



جامعة ميدأوشن

كلية الإدارة

ماجستير إدارة المشاريع

Research Title

Integrating Agile Principles into Stage-Gate Systems to Accelerate Project Delivery, Enhance Cost Efficiency and Improve Customer Satisfaction at engineering Project management one of Petrochemical industry company in Jubail region- KSA department for

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Abstract

In the fast-evolving and highly competitive petrochemical industry, particularly within the engineering project management departments in Jubail, Kingdom of Saudi Arabia (KSA), organizations face mounting pressure to accelerate project delivery, control costs, and enhance customer satisfaction. This study investigates the integration of Agile principles into the traditionally structured Stage-Gate project management system, aiming to address common challenges such as delayed timelines, cost overruns, and misalignment with client expectations.

Through a mixed-method approach, including structured questionnaires distributed to project professionals in the Jubail region, the study evaluates the effectiveness of existing practices, explores the adaptability of Agile methodologies in capital-intensive environments, and proposes a hybrid framework. Key findings reveal limited familiarity with Agile practices, but a strong openness to their potential benefits, particularly in enabling faster decision-making and improving stakeholder engagement.

The study introduces strategic recommendations, such as Agile-enhanced FEED processes, flexible contracting strategies, the use of CAPEX maturity KPIs, and clustering of similar projects for execution efficiency. Ultimately, this research provides a roadmap for transitioning toward a more agile, responsive, and performance-oriented project management culture, offering practical insights for engineering leaders and decision-makers in the petrochemical sector.

Keywords: Agile, Stage-Gate, Hybrid Project Management, Petrochemical Industry, Jubail, Project Delivery, Cost Efficiency, Customer Satisfaction, CAPEX KPIs, Project Execution Strategy

Chapter 1
Introduction

Introduction:

In today's fast-paced and highly competitive industrial landscape, the ability to deliver projects with speed, efficiency, and customer-centric focus has become a critical success factor particularly within the petrochemical sector. The engineering project management departments operating in the Jubail region of the Kingdom of Saudi Arabia (KSA), one of the world's largest industrial hubs, face increasing pressure to meet complex project requirements within stringent timeframes and budgets, while also responding swiftly to evolving client needs.

Traditional project management methodologies, such as the Stage-Gate system, have provided a structured framework for managing large-scale engineering projects.

To address these limitations, there is growing interest in integrating Agile principles into existing Stage-Gate systems.

Hence, by embedding Agile practices into the structured Stage-Gate process, organizations can potentially accelerate project delivery, enhance cost efficiency and improve customer satisfaction.

Problem Statement Introduction:

The engineering project management department within the petrochemical industry in Jubail is a cornerstone of industrial projects, characterized by complex & large-scale engineering projects that demand high levels of precision, coordination, and timely execution.

Despite using the well-established Stage-Gate system to manage project development, many projects face persistent challenges related to delayed project delivery, escalating costs, and insufficient alignment with evolving customer requirements.

The traditional Stage-Gate model, while structured and risk-conscious, often lacks the flexibility needed to adapt to rapid changes in project scope, market conditions, or stakeholder expectations.

In contrast, Agile methodologies offer a more flexible and adaptive approach, promoting faster decision-making, enhanced team collaboration, and continuous customer feedback.

The current absence of a hybrid framework that balances the structure of Stage-Gate with the agility required for modern project environments leads to inefficiencies, cost overruns, and missed opportunities for customer-focused innovation.

Importance of the Study:

This study holds significant importance in the field of engineering project management, particularly within the petrochemical industry.

First, the petrochemical sector in Jubail represents a critical pillar of Saudi Arabia's industrial economy, contributing substantially to national GDP and employment. The scale and complexity of engineering projects in this sector demand advanced project management methodologies that can ensure timely delivery, cost control, and stakeholder satisfaction.

Second, this study seeks to bridge that gap by exploring how Agile methodologies can be integrated into the Stage-Gate system to create a more adaptive and responsive hybrid framework.

Third, help the organizations operating in Jubail and across similar industrial environments to build more agile, efficient, and customer-focused project management cultures.

Fourth, the study has the potential to deliver long-term value by improving project outcomes, project execution strategy, introducing contracting strategy, Maturity KPI & Performance initiative, improvement of site projects schedule, cost and quality.

Objectives of the Study:

The primary objective of this study is to explore the integration of Agile principles into the traditional Stage-Gate project management system in order to improve project performance, project delivery time, cost efficiency, and customer satisfaction within the engineering project management departments of the petrochemical industry in the Jubail region, Kingdom of Saudi Arabia.

To achieve this, the study is guided by the following specific objectives:

1. To examine the limitations of the traditional Stage-Gate system currently used in managing engineering projects in the petrochemical industry in Jubail.
2. To identify key Agile principles and practices that are relevant and adaptable in the context of the petrochemical sector.
3. To assess challenges and barriers to implementing a hybrid Agile–Stage-Gate framework in the context of the petrochemical sector.
4. To improve the project time line of the Stage-Gate system and to develop a practical integration model or framework for applying Agile principles within the Stage-Gate process tailored to the operational needs of engineering project management department.

5. To introduce CAPEX Maturity KPI & Performance initiative to improve projects performance cultures.
6. To introduce new contracting strategy at engineering project management department.
7. To introduce new project execution strategy at engineering project management department
8. To provide recommendations for project managers, stakeholders, and decision-makers on adopting and managing the hybrid model for improved project outcomes.

Study Questions

1. How can integrating Agile principles into the Stage-Gate process impact project delivery time, cost efficiency, and customer satisfaction?
2. What are the main limitations of the traditional Stage-Gate project management system in the context of engineering projects in the petrochemical industry in Jubail, KSA?
3. Which Agile principles and practices can be effectively adapted for use within capital-intensive engineering projects?
4. What strategies or models can facilitate the successful integration of Agile methodologies into the existing Stage-Gate system?

Research Hypotheses

1. The current Stage-Gate system is widely adopted in the engineering project management departments of petrochemical companies in the Jubail region and forms the standard framework for project execution.
2. Agile principles are adaptable at least partially to engineering projects despite being originally developed for software and IT industries.
3. Project managers and team members within the petrochemical industry are familiar with both Stage-Gate and Agile concepts to a degree that allows them to provide informed input through surveys, interviews, or case studies.
4. Integration of Agile principles into the Stage-Gate process can be implemented without compromising regulatory, safety, and quality standards required in the petrochemical industry.
5. Customer satisfaction, cost efficiency, and project delivery speed are valid and measurable indicators of project performance in the context of engineering project management.

Theoretical Model:

This study investigates how integrating Agile principles into the traditional Stage-Gate project management system can improve project performance outcomes specifically focusing on project delivery speed, cost efficiency, and customer satisfaction in the engineering project management context of the petrochemical industry in Jubail, KSA. Constructs as following:

1. Guides the structured approach to planning, executing, and finalizing projects. The PMBOK Guide (by PMI) provides the foundational elements of scope, time, cost, quality, and stakeholder management,
2. Integrating Agile into Stage-Gate will reduce project delivery timelines by increasing flexibility and reducing decision-cycle time.
3. Agile integration will enhance cost efficiency through iterative planning, early risk mitigation, and resource optimization.
4. Customer satisfaction will improve due to frequent feedback, early visibility of deliverables, and better alignment with customer needs.

Chapter 2

Literature review

Introduction

This chapter presents the theoretical framework underpinning the current study, which will address the variables of the Integrating Agile Principles into the traditional Stage-Gate Systems and Project Performance outcomes focusing on accelerating Project Delivery, Enhance Cost Efficiency and Improve Customer Satisfaction. These three outcomes are critical performance indicators in the context of engineering project management.

Independent Variable

Integrating Agile Principles into Stage-Gate Systems

Dependent Variable

Project Performance Outcomes

The dependent variable comprises three key dimensions of project performance:

1. Accelerated Project Delivery in time from project initiation to completion.
2. Enhanced Cost Efficiency to deliver projects within or under budget while maximizing resource utilization.
3. Improved Customer Satisfaction with the final project outcomes.

Summary of Past studies

Agile Project Management Implementation for Construction Companies in Jordan

الادارة الرشيقة للمشاريع في شركات الإنشاءات الأردنية
الريموني، لؤي خالد حمدان

تهدف هذه الدراسة إلى تحديد العوامل التي تشجع تبني ممارسات إدارة المشاريع الرشيقة في المشاريع الإنشائية أو تعيق ذلك. تضمنت المنهجية مراجعة الأدبيات، والدراسات السابقة، والدراسة الاستقصائية، وإجراء المقابلات الشخصية مع مديري مشاريع إنشاءات. تم قبول (١٨٨) استجابة من الاستبانة التي وزعت. توصل البحث إلى وجود صعوبة في تطبيق الإدارة الرشيقة وحدها في المشاريع الإنشائية دون إدخال الإدارة التقليدية معها لضبط الأطر العامة للمشروع. وعليه، تم تطوير نموذج عظمة السمكة لتطبيق الإدارة الهجينة. وفي الختام، يوصي الباحث بالتخلص من الإدارة التقليدية تدريجياً وإحلال الإدارة الهجينة محلها، وعقد دورات للتعريف بعقلية الرشاقة وكيفية الاستفادة منها لتمكين مديري المشاريع من استخدام الأدوات المتاحة بفاعلية وكفاءة أكبر والاهتمام في بيئة المشاريع الإنشائية بتعزيز الثقة والشفافية من خلال إعداد العقد ليتم العمل به كدليل تنفيذي. أما فيما يتعلق بالمرحلة الانتقالية من الإدارة التقليدية إلى الإدارة الهجينة، فيجب علينا البدء

بمعرفة "لماذا" أولا ومن ثم "كيف" ثانيا. فإذا لم نعرف ما هي الفائدة المتحققة من هذا الانتقال، فلن نستطيع معرفة الكيفية التي ننتقل من خلالها.

<https://search.mandumah.com/Record/1097094>

Strategic Agility Antecedents and Outcomes: Field Study

Shafiq, Sarah Ezzat

the aim of this research is to examine the impact of strategic agility antecedents on organizational performance by mediating strategic agility, and also measuring the impact of strategic agility on organizational performance. The researcher used a descriptive analysis method, Data was collected according to a survey list directed to both top and middle managers of the companies under study, (266) Questionnaire were distributed with a response rate of (87,6%). The data was analyzed through the spss program (26) and the stata program (16) using a set of non-parametric static methods, due to the nature of the collected data. The results of this research illustrated that there is a positive impact of strategic Agility antecedents on both strategic Agility and Organizational Performance and Strategic Agility mediates the relationship between strategic Agility Antecedents and organizational Performance.

<https://search.mandumah.com/Record/1191945>

Advancements in project management methodologies: Integrating agile and waterfall approaches for optimal outcomes

Osemeike Gloria Eyieyien

In conclusion, the integration of Agile and Waterfall methodologies represents a significant advancement in project management practices, offering a sophisticated approach to handling the complexities and demands of modern projects. This hybrid methodology combines the strengths of both Agile's iterative flexibility and Waterfall's structured planning, creating a balanced framework that addresses a diverse range of project requirements and challenges.

Engineering Science & Technology Journal, Volume 5, Issue 7, July 2024

Journal Homepage: www.fepbl.com/index.php/esti

Benefits / Outcomes of Previous Studies:

1. Demonstrated that strategic agility positively impacts organizational performance.
2. Provided evidence of better outcomes in complex project environments.
3. Emphasized the role of leadership and organizational responsiveness.
4. Limitations of current Stage-Gate system.
5. Providing recommendations for hybrid adoption.
6. Improving performance culture via strategic agility elements.

What Distinguishes the Current Study from Previous Research:

The current study offers distinctive contributions compared to prior studies in the following ways:

1. This study is specifically tailored to engineering Project management department for one of Petrochemical industry company in Jubail region- KSA.
2. It aims to introduce CAPEX Maturity KPIs, new contracting, and execution strategies, offering tangible tools for implementation

Conclusion

This study contributes significantly to the evolving field of project management by addressing a critical gap at the department, by doing so, it not only seeks to improve project delivery time, cost efficiency, and customer satisfaction but also introduces new strategic and operational practices such as CAPEX maturity KPIs, contracting strategies, and execution approaches.

This will enable better alignment with evolving project demands and enhance the maturity and agility of engineering project management practices.

Chapter 3

Research Methodology

Introduction

In this chapter, the methodology and procedures followed in the study will be explained, which include defining the research design, the target population and sample of the study, data collection procedure as follows:

Research Design

To examine the impact of integrating Agile principles into traditional Stage-Gate project management frameworks on project delivery speed, cost efficiency, and customer satisfaction in engineering projects.

Population of the study

Professionals working in engineering project management roles within the petrochemical industry at site project department in Jubail, KSA, including:

- Project Managers
- Planners and Schedulers
- Engineering Team Leads
- Quality Assurance and Customer

Sample Characteristic

- Initial selection of participants based on specific criteria ensuring relevance and experience.
- Stratification by job role (e.g., managers vs. engineers vs. QA/client reps) to ensure diversity in perspectives and role-based insights.

Sample Size Determination

- Approximately 100 respondents for the survey (depending on access).

Demographic Information to be Captured:

- Age
- Gender

- Current Role/Position
- Years of Experience

Data Collections procedures

Structured questionnaires will be distributed to project managers, engineers, and team members in engineering project management departments. Questions will focus on project timelines, cost performance, customer feedback, and use of Agile or Stage-Gate practices.

Study Determinants

Study subject:

Integrating Agile Principles into Stage-Gate Systems to Accelerate Project Delivery, Enhance Cost Efficiency, and Improve Customer Satisfaction

Study place:

in the Engineering Project Management Department of the Petrochemical Industry in Jubail Region, KSA

Study time:

Y2025

Method of Analysis

Data Analysis Methods with Excel sheet.

Chapter 4

Practical Study

Introduction:

This chapter reviews the results derived from the statistical analysis of the data collected via the questionnaire, in order to answer the questions posed in the study. It also reviews the testing of the research hypotheses. It also reviews a number of findings and presents some recommendations and suggestions.

Data Analysis

Data analysis for both section B&C of the Questionnaire

- B. Current Project Management Practices
- C. Perceptions Toward Agile Methodologies

Section	Question	Response Options	Output	% of response	Level
B. Current Practices	Familiarity with Stage-Gate	Yes, Somewhat, No	Yes	98%	High
	Familiarity with Agile	Yes, Somewhat, No	Somewhat	71%	Low
	Use of Stage-Gate	Not, Rarely, Moderate, Full	Full	100%	High
	Effectiveness of Stage-Gate in:	Delivery, Cost, Needs, Scope, Risk (Scale 1–5)			
	Effectiveness of Stage-Gate in Timely project delivery	(Scale 1–5)	4	82%	Moderate
	Effectiveness of Stage-Gate in Cost control	(Scale 1–5)	3	80%	Moderate
	Effectiveness of Stage-Gate in Meeting customer/stakeholder needs	(Scale 1–5)	4	87%	Moderate
	Effectiveness of Stage-Gate in Managing project scope changes	(Scale 1–5)	3	84%	Moderate
	Effectiveness of Stage-Gate in Risk management	(Scale 1–5)	3	81%	Moderate
	Challenges with Stage-Gate	Multiple choice	Delays in decision-making	90%	High

C. Perceptions of Agile	Potential Agile benefits	Multiple choice (up to 3)	Faster decision-making Reduced project timelines Enhanced customer satisfaction	95%	High
	Belief in Agile + SG success	Yes, Maybe, No, Not sure	Yes	95%	High
	Support for new KPIs	Yes, Maybe, No, Not sure	Yes	93%	High
	Importance of customer feedback	Very, Moderate, Slight, Not	Very important	95%	High
	Recommending Agile pilots	Yes, Maybe, No	Yes	91%	High

Table 1: data analysis of for the Questionnaire

Findings from the Study Based on Unsatisfactory Responses:

low Familiarity with Agile Methodologies

Many respondents reported limited or no familiarity with Agile practices such as Scrum, Kanban, etc.. This indicates a knowledge gap that must be addressed before integration can be considered.

The Training and awareness programs are essential before any integration of Agile principles.

Resistance or Uncertainty Toward Agile Integration

participants responded “Maybe”, “No”, or “Not sure” to questions about integrating Agile or using new KPIs (like a CAPEX Maturity Index), this indicates resistance to change or uncertainty about benefits.

Change management strategies would be critical to gain stakeholder buy-in and Leadership must address cultural and procedural resistance.

Perceived Challenges with Current Practices

Participants identified key challenge in the Stage-Gate system of Delays in decision-making and these are areas where Agile could offer value, yet skepticism or lack of knowledge is preventing teams from seeing Agile as a solution.

Research Recommendations

➤ Reduce Over-Scoping with Fit-for-Purpose Design

Over-scoping leads to increased CAPEX and complexity without proportional value. Fit-for-purpose design emphasizes providing just what is needed to meet performance, safety, and regulatory requirements. This means:

- Avoiding gold-plating of systems.
- Using standardized solutions unless specific customization is required.
- Incorporating value engineering early in design to optimize cost vs. performance.

➤ Introduce Agile and Efficient FEED Process to Expedite Project Development

The Front-End Engineering Design (FEED) phase often becomes a bottleneck. Making it agile involves:

- Iterative design reviews with stakeholders.
- Modular FEED packages for faster approvals.
- Using digital design tools and simulation to accelerate validation.
- Parallelizing activities where possible (concurrent engineering).

➤ New EPC and Construction Contractors to Participate in the Project

Bringing in new EPC (Engineering, Procurement, and Construction) and construction contractors can:

- Introduce competitive pricing and innovation.
- Reduce reliance on legacy contractors with poor performance.
- Expand capabilities with specialized or local firms.
It requires prequalification, benchmarking, and clear contract frameworks to manage risk

➤ Challenge Project Schedule and Cost

This means systematically reviewing the project's timeline and budget assumptions to:

- Identify and eliminate inefficiencies.
- Introduce fast-track construction or modularization strategies.
- Consider phased commissioning.

➤ **Flexible Contracting & Procurement Strategies**

- Best-Fit Procurement and Contracting Model based on project complexity
- optimized tendering requirements.
- Combining lump-sum and reimbursable elements.
- Using alliance or hybrid contracts.
- Adopting milestone-based payments tied to performance, this helps align incentives and better manage risk.
- enhance cross functional collaboration in project procurement.

➤ **Evaluate Agile Procurement Process for Project**

- Early involvement of procurement teams during design.
- Splitting procurement packages to allow staggered bidding and faster sourcing.
- Integrating procurement decisions with project milestones and execution plans.

➤ **Enhance Project Execution via Clustering Concept for Similar Projects**

Clustering refers to grouping similar or related projects geographically or functionally to:

- Share infrastructure and resources.
- Apply lessons learned across projects.
- Negotiate better terms through bulk procurement.
- Streamline approvals and execution logistics.

➤ **Introducing EPCM Contracting Strategy**

- More direct control over schedule and quality.
- Better integration of multiple contractors and vendors.
- Flexibility to adapt the design/procurement during execution.
However, it requires the project owner to have strong project management and decision-making structures.

➤ **Project Schedule, Cost, and Quality Improvement**

Improvements can be realized by:

- Real-time performance monitoring.

- Leveraging predictive analytics to foresee issues.
- Applying lean construction techniques.
- Ensuring design and construction are integrated to avoid rework.

➤ **Improve Project Execution and Scope Management**

This focuses on:

- Strict change management and scope control processes.
- Integration of project controls with scheduling and budgeting tools.
- Cross-discipline collaboration early to avoid scope creep.
- Regular scope revalidation against business goals.

➤ **Maturity KPI & Performance for the Project**

A maturity model tracks how well-developed and capable your project systems are:

- High Maturity (≥90%): Optimized practices, minimal rework, high predictability.
- Moderate (70–90%): Standard practices with occasional gaps.
- Low (<70%): Reactive management, poor integration, and frequent issues.

Key Performance Indicators should be tailored for each project phase, typically include:

- Pre-FEED/FEED: Cost estimation accuracy, design maturity, stakeholder alignment.
- Procurement: Procurement cycle time, bid responsiveness, material availability.
- Execution: Safety, schedule adherence, construction productivity, change order volume.
- Commissioning & Closeout: Punch list closure rate, handover quality, cost variance, startup reliability

➤ **Increase agility in project approvals and execution.**

➤ **Embrace Agile Methodologies**

Agile methodologies, such as Scrum and Kanban, promote flexibility, collaboration, and customer-centric development. By breaking down projects into smaller, manageable tasks and iterating based on feedback, teams can adapt to changes more efficiently and deliver value continuously. According to the *Project Management Institute (PMI), organizations that adopt agile practices report a 27% improvement in project success rates.

➤ **Invest in Project Management Tools and Technologies**

Leveraging modern project management tools can streamline processes and improve collaboration. Tools like Asana, Trello, and Microsoft Project help teams manage tasks, track progress, and communicate more effectively. These tools provide real-time insights into project status, helping managers make informed decisions quickly.

➤ **Strengthen Risk Management Practices**

Proactively identifying and managing risks is essential for project success. Incorporating risk management into the project planning process helps anticipate potential challenges and develop mitigation strategies.

➤ **Foster a Culture of Continuous Improvement**

Continuous improvement is vital for long-term success in project management. Encourage teams to regularly review their processes, identify areas for improvement, and implement changes. Techniques like *Kaizen* and *Lean* can be instrumental in fostering a culture of continuous improvement.

➤ **Enhance Communication and Stakeholder Engagement**

Effective communication is a cornerstone of successful project management. Regular updates, clear documentation, and transparent decision-making processes help keep stakeholders informed and engaged. Utilizing collaboration tools like Slack, Microsoft Teams, or Zoom can improve team communication, especially in a environment.

➤ **Provide Ongoing Training and Development**

Investing in the professional development of project managers and team members is crucial. Regular training sessions, workshops, and certification programs can enhance skills and keep the team updated on the latest trends and best practices in project management.

Conclusion Enhancing project management practices requires a strategic approach that involves adopting agile methodologies, leveraging modern tools, strengthening risk management, fostering a culture of continuous improvement, enhancing communication, and investing in training. By focusing on these areas, our organization can achieve better project outcomes, align more closely with strategic goals, and drive overall growth.

Appendixes

References:

Agile Project Management Implementation for Construction Companies in Jordan

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Advancements in project management methodologies: Integrating agile and waterfall approaches for optimal outcomes

Osemeike Gloria Eyieyien

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Questionnaire

Dear Participant,

I am currently pursuing a Master's degree in Project Management at Midocean University's College of Management. As part of my research, I am exploring the integration of Agile principles into Stage-Gate systems within the Engineering Project Management Department of a petrochemical company in the Jubail region, Kingdom of Saudi Arabia.

Your insights are invaluable. I kindly invite you to complete this questionnaire to assist in my study titled:

“Integrating Agile Principles into Stage-Gate Systems to Accelerate Project Delivery, Enhance Cost Efficiency, and Improve Customer Satisfaction.”

Please be assured:

- Your responses will be treated with strict confidentiality.
- Data will be used exclusively for academic purposes.
- Honest and reflective answers are essential for the validity of the research.

Thank you sincerely for your time and contribution.

Warm regards,

Mohammed Ibrahim Al Haboob

Master's Candidate, Project Management

Midocean University – College of Management

Section A: Demographic and Professional Information

1. Name (Optional):

2. Organization Name (Optional):

3. Age:

4. Gender:

5. Job Title:

- ☐ Project Manager
- ☐ Engineer
- ☐ Department Head
- ☐ Planner / Scheduler
- ☐ Other: _____

6. Years of Experience in Engineering Project Management:

- ☐ Less than 5 years
- ☐ 5–10 years
- ☐ 11–15 years
- ☐ More than 15 years

Section B: Current Project Management Practices

1. Are you familiar with the Stage-Gate project management system?

- ☐ Yes
- ☐ Somewhat
- ☐ No

2. Are you familiar with Agile methodologies (e.g., Scrum, Kanban, SAFe)?

- ☐ Yes
- ☐ Somewhat
- ☐ No

3. To what extent is the Stage-Gate model used in your organization's projects?

- ☐ Not used
- ☐ Rarely used
- ☐ Moderately used
- ☐ Fully adopted

4. Are you familiar with Agile methodologies (e.g., Scrum, Kanban, SAFe)?

- ☐ Yes
- ☐ Somewhat
- ☐ No

5. How effective is the Stage-Gate system in achieving the following? (Rate on a scale of 1–5, where 1 = Not Effective and 5 = Very Effective)

Project Management Aspect	1	2	3	4	5
Timely project delivery					
Cost control					
Meeting customer/stakeholder needs					
Managing project scope changes					
Risk management					

6. What are the key challenges you face with the current Stage-Gate system?

- ☐ Delays in decision-making
- ☐ Inflexibility to change
- ☐ Limited customer feedback loops
- ☐ Inefficient resource allocation

☐ Other: _____

Section C: Perceptions Toward Agile Methodologies

1. In your opinion, what benefits could Agile bring if integrated into your current project management process? (Select up to 3)

- ☐ Faster decision-making
- ☐ Improved team collaboration
- ☐ Reduced project timelines
- ☐ Enhanced customer satisfaction
- ☐ More flexible scope management
- ☐ Better visibility into project status

2. Do you believe integrating Agile into Stage-Gate can enhance project outcomes in your environment?

- ☐ Yes
- ☐ Maybe / To some extent
- ☐ No
- ☐ Not sure

3. Would you support the introduction of new KPIs such as a CAPEX Maturity Index and Agile-based Performance Metrics?

- ☐ Yes
- ☐ Maybe / To some extent
- ☐ No
- ☐ Not sure

4. How important is customer feedback during project execution?

- ☐ Very Important
- ☐ Moderately Important
- ☐ Slightly Important

☐ Not Important

5. Would you recommend piloting Agile practices in selected engineering projects in your department?

☐ Yes

☐ Maybe / To some extent

☐ No

Section D: Open Feedback

Any suggestions or concerns regarding this study

☒ **End of Survey – Thank You for Your Valuable Input!**

-الملخص Abstract

في ظل التطور السريع والمنافسة الشديدة التي يشهدها قطاع البتروكيماويات، وبالأخص داخل أقسام إدارة المشاريع الهندسية في مدينة الجبيل بالمملكة العربية السعودية، تواجه المؤسسات ضغوطاً متزايدة لتسريع وتيرة تنفيذ المشاريع، وضبط التكاليف، وتعزيز رضا العملاء. تهدف هذه الدراسة إلى استكشاف دمج مبادئ الأجايل (Agile) مع نظام إدارة المشاريع التقليدي المعروف بـ “مرحلة البوابة” (Stage-Gate)، لمعالجة التحديات الشائعة مثل تأخر الجداول الزمنية، وتجاوز التكاليف، وضعف التوافق مع توقعات العملاء.

ومن خلال منهجية بحثية مختلطة، شملت توزيع استبيانات منظمة على محترفي إدارة المشاريع في الإدارة المعنية بالجبيل، قامت الدراسة بتقييم فعالية الممارسات الحالية، واستكشاف قابلية تطبيق منهجيات الأجايل في البيئات كثيفة رأس المال، واقتراح إطار هجين يجمع بين المنهجين. وقد كشفت النتائج الرئيسية عن محدودية الإلمام بممارسات الأجايل، ولكن في المقابل وجود تقبل كبير لفوائدها المحتملة، لا سيما في تسريع اتخاذ القرارات وتحسين مشاركة أصحاب المصلحة.

وتقدم الدراسة توصيات استراتيجية مثل تعزيز عمليات التصميم الهندسي الأولي (FEED) باستخدام مبادئ الأجايل، وتبني استراتيجيات تعاقد مرنة، واستخدام مؤشرات نضج رأس المال (CAPEX KPIs)، ودمج المشاريع المتشابهة لتحقيق كفاءة تنفيذية. وفي المجمل، تقدم هذه الدراسة خارطة طريق للتحويل نحو ثقافة إدارة مشاريع أكثر مرونة واستجابة وتركيزاً على الأداء، مع تقديم رؤى عملية لقادة الهندسة وصناع القرار في قطاع البتروكيماويات.

الكلمات المفتاحية: الأجايل، مرحلة البوابة، إدارة المشاريع الهجينة، صناعة البتروكيماويات، الجبيل، تسليم المشاريع، كفاءة التكاليف، رضا العملاء، مؤشرات رأس المال (CAPEX KPIs)، استراتيجية تنفيذ المشاريع.



جامعة ميدأوشن

كلية الإدارة

ماجستير إدارة المشاريع

عنوان البحث

دمج مبادئ أجايل في بوابات المشروع لتسريع تنفيذ المشاريع، وتعزيز الكفاءة من حيث التكلفة، وتحسين رضا العملاء في قسم إدارة المشاريع الهندسية لإحدى شركات صناعة البتروكيماويات في منطقة الجبيل - المملكة العربية السعودية

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