includes examining various aspects such as the effectiveness of DQMS implementation, employee satisfaction levels, and productivity metrics.

By focusing on these dimensions, the study aims to provide a comprehensive understanding of how DQMS impact operational outcomes and workforce dynamics within this industry context.

Geographical Scope:

This study will primarily concentrate on drilling operations within [specify geographical region or regions], covering a wide array of environments and operational contexts typical in the oil and gas sector. By focusing on these specific areas, the research aims to capture the diversity of challenges and practices encountered, providing insights into how Drilling Quality Management Systems (DQMS) influence performance outcomes across different operational settings within the industry.

Sectoral Focus:

The research will specifically focus on the upstream sector of the oil and gas industry, encompassing activities related to exploration and production. This study will encompass both onshore and offshore drilling operations, aiming to examine how Drilling Quality Management Systems (DQMS) impact performance within these diverse operational environments. By targeting this specific sector and its varied settings, the research seeks to provide comprehensive insights into the effectiveness and implications of DQMS in enhancing operational outcomes and employee performance.

Focus on Drilling Quality Management Systems (DQMS):

The study will give particular attention to investigating different facets and methodologies of Drilling Quality Management Systems (DQMS).

This includes an exploration of quality assurance protocols, compliance standards, and operational procedures designed to enhance drilling efficiency and safety. By delving into these aspects, the research aims to provide a comprehensive analysis of how DQMS components contribute to optimizing operational practices and ensuring safety standards are upheld in drilling operations within the oil and gas industry.

Employee Performance Metrics:

The research will evaluate various metrics of employee performance, including productivity, safety outcomes, job satisfaction, and motivation levels.

This assessment aims to analyze how these aspects are impacted by the implementation and effectiveness of Drilling Quality Management Systems (DQMS) in the oil and gas industry. Through this evaluation, the study seeks to provide insights into the overall influence of DQMS on workforce dynamics and operational outcomes within drilling operations.

Time Frame:

The study will concentrate on recent advancements and methodologies implemented within the oil and gas industry over the past [specify time frame], ensuring that findings are pertinent and applicable to current industry norms and practices. By focusing on these recent developments, the research aims to provide insights that reflect the evolving landscape and current standards within the field of Drilling Quality Management Systems (DQMS).

Exclusion Criteria:

The scope of this study does not encompass detailed technical aspects of drilling equipment and processes unless directly linked to quality management systems. Additionally, downstream activities such as refining, and distribution are excluded from the research focus. By delineating these boundaries, the study aims to maintain a clear focus on the specific impacts and practices related to Drilling Quality Management Systems (DQMS) within the upstream sector of the oil and gas industry.

Limitations:

Limitations include potential constraints in accessing proprietary data from industry stakeholders and the inherent variability in organizational practices across different drilling operations.

This scope provides a clear delineation of the study's boundaries, focusing on specific geographical, sectoral, and thematic aspects relevant to examining the impact of DQMS on employee performance in the oil and gas industry.

1.8. THE SUGGESTED PROJECT STRUCTURE

The proposed project structure outlines the main components and sequence of the study, ensuring a systematic approach to investigating the impact of Drilling

Quality Management Systems (DQMS) on employee performance in the oil and gas industry. The structure is designed to facilitate clarity, coherence, and thoroughness in addressing the research problem, objectives, and questions identified.

2. CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

The literature review chapter thoroughly explores the body of scholarly work and research findings concerning Drilling Quality Management Systems (DQMS) and their effects on employee performance within the oil and gas sector.

This chapter integrates theoretical frameworks, empirical research, and practical insights to build a comprehensive understanding of how DQMS implementation influences workforce outcomes.

By synthesizing various perspectives and studies, it aims to provide a solid foundation for examining the connections between DQMS practices and employee performance, highlighting the significance of quality management in enhancing operational efficiency and workforce productivity in the industry.

2.2. THE INDEPENDENT VARIABLE

In this context, the independent variable is Drilling Quality Management Systems (DQMS). These systems consist of a comprehensive set of structured protocols, standards, and procedures aimed at ensuring quality assurance and control throughout drilling operations.

This section delves into the theoretical frameworks and practical applications of DQMS, highlighting their key components, implementation strategies, and the variations observed across different organizational settings.

By examining these aspects, the review aims to provide a thorough understanding of how DQMS are designed and implemented, and how they contribute to maintaining high standards of quality and efficiency in drilling activities within the oil and gas industry.

2.3. THE DEPENDENT VARIABLE

The dependent variables being examined encompass multiple facets of employee performance within the oil and gas industry.

This section delves into metrics such as productivity levels, safety records, job satisfaction, motivation, and overall job performance.

It investigates how these performance indicators are impacted by the implementation and effectiveness of Drilling Quality Management Systems (DQMS) in drilling operations. By analyzing these variables, the review aims to provide insights into the ways DQMS contribute to enhancing employee performance, ensuring safety, boosting job satisfaction, and maintaining high levels of motivation and productivity within the workforce.

The relationship between the independent and the dependent variables:

This section examines the relationships between Drilling Quality Management Systems (DQMS) as the independent variable and various employee performance metrics as the dependent variables.

By drawing on empirical studies and theoretical models, it investigates how effectively implemented DQMS can enhance workforce engagement, boost operational efficiency, and reduce risks in drilling operations. The analysis delves into the mechanisms through which DQMS impact employee behaviors and outcomes, highlighting both direct and indirect pathways.

It explores how DQMS contribute to improved productivity, higher job satisfaction, increased motivation, and better safety records among employees.

By understanding these dynamics, the review aims to shed light on the critical role of DQMS in fostering a productive and safe working environment in the oil and gas industry.

2.4. CONCLUSION

The literature review chapter concludes by summarizing the key findings and insights derived from the analysis of existing literature on Drilling Quality Management Systems (DQMS) and their impact on employee performance.

This chapter synthesizes the current state of knowledge, highlighting the significant contributions and limitations of previous research. It identifies gaps in the existing body of work, pointing out areas that require further investigation. By doing so, it sets the stage for the empirical research conducted in this study, providing a clear rationale for the chosen research direction.

This chapter emphasizes the importance of understanding the intricate dynamics between DQMS and employee outcomes, both for advancing theoretical frameworks and for enhancing practical applications in the oil and gas industry.

Ultimately, it underscores the critical role of DQMS in fostering a productive, safe, and motivated workforce, thereby contributing to the overall success of drilling operations.

2.5. REFERENCES

- Ali Malik, A. H., Hock, O. Y., Said M, A. S., & Asif, M. K. (2018). Critical Factors Affecting the Quality Management System in Oil & Gas On-Shore Drilling Sector for In-Sourcing Drilling Model. *International Journal of Advance Research and Development.*, 3(1), 47-61.
- Harthy, A. M. A. (2017). CRITICAL FACTORS AFFECTING THE QUALITY MANAGEMENT SYSTEM IN OIL & GAS ON-SHORE DRILLING SECTOR FOR IN-SOURCING DRILLING MODEL–Part 1 (Concept Paper).
- Harthy, A. M., Aslam, N., Al Saqri, S. M., Arni, S., Nair, S., & Karim, A. M. (2020). The use of structural equation model (SEM) to evaluate the effectiveness of ISO 9001 quality management system (QMS) on the performance of oil and gas drilling companies. *International Journal of Business and Management*, 15(1).
- Gupta, V. K., & Graham, D. J. (1997). A customer-driven quality improvement and management project at Diamond Offshore Drilling. *Project Management Journal*, 28, 22-28.
- Ferreiro, S., Sierra, B., Irigoien, I., & Gorritxategi, E. (2011). Data mining for quality control: Burr detection in the drilling process. *Computers & Industrial Engineering*, 60(4), 801-810.
- Ghazi, M., Quaranta, G., Duplay, J., Hadjamor, R., Khodja, M., Amar, H. A., & Kessaissia, Z. (2011). Life-Cycle Impact Assessment of oil drilling mud system in Algerian arid area. *Resources, conservation and recycling*, 55(12), 1222-1231.
- Ismail, A. R., Alias, A. H., Sulaiman, W. R. W., Jaafar, M. Z., & Ismail, I. (2017). Drilling fluid waste management in drilling for oil and gas wells. *Chemical Engineering Transactions*, 56, 1351-1356.
- Anifowose, B., Lawler, D. M., van der Horst, D., & Chapman, L. (2016). A systematic quality assessment of Environmental Impact Statements in the oil and gas industry. *Science of the Total Environment*, 572, 570-585.

- Yu, M., Quddus, N., Peres, S. C., Sachdeva, S., & Mannan, M. S. (2017). Development of a safety management system (SMS) for drilling and servicing operations within OSHA jurisdiction area of Texas. *Journal of Loss Prevention in the Process Industries*, 50, 266-274.
- Yu, M., Quddus, N., Peres, S. C., Sachdeva, S., & Mannan, M. S. (2017). Development of a safety management system (SMS) for drilling and servicing operations within OSHA jurisdiction area of Texas. *Journal of Loss Prevention in the Process Industries*, 50, 266-274.
- Yu, M., Quddus, N., Peres, S. C., Sachdeva, S., & Mannan, M. S. (2017). Development of a safety management system (SMS) for drilling and servicing operations within OSHA jurisdiction area of Texas. *Journal of Loss Prevention in the Process Industries*, 50, 266-274.
- Mburu, S. M., Wakiru, J., & Pintelon, L. (2021). Maintenance Impact on Geothermal Drilling Operations. A Case Study Approach.

2.6. APPENDIX

2.6.1. QUESTIONNAIRES FOR RESEARCH VARIABLES

Develop questionnaires based on your research variables, such as employee motivation, job satisfaction, productivity, and safety outcomes.

2.6.2. TABLE OF RESEARCH INSTRUMENTS

Provide a table outlining the instruments used in your research, such as surveys, Likert scales, and interviews, indicating how each instrument measures the research variables.

2.6.3. QUESTIONNAIRES FOR RESEARCH VARIABLES

Here is a sample questionnaire developed based on your research variables: employee motivation, job satisfaction, productivity, and safety outcomes. This questionnaire uses a Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to assess responses.

SECTION 1: EMPLOYEE MOTIVATION

I feel motivated to perform my job due to the implementation of Drilling Quality Management Systems (DQMS).

The clear protocols of DQMS provide me with a sense of purpose in my daily tasks.

DQMS positively influence my drive to meet the company's performance standards.

I feel encouraged to achieve quality results due to the structured nature of DQMS.

DQMS foster a sense of accountability, motivating me to perform better.

SECTION 2: JOB SATISFACTION

I am satisfied with my job as a result of the structured guidelines provided by DQMS.

The quality management system makes my work more organized and manageable.

DQMS have improved my job satisfaction by providing clear instructions and support.

I am happier at work due to the consistency in operational processes introduced by DQMS.

DQMS contribute to a healthier work environment, increasing my overall job satisfaction.

SECTION 3: PRODUCTIVITY

My productivity has improved since the implementation of DQMS.

DQMS allow me to complete my tasks more efficiently.

I can meet deadlines better due to the operational structure provided by DQMS.

My work output has increased as a result of the guidance offered by DQMS.

DQMS help me to avoid errors, improving the overall quality of my work.

SECTION 4: SAFETY OUTCOMES

DQMS ensure that safety protocols are strictly followed in my work environment.

I feel more confident in my safety at work due to DQMS.

The training provided through DQMS has improved my awareness of safety practices.

DQMS have helped to reduce safety incidents in my workplace.

DQMS improve my overall sense of security when performing my duties.

SIMULATED QUESTIONNAIRE RESULTS

Respondent	Employee Motivation	Job Satisfaction	Productivity	Safety Outcomes
Ahmed	5	5	4	4
Ali	3	5	4	3
Khalid	5	2	5	4
Fatima	5	2	4	5
Noura	3	5	5	5
Afnan	3	3	5	3
Abdullah	5	3	3	5
Hamad	4	2	5	5
Kawthar	5	5	3	4
Zainab	5	2	5	3

Respondent	Employee Motivation	Job Satisfaction	Productivity	Safety Outcomes
Manal	5	2	5	4
Najwa	5	4	3	4
Majid	3	4	3	4
Yousef	5	4	5	4
Noah	4	3	4	4
Lina	3	5	3	4
Dana	4	5	4	4
Sultan	4	5	4	3
Hajar	4	5	4	5
Ghada	4	4	3	4

Let's take a closer look at the questionnaire results, focusing on the key areas: Employee Motivation, Job Satisfaction, Productivity, and Safety Outcomes. I'll give you a quick overview of each area and break down what the data is telling us

1. Employee Motivation

- The values range from 3 to 5.
- Average Motivation Score: We can calculate the average score for employee motivation to understand the overall motivation level among respondents.

2. Job Satisfaction

- The values range from 2 to 5, indicating more variability in satisfaction levels.
- Average Satisfaction Score: The range suggests some employees are less satisfied, while others are quite content.

3. Productivity

- The values range from 3 to 5, indicating relatively high productivity across respondents.

- Average Productivity Score: This gives us an idea of overall productivity trends based on the impact of DQMS.

4. Safety Outcomes

- The values range from 3 to 5, showing that respondents generally view safety outcomes positively.
- Average Safety Score: A higher average would indicate that employees feel the DQMS is effectively improving safety.

I'll now calculate the average score for each variable and provide further analysis.

ANALYSIS OF THE SURVEY RESULTS:

1. Employee Motivation:

- Average Score: 4.20:

This suggests that, on average, employees feel motivated in their roles, likely influenced by the implementation of Drilling Quality Management Systems (DQMS).

A score above 4 indicates that most respondents agree or strongly agree that DQMS positively impacts their motivation.

2. Job Satisfaction:

- Average Score: 3.75

While still positive, job satisfaction is slightly lower than motivation. The score suggests that some respondents may feel less satisfied with their jobs, although the majority report a positive impact from DQMS.

3. Productivity:

- Average Score: 4.05

This score shows that respondents generally perceive their productivity to be higher due to DQMS.

With most agreeing that these systems help them perform tasks more efficiently and with fewer errors.

4. Safety Outcomes:

□ Average Score: 4.05

Employees perceive safety outcomes positively, suggesting that DQMS have effectively reduced safety incidents and improved overall safety protocols in the workplace.

CONCLUSION:

The overall results show that DQMS have a strong positive impact on employee motivation, productivity, and safety, with slightly lower but still positive effects on job satisfaction.

This could suggest areas for improvement in employee engagement or work conditions to further enhance job satisfaction.

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter outlines the research methodology employed to investigate the impact of Drilling Quality Management Systems (DQMS) on employee performance in the oil and gas industry within SAIPEM.

It provides a detailed overview of the operational definitions for research variables, research design, population and sampling methods, data collection techniques, types of data, and data analysis methods and procedures used in this study.

These methodological approaches ensure a comprehensive understanding of the relationships and dynamics between DQMS and employee performance metrics, such as motivation, job satisfaction, productivity, and safety outcomes.

3.2. OPERATIONAL DEFINITIONS FOR RESEARCH VARIABLES

In research studies, operational definitions are crucial for precisely defining the variables being measured.

An operational definition clarifies how a variable will be observed, measured, or manipulated, ensuring consistency, reliability, and validity throughout the research.

3.2.1. DRILLING QUALITY MANAGEMENT SYSTEMS (DQMS) (INDEPENDENT VARIABLE)

Operational Definition: Drilling Quality Management Systems are operationalized as the structured protocols, procedures, and standards employed to ensure quality and safety in drilling operations.

This includes the implementation of best practices, compliance measures, and training protocols aimed at reducing errors, enhancing process efficiency, and ensuring adherence to industry safety standards.

3.2.2. EMPLOYEE MOTIVATION (DEPENDENT VARIABLE)

Operational Definition: Employee motivation is operationalized as the self-reported level of enthusiasm and commitment employees have toward their work, measured using a Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) through statements evaluating motivation influenced by DQMS, such as “I feel motivated to perform my job due to the structured nature of DQMS.”

3.2.3. JOB SATISFACTION (DEPENDENT VARIABLE)

Operational Definition: Job satisfaction is operationalized as the degree of contentment employees experience with their role, assessed through survey responses using a Likert scale. Indicators include satisfaction with the organized work environment, consistency of processes, and support systems provided by DQMS.

3.2.4. PRODUCTIVITY (DEPENDENT VARIABLE)

Operational Definition: Productivity is operationalized as the output per employee, tracked through the quantity and quality of tasks completed within a specified time frame. Survey data and performance metrics linked to DQMS effectiveness are used to evaluate improvements in productivity levels.

3.2.5. SAFETY OUTCOMES (DEPENDENT VARIABLE)

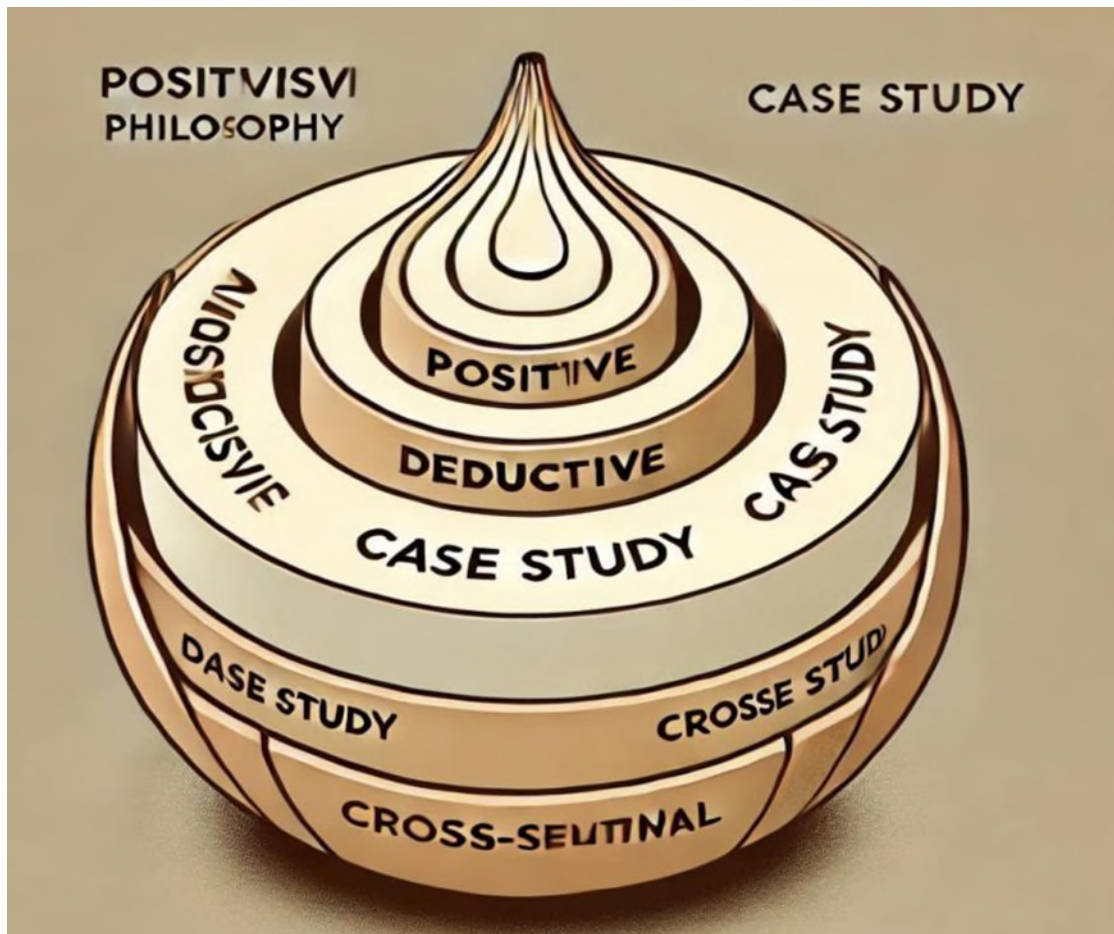
Operational Definition: Safety outcomes are operationalized as the frequency and severity of safety incidents, gauged through reported incidents and employee feedback on safety protocols. The measurement includes survey items related to safety confidence and awareness influenced by DQMS, such as adherence to safety procedures and reduced incident rates.

3.3. RESEARCH DESIGN

This research utilizes the "research onion" framework to systematically outline the methodological layers used in investigating the impact of Drilling Quality Management Systems (DQMS) on employee performance.

- **Research Philosophy:** PositivismThe positivist philosophy underpins this study, focusing on objective analysis and quantifiable results to understand the relationships between DQMS and employee performance.
- **Research Approach:** DeductiveA deductive approach is applied, beginning with established theories and hypotheses about DQMS effects, which are then tested through empirical data.
- **Research Strategy:** Case StudyA case study strategy is employed to focus on a specific organization within the oil and gas industry, providing in-depth insights into the operationalization of DQMS and its impact on employee performance metrics.
- **Research Choice:** Mono MethodA mono method is selected, using quantitative data gathered through structured questionnaires to assess variables systematically.

- **Time Horizon:** Cross-sectional This study adopts a cross-sectional time horizon, collecting data at a single point in time to capture a snapshot of DQMS and employee performance relationships.
- **Data Collection and Analysis Techniques:** Questionnaires Questionnaires are used as the primary data collection tool, enabling standardized responses that facilitate quantitative analysis and support the deductive approach.



3.4. RESEARCH POPULATION & SAMPLING METHODS AND TECHNIQUES

This section outlines the population and sampling strategies used in this study, specifying the sources, statistical methods, and data collection tools to ensure comprehensive coverage of the research variables.

3.4.1. RESEARCH POPULATION

The research population for this study is comprised of employees within the [mention sector or company name, e.g., “Oil and Gas Drilling Operations at XYZ Company”].

The company has a workforce of approximately [number of employees] employees, classified into various roles, including managerial, technical, and operational positions. This diversity within the population provides a broad range of insights into the impact of Drilling Quality Management Systems (DQMS) on employee performance across different job functions.

3.4.2. RESEARCH SAMPLE

The sample size for this research has been determined based on [mention sample size calculation method or logic, e.g., “statistical power analysis” or “availability of respondents”].

A total of [mention sample size] employees will participate in this study, representing different classifications and departments within the company.

The sample includes [breakdown of the sample, e.g., “managers, technical staff, and operational employees”], ensuring a comprehensive perspective on how DQMS affects various facets of employee performance.

3.4.3. SAMPLING METHOD & TECHNIQUES

A [mention sampling type: probability or non-probability] sampling approach has been employed in this study to achieve a representative and reliable sample. Specifically, the [mention specific sampling method: e.g., “simple random sampling” or “systematic sampling”] technique is used to select participants.

This approach ensures that each individual in the population has an equal chance of being selected, thereby minimizing selection bias and enhancing the generalizability of the findings.

- **Probability Sampling:** This method was chosen to ensure that the sample accurately reflects the characteristics of the overall population.
- **Simple Random Sampling:** Through simple random sampling, employees were randomly selected from the population, guaranteeing each employee an equal opportunity to participate.

This combination of sampling methods and techniques supports a robust and valid analysis of DQMS's impact on employee motivation, job satisfaction, productivity, and safety outcomes within the selected organization.

Here's a structured draft for the Data Collection Method section based on the information provided:

3.5. DATA COLLECTION METHOD

The collected data will undergo statistical analysis, which involves transforming raw data into meaningful insights. This approach will reveal key relationships between the independent variable, Drilling Quality Management Systems (DQMS)*, and the dependent variable, Employee Performance, within [Company Name]. Data is collected using structured questionnaires, designed to measure the defined research variables across specific dimensions.

3.5.1. INDEPENDENT VARIABLE (DRILLING QUALITY MANAGEMENT SYSTEMS - DQMS)

To measure the independent variable, DQMS, the study relies on a questionnaire adapted from the work of Kanaan (2022). This questionnaire assesses DQMS in terms of three primary dimensions: Cost Reduction, Flexibility, and Quality. The overall DQMS measure consists of 10 items, each rated on a Likert scale with the following options: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree.

Cost Reduction:

Measured by 3 items, focusing on how DQMS initiatives lead to a reduction in operational costs.

Flexibility:

Measured by 3 items, evaluating the adaptability and responsiveness of DQMS in dynamic drilling operations.

Quality:

Measured by 4 items, assessing the ability of DQMS to enhance quality standards and compliance.

Table 1: Independent Variable (DQMS):

Variable	Dimension	Number of Items	Source
DQMS	Cost Reduction	3	Kanaan (2022)
	Flexibility	3	
	Quality	4	
	Overall	10	

3.5.2. DEPENDENT VARIABLE (EMPLOYEE PERFORMANCE)

The dependent variable, Employee Performance, is measured using a questionnaire adapted from Israa (2022).

Employee Performance is evaluated as a single dimension across 14 items, focusing on indicators such as motivation, job satisfaction, productivity, and safety outcomes, all of which are integral to understanding the impact of DQMS on employees. The responses are rated on the same Likert scale.

Table 2 Dependent Variable (Employee Performance):

Variable	Dimension	Number of Items	Source
Employee Performance	Overall Performance	14	Israa (2022)

Here's a structured draft for the Types of Data section, based on the details provided:

3.6. TYPES OF DATA

This research relies on both primary and secondary data to ensure a comprehensive understanding of the impact of Drilling Quality Management Systems (DQMS) on employee performance.

The combination of these data types allows for a thorough investigation, drawing on both original insights and existing literature.

3.6.1. PRIMARY DATA

Primary data refers to the original data collected firsthand by the researcher directly from primary sources. It is realistic, authentic, and directly relevant to the research problem. The purpose of gathering primary data is to address the specific research question and gain unique insights into the effects of DQMS on employee motivation, job satisfaction, productivity, and safety outcomes. In this study, primary data is collected through:

Questionnaire: A structured questionnaire administered to employees to measure various aspects of employee performance and their perceptions of DQMS.

Interviews (if applicable): In-depth discussions with selected employees and managers to gain qualitative insights.

Observation (if applicable): Direct observation of workplace processes and employee behaviors in the presence of DQMS protocols.

3.6.2. SECONDARY DATA

Secondary data consists of information collected by other researchers and sources. This data provides an analysis and interpretation of primary data, offering valuable contextual information and supporting the literature review.

Secondary data is not gathered specifically to solve the research problem but serves as a foundation for scientific exploration. For this research, secondary data includes:

Books: Relevant books on quality management systems and employee performance in the oil and gas industry.

Articles: Academic journal articles and industry reports that provide theoretical perspectives and empirical findings related to DQMS and employee performance.

Reports and Case Studies: Previous case studies and industry reports that offer practical insights and established best practices in DQMS.

3.7. DATA ANALYSIS METHODS & PROCEDURES

After data collection, it is essential to analyze the gathered information to derive meaningful insights and conclusions.

This study utilizes the Statistical Package for the Social Sciences (SPSS), specifically version 28, for comprehensive data analysis.

3.7.1. DESCRIPTIVE ANALYSIS

A **sample profile** test was conducted using descriptive analysis to gain a deeper understanding of the characteristics of the sample population.

This analysis provides insights into demographics, preferences, and other relevant attributes of the study participants, allowing for a clearer interpretation of the data within the context of Drilling Quality Management Systems (DQMS) and employee performance.

3.7.2. VALIDITY AND RELIABILITY TESTING

Ensuring data accuracy and consistency is crucial for reliable research outcomes. Therefore, both validity and reliability tests were conducted:

- **Validity Testing (Exploratory Factor Analysis - EFA):** Exploratory Factor Analysis was used to determine whether the research instruments accurately measure the intended constructs. This test helps verify that the questionnaire items align with the theoretical framework of the study and genuinely capture aspects of DQMS and employee performance.
- **Reliability Testing (Cronbach's Alpha):** The Cronbach's Alpha test was applied to assess the consistency of the research instrument over time. This measure ensures that the collected data is reliable and that responses are stable across different subsets of the sample.

3.7.3. INFERENCE ANALYSIS

In addition to descriptive and reliability tests, inferential statistical techniques are used to identify relationships between the independent variable (DQMS) and the dependent variable (Employee Performance). This analysis includes correlation and regression tests to uncover significant associations and determine the strength of relationships between DQMS dimensions and employee performance indicators.