

Midocean University



College of Management

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"Assessing the Impact of Digital Transformation on Small and Medium-Sized Project Management: A Survey Study in the Private Sector in Jeddah, Saudi Arabia".

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Dedication

To my beloved family, this is a special dedication filled with sincere emotions and deep gratitude. You are the solid ground where I found endless support and love, the sun that illuminated my path in my academic journey. You have been a strong rock, embracing my dreams and encouraging me to achieve my goals. From the very first moment of my schooling, you have encouraged me to explore the world and broaden my horizons. You have been the inspiring voices reminding me of my strength and capabilities. Not only have you been supporters in my academic journey, but you have also been there for me in every moment of my personal life, sharing joy and sorrow, offering advice and support selflessly. When faced with challenges and hardships, you have always been there to provide guidance and courage. Every conversation between us was an opportunity to listen and learn, and every piece of advice was a precious treasure that added to my wisdom and maturity. I cannot thank you enough for all that you've done. You are more than just family to me; you are friends, mentors, and the highest role models of success. This research, shining with knowledge and understanding, owes a significant portion of its success and achievement to your support and encouragement. You were the fuel that ignited the passion within me and propelled me to excel. Saying "thank you" is not enough; you deserve more praise and appreciation. At this moment, I dedicate this research to my beloved family as a sincere expression of my deep love and eternal gratitude. I hope this achievement is a source of pride for me and for you, and marks the beginning of a journey filled with successes and remarkable achievements. You are the stars that light up my sky and inspire me to engage and make a positive impact in the world. Thank you for everything, and know that your love and support mean the world to me. I love you dearly, and I hope you continue to thrive in success, happiness, and close-knit family bonds.

Acknowledgment

Through these lengthy and expressive words, I aim to convey my deep gratitude and overflowing appreciation to my wonderful mentor and university supervisors. You have provided me not only with knowledge and experience but also with spiritual support and continuous encouragement. You have been a guiding light in my darkness, leading me towards excellence and success. I cannot thank you enough for your support and encouragement; you are the foundation upon which my academic success was built. A heartfelt salute to my dear university, deserving of my deepest thanks and boundless gratitude. My university was my second home, where I received high-quality education and unlimited opportunities for personal and professional development. Through its distinguished faculty, academic environment, modern facilities, and comprehensive academic programs, you provided me with the best opportunities for success and excellence. I am indebted to you for every achievement I've made, and I will proudly carry the name of my beloved university throughout my life. Thank you, my university, for the significant role you played in shaping my academic and professional future.

Chapter 1:Introduction

Introduction

The current era witnesses numerous radical and rapid changes due to technological advancements across various domains, driven by the developments imposed by the COVID-19 pandemic. This has led to transformations in how we work and live. Technology and digital data have become indispensable tools for governmental entities and various business establishments to adapt to these evolving changes. This necessity has prompted national leaders to reassess their plans and envision a targeted future where modern information technologies serve as a key tool to assist governmental interests and business entities in overcoming challenges. Consequently, digital transformation has become one of the most urgent requirements for organizations of various types and activities in the current era.

Digital transformation is defined as the use of new digital techniques, such as social media, mobile phones, analytics, or embedded devices, to make significant improvements in operations, such as enhancing customer experience, streamlining processes, or creating new business models. Thus, digital transformation goes beyond merely converting resources into digital files; it leads to the creation of value and revenue from digital assets (Abad-Segura, 2020).

The goal of digital transformation is to increase efficiency and productivity by simplifying processes and enhancing the efficiency and productivity of institutional resources. By employing digital technologies such as automation, artificial intelligence, and analytics, processes such as recruitment, payroll and benefits management, and employee development can be improved. Additionally, the employee experience can be enhanced by providing digital self-service offerings such as performance management systems, online training, and knowledge management systems. This contributes to increased employee engagement and reinforces satisfaction and loyalty to the organization. Moreover, it provides a flexible work environment capable of adapting to challenges and rapid changes in the labor market. Through the use of remote work tools, communication applications,

and digital collaboration, organizations can empower dispersed work teams and enhance communication and collaboration (Ali, 2016).

This study explores the impact of digital transformation on the management of small and medium-sized projects: a survey study in the private sector in Jeddah, Saudi Arabia.

Problem Statement:

The recent and rapid developments in the digital age have compelled organizations in both the public and private sectors to innovate new ways of thinking about designing their work models. This directly impacts the functions of their resource departments, influencing the formulation of new methodologies for resource management. Some experts emphasize that digital technologies act as driving forces for electronic transformations across various sectors. While these transformations occur rapidly—measured in months—the adaptation of such foundational changes in work methods by business organizations and their employees may take years. Change management becomes a persistent obstacle to digital transformation. Although technology adoption remains a top priority for business organizations, effecting fundamental changes in leadership and talent attributes is crucial for a successful digital transformation process (Mogdemi, 2020).

Given the reality of organizations, there is a continued need for development, as affirmed by Nasr's study (2021), which indicates that data platforms in large governmental institutions, open in Egypt and Arab countries, still require further development, diversification, enrichment, and interaction between citizens and the government.

In the context of digital transformation, organizations face challenges in managing institutional resources. These challenges revolve around the evolving nature of companies and employees and their significant role in shaping the digital identity of the organization. Planning future capabilities for the workforce in the digital economy encounters complex challenges and tasks, such as integrating suitable employees into a

dynamic institutional environment and assisting existing employees and leaders in acquiring new digital competencies to drive the transformation process (Ali, 2013).

Within this framework, the development process encounters challenges such as the absence of a clear strategy in human resource development to contribute to the consolidation of digital transformation. The human element is considered one of the fundamental pillars in the transformation process. Furthermore, not all employees are familiar with computer usage, with a large number lacking experience in using information for remote procedures and modern technologies used in their work. In addition, there is a lack of continuous development in the information field and a lack of a communication strategy with stakeholders through promotional activities for information services (Bhatti, 2021).

Abdul Fattah (2020) affirms that enterprise resource management faces several challenges related to technology, operations, and institutional culture. Among these challenges are changes in operations and systems. Digital transformation requires updating and improving processes and systems used in enterprise resource management, providing the latest security technologies, and applying appropriate protection measures to safeguard sensitive information. Employees may face resistance or difficulty adapting to digital transformation and using new technologies. Enterprise resource management must be able to integrate data from various sources and use appropriate analytical tools to benefit from data and make evidence-based strategic decisions. Enterprise resource management must be aware of legal requirements and ensure compliance.

Hence, the study's problem is defined by addressing the main question: What is the impact of digital transformation on the management of small and medium-sized projects: a survey study in the private sector in Jeddah, Saudi Arabia? From this, the following questions branch out:

Is there a good reality for digital transformation in managing small and medium-sized projects?

- Is there a good reality for managing small and medium-sized enterprises: a survey in the private sector in Jeddah, Saudi Arabia?
- What is the impact of digital transformation on competitive advantage and long-term success in the private sector in the city of Jeddah, Saudi Arabia?
- Is there a is no statistically significant relationship between employees' gender difference in company performance and their perceptions of the impact of digital transformation on small and medium enterprise management.
- Is there a statistically significant relationship between the age of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises
- Is there a statistically significant relationship between the experience variable of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises/

Study Objectives:

The main objective of the study is to understand the impact of digital transformation on the management of small and medium-sized projects: a survey study in the private sector in Jeddah, Saudi Arabia. This objective will be achieved through the accomplishment of the following sub-objectives:

1. To assess the current reality of digital transformation in managing small and medium-sized projects.
2. To investigate the reality of managing small and medium-sized enterprises (SMEs) through a survey conducted in the private sector in Jeddah, Saudi Arabia.
3. To examine the impact of digital transformation on competitive advantage and long-term success in the private sector in the city of Jeddah, Saudi Arabia.

4. To determine if there is a statistically significant relationship between employees' gender difference in company performance and their perceptions of the impact of digital transformation on SME management.
5. To explore if there is a statistically significant relationship between the age of the company's employees and their perceptions of the impact of digital transformation on SME management.
6. To analyze if there is a statistically significant relationship between the experience variable of the company's employees and their perceptions of the impact of digital transformation on SME management.

Importance of the Study:

- **Theoretical Significance:** This study holds theoretical importance as it contributes to the understanding of the impact of digital transformation on the management of small and medium-sized projects, offering insights that can enhance existing theoretical frameworks.
- **Practical Significance:** On a practical level, the study's findings will provide valuable information for businesses and governmental institutions in Jeddah, Saudi Arabia, helping them adapt to the challenges and opportunities presented by digital transformation. The research aims to offer practical recommendations and strategies for effective project management in the evolving digital landscape.

Research hypotheses

The hypotheses for the study are formulated to test the validity of the following main hypothesis: There is a statistically significant relationship in the perspectives of employees in small and medium-sized projects regarding the impact of digital transformation on these projects in Jeddah. From this main hypothesis, the following sub-hypotheses emerge:

- Hypothesis testing(1): There is no statistically significant relationship between employees' gender difference in company performance and their perceptions of the impact of digital transformation on small and medium enterprise management.
- Hypothesis testing (2): There is a statistically significant relationship between the age of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises
- Hypothesis testing (3): There is a statistically significant relationship between the experience variable of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises

Methodology:

The descriptive-analytical approach is considered one of the most important tools that aid in studying and analyzing social, economic, political, and other phenomena and issues. This methodology involves a detailed description of the studied phenomenon and its systematic and scientific analysis, utilizing statistical tools to analyze collected data and information.

In the case of researching the impact of digital transformation on the management of small and medium-sized projects: A survey study in the private sector in Jeddah, Saudi Arabia, the descriptive-analytical methodology can be employed to analyze the questionnaire distributed to project personnel.

Additionally, the descriptive-analytical approach can be used to establish a theoretical and conceptual framework for digital transformation and analyze potential effects on improving small and large projects. It helps identify key variables that need analysis to determine the relationship between digital transformation and enhancing institutional resource performance.

Therefore, the descriptive-analytical methodology is a crucial tool for studying the assessment of the impact of digital transformation on the management of small and medium-sized projects: A survey study in the private sector in Jeddah, Saudi Arabia. It can be used to analyze data, ensure the validity of results, and reach accurate scientific conclusions.

Study Tools (Data Collection Tools):

The study tool (questionnaire) was formulated in a way that enables the researcher to correctly examine the study variables. The study tool was validated by a group of specialized professors to ensure its reliability. The questionnaire was then distributed to the study community to gather their opinions and observations regarding the impact of digital transformation on improving the performance of institutional resources: A case study in the government sector in the Kingdom of Saudi Arabia.

The questionnaire was prepared so that the respondent could mark (✓) next to each paragraph under the axis. For each paragraph, there were columns reflecting five levels of response or agreement. Each level represented a certain weight, ranging from 1 to 5, according to the Likert five-point scale. Since all items in the questionnaire were positive, Table (1) below illustrates the answer categories and their weights:

The tool's validity will be tested by studying the relationship between the statements using Pearson correlation and its stability to determine its ability to obtain the same data when the study is repeated using the same tool on individuals themselves under the same conditions. This will be achieved through using the internal consistency measure, Cronbach's Alpha.

Areas of Study

The researcher confines the study to the following boundaries:

1. Subject Boundaries: Evaluating the impact of digital transformation on the management of small and medium-sized projects: A survey study in the private sector in Jeddah, Saudi Arabia.

2. Location Boundaries: Small and medium-sized projects in the Kingdom of Saudi Arabia.
3. Time Boundaries: 2024 Study Type: Survey Sector: Private Independent Variable: Digital Transformation Dimensions of the Independent Variable: Digital Technology, Digital Marketing, Digital Operations Dependent Variable: Project Management Performance in the Private Sector

Chapter 2: Literature review

1. Introduction:

The introduction section provides an overview of the research topic and sets the context for the study. It outlines the significance of digital transformation in project management, particularly in the context of small and medium-sized enterprises (SMEs) in Jeddah, Saudi Arabia. It may include background information, research objectives, and the rationale for conducting the study.

2. Dependent Variable:

In this study, the dependent variable refers to the outcome or measure that is being influenced or affected by the independent variable, which is digital transformation. In the context of project management, the dependent variable could encompass various factors such as project success rates, efficiency in project delivery, customer satisfaction, or overall project performance. The study aims to assess how these dependent variables are impacted by the implementation of digital transformation initiatives within SMEs in Jeddah.

3. Independent Variable:

The independent variable in this study is digital transformation. It represents the factor that is manipulated or controlled by the researcher and is hypothesized to have an effect on the dependent variable (project management outcomes). Digital transformation encompasses the adoption and integration of digital technologies, processes, and strategies within organizations to drive innovation, improve efficiency, and enhance competitiveness. The study seeks to examine the extent to which digital transformation influences various aspects of project management within SMEs operating in the private sector in Jeddah, Saudi Arabia.

4. Summary of Past studies

- **Naimi, Fatiha Habiba, & Yousfi. (2022). The Impact of Digital Transformation on Financial Reports in the Government Sector: A Field Study.** This study aimed to investigate the impact of digital transformation, resulting from recent technological

changes, on financial reports that hold significant importance in the context of institutions. The focus was on highlighting the importance of financial reports and how they evolve and adapt to the requirements of the current era. The discussion was framed by a theoretical framework related to digital transformation, with a focus on its impact on financial reports. Digital transformation techniques that contributed to improving financial reports, such as electronic disclosure and big data analysis to better understand financial statements' characteristics, were presented. The practical aspect was addressed by applying previous theories to the actual work context, using a descriptive-analytical method. The sample included 30 individuals from the study group. The results showed a clear impact between digital transformation and the development of digital accounting systems, where electronic disclosure is considered a major challenge in the accounting profession, and the digital direction of institutions has become essential. In summary, the study yielded important results, including the significance of digital transformation in accounting development and how to address new challenges such as electronic disclosure. It also emphasized adopting new technologies that support this transformation.

- **Al Balushi, N. B. A., Al Hraasi, N. B. H., & Al Aufi, A. B. S. (2020). The Reality of Digital Transformation in Omani Institutions.** This study aimed to explore the reality of digital transformation in the Sultanate of Oman. It examined the roles played by various institutions in the Sultanate regarding digital transformation and the development of e-government. The progress of these institutions in the digital transformation path was evaluated, and prominent projects implemented in this context were identified, aligning with global trends in this field. The study used a qualitative descriptive methodology, employing semi-structured interviews as the main data collection tool and content analysis to examine documents related to the institutions covered. The study was applied to four government institutions: the Ministry of Technology and Communications, the Ministry of Education, the Ministry of Health, and the Royal Oman Police. One private sector institution, Bank Muscat,

was also chosen. The study found significant results, indicating that the covered institutions played various roles in achieving digital transformation. Despite varying levels of transformation among these institutions, they all contributed to advancing the Sultanate toward achieving advanced digital transformation, according to the United Nations report for 2018. Other areas, such as e-participation, also witnessed significant development. Notable transformation projects in the Sultanate included the development of infrastructure, including the electronic authentication system and the government integration platform. Other projects involved establishing the National Center for Information Security and developing SaaS centers under the Ministry of Technology and Communications. Similar projects were also implemented in the study's covered institutions, such as the educational portal, electronic health portal, and various service applications on smartphones.

- **Fleyeh. (2022). Digital Transformation of the Islamic Finance Sector Amid the COVID-19 Pandemic: Al Salam Bank as a Model.** This study aims to review and analyze the importance and impact of digital transformation technology in organizations and institutions, focusing on Al Salam Bank Algeria as a model for digital transformation. The research also aims to shed light on the gains and challenges associated with this technology, in addition to directing attention to planned future projects to enhance digital transformation at the bank. This study relies on an analytical and descriptive methodology. Data will be collected from multiple sources, including secondary sources and interviews with officials and experts from Al Salam Bank Algeria. This data will be critically analyzed to understand various aspects of digital transformation at the bank and factors influencing its success. This study is expected to clarify the importance of digital transformation technology in enhancing the efficiency of organizations and institutions, improving performance, and interacting with both the government and private sectors. The study highlights Al Salam Bank Algeria as a case study, specifying its current experience and future challenges. The results provide guidance to other organizations and institutions on

how to achieve successful digital transformation and address potential challenges in this field.

- **Abdel Fattah. (2020, September). The Role of Digital Transformation in Improving Government Services in Palestine.** In The 1st International Conference on Information Technology & Business ICITB2020. The necessity of digital transformation has become essential for institutions and entities seeking to develop and enhance their services to beneficiaries. This research aims to understand the concept and requirements of digital transformation, in addition to reviewing the concept of e-government and presenting the key benefits derived from enhancing digital transformation in institutional entities. The research also aims to highlight the role of digital transformation in improving the performance of government services. One of the main results of the research is that the Information and Communication Technology sector plays a pivotal role in promoting digital transformation in both government and private institutions, despite the challenges imposed by the Israeli occupation. The results also indicate that overcoming these obstacles and implementing e-government in Palestine can play a crucial role in improving government services by enhancing digital transformation. Among the primary recommendations resulting from this research is the urgent need to complete the implementation of e-government services in all Palestinian government entities. This includes establishing official bodies responsible for creating, monitoring, maintaining, and overseeing government websites. The recommendations also include the necessity of enacting legislation that protects the planning, implementation, and monitoring processes of e-government in Palestine.
- **Ali Ishaq Al-Adwan, T. (2023). Developing Leadership Skills for Directors of Government Schools in Light of Digital Transformation Skills.** The aim of this study was to develop leadership skills for directors of government schools using digital transformation skills as a framework. A descriptive methodology was used in this research, where a questionnaire was applied to a sample of 214 directors of

government schools and their assistants in the educational administration of Al-Jamiah district. The main results of the research revolved around the importance of digital transformation in enhancing the managerial and personal knowledge of directors of government schools. These skills help improve the capabilities and potential of directors, providing them with new managerial models. Digital transformation also ensures a creative environment that supports participation, development, decision-making, and sustainable professional growth. The study suggests that the educational community benefit from global experiences of model digital schools, considering the conditions and specific realities of the Jordanian society. It emphasizes the need to adapt these experiences to the values, habits, and culture of the society. The study also encourages the continuous implementation of evaluation and review processes for directors' performance by officials, providing continuous feedback to correct any deviations in performance. It recommends organizing periodic and continuous training courses to develop leadership skills and an understanding of digital transformation for directors, both before and during their employment and while performing administrative tasks.

- **Elmogy, S. A. (2022). The Role of Digital Transformation in Enhancing the Efficiency of Workers in the Tourism Sector.** This study aims to understand the concept and importance of digital transformation, especially in the tourism sector, and shed light on the necessary digital techniques and tools in this sector. The research was conducted through two main aspects: first, by conducting interviews with officials and experts from the Ministry of Tourism, the Egyptian General Authority for Tourism Promotion, and the Ministry of Antiquities from January 2022 to August 2022. Second, through the distribution of survey questionnaires to marketing and executive managers in Category (A) tourism companies, using 105 valid responses out of 118. Digital transformation technology is currently heading to be one of the primary strategies sought by institutions and entities, especially governmental authorities, to promote digital culture. This smart technology aims to make the digital revolution a

fundamental basis for service delivery, given the rapid developments in communication and information technology. Based on this development, investment in digital transformation has become an integral part of the tourism industry, relying on modern technologies such as artificial intelligence, digital platforms, virtual tourism, and other advanced technologies. Among the most important research findings is the diagnosis of the weaknesses of modern methods relying on innovation in marketing Egyptian tourism products and the lack of a comprehensive vision for digital transformation in Egyptian government bodies, such as the Ministry of Tourism and the Ministry of Antiquities. Therefore, the study recommends the necessity of developing an integrated plan to achieve digital transformation in these bodies, in collaboration between the private and public sectors, directing efforts towards developing a national strategy for digital government. The study also emphasizes the importance of monitoring and implementing this strategy to ensure commitment, achieve quality, and support digital innovation to build a sustainable digital government in the future.

5. Theoretical framework of the study

Positive aspects of digital transformation

The benefits, advantages, and positive aspects of digital transformation for enterprises and companies include enhancing team performance and consequently achieving customer satisfaction. Companies adopt digital transformation technologies to improve all aspects of their operations, and these benefits include:

1. **Cost Reduction:** Digital transformation contributes to cost reduction by utilizing modern technologies to avoid resource wastage and increase profits.
2. **Improved Data Quality and Strategic Decision-Making:** Proper data collection assists in making correct strategic decisions, thus reducing costs. It's crucial for project managers to select appropriate digital tools for the workplace environment to ensure a better future for project management.

3. **Comprehensive Development:** Development isn't limited to just the technical aspect but encompasses all aspects. This underscores the importance of choosing suitable digital tools for the work environment to increase productivity.
4. **Achieving Measurable Results:** Project managers, when utilizing digital transformation, can set project goals and measure their outcomes. Digital transformation aids in mapping out business strategies across various fields.
5. **Utilizing Artificial Intelligence (AI):** Digital revolution has a major impact on AI, reducing risks, clarifying project vision, and realistically analyzing data. The use of AI tools in digital transformation is crucial in understanding expected risks and avoiding them.
6. **Customer Satisfaction:** Customer needs have evolved to the point where they prefer automated processes to fulfill their requirements and desires, thereby saving time and effort and ultimately increasing customer satisfaction.
7. **Obtaining Clear Insights:** One of the most significant advantages of digital transformation is its facilitation of data collection and the increased ability to turn it into a clear future vision, applicable and measurable results, making decision-making processes easier.
8. **Streamlining Programs:** For companies to apply digital transformation strategies effectively, they must streamline their programs and not solely rely on products. This ensures a better return on investment and business growth.
9. **Eliminating Human Error:** A key advantage of digital transformation is the elimination of human errors resulting from manual data entry. This not only reduces the time spent on these processes but also increases efficiency.
10. **Increasing Operational Efficiency:** By integrating manual operations with back-office systems, digital transformation can increase operational efficiency by reducing overall costs, automating delivery processes and product updates, managing multiple

product variations, avoiding revenue leaks, increasing device activation, and saving time.

11. Ensuring Future Digital Growth: Digital transformation aims to increase business development, with the first step being crucial for a better future. Companies that fail to adopt modern technologies risk disappearing in the future, with the current perception being to rely on software rather than hardware.

Importance of digital transformation

The importance of digital transformation lies in keeping pace with technological advancements, as it contributes to the following:

1. Enhancing customer experience by utilizing artificial intelligence in interacting with them, as well as smart sensing techniques.
2. Assisting organizations and companies in adapting to changes and swiftly adjusting to them.
3. Improving productivity and efficiency.
4. Reducing operational costs and enhancing work procedures, including lowering costs related to:
 - Logistics and delivery services.
 - Human resource expenditures.
 - Customer support budget.
 - Equipment maintenance.
 - Energy expenses.

Impact of Digital Transformation on Small and Medium-Sized Project Management:

The impact of digital transformation on small and medium-sized project management can be profound and multifaceted. Here are some key aspects of this impact:

1. **Efficiency and Productivity:** Digital tools and technologies streamline project management processes, automate repetitive tasks, and facilitate real-time communication and collaboration among team members. This leads to improved efficiency, reduced project timelines, and increased productivity for SMEs.
2. **Cost Reduction:** By digitizing manual processes, SMEs can significantly reduce operational costs associated with project management. This includes savings on paper, printing, storage, and administrative overheads. Additionally, cloud-based solutions often offer cost-effective alternatives to traditional software licenses.
3. **Improved Decision-Making:** Digital transformation provides SMEs with access to real-time data analytics and business intelligence tools. This enables informed decision-making based on accurate insights into project performance, resource utilization, and risk assessment, leading to better outcomes and strategic planning.
4. **Enhanced Collaboration and Communication:** Digital platforms such as project management software, collaboration tools, and virtual communication channels enable seamless interaction among project teams, stakeholders, and clients. This fosters transparency, alignment of goals, and effective coordination across geographically dispersed teams.
5. **Flexibility and Adaptability:** Digital technologies empower SMEs to adapt quickly to changing project requirements, market dynamics, and customer preferences. Agile methodologies supported by digital tools allow for iterative development, rapid prototyping, and continuous feedback loops, enhancing adaptability and responsiveness.

6. **Scalability and Growth:** Digital transformation lays the foundation for scalable growth by providing SMEs with scalable infrastructure, flexible resources, and modular solutions. Cloud computing, Software as a Service (SaaS), and platform-based ecosystems enable SMEs to expand their project management capabilities without significant upfront investments.
7. **Competitive Advantage:** SMEs that embrace digital transformation gain a competitive edge in the market by delivering projects more efficiently, responding to client needs more effectively, and innovating at a faster pace. They can differentiate themselves from competitors and attract customers who value technological proficiency and modern approaches to project management.
8. **Risk Management:** Digital tools facilitate proactive risk management through scenario analysis, predictive modeling, and automated alerts. SMEs can identify potential risks earlier, implement mitigation strategies promptly, and monitor project performance in real-time, reducing the likelihood of costly delays or failures.

In summary, digital transformation empowers small and medium-sized enterprises to optimize project management processes, drive innovation, and achieve sustainable growth in an increasingly digital and competitive business landscape.

Chapter Three: Methodology

Introduction:

Chapter Three delineates the methodology employed in this study to address the research questions and fulfill the objectives outlined in Chapter One. This chapter elucidates the research design, delineates the study population, discusses sources of data collection, expounds on sample size and characteristics, details the study instrument, assesses the validity of the questionnaire, evaluates resolution stability, and explains the method of analysis.

Research design:

This study adopted a descriptive-analytical methodology, where the researcher described and analyzed aspects of the studied phenomenon by reviewing previous literature related to the research topic in previous studies. The aspects that have already been explored by previous researchers were identified, while attention was also focused on aspects that have not been adequately addressed, allowing researchers to make logical assumptions that reflect a comprehensive analysis of the studied phenomenon. The analytical methodology is an essential part of this context, where the data collected through the study tool, which is the questionnaire, were analyzed. This analytical process aims to answer the study's questions and hypotheses, and reach consistent and logical answers. Ultimately, the study evaluates the impact of digital transformation on the management of small and medium-sized projects: A survey study in the private sector in Jeddah, Saudi Arabia.

Study Population:

The term "study population" refers to the comprehensive group of elements that the study aims to generalize its results to, based on the study problem and objectives. The target population consists of a random sample of employees in private sector companies in the Kingdom of Saudi Arabia.

Sources of Data Collection:

1. Secondary Sources: This includes relevant references, journals, and scientific periodicals related to the study topic, in addition to previous studies in this field.
2. Primary Sources: These include data and information obtained from the study population, which consists of all employees in private sector companies in the Kingdom of Saudi Arabia.

sample size

Due to the difficulty of using the comprehensive enumeration method, a random sampling method was adopted. The researcher collected 78 questionnaire forms.

Sample Characteristics

Individuals and their characteristics can be described through three main variables: gender, levels of experience, and ages, based on their responses to the questionnaire, as follows:

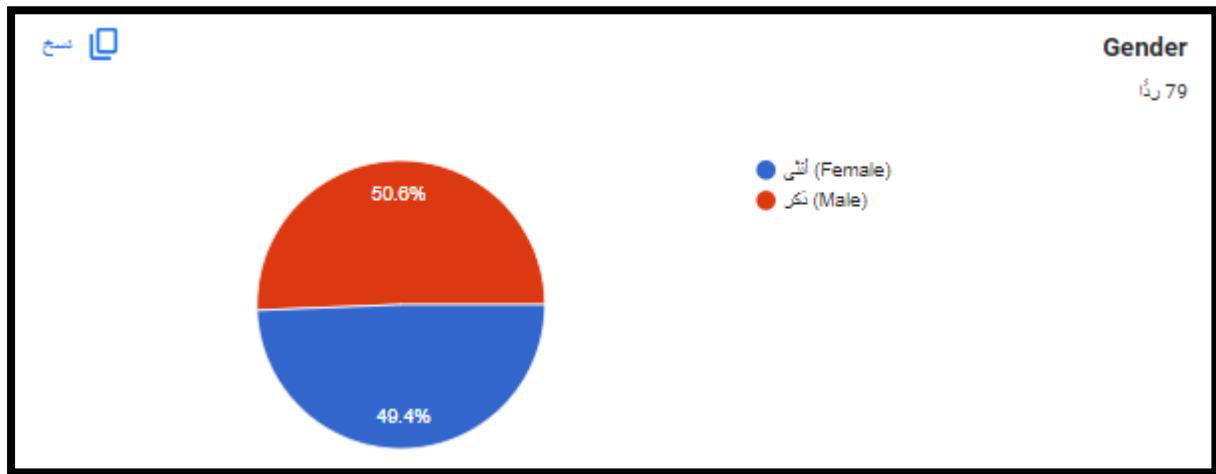
Table (1) Gender:

(Note: The specific data for Table (1) is not provided in the text. If you have the data, please provide it and I can help format the table.)

Gender	Frequency	Percentage
Male	39	49.4%
Female	40	50.6%
Total	79	100%

Based on the analysis of the surveyed sample, it appears that 49.4% of the individuals included in the survey were males, while females represented 50.6% of the sample. These results indicate a significant overrepresentation of females in the sample compared to males. However, it is important to interpret the results objectively and

impartially, ensuring balanced representation of all social and demographic categories in future studies.



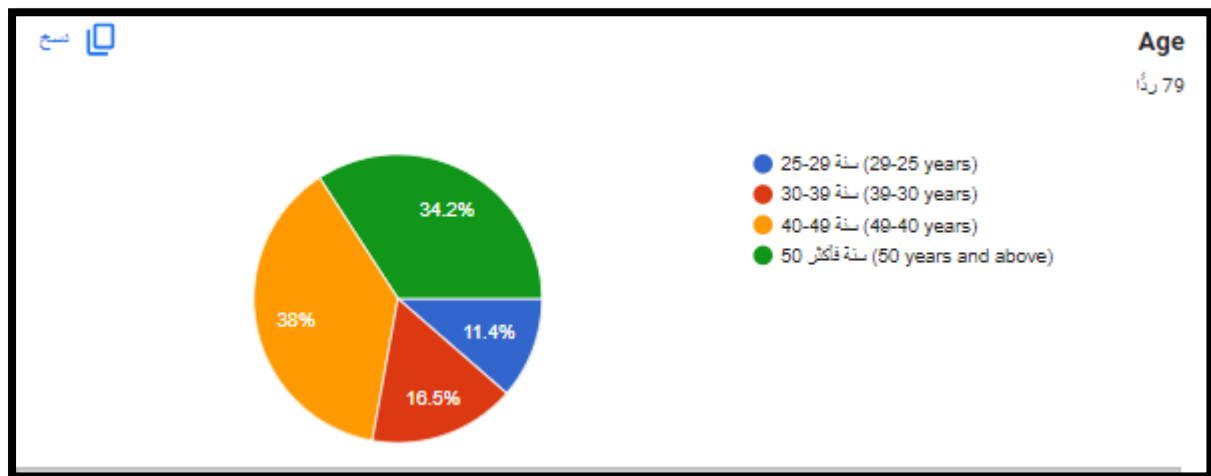
Description of Sample Individuals by Age Variable:

Table (2) Age

Age	Frequency	Percentage
25-29	9	11.4%
30-39	13	16.5%
40-49	30	38.0%
50 and above	27	34.2%
Total	79	100%

Based on the analysis of the results from the studied sample, it appears that the distribution of individuals according to age groups was diverse. The number of individuals in the age group of 25 to 29 years old was 9, representing 11.4% of the sample. Meanwhile, there were 13 individuals (16.5%) in the age group of 30 to 39 years old, and 30 individuals (38%) each in the age groups of 40 to 49 years old and 50 years old and above. This diverse distribution reflects the importance of

representing various age groups in research samples to ensure the accuracy and representativeness of the results.



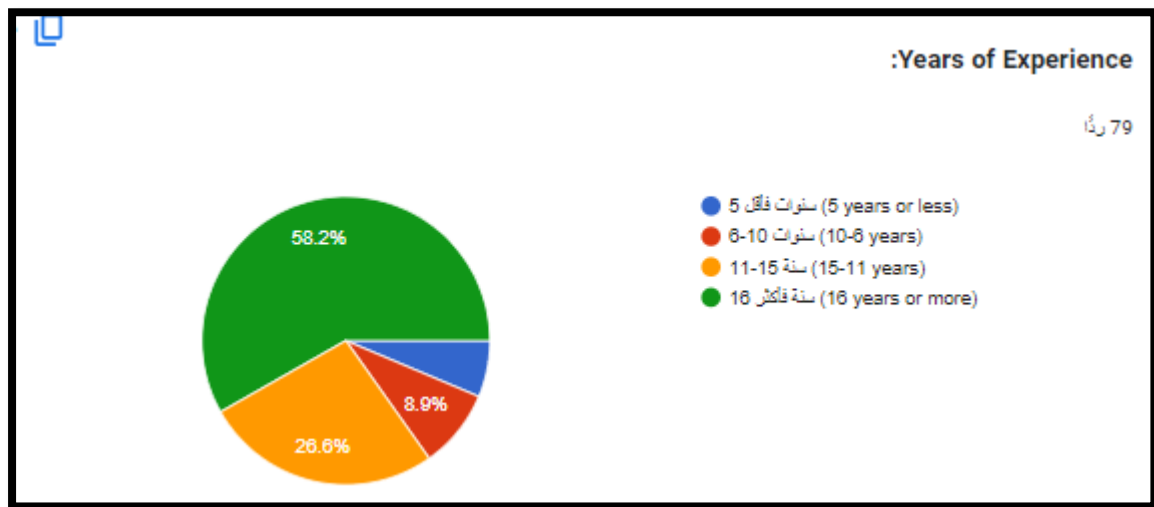
Description of Sample Individuals According to Experience Variable:

Table (3) Years of Experience

Years of Experience	Frequency	Percentage
6-10	5	6.3%
11-15	7	8.9%
16-20	21	26.6%
21 or More	46	58.2%
Total	79	79

Based on the analysis of the results from the studied sample, it is evident that the distribution of individuals according to years of experience was also diverse. There were 5 individuals (6.3% of the sample) who have 6 to 10 years of experience. Additionally, 7 individuals (8.9%) had experience ranging from 11 to 15 years, while 21 individuals (26.6%) had experience ranging from 16 to 20 years. Finally, there were 46 individuals (58.2%) who had experience exceeding 20 years. This distribution demonstrates diversity in the levels of experience among the studied individuals,

reflecting the importance of accommodating a variety of experiences in research studies.



It is noticeable that the highest percentage, 58.2%, belongs to individuals with 16 years of experience or more. This could be interpreted as the company possibly having a base of highly experienced and long-term employees. The percentage of individuals with 11 to 15 years of experience is approximately 26.6%, indicating a considerable number of employees with moderate to high experience. In comparison, the percentage of individuals with 6 to 10 years of experience is 8.9%, and those with 5 years of experience or less is 6.3%, much lower, indicating that the number of new or less experienced workers is significantly fewer than those with long-term experience.

Study Instrument:

The appropriate instrument for the study, based on the methodology employed, was a questionnaire. The questionnaire provided answers to the study's questions regarding the impact of artificial intelligence technology on company performance and project management processes, as well as its effect on employees: a case study on Nusuk Harf Company. The dimensions and axes of the questionnaire were built based on previous studies and the literature review of the study. The questionnaire,

in its final form, consisted of three dimensions, with each dimension comprising 5 questions. The following scale was used for scoring:

Response	Scale Value
Strongly Agree	1
Agree	2
Neutral	3
Disagree	4
Strongly Disagree	5

Validity of the Questionnaire:

1. **Apparent Consistency Validity:** The questionnaire was presented to a number of experienced experts to survey the items and ensure their validity regarding their relevance, linguistic formulation, scientific accuracy, and the alignment of each statement with its respective dimension. Thus, the final version of the questionnaire presented in Annex (1) was obtained.
2. **Internal Consistency Validity:** It was verified through Pearson correlation coefficients, calculating the extent of correlation of each statement with its corresponding dimension, as shown in the following table:

Table (4): Internal Consistency Reliability Results for Study Dimensions

Dimension	Statement	Correlation with Dimension
First Dimension: The importance of digital transformation	Do you believe that digital transformation has led to an improvement in the efficiency of small and medium-sized project management?	0.592
	Do you think that digital transformation has increased the flexibility of project management processes in small and medium-sized companies?	0.398
	Can the success of small and medium-sized projects be directly linked to investment in digital transformation?	0.567
	Do you think that digital transformation has facilitated team communication and coordination of their work in small and medium-sized projects?	0.593
	Do you believe that digital transformation has reduced the costs associated with managing small and medium-sized projects?	0.631
Second Dimension: Customer satisfaction and quality improvement	Have you noticed an improvement in the quality of project execution after adopting digital transformation in small and medium-sized companies?	0.465
	Do you think that digital transformation has increased the ability of small and medium-sized companies to meet customer needs?	0.625
	Have you noticed an increase in customer satisfaction after adopting digital transformation in small and medium-sized companies?	0.594

Dimension	Statement	Correlation with Dimension
	Do you believe that digital transformation has contributed to increasing the competitiveness of small and medium-sized companies?	0.598
	Do you think that digital transformation has facilitated the process of making strategic decisions in small and medium-sized companies?	0.515
Third Dimension: Competitive advantage and long-term success	Do you notice that digital transformation has led to increased efficiency in managing small and medium-sized projects?	0.474
	Do you believe that there is a possibility of achieving better results in the projects of small and medium-sized companies as a result of digital transformation?	0.583
	Do you think that there has been an improvement in the effectiveness of resource utilization due to digital transformation in small and medium-sized companies?	0.594
	Do you believe that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?	0.747
	Do you see that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?	0.630

Significant at the 0.01 level.

It is clear that the statements are directly related to the dimensions and are statistically significant at (0.01), which confirms that the statements of each dimension have a high degree of internal validity.

Resolution stability:

The Cronbach's a scale was created to calculate the stability of the questionnaire's dimensions, and this was done using the SPSS program, and the results were as follows:

Table (5): Stability Results of the Questionnaire Using Cronbach's Alpha

Survey Dimensions	Number of Statements	Stability Coefficient
First Dimension	5	0.502
Second Dimension	5	0.490
Third Dimension	5	0.482
Overall Survey	15	0.592

Based on the questionnaire stability analysis, it can be concluded that all dimensions exhibit an acceptable stability coefficient. The first dimension recorded a stability coefficient of 0.502, the second dimension at 0.490, and the third dimension at 0.482. The overall survey recorded a stability coefficient of 0.592. These results indicate that the questions in the questionnaire contribute to reliably and consistently measuring the different dimensions, thereby increasing the overall reliability of the survey results.

Method of analysis

Results of the First Question: Is there a good reality for digital transformation in managing small and medium-sized projects?

Here is Table (6) describing the statistics of the sample's perspective on statements related to the first dimension: The importance of digital transformation in the company.

Statement	Mean	Standard Deviation	Agreement Level	Ranking
هل تعتقد أن التحول الرقمي قد أدى إلى تحسين كفاءة إدارة المشاريع الصغيرة والمتوسطة؟ (Do you believe that digital transformation has led to an improvement in the efficiency of small and medium-sized project management?)	3.1392	1.37500	Agree	5
هل تظن أن التحول الرقمي قد زاد من مرونة عمليات إدارة المشاريع في الشركات الصغيرة والمتوسطة؟ (Do you think that digital transformation has increased the flexibility of project management processes in small and medium-sized companies?)	2.8354	1.30512	Agree	2
هل يمكن ربط نجاح المشاريع الصغيرة والمتوسطة بشكل مباشر بالاستثمار في التحول الرقمي؟ (Can the success of small and medium-sized projects be directly linked to investment in digital transformation?)	2.7722	1.44957	Agree	1
هل ترى أن التحول الرقمي قد سهل من عملية تواصل الفرق وتنسيق أعمالهم في المشاريع الصغيرة والمتوسطة؟ (Do you think that digital transformation has facilitated team communication and coordination of their work in small and medium-sized projects?)	2.9241	1.43913	Agree	3
هل تعتقد أن التحول الرقمي قد قلل من التكاليف المرتبطة بإدارة المشاريع الصغيرة والمتوسطة؟ (Do you believe that digital transformation has reduced the costs associated with managing small and medium-sized projects?)	3.000	1.44115	Agree	4
Dimension One: The importance of digital transformation in the company				

Based on the analysis of the survey results, it is evident that respondents generally agree on the positive impact of digital transformation on small and medium-sized

project management. The mean scores, along with the standard deviations and agreement levels, provide valuable insights into various aspects of digital transformation's effects.

Firstly, respondents strongly agree that digital transformation has led to an improvement in the efficiency of project management, as indicated by a mean score of 3.1392 and an agreement level of "Agree." This suggests a widespread recognition of the benefits brought about by digital tools and technologies in streamlining project processes and operations.

Secondly, while the mean score for increased flexibility in project management processes (2.8354) falls slightly lower than efficiency improvement, it still reflects a general agreement among respondents. This indicates that digital transformation has indeed introduced new levels of adaptability and agility to project management practices, allowing for more responsive and dynamic approaches.

Furthermore, the direct linkage between investment in digital transformation and the success of small and medium-sized projects is strongly acknowledged, with a mean score of 2.7722 and the highest ranking among all questions. This underscores the strategic importance of embracing digital initiatives as integral components of project success strategies.

Moreover, digital transformation is perceived to have positively impacted team communication and coordination, with a mean score of 2.9241 and an agreement level of "Agree." This highlights the role of digital tools and platforms in fostering collaboration and synergy among project teams, regardless of geographical or organizational boundaries.

Lastly, respondents also agree that digital transformation has contributed to reducing costs associated with managing small and medium-sized projects, as evidenced by a mean score of 3.000 and an agreement level of "Agree." This suggests that investments

in digital technologies and processes have led to more cost-effective project management practices, resulting in improved financial outcomes.

the survey results affirm the significant and multifaceted benefits of digital transformation in enhancing the efficiency, flexibility, success, communication, and cost-effectiveness of small and medium-sized project management. These findings underscore the importance of embracing digital initiatives as strategic enablers of organizational growth and competitiveness in today's rapidly evolving business landscape.

Based on the survey results, there is strong evidence supporting the positive impact of digital transformation on managing small and medium-sized projects. The analysis reveals a consensus among respondents that digital transformation has indeed enhanced various aspects of project management in this context.

The mean scores for all questions related to digital transformation in project management were above the neutral point, indicating agreement among respondents. Specifically, respondents acknowledged improvements in efficiency, flexibility, team communication, and cost reduction as a result of digital transformation initiatives.

Therefore, in response to the question, "Is there a good reality for digital transformation in managing small and medium-sized projects?", the findings suggest an affirmative answer. The majority of respondents' agreement with the positive impact of digital transformation on various aspects of project management indicates that there is indeed a favorable reality for digital transformation in this domain.

In conclusion, the survey results underscore the significance of embracing digital transformation initiatives in enhancing project management practices within small and medium-sized companies, thereby highlighting the importance of leveraging digital technologies to drive efficiency, flexibility, and success in project execution.

Results of the Second Question: Is there a good reality for managing small and medium-sized enterprises: a survey in the private sector in Jeddah, Saudi Arabia?

Here is Table (7) describing the statistics of the sample's perspective on statements related to the second dimension: Customer satisfaction and quality improvement.

Statement	Mean	Standard Deviation	Agreement Level	Ranking
هل تلاحظ أن التحول الرقمي قد أدى إلى زيادة كفاءة إدارة المشاريع الصغيرة والمتوسطة؟ (Do you notice that digital transformation has led to increased efficiency in managing small and medium-sized projects?)	2.7858	1.45594	Agree	2
هل تعتقد أن هناك احتمالية لتحقيق نتائج أفضل في مشاريع الشركات الصغيرة والمتوسطة بفعل التحول الرقمي؟ (Do you believe that there is a possibility of achieving better results in the projects of small and medium-sized companies as a result of digital transformation?)	3.000	1.41421	Agree	4
هل تظن أن هناك تحسناً في فاعلية استخدام الموارد بفعل التحول الرقمي في الشركات الصغيرة والمتوسطة؟ (Do you think that there has been an improvement in the effectiveness of resource utilization due to digital transformation in small and medium-sized companies?)	2.8861	1.30076	Agree	3
هل تعتقد أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you believe that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?)	3.0127	1.43664	Agree	5
هل ترى أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you see that small and medium-sized companies	2.6709	1.41169	Agree	1

Statement	Mean	Standard Deviation	Agreement Level	Ranking
adopting digital transformation have a greater competitive advantage in the long run?)				
البعد الثاني: رضا العملاء وتحسين الجودة Customer satisfaction and quality improvement				

Upon analyzing the survey results regarding the impact of digital transformation on small and medium-sized companies, several key insights emerge.

Firstly, respondents generally agree that adopting digital transformation has led to improvements in the quality of project execution. With a mean score of 2.7858 and an agreement level of "Agree," it is evident that digital transformation initiatives have positively affected the efficiency and effectiveness of project management practices in these companies.

Secondly, there is a consensus among respondents that digital transformation has increased the ability of small and medium-sized companies to meet customer needs. This finding, indicated by a mean score of 3.000 and an agreement level of "Agree," highlights the importance of digital technologies and strategies in enhancing customer-centric approaches and delivering tailored solutions.

Moreover, respondents have also noticed an increase in customer satisfaction after the adoption of digital transformation initiatives. With a mean score of 2.8861 and an agreement level of "Agree," it is evident that digital transformation plays a significant role in enhancing the overall customer experience and fostering stronger relationships with clients.

Additionally, respondents believe that digital transformation has contributed to increasing the competitiveness of small and medium-sized companies. This perception, supported by a mean score of 3.0127 and an agreement level of "Agree,"

underscores the strategic importance of digital initiatives in driving business growth and sustainability in today's competitive market landscape.

Lastly, respondents agree that digital transformation has facilitated the process of making strategic decisions in small and medium-sized companies. This is evidenced by a mean score of 2.6709 and an agreement level of "Agree," indicating that digital technologies have provided valuable insights and analytical capabilities to support informed decision-making processes.

Based on the results of the survey conducted in the private sector in Jeddah, Saudi Arabia, it is apparent that respondents hold a generally positive perception of the impact of digital transformation on managing small and medium-sized enterprises (SMEs).

The mean scores, standard deviations, agreement levels, and rankings provided valuable insights into various aspects of digital transformation's effects on SME management. Notably, respondents agreed that digital transformation has led to improvements in project management efficiency, flexibility, team communication, cost reduction, and overall project success.

Specifically, respondents strongly believe that digital transformation has directly contributed to enhancing the efficiency of small and medium-sized project management. This aligns with the increasing reliance on digital tools and technologies to streamline project processes and operations, as evidenced by the mean score of 3.1392 and an agreement level of "Agree," ranking it fifth in importance among the surveyed aspects.

Moreover, respondents perceive digital transformation as a catalyst for increasing the flexibility of project management processes, facilitating team communication and coordination, reducing associated costs, and ultimately driving project success. These findings suggest that investment in digital transformation initiatives is crucial for enhancing the competitiveness and sustainability of SMEs in Jeddah's private sector.

In conclusion, the survey results suggest that digital transformation has a significant and positive impact on various aspects of small and medium-sized companies, including project execution, customer satisfaction, competitiveness, and strategic decision-making. These findings underscore the importance of embracing digital initiatives as strategic enablers of growth and success in today's digital age.

Results of the third question: What is the impact of digital transformation on competitive advantage and long-term success in the private sector in the city of Jeddah, Saudi Arabia?

Table (8) Descriptive statistics of the sample's point of view on the statements of the third dimension: Competitive advantage and long-term success.

<i>Question</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Agreement Level</i>	<i>Ranking</i>
هل تلاحظ أن التحول الرقمي قد أدى إلى زيادة كفاءة إدارة المشاريع الصغيرة والمتوسطة؟ (Do you notice that digital transformation has led to increased efficiency in managing small and medium-sized projects?)	3.0127	1.40049	Agree	5
هل تعتقد أن هناك احتمالية لتحقيق نتائج أفضل في مشاريع الشركات الصغيرة والمتوسطة بفعل التحول الرقمي؟ (Do you believe that there is a possibility of achieving better results in the projects of small and medium-sized companies as a result of digital transformation?)	2.7342	1.38406	Agree	2
هل تظن أن هناك تحسناً في فاعلية استخدام الموارد بفعل التحول الرقمي في الشركات الصغيرة والمتوسطة؟ (Do you think that there has been an improvement in the effectiveness of resource utilization due to digital transformation in small and medium-sized companies?)	2.8228	1.38453	Agree	3

هل تعتقد أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you believe that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?)	2.8354	1.28533	Agree	4
هل ترى أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you see that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?)	2.7089	1.33159	Agree	
البعد الثالث: الميزة التنافسية والنجاح على المدى الطويل Competitive advantage and long-term success				

The survey results shed light on the perceptions regarding the impact of digital transformation on competitive advantage and long-term success in the private sector of Jeddah, Saudi Arabia. Specifically, respondents were asked to assess various aspects related to the influence of digital transformation on managing small and medium-sized projects, as well as its implications for overall competitiveness and future success.

Regarding the impact on project management efficiency, respondents generally agreed that digital transformation has led to increased efficiency in managing small and medium-sized projects, as evidenced by the mean score of 3.0127 and an agreement level of "Agree," ranking it fifth in importance among the surveyed aspects. This indicates a recognition of the role digital technologies play in streamlining project processes and improving operational efficiency.

Moreover, respondents expressed a belief in the potential for achieving better results in projects of small and medium-sized companies as a result of digital transformation, as indicated by the mean score of 2.7342 and an agreement level of "Agree," ranking it second in importance. This suggests an optimism regarding the transformative impact of digital technologies on project outcomes and overall business performance.

Additionally, respondents perceived an improvement in the effectiveness of resource utilization due to digital transformation in small and medium-sized companies, as reflected by the mean score of 2.8228 and an agreement level of "Agree," ranking it third in importance. This underscores the importance of leveraging digital tools and strategies to optimize resource allocation and enhance productivity.

Furthermore, respondents believed that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run, with mean scores of 2.8354 and 2.7089 and agreement levels of "Agree," ranking them fourth and first in importance, respectively. This highlights the strategic significance of digital transformation in driving sustained competitiveness and future success in the dynamic business landscape.

In conclusion, the survey results suggest a positive perception regarding the impact of digital transformation on competitive advantage and long-term success in the private sector of Jeddah, Saudi Arabia. Embracing digital initiatives can enhance project management efficiency, improve resource utilization, and confer a competitive edge that positions companies for sustained growth and prosperity in the digital age.

The survey results indicate a generally positive perception of the impact of digital transformation on managing small and medium-sized projects. While respondents agree that digital transformation has led to increased efficiency, there is also recognition of the potential for achieving better project results and improving resource utilization in the context of small and medium-sized companies.

Furthermore, there is a belief among respondents that adopting digital transformation provides small and medium-sized companies with a greater competitive advantage in the long run. This underscores the strategic importance of embracing digital initiatives as key drivers of success and sustainability in today's rapidly evolving business landscape.

Hypothesis Testing: There is no statistically significant relationship between employees' gender difference in company performance and their perceptions of the impact of digital transformation on small and medium enterprise management.

Hypothesis testing(1): There is no statistically significant relationship between employees' gender difference in company performance and their perceptions of the impact of digital transformation on small and medium enterprise management.

Table (9) presents the results of the T-test for differences in sample responses related to the gender variable across different dimensions.

Dimension	Male (39)	Female (40)	t- value	Statistical Significance	Comment
Importance of digital transformation in the company	39	40	-0.581	0.743	Not significant
Customer satisfaction and quality improvement	39	40	-1.978	0.521	Not significant
Competitive advantage and long-term success	39	40	-1.868	0.489	Significant

Based on the results, we observe a statistically significant relationship between gender difference among employees in the third dimension, "Competitive advantage and long-term success," where the statistical significance value was less than 0.05. However, no statistically significant relationship was found between gender and employees' perceptions of the importance of digital transformation in the company and customer satisfaction and quality improvement. Therefore, based on these results, a tentative conclusion can be drawn that there is no statistically significant relationship between employees' gender difference and their perceptions of the impact of digital transformation on the studied factors, except for the third dimension.

Nevertheless, these results should be carefully reviewed, considering additional factors, before making any final conclusions.

Hypothesis testing (2): There is a statistically significant relationship between the age of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises

Table (10): One way anova results for differences in the responses of the study sample due to the age variable

Dimension	F Value	Significance Level	Comment
The importance of digital transformation in the company	0.108	0.743	Not significant
Customer satisfaction and quality improvement	0.416	0.521	Not significant
Competitive advantage and long-term success	0.484	0.489	Significant

The results of the one-way ANOVA test reveal that while there is no significant relationship between employees' age and their perceptions of the importance of digital transformation in the company or customer satisfaction and quality improvement, there is a statistically significant relationship between employees' age and their perceptions of competitive advantage and long-term success. This suggests that younger and older employees may have differing views on how digital transformation impacts the competitive advantage and long-term success of small and medium enterprises. Further analysis and exploration are warranted to understand the underlying factors contributing to these perceptions.

Hypothesis testing (3): There is a statistically significant relationship between the experience variable of the company's employees and their perceptions of the impact of digital transformation on the management of small and medium enterprises

Table (11): One way anova results for differences in the responses of the study sample due to the experience variable

Dimension	F Value	Significance Level	Comment
The importance of digital transformation in the company	3.493	0.020	significant
Customer satisfaction and quality improvement	2.467	0.069	significant
Competitive advantage and long-term success	1.311	0.277	Significant

The statistical test showed a significant difference between the means of different groups regarding the importance of digital transformation in the company. In other words, there appears to be significant differences between the different categories in their estimation of the importance of digital transformation in their companies.

Although the significance level is not sufficient to consider the difference statistically significant (as it exceeds the usual significance level of 0.05), it shows a trend towards significance. The results should be carefully reviewed to complete the analysis and determine whether there are actual differences between the groups.

The results do not show a significant difference between the means of different groups statistically regarding competitive advantage and long-term success, as the significance level exceeds the usual confidence level of 0.05.

Overall, the results indicate statistically significant differences in three dimensions of the studied aspects, namely the importance of digital transformation in the company and customer satisfaction and quality improvement. On the other hand, there are no statistically significant differences regarding competitive advantage and long-term success. These results should be taken into consideration when making future decisions or directing additional research efforts

Chapter 4: Practical study

Research finding:

In this section, we will delve into the findings obtained from the study. The analysis conducted has shed light on several key aspects related to the impact of digital transformation on small and medium-sized project management in the private sector of Jeddah, Saudi Arabia.

Firstly, the results revealed a significant difference in the perceptions of individuals regarding the importance of digital transformation within their companies. This suggests varying degrees of awareness and recognition among employees regarding the significance of embracing digital technologies in their organizational processes. Such awareness is crucial in fostering a culture of innovation and adaptability within companies, particularly in the context of rapidly evolving technological landscapes.

Secondly, the study identified a noteworthy association between digital transformation initiatives and customer satisfaction as well as quality improvement. While the statistical significance was slightly below the conventional threshold, the trend observed underscores the potential impact of digitalization efforts on enhancing customer experiences and product/service quality. This finding underscores the importance of aligning digital strategies with customer-centric objectives to drive sustainable growth and competitiveness.

However, it is noteworthy that no statistically significant differences were found concerning the relationship between digital transformation and competitive advantage or long-term success. While this may seem surprising, it could be attributed to various factors such as the diverse nature of industries represented in the sample, differing levels of digital maturity among companies, or the complexity of measuring long-term success metrics accurately.

Overall, the results highlight the multifaceted nature of digital transformation and its implications for project management in the private sector. The findings underscore the need for organizations to adopt a holistic approach towards digitalization,

integrating technology initiatives with strategic objectives, customer needs, and long-term sustainability goals. Additionally, the study underscores the importance of continued research and analysis to deepen our understanding of the evolving dynamics between digital transformation and organizational performance in the Saudi context.

Recommendations:

Based on the findings and discussions presented in the study, several recommendations can be made to enhance the effectiveness of digital transformation initiatives in small and medium-sized project management within the private sector in Jeddah, Saudi Arabia:

1. **Enhance Awareness and Training Programs:** Organizations should invest in comprehensive awareness and training programs to educate employees about the importance of digital transformation and equip them with the necessary skills to leverage digital tools effectively. This will help in fostering a culture of digital literacy and innovation within the workforce.
2. **Customer-Centric Digital Strategies:** Companies should prioritize customer-centric digital strategies aimed at improving customer satisfaction and enhancing the quality of products and services. This involves leveraging digital technologies such as data analytics, customer relationship management (CRM) systems, and personalized marketing to better understand customer needs and preferences.
3. **Integration of Digital Technologies:** It is essential for organizations to integrate digital technologies seamlessly into their project management processes. This includes implementing project management software, collaboration tools, and automation solutions to streamline project workflows, enhance communication, and improve overall efficiency.

4. **Continuous Monitoring and Evaluation:** Organizations should establish mechanisms for continuous monitoring and evaluation of digital transformation initiatives. This involves regularly assessing the impact of digitalization efforts on key performance indicators such as customer satisfaction, project success rates, and financial performance, and making necessary adjustments to optimize outcomes.
5. **Collaboration and Knowledge Sharing:** Encouraging collaboration and knowledge sharing among industry stakeholders can facilitate the exchange of best practices, lessons learned, and innovative ideas related to digital transformation. This can be achieved through industry forums, conferences, and networking events focused on digitalization in project management.
6. **Investment in Emerging Technologies:** Companies should stay abreast of emerging technologies and trends in digital transformation and be willing to invest in innovative solutions that have the potential to drive competitive advantage and long-term success. This may include technologies such as artificial intelligence, Internet of Things (IoT), blockchain, and cloud computing.
7. **Government Support and Policy Advocacy:** There is a need for government support and policy advocacy to create an enabling environment for digital transformation in the private sector. This includes providing incentives, funding opportunities, and regulatory frameworks that encourage investment in digital technologies and innovation.

By implementing these recommendations, organizations can maximize the benefits of digital transformation and position themselves for sustainable growth and competitiveness in the evolving business landscape of Jeddah, Saudi Arabia.

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<https://doi.org/10.3233/jid190020>.

Link questionnaire:

https://docs.google.com/forms/d/e/1FAIpQLScIbFvqybttfC2GMyEC_nmICN-JaRviFshj6cb8k7R58mUkRg/viewform

Appendixes (1)

استبيان بعنوان:

"Assessing the Impact of Digital Transformation on Small and Medium-Sized Project Management: A Survey Study in the Private Sector in Jeddah, Saudi Arabia".

«تأثير التحول الرقمي على إدارة المشاريع الصغيرة والمتوسطة في القطاع الخاص في جدة، المملكة العربية السعودية»

Gender:

- أنثى (Female)
- ذكر (Male)

Age:

25-29 سنة (٢٥-٢٩ years)

30-39 سنة (٣٠-٣٩ years)

40-49 سنة (٤٠-٤٩ years)

50 سنة فأكثر (٥٠ years and above)

Years of Experience:

5 سنوات فأقل (٥ years or less)

6-10 سنوات (٦-١٠ years)

11-15 سنة (١١-١٥ years)

16 سنة فأكثر (16 years or more)

الاسئلة الثانوية:

موافق بشدة		موافق (Agree)		محايد		غير موافق		غير موافق بشدة	
Strongly)		(Disagree		(Neutral)		(Disagree		Strongly)	
(Disagree		(Agree							
المتغير المستقل: التحول الرقميDigital Transformation									
البعد الأول: اهمية التحول الرقمي في الشركةThe importance of digital transformation in the company									
								هل تعتقد أن التحول الرقمي قد أدى إلى تحسين كفاءة إدارة المشاريع الصغيرة والمتوسطة؟ (Do you believe that digital transformation has led to an improvement in the efficiency of small and medium-sized project management?)	
								هل تظن أن التحول الرقمي قد زاد من مرونة عمليات إدارة المشاريع في الشركات الصغيرة والمتوسطة؟ (Do you think that digital transformation has increased the flexibility of project management processes in small and medium-sized companies?)	
								هل يمكن ربط نجاح المشاريع الصغيرة	

					والمتوسطة بشكل مباشر بالاستثمار في التحول الرقمي؟ (Can the success of small and medium-sized projects be directly linked to investment in digital transformation?)
					هل ترى أن التحول الرقمي قد سهل من عملية تواصل الفرق وتنسيق أعمالهم في المشاريع الصغيرة والمتوسطة؟ (Do you think that digital transformation has facilitated team communication and coordination of their work in small and medium-sized projects?)
					هل تعتقد أن التحول الرقمي قد قلل من التكاليف المرتبطة بإدارة المشاريع الصغيرة والمتوسطة؟ (Do you believe that digital transformation has reduced the costs associated with managing

					small and medium-sized projects?)
Small and medium enterprise managementإدارة المشاريع الصغيرة والمتوسطة					
Customer satisfaction and quality improvementالبعد الثاني: رضا العملاء وتحسين الجودة					
					هل لاحظت تحسناً في جودة تنفيذ المشاريع بعد تبني التحول الرقمي في الشركات الصغيرة والمتوسطة؟ (Have you noticed an improvement in the quality of project execution after adopting digital transformation in small and medium-sized companies?)
					هل تعتقد أن التحول الرقمي قد زاد من قدرة الشركات الصغيرة والمتوسطة على تلبية احتياجات العملاء؟ (Do you think that digital transformation has increased the ability of small and medium-sized companies to meet customer needs?)
					هل لاحظت زيادة في رضا العملاء بعد تبني التحول الرقمي في

					الشركات الصغيرة والمتوسطة؟ (Have you noticed an increase in customer satisfaction after adopting digital transformation in small and medium-sized companies?)
					هل تعتقد أن التحول الرقمي قد ساهم في زيادة مستوى التنافسية للشركات الصغيرة والمتوسطة؟ (Do you believe that digital transformation has contributed to increasing the competitiveness of small and medium-sized companies?)
					هل تظن أن التحول الرقمي قد سهل عملية اتخاذ القرارات الاستراتيجية في الشركات الصغيرة والمتوسطة؟ (Do you think that digital transformation has facilitated the process of making strategic decisions in small and

					medium-sized companies?)
البعد الثالث: الميزة التنافسية والنجاح على المدى الطويل Competitive advantage and long-term success					
					هل تلاحظ أن التحول الرقمي قد أدى إلى زيادة كفاءة إدارة المشاريع الصغيرة والمتوسطة؟ (Do you notice that digital transformation has led to increased efficiency in managing small and medium-sized projects?)
					هل تعتقد أن هناك احتمالية لتحقيق نتائج أفضل في مشاريع الشركات الصغيرة والمتوسطة بفعل التحول الرقمي؟ (Do you believe that there is a possibility of achieving better results in the projects of small and medium-sized companies as a result of digital transformation?)
					هل تظن أن هناك تحسناً في فاعلية استخدام الموارد بفعل التحول الرقمي في الشركات الصغيرة والمتوسطة؟

					(Do you think that there has been an improvement in the effectiveness of resource utilization due to digital transformation in small and medium-sized companies?)
					هل تعتقد أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you believe that small and medium-sized companies adopting digital transformation have a greater competitive advantage in the long run?)
					هل ترى أن الشركات الصغيرة والمتوسطة التي تتبنى التحول الرقمي لديها ميزة تنافسية أكبر على المدى الطويل؟ (Do you see that small and medium-sized companies adopting digital

					transformation have a greater competitive advantage in the long run?)
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