

“Study the effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia”

دراسة تأثير استخدام منهجية Agile لتحقيق نجاح المشاريع في ضوء

رؤية ٢٠٣٠ للمملكة العربية السعودية

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the Kingdom of Saudi Arabia”**

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Chapter one: The problem of the study and its importance

1.1. Research Background

In a rapidly changing global landscape, the success of any nation hinges upon its ability to adapt, innovate, and thrive in an environment characterized by uncertainty and evolving challenges. In this context, the Kingdom of Saudi Arabia has set an ambitious and transformative agenda through its Vision 2030, which aims to diversify the economy, empower its people, and position the nation as a global hub for trade and investment. As part of this visionary journey, the effective execution of projects is pivotal for realizing the nation's economic, social, and technological aspirations.

Agile methodology, initially rooted in the software development world, has increasingly gained attention as a valuable approach to project management in various industries and domains. Agile principles emphasize flexibility, collaboration, and responsiveness to change, making it a compelling choice for organizations operating in dynamic and uncertain environments.

The adoption and implementation of the agile management strategy in project development processes is still relatively uncommon among most organisations today. However, recent studies have shown that organisations worldwide are increasingly adopting agile management practices, particularly in the IT sector, due to their long-term benefits, as opposed to the historically used waterfall management practices. Prior research has emphasized the significance of agile management practices and has substantiated their positive influence on organisational performance (Gligor, et al. 2015; Kerzner, 2017). Regarding management trends, a recent global report by PMI surveyed 727 executive members involved in 3,234 projects across various regions including Europe, Asia Pacific, North America, Latin America, Middle East, Africa, and the Caribbean. The report suggests that implementing agile management practices could potentially enhance

organisational productivity. Thus, indicating the influence of agile management practices on the success of organisations (Langley, 2017). In addition, a recent study conducted by Ambysoft found that agile management practices had a success rate of 55%, while waterfall management practices only achieved a success rate of 29%. The survey also stated that 36% of the projects that were carried out using agile management practices faced difficulties and needed to compromise on some restrictions in order to complete the projects. Conversely, the waterfall management practices were attributed to 67% of the projects that had difficulties. According to the study, agile management practices were found to be responsible for only a minimal 3% of project failure rate (Ambler SW., 2018). Hence, providing a rationale for the positive influence of agile management practices on improved performance metrics. However, there is still a need to do a thorough investigation into the specific effects of integrating agile management practices on project performance, taking into account all relevant factors (Serrador & Pinto, 2015; van Oorschot, et al, 2018).

Regarding the organisational achievements in the current research, the success of initiatives is frequently hindered by the significant complexity encountered by companies. If complexity is not promptly handled, it can escalate into possible dangers and ultimately lead to a fall in performance that could jeopardize the very existence of an organisation. Based on current research, it has been indicated that implementing appropriate management practices can help reduce the complexity of a project (Maylor & Turner, 2017; Zhu & Mostafavi, 2017). In their recent study, Sohi et al. (2016) were able to partially substantiate the correlation between agile management practices and reduced project complexity.

This study seeks to investigate the effects of implementing Agile methodology in project management within the distinctive context of Saudi Arabia, considering the objectives and

strategies outlined in Vision 2030. By examining the intersection of Agile principles and the Kingdom's visionary goals, this research endeavors to shed light on the potential benefits, challenges, and opportunities associated with Agile project management.

1.2. Research Problem

Vision 2030 is a colossal pledge to diversify Saudi Arabia's economy, improve social well-being, and promote technological innovation. This innovative plan requires several projects across industries to succeed. Traditional project management methods in the Kingdom may not meet Vision 2030's dynamic and adaptable needs. Saudi Arabia's hierarchical and inflexible project management practices can make it difficult to quickly respond to changing project needs, stakeholder demands, and unexpected problems. Traditional methods may not adequately address the Agile methodology's emphasis on customer-centricity and continual improvement.

Agile approach, established in the software industry, is known worldwide for emphasizing flexibility, cooperation, and change responsiveness to improve project performance. The adoption of Agile practices in Saudi Arabia under Vision 2030 is underexplored. This leaves open the question of whether Agile approach can solve the challenges of Vision 2030-aligned project success.

Can Agile technique solve Vision 2030's project management problems, and if so, what are its pros, cons, and opportunities? Agile methodology and Vision 2030 have not been extensively studied, leaving decision-makers, project managers, and organisations without a clear understanding of how to optimize project management practices to achieve Saudi Arabia's transformative vision. This research investigates how Agile approach affects Vision 2030 project success to close this gap. It will determine if Agile concepts and practices can connect project

execution with national strategic goals. It will also examine Saudi Arabia's Agile adoption challenges and enablers, acknowledging that cultural, regulatory, and operational issues may greatly impact Agile practices.

1.3. Research Significance

This research carries substantial significance for a multitude of stakeholders engaged in project management and the effective execution of Vision 2030. To begin with, this research provides organisations and project management practitioners in Saudi Arabia with significant insights regarding the efficacy of Agile methodologies in attaining successful projects. By comprehending the manner in which Agile corresponds with the stated aims and objectives in Vision 2030, organisations can devise and execute Agile methodologies that are precisely customized to the Saudi Arabian environment. This research endeavor will ascertain the advantages and obstacles linked to Agile project management within this distinctive socio-economic context. By doing so, it will empower organisations to make well-informed choices and modify their project management methodologies accordingly. Furthermore, through an examination of the effects of Agile methodology implementation on milestones, expenses, stakeholders' contentment, quality, and time adherence, the study will furnish organisations with actionable recommendations to enhance project results and fulfil the objectives outlined in Vision 2030. Furthermore, the research carries substantial importance for governmental bodies and policymakers who are actively engaged in promoting the effective execution of Vision 2030. Through an examination of Agile methodologies, this research endeavor will illuminate the extent to which project management practices contribute to the achievement of Vision 2030 goals. The results of this study have the potential to provide valuable insights for policymakers and regulators concerning project management in Saudi Arabia. This could facilitate the establishment of a conducive atmosphere

that promotes the acceptance and execution of Agile methodologies. This may result in improved project execution, heightened operational effectiveness, and the successful realization of the objectives outlined in Vision 2030.

1.4. Research Objectives

- A. To examine the alignment between the Agile methodology and the goals and objectives outlined in Vision 2030 of the Kingdom of Saudi Arabia
- B. To evaluate the impact of Agile project management on project success factors within the Saudi Arabian context.
- C. To identify and analyze the specific challenges and opportunities associated with the adoption of Agile methodologies in Saudi Arabia.

1.5. Research Questions

- A. To what extent is Agile methodology applicable and effective in the context of Vision 2030 projects in Saudi Arabia?
- B. What is the impact of implementing Agile methodologies on project success within the Kingdom of Saudi Arabia in the light of Vision 2030's objectives?
- C. What are the specific challenges and opportunities associated with implementing Agile methodologies in the Kingdom of Saudi Arabia for Vision 2030 projects?

1.6. Scientific Contribution

Through the implementation of a thorough assessment, this thesis enhances the comprehension of the concepts, practises, and advantages of Agile methodology in the realm of project management. This study examines the appropriateness of Agile methodologies within the context of Saudi

Arabia, with a particular focus on its alignment with the objectives outlined in Vision 2030. The present study examines and contrasts projects that are executed utilizing Agile methodology in comparison to conventional methodologies, emphasizing the benefits and difficulties associated with Agile in attaining the intended project results. Another significant scientific contribution of the thesis is to the discernment of pivotal aspects that contribute to the accomplishment of projects within the context of Vision 2030. This study examines the impact of Agile concepts and practises on project performance metrics, including time-to-market, customer satisfaction, cost control, and flexibility to evolving needs. Through a comprehensive analysis of several elements, the thesis offers valuable insights into the correlation between the implementation of Agile methodology and the attainment of Vision 2030 objectives. This study investigates the various difficulties, advantages, and approaches associated with the integration of Agile methodologies in the context of Vision 2030. It aims to provide insights into the change management procedures and potential obstacles that may arise during the adoption of Agile practises. This study provides valuable insights into the organisational dynamics necessary for the successful application of Agile methodologies in the context of Saudi Arabia. The thesis offers practical recommendations that provide direction on the appropriate utilization of Agile methodologies to achieve project success in alignment with the objectives outlined in Vision 2030. The evaluation encompasses various factors, including project cost, return on investment, and total economic advantages. The thesis aims to enhance comprehension of the potential contribution of Agile practises to the economic growth and development of the country by examining their link with the attainment of Vision 2030 objectives.

1.7. Research Limitations

One potential constraint is to the extent to which the findings can be generalized. This study primarily examines the backdrop of Saudi Arabia and its alignment with the Vision 2030 aims. Hence, it is important to note that the results may lack direct generalizability to other nations or areas characterized by distinct socio-cultural, economic, and political circumstances. The outputs and efficacy of Agile approach may be influenced differently in Saudi Arabia due to its distinct conditions and context, as opposed to other situations. Another constraint that should be considered is the possibility of selection bias. The thesis may be contingent upon a particular sample of projects or organisations that have implemented the Agile approach within the framework of Vision 2030. The utilization of this particular sample selection technique has the potential to create bias and hence restrict the extent to which the findings may be generalized. The consideration of sample representativeness and acknowledgment of potential biases in the research design are crucial aspects to be taken into account. In addition, the thesis may encounter constraints pertaining to the availability and accessibility of data. Obtaining data pertaining to project outcomes, the implementation of Agile methodologies, and the alignment with Vision 2030 may provide difficulties, primarily due to concerns surrounding confidentiality or restricted access to pertinent information. The aforementioned constraint has the ability to affect the thoroughness and profundity of the data analysis, hence potentially restricting the extent of the study. Furthermore, it is important to acknowledge that the thesis may face certain limits according to the temporal scope of the research. The Vision 2030 initiative is a comprehensive and enduring strategic blueprint, whereby the thesis may solely encapsulate a particular moment in the execution of the plan or a restricted period for assessing the achievements of the projects. The comprehensive examination and comprehension of the enduring impacts of Agile methodology on project success

within the framework of Vision 2030 may be limited or incomplete as a result of the temporal limitations imposed by the research timeframe. Finally, it is important to acknowledge that the thesis may encounter constraints pertaining to the subjective nature of evaluating project success. The evaluation of project success can be conducted by the use of diverse criteria, including but not limited to the adherence to project timelines, adherence to budgetary constraints, and the attainment of stakeholder contentment. The thesis may necessitate the establishment and implementation of project success criteria, a process that may include subjectivity and potential biases in the assessment and interpretation of the outcomes.

Chapter Two: Literature Review

Previous studies play an important role in scientific research, as they are interested in presenting scientific research that studied topics close to the researcher's research, and which were carried out by other researchers, and this study constitutes a source of rich information for the researcher as it informs him about the experiences and mistakes of others to avoid them.

It also helps to develop questions related to the study, by informing him of the studies of others, and the way they formulate questions, which gives him experience in formulating useful and important questions for scientific research, and enables him to know the new information that his/her research will provide, and helps the researcher to ignore the aspects that other researchers focused on it, and began to study new aspects that give his study a touch of distinction and creativity.

In this part, we will review an abstract of previous studies related to the topic of the study that assess the effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia". As an attempt by the researcher to take advantage of what they have preceded in that field in order to enrich his/ her research, and it will be presented as:

2.1. Previous studies

According to Ceric Lalic, et al. (2022), Their study sought to determine whether the impact of various project management approaches (traditional, agile, and hybrid) on project success differs, assuming that project success is a multidimensional phenomenon. Furthermore, the authors aimed to investigate whether particular attributes of the projects served as moderators for these impacts. These were empirically examined by the authors using a sample of 227 project professionals from around the globe. An exploratory factor analysis (EFA) was conducted on the dimensions of

project success in order to verify the constitution of these factors in relation to their manifest variables. The profiles of respondents were differentiated among agile, hybrid, and conventional project management approaches using the K-means cluster method. ANOVA tests were utilized to examine the significance of the differences between research groups and to test the hypotheses. The authors provided evidence that the agile approach yields a more substantial positive influence on two of the five dimensions of project success that are the focus of this study (team impact and future planning) compared to the traditional approach. The research holds significance for academicians in the development of project management contingency theory and for project management practitioners in the customization of the success-oriented project management approach. In order to examine the effects and efficacy of various project management methodologies (traditional, agile, hybrid) on the various facets of project success within distinct contextual circumstances (e.g., industry of the organisation, type of project, novelty, technology, complexity, and pace), the authors developed a research framework. Extending data on the effect of these approaches on the success of projects and comparing them to pertinent results and findings from prior research constitutes the paper's primary contribution.

Altuwaijri and Ferrario (2022) conducted a study which identifies Agile as a well-established software development methodology that aids in the advancement of software by enhancing quality, customer engagement, time to market, and cost efficiency. The determinants that support its adoption have been the subject of extensive research. Nevertheless, the majority of these investigations have been undertaken in developed regions, primarily in North America and Europe, while only a limited number have been conducted in developing countries, such as the Middle East. This is problematic in light of the software industry's economic and strategic significance in countries such as Saudi Arabia, where Agile adoption is still in its infancy despite substantial

investments made in recent years to diversify the country's oil-dependent economy. Hence, the present empirical study aims to examine the determinants that impact the adoption of Agile methodologies by small and medium-sized software enterprises (SMEs) in Saudi Arabia. To this purpose, twelve software practitioners representing three software SME's participated in in-depth interviews. The results of our study indicate that human factors, including customer engagement, team competence, organisational culture, and national culture, have a greater influence on Agile adoption than technical factors, such as the accessibility of particular tools or techniques.

Digital transformation, according to Alruwaili et al. (2019), facilitates the implementation of new forms of governance, business, and social reform. It additionally serves as the foundation for the 2030 Vision in numerous nations, including Saudi Arabia. By adhering to the Agile Manifesto, software development was effectively and dependably managed. Moreover, incremental software release delivery ensures that stakeholders are actively involved in the product's development process, that their feedback is incorporated into all functionalities, and that any modifications to requirements are predicated on practical application of the software. This ensures the delivery of customer-requested functionalities and reduces the risk of project failure. As a result, the majority of software companies have adopted Agility as a surefire and uncomplicated method for implementing digital solutions for their organisations. This study investigates the attributes of agile tools and frameworks, including Scrum and XP, as well as Jira, Agilo, and others, which support the process of digital transformation. Analyse the effectiveness and productivity of agile frameworks in comparison to conventional SDLC methods. The paper concludes by discussing the attributes of an agile framework that facilitate digital transformation, including customer engagement, flexible requirements, and incremental development.

In the study conducted by Koi-Akrofi et al. (2019), the aims were to enhance comprehension regarding the notion of agile IT project management, including its definition and distinctions from other similar concepts. In addition, it sought to compare the advantages and disadvantages of agile and conventional approaches to IT project management in a typical industry context, as well as the difficulties of adopting an exclusively agile methodology. It consists solely of a literature review of peer-reviewed articles obtained primarily from Google Scholar. It was disclosed that the advantages of agile methods surpass those of conventional approaches. However, the execution of agile presents numerous obstacles stemming from various factors, with organisational culture and project team empowerment being the most significant. This has led to several industries continuing to employ conventional approaches despite the indisputable advantages of agile. A different school of thought holds that the way forward is through the combination of the two paradigms.

To López-Alcarria et al. (2019) Education for Sustainable Development (ESD) and lifelong learning necessitate contemporary pedagogical tools and methodologies that facilitate the dissemination of critical competencies including adaptability, responsibility, creativity, dialogue, self-assurance, respect, emotional intelligence, and systemic thinking. The current inclination towards implementing Agile methodologies to oversee projects across various domains can serve as a beneficial instrument for communicating these capabilities on account of their foundational participative, collaborative, and constructionist principles. Thus, first accounts of the implementation of Agile Methodologies in the field of education, which gave rise to the term Agile Education, are beginning to surface in the academic literature. In order to examine how this contemporary pedagogical instrument is being implemented to cultivate critical sustainable development competencies in the realm of education, this study conducts a systematic review. Eleven out of the 121 studies that were analysed yield results that establish a direct correlation

between Agile Education and critical ESD competencies. It is demonstrated that Agile Education produces an environment conducive to the development of conscientious and environmentally conscious individuals, while simultaneously enhancing faculty and student performance, satisfaction, and motivation.

2.2. Theoretical framework

2.2.1. The Utilization of Agile Methodology and its Impact on Project Success

Over the course of more than three decades, extensive research has been conducted on software development projects. Recent years have demonstrated that the agile methodology of software development has emerged as a prominent and influential approach, proving to be highly successful in achieving project excellence (Stankovic, et al., 2013).

Research has indicated the existence of a deficiency in the implementation of data analysis and work pertaining to the utilization of development agility. Furthermore, there is a need to investigate the various aspects and conditions that are associated with the achievement of project success. According to Sheffield and Lemétayer (2013), the study and gathering of information revealed that the organisational culture and empowerment of the project team are crucial factors contributing to the success of a project. The adoption of agile methods in the industry is driven by the increasing emphasis on customer-centricity. Projects in the industry are characterized by well-defined problems and clear objectives that need to be addressed. However, a challenge arises in dealing with uncertain user requirements (Papadopoulos, 2015).

Agile methodologies have been developed to mitigate project risks and adapt to market changes, hence contributing to project success. In order to evaluate the effectiveness of agile software development projects, it is necessary to employ quantifiable assessments, as highlighted by Rindell

et al. (2021). Similarly, it has been observed that managers acquire knowledge about specific aspects pertaining to the project in order to make well-informed decisions, as it has been established that processes, systems, and individuals are interrelated and crucial for the effective execution of the project (Meredith, et al., 2017).

Serrador & Pinto (2015) assert that the agile methodology has gained significant popularity in the software development industry, as well as other industries. This is primarily due to its departure from traditional project management approaches, such as the waterfall method, which are typically employed to effectively execute complex projects. Consequently, it can be inferred that the utilization of the agile methodology is associated with project success.

The strategy under discussion holds significant importance within the sector since it is closely linked to market fluctuations. This particular approach to project management stands out due to its emphasis on continuous collaboration with clients during each iteration, facilitating the exchange of information. It is imperative for organisations to conscientiously acknowledge the necessity of adopting the agile methodology (Nuottila, et al., 2016). The agile technique is commonly employed in software development projects that prioritise client satisfaction and adaptability. This strategy involves active engagement with customers and the agile team, allowing for modifications to the project plan based on customer demands (Alqudah & Razali, 2016).

According to Al-Saqqa et al. (2020), agile methodologies are also beneficial in facilitating the code review process for software development projects. Code reviews play a crucial role in the effective implementation of the agile methodology by facilitating communication pertaining to the software under development. Agile methodologies not only prioritise extensive client connection, but also facilitate the identification of project goals necessary for achieving success. The agile methodology

technique's iterative nature facilitates effective collaboration with customers throughout the project, ensuring continuous alignment with their needs (Dingsøyr, et al., 2018).

Counterarguments propose that the application of one of the agile methodologies, specifically scrum, becomes unfeasible when teams operate in massive parallel structures. The majority of these projects experience failure; hence, conventional project management methodologies are often employed in such large-scale endeavors. However, it has been observed that this strategy has shown to be highly effective in small agile practises (Paasivaara, et al., 2012). Likewise, it has been recounted that the implementation of the agile technique in agile software projects is not a straightforward endeavor. The implementation of the agile approach within an organisation should be executed with caution, in conjunction with a blend of traditional project management methods, in order to ensure the successful completion of projects (Gubinelli, et al., 2019).

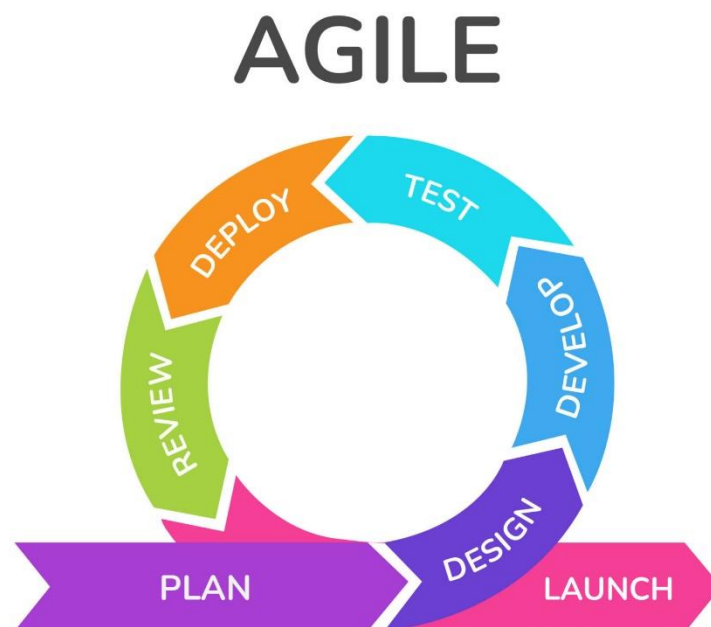


Figure 1: The Agile Development Process

Furthermore, the agile methodology has the potential to be applied in various other industries. Due to the unique and intricate nature of the projects, it is advisable not to employ the conventional agile methodology methods, as they are deemed outdated and insufficient for ensuring the success of said initiatives. The examination of opportunities within the industry is necessary in order to use the agile methodology technique effectively for the successful delivery of the project (Conforto et al., 2014).

The utilization of Agile approach in project management facilitates the fulfilment of the needs and expectations of the project team, customers, and other relevant stakeholders. This methodology helps to improve the delivery time to launch the projects but they are not directly linked to the success of the projects (Budzier & Flyvbjerg, 2013). If the project industry does not successfully identify the necessary methods for comprehending the utilization of agile methodology, the project is bound to fail (Gaborov, et al., 2021).

An alternative perspective posits that the utilization of agile methodology does not significantly diverge from the practises employed by organisations that adhere to traditional project management methodologies. The success rate and implementation time of projects do not significantly change between settings, as the failure rate is not clearly distinguished in either instance (Zavyalova, et al., 2020). The existing research does not establish a definitive correlation between the usage of agile methodology and project success. Alternatively, it is argued that due to inconsistent findings in previous studies, there is a need to empirically examine this relationship in the present context (Karvonen et al., 2017). The existing research has identified varying perspectives regarding the success of agile methodology in the software industry.

2.2.2. The Relationship Between Agile Practises and the Degree of Difficulty of a Project

It is imperative to undertake a comprehensive assessment of the factors that contribute to complexity and the resulting impact on the organization's resources for each project activity. To address this, a novel technique has been devised utilizing a resource-oriented process cost calculation method. The methodology encompasses an examination of uncertainty pertaining to the influence of complexity and the delineation of a capacity to withstand complexity. According to the study conducted by Schuh et al. (2017),

The project at hand The level of complexity is closely linked to the outcomes of a project, with increased complexity resulting from inadequate management of project performance and the execution of scattered tasks, as well as those planned for the future. The complexity of a project can manifest in different forms, such as technical complexity or management complexity. Technical complexity encompasses factors such as the number of technologies employed and the team's familiarity with said technologies, as well as technical interfaces. On the other hand, management complexity pertains to project staffing and management, as well as potential challenges arising from changes, external factors, or other issues that may impact the project's progression and operations.

The concept of project complexity encompasses factors such as the variability of functions and the quantity of diverse aspects, as well as the interdependence of elements, tasks, or specialists, and the associated level of complexity (Bakhshi, et al., 2016; Luo, et al., 2017).

The success of agile methods is contingent upon customer involvement, as it is crucial for attaining project goals and obtaining feedback from customers and stakeholders. This feedback is essential for the iterative progression of operations throughout the project's life cycle. The implementation

of agile approaches facilitates regular and convenient stakeholder interaction for all involved parties. According to the study conducted by Anand & Dinakaran (2017)

The utilization of agile approaches involves the systematic organisation and distribution of tasks throughout the entirety of the project's development lifecycle. This entails the collection of information from many sources at different stages (Torrecilla-Salinas, et al., 2015).

When examining the present project and the rate of project success, it becomes evident that agile project management methods are gaining significant popularity in dynamic environments characterized by continuous changes in tasks, requirements, costs, dates, and associated criteria (Svensson et al., 2019). The study additionally stated that upon analyzing two distinct companies, one of which implemented agile methodologies and the other did not, there was no substantial disparity in their ability to achieve time and budget objectives. Furthermore, the factors contributing to failure were not significantly dissimilar between the two firms. Another salient observation made by the individual was the recognition of the emergence of novel strategies and methodologies within organisations over time, aimed at effectively executing projects, attaining objectives, and fulfilling project criteria and demands.

According to Engebø et al. (2020), achieving project success necessitates effectively managing project complexity and purposefully meeting all project requirements, such as time, money, and performance. The relationship between project efficiency and total project success is strongly correlated (Serrador and Turner, 2015). In essence, the complexity of measuring and evaluating two possibilities can be assessed through two distinct approaches: the direct option and the indirect option. According to Schuh et al. (2017), The direct option involves utilizing a measured value that directly indicates the level of complexity, while the indirect option involves examining the economic ramifications associated with complexity.

The measurement of project complexity can be achieved by examining the historical context of similar projects and conducting an analysis based on practical observations. This analysis should be aligned with the fundamental principles of comprehending and meeting the project's needs and requirements. The utilization of agile methodology and consideration of project complexity should be tailored to the specific characteristics of the project at hand.

The level of project complexity varies across different projects. Contemporary literature suggests that the implementation of agile methodology in software development projects can effectively mitigate uncertainties, complexity, and information technology project modifications (Žužek, et al., 2020). Software development initiatives necessitate prompt feedback from customers to ensure successful fulfilment of their requirements. The utilization of Agile approach facilitates the establishment of a shared understanding of the customer's requirements. The utilization of agile methodology enables the prompt provision of feedback, which has the potential to diminish the temporal gap in the development of software projects (Stadler, et al., 2019).

The Agile methodology offers techniques and procedures aimed at mitigating the challenges posed by complex software projects, as project complexity is identified as a primary obstacle to their successful completion. The software industry is increasingly adopting agile methodologies, which have the potential to simplify the management of complicated circumstances. Agile approaches facilitate problem-solving by breaking down problems into smaller components and distributing tasks effectively (Kausar et al., 2021). Agile approaches are employed to address the intricacies encountered in agile software development projects (Rasheed et al., 2021).

According to Al-Saqqa et al. (2020), agile methods are considered highly effective in managing complicated project problems, making them well-suited for such scenarios. The literature

demonstrates how the implementation of agile methodology techniques can effectively mitigate complexity.



Figure 2: Benefits of using agile methodology

2.2.3. Complexity of the Project and Its Success

The comprehension and manipulation of complex systems pose significant challenges. When discussing the project sector, it is evident that a significant number of information technology projects encounter failure as a result of the intricate nature and technical specifications that are challenging to comprehend. The majority of projects have encountered failure due to the inherent complexity of the undertaking. According to Wu et al. (2019), there exists a negative correlation between project complexity and project success.

It is imperative to address the underlying factors that may contribute to increased project complexity, as they can ultimately result in project failure. Complex projects are characterized by a lack of certainty regarding project goals, implementation strategies, and other related factors.

The inherent difficulties in comprehending these complexities often result in project failure. However, by addressing the causes that contribute to project complexity, the likelihood of project success can be enhanced (Kermanshachi, et al., 2021).

The successful implementation and execution of a project require not only effective governance, but also the active involvement of top managers and executives who possess a comprehensive understanding of the project's intricacies. This understanding enables the project team to grasp the objectives and ensures that project managers are equipped to navigate the complexities inherent in the project. By effectively managing project complexity, success can be achieved (Golomejic, 2019). Therefore, it is imperative to address and minimize complexity through various means.

One of the most challenging aspects in project management is dealing with complex projects that present significant difficulties for project managers. The complexity of these projects is further compounded by their size and scope. By effectively addressing the various dimensions of complexity encountered in projects, project managers can ultimately attain success. According to Tam et al. (2020), the inclusion of project complexity dimensions has a positive impact on the success of a project.

Projects often possess attributes of novelty and complexity that must be addressed in order to attain the intended project objectives. By incorporating these characteristics of novelty and complexity, the individual project goals can be assessed by evaluating the technical performances of employees as they navigate the intricacies and innovative aspects of the project. This approach, when accompanied by effective performance monitoring during the management of complexity, directly contributes to the achievement of project success (Ma & Fu, 2020).

The study has demonstrated that project complexity has garnered significant attention due to its potential to create bottlenecks in project execution. In the past, a specific solution for managing project complexity was lacking, resulting in its neglect or subjective assumptions to address it. Consequently, project complexity stands as a crucial aspect of project characteristics that necessitates careful consideration to ensure adherence to cost and time baselines, as well as competitiveness in the market. This underscores the direct impact of complexity on project success (Fewings & Henjewe, 2019).

Based on the intricate nature of contemporary projects characterized by innovation and creativity, it has been deduced that there exists a conceptual inverse relationship between project complexity and project performance. This, in turn, adversely impacts the overall success of the project, as heightened complexity engenders heightened competition and complications, even in the minor stages of project management. Particularly during the management of transaction-related costs associated with project complexity and the facilitation of collaborative interactions, empirical evidence suggests that project complexity significantly influences project outcomes, ultimately contributing to the achievement of success within the organisational network (Hartono, et al., 2019).

Previous studies have determined that project complexity can have significant implications on project management, particularly in terms of direction, communication, and control. These factors are commonly employed to facilitate the project management process, but they can also have adverse effects on project goals. To comprehend the various levels of complexity and their impact, it is essential to assess the effectiveness and efficiency of project managers. Managing project complexity is a critical challenge, as it directly affects the performance parameters of project teams

within the project management process, ultimately influencing the overall success of the project (Kermanshachi & Safapour, 2019).

2.2.4. Complicated projects mediate The Connection Between Implementation of Agile Methodology and Project Success

Project complexity refers to a characteristic of a project that renders it challenging to comprehend, anticipate, and effectively manage its overall behaviour, even when provided with a sufficiently comprehensive understanding of the project system. According to Mikkelsen (2020, 2021) and Kerzner (2022), According to Fewings and Henjewe (2019), while considering the dimensions of project planning and execution, it is crucial to prioritise the aspect of project complexity. The failure rate of complex information technology projects has a very high occurrence, with a substantial number of software development projects experiencing failure as a result of project complexity (Baghizadeh, et al., 2020). One effective approach to managing these intricacies is comprehending and addressing user requirements in order to execute projects in alignment with client expectations, hence fostering project success. The majority of software development projects experience failure as a result of inadequate management of customer requirements (Aljumah & Ahanger, 2020).

Multiple studies, such as the research conducted by San Cristóbal et al. (2018), have demonstrated that project complexity has a detrimental effect on project outcomes. Highly complex projects pose challenges in terms of management and hinder the achievement of project objectives. De Toni and Pessot (2021) conducted a study examining the relationship between the adoption of many technologies and the increase of project complexity, finding a positive correlation. In line with previous research, Bjorvatn and Wald (2018) shown that there is no significant correlation between project complexity and project performance, specifically in terms of project success and project

quality. According to Butler et al. (2020), the authors provided an explanation about the mediating role of project complexity in the relationship between strategic planning and project success. They found that complex projects have a negative impact on successful project planning, which in turn hinders the achievement of project success.

Bergmann and Karwowski (2019) assert that project complexity has a detrimental impact on both innovative project outcomes and performance. As the level of complexity increases within innovative projects, they become more challenging to manage and necessitate the implementation of formalized approaches, such as agile methodology, to ensure project success.

The implementation of agile methodology has been shown to effectively fulfil user needs (Ochodek & Kopczyńska, 2018). The iterative technique is particularly advantageous in complicated contexts characterized by challenging customer goals and specifications, as it enables consistent communication and fulfilment of user expectations. The utilization of agile methodology to fulfil client needs is a prominent and growing practice within the software industry. It has been observed that the effective implementation of agile methodology is closely associated with project success (Al-Saqqa, et al., 2020). Certain firms may struggle with the proper application of agile methodology, resulting in project failure. However, the utilization of agile methodology is effective in addressing project complexity and ultimately contributes to project success.

According to Morcov et al. (2020), while considering the dimensions of project planning and execution, it is crucial to prioritise the assessment of project complexity. The failure rate of complicated information technology projects is notably high, with a significant number of software development projects experiencing failure as a result of project complexity (Kock, et al., 2020). The most effective approach to managing these intricacies is comprehending and addressing user

requirements in order to execute projects in accordance with client specifications, hence ensuring project success. A significant proportion of software development projects experience failure as a result of inadequate management of customer requirements (Kupiek, 2021).

The utilization of agile approach has been found to effectively fulfil user requirements, as demonstrated by the research conducted by Ochodek and Kopczyńska (2018). The iterative technique is particularly advantageous in complicated contexts characterized by challenging customer goals and specifications, as it facilitates consistent communication and fulfilment of user expectations.

The utilization of agile methodology in order to fulfil client needs is a prevailing trend within the software business. It has been observed that the appropriate implementation of agile methodology significantly contributes to the successful completion of projects (Srivastava, et al., 2020). Certain firms lack a comprehensive understanding of the effective implementation of agile methodology, resulting in project failures. To address the intricacies involved, the utilization of agile methodology has proven to be advantageous, leading to successful project outcomes.

2.2.5. Support from Management Moderates the correlation between the complexity of a project and its level of success.

Management assistance is essential for effectively implementing and deriving benefits from management information systems. The executives' participation is effectively engaged to attain the company's performance (Wu, et al. 2015). The significance of management assistance is recognized at all stages of planning, execution, and implementation (Tarhini, et al. 2015). There are several ways to lessen the complexity of projects, and one of them is by receiving support from the manager (Srinivasan & Swink, 2018). When the manager comprehends intricate issues, they

effectively convey this understanding to the team, enabling them to handle difficult challenges with ease. Multiple studies offer compelling evidence on the significance of managerial support in comprehending intricate circumstances and guiding the firm towards success. Management assistance is a crucial aspect in successfully implementing complicated information technology initiatives, according to Hwang (2019). The backing of management can enhance the likelihood of project success.

Various studies have shown that strong support from high-level leaders, such as managers, has a favorable impact on different forms of performance. This includes individual performance (Aggarwal, et al. 2018), group performance (Yu, et al. 2018), and in-role performance (Lam, et al. 2017). Management assistance is a crucial aspect in the successful implementation of complex information technology initiatives, according to Hwang, M. I. (2019). The provision of management support can enhance the likelihood of project success. According to literature, the successful development of information systems relies on managerial assistance. However, it is recognized as a significant issue for managers (Wu, et al. 2015). Conversely, it is seen that upper-level management not only provides assistance to intermediate managers and workers, but also contributes to the effective execution of tasks (Seethamraju, 2015).

Management assistance is essential for effectively implementing and deriving benefits from management information systems. The executives' involvement is crucial for achieving the firm's performance (Alreemy, et al. 2016). The significance of management assistance is widely acknowledged throughout the entire process of planning, execution, and implementation (Tarhini, et al. 2015). There are several ways to lessen the complexity of projects, and one of them is by receiving support from the manager (Wickens & Carswell, 2021). If the manager possesses the ability to comprehend intricate problems, he promptly conveys this understanding to the team, so

facilitating the resolution of complex situations. Multiple studies offer compelling evidence about the significance of managerial support in comprehending intricate scenarios and guiding the firm towards success. Management assistance is a crucial aspect in successfully implementing complicated information technology initiatives, according to Hwang (2016). The provision of management support can enhance the likelihood of project success.

Research indicates that managerial support is crucial for successful information systems development, although it can be challenging for managers. Additionally, top management not only supports middle managers and staff, but also plays a role in ensuring successful implementation. Management support is essential for effectively implementing management information systems and reaping their benefits. The active involvement of executives is crucial for achieving the firm's performance goals. The significance of management assistance is recognized at all stages of planning, execution, and implementation. (Seethamraju, 2015).



Figure 3: Agile methodology success factor

Chapter Three: Methodology

This chapter discusses the many procedures that facilitate study execution and aid in the achievement of study objectives.

3.1. Study Variables

The Effect of using the Agile methodology are the independent variables in this study; on the other hand, project success in the light of vision 2030 of the kingdom Saudi Arabia are the dependent variables.

3.2. Research Hypothesis

- A. There is a statistically significant impact relationship between the effects of using the Agile methodology and the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030.
- B. There are statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to demographic variables.

3.3. Study Design

This is a descriptive cross-sectional study was conducted to assess the effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia.

The goal of descriptive research design is to get information that can be used to describe a phenomenon, situation, or population in a systematic way. More specifically, it helps answer the what, when, where, and how questions, not the why questions, about the research problem.

The descriptive method of research may employ a variety of research techniques to study the variables of interest. It relies primarily on quantitative data, while qualitative data is occasionally employed for descriptive purposes.

3. 4. Research Method

According to Williams et al. (2011), the research methodology refers to the comprehensive process that a researcher follows when starting a research project. Hence, to achieve outcomes, a quantitative analytic technique focuses on the measurement and observation of numerical variables. The field encompasses the utilization and examination of numerical data through diverse statistical methodologies to address inquiries pertaining to individuals, quantities, timeframes, locations, quantities, and methodologies. Expanding upon this notion, Apuke (2017) delineates methods of quantitative analysis as the process of elucidating a problem or phenomena by gathering numerical data and scrutinizing it through the application of statistical techniques, with a special emphasis on statistics.

Mohajan (2020) states that quantitative research use methodologies such as experiments and surveys to gather data using specified statistical instruments. It is crucial to examine the disparity between quantitative and qualitative research, following a partial comprehension of quantitative research.

The researcher employed a quantitative method for this investigation, as it aligns with the nature and objectives of the thesis. The quantitative approach use sampling methodologies to collect data from existing and potential customers using means such as online surveys, polls, and questionnaires. The outcomes of these methods can be quantified and represented in numerical format.

3. 5. Research Instrument

In order to provide an unbiased account, it is necessary to clearly specify the research instruments used, such as measurement scales, questionnaires, and scoring systems. Prior to utilization, it is imperative to do testing on these instruments, and it is obligatory for research professionals to employ them accurately in order to avoid any potential bias. For all individuals engaged in the analysis, it is imperative that these tools are transparent and readily comprehensible (Taherdoost, 2016).

Common techniques for collecting quantitative data include those described by Nardi (2018):

- Surveys of closed-end questions (e.g., face-to-face, mobile, mail, etc.) are performed.
- Clinical trials/experiments
- Well-defined event observation and recording
- Recapture of applicable information systems management files
- Surveys and questionnaire



Figure 4: Types of Quantitative Data Collection

3.4.1. Questionnaire

Questionnaires are structured surveys or predetermined collections of inquiries that are given to participants in order to generate quantitative and/or qualitative data that can be evaluated and comprehended (Dewaele, 2018).

The questionnaire is an excellent method for gathering data on big groups due to its ability to accumulate extensive amounts of information from individuals. The situation is highly relevant to our study, since it requires gathering extensive information from the research sample to adequately represent the community. The study's aim requires the gathering of viewpoints from a substantial number of individuals in this community, which is achieved through the utilization of a questionnaire. Conversely, computerized surveys are becoming increasingly popular, especially among university students and professors.

This study's major goal is to assess the effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia. An online survey (questionnaire) was employed to collect quantitative data.

3. 6. Limitations of the study

The study focused on assessing effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia among Employees working in some projects from the period of 2022 to 2023 in KSA.

3. 7. Population and Sample Size

A population refers to a group of individuals or objects that the researcher believes possess the necessary information or data, and from which certain implications can be drawn (Weeks, 2020).

Population refers to a group of individuals, including humans, animals, and objects, that share a

specific characteristic of interest to specialists. Indeed, the resource is subject to certain constraints in terms of cash resources, time availability, and objectives, which directly affect the researchers' ability to engage with all members of the target community.

The determination of the sample size is influenced by various factors, one of which is the statistical instrument that will be used. Although larger samples tend to yield more generalizable results, the appropriate sample size must be established based on many considerations such as the complexity of the model, the expected rate of missing data, and the estimation strategies employed. Moreover, a researcher can assess the anticipated magnitude of the correlation being studied, assuming that such a correlation exists. This information can be used to help the researcher choose the appropriate sample size.

The study included 20 Employees working in projects based on Saudi lands.

Demographic characteristics for them:

- Gender
- Age
- Nationality
- Working status
- Years of experience

3. 8. Sampling Technique

Sampling is the process of picking a sufficient number of cases from a target population in order to draw conclusions about the entire population, which includes the process of selecting the sample population, the sampling frame, the sampling method, the sample size, and the sample selection.

The advantages of sampling from a population of interest are that it minimizes expenses, preserves the time and effort of participants, and expedites access to the data. On the other side, an insufficient sample size can have a detrimental effect on the results.

So, the participants in this study are chosen through simple random sampling to form the study's sample.

3. 9. Data Collection

Data collection refers to the systematic gathering and assessment of information on specific variables of interest. This method enables researchers to address research questions, test hypotheses, and analyze the obtained results (Gliner et al., 2016). Data collecting for research purposes is widely practiced across various disciplines, such as the physical and social sciences, humanities, and industry. While the specific techniques may vary across different fields, the primary objective remains consistent: to guarantee accurate and honest choices. The primary objective of data collecting is to get high-quality information that can be subjected to thorough data analysis, facilitating the development of a convincing and reliable response to the posed inquiries. Precise data collecting is essential for maintaining the integrity of scientific research, regardless of the discipline or method used to identify data. To limit the occurrence of errors, it is important to carefully choose appropriate data gathering instruments, whether they are already in existence, updated, or newly produced. Additionally, providing clear and well-defined instructions for their right usage is crucial (Kabir, 2016).

Data can be collected using a variety of ways, including postal mail, face-to-face, telephone, and electronic mail, as well as a mix of these approaches. This study used an online survey because of its adaptability and speed, as well as the fact that it served as a checkpoint to guarantee that all respondents could access the internet.

3.8.1. Secondary Data

Secondary data enables the researcher to analyze and understand the research problem more effectively, while also contributing to the existing knowledge on the subject. Furthermore, it offers a robust foundational structure for continuing the research and aids in determining suitable research approaches. Secondary data can serve as a valuable tool for easily reading and understanding the primary data (Hair et al., 2019). The research is conducted by thoroughly examining the existing literature and utilizing relevant research materials.

The collection of information has been implemented from several secondary resources such as published books and articles.

3.8.2. Primary Data

According to Pandey & Pandey (2021), primary information is data that is obtained directly by the researcher and is relevant to the topic being investigated. According to their assertion, researchers should acquire primary data if secondary data is insufficient to address the research inquiries. Various methodologies, such as surveys, comments, and interviews, can be employed to get primary data (Al Kilani, 2016). Both quantitative and qualitative research procedures require a clear understanding of primary data gathering methods. However, the specific method chosen relies on the study's objectives, the resources available, and the skill of the researchers. The questionnaire served as the fundamental tool for gathering primary data in this research. Therefore, primary information pertains to the researcher's utilization of data collection instruments created specifically for the target industry.

Ruel et al. (2015) categorizes the questionnaire as a prevalent tool for collecting data, even when the researcher is limited by geographical constraints. The questionnaire serves as a mediator between research objectives and specific inquiries and responses. All the components of an

effective questionnaire can be promptly categorized, executed, organized into tables, and assessed. An effective questionnaire should be concise, unambiguous, and logically organized. It is preferable to ask simpler questions before more complex ones. The authenticity of questionnaires is guaranteed due to the inclusion of first-person thoughts and answers, as well as their written format (Mafini & Poore, 2013).

3. 10. Data Analysis

Data analysis, as described by Marshall and Rossman (2014), refers to the systematic process of organizing, structuring, and determining the importance of a large amount of collected data. The process is characterized as disorderly, unclear, and requiring a significant amount of time. However, it is also seen as a creative and captivating endeavor. In essence, the task at hand involves interpreting, examining, and formulating theories based on data to identify overarching patterns among different data categories, but this process is not necessarily sequential. Hence, it may be inferred that a certain type or manifestation of reasoning is necessary for data analysis in research. Akinyode & Khan (2018) contend that data processing and interpretation in research involve the utilization of deductive and inductive reasoning.

In this study, the data from the questionnaire is analyzed by statistical analysis carried out with the SPSS program.

Chapter Four :Data Analysis and Results

First: Primary data

A. Gender

Table 1: Gender

Gender	Frequency	percentage
Male	84	70%
Female	36	30%
Total	120	100.0

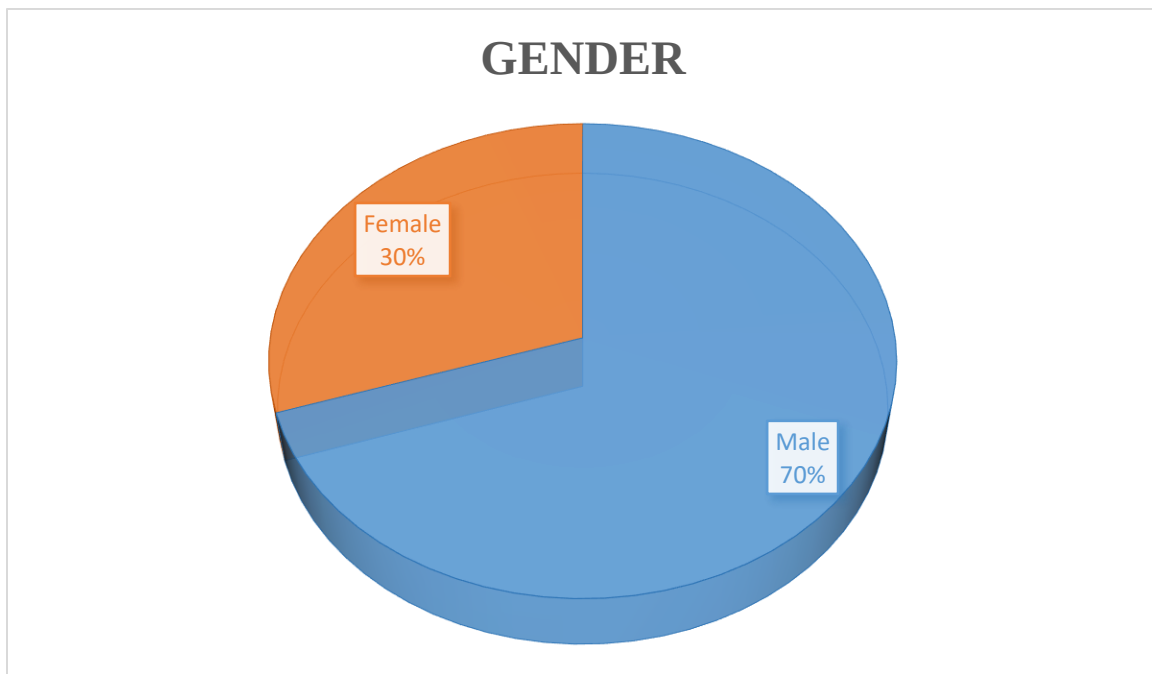


Figure 5: Gender

It is clear from the table on the distribution of the study sample by gender that the percentage of males is 70%, and females are 30%.

B. Nationality

Table 2: Nationality

Nationality	Frequency	percentage
Saudi	114	95%
Non- Saudi	6	5%
Total	120	100.0

It is clear from the table on the distribution of the study sample according to ethnicity that the percentage of Saudis is 95%, and non-Saudis are 5%.

C. Age

Table 3: Age

Age	Frequency	percentage
21-25 years	12	10%
26-30 years	18	15%
31-35 years	24	20%
36-40 years	48	40%
More than 40 years	18	15%
Total	120	100.0

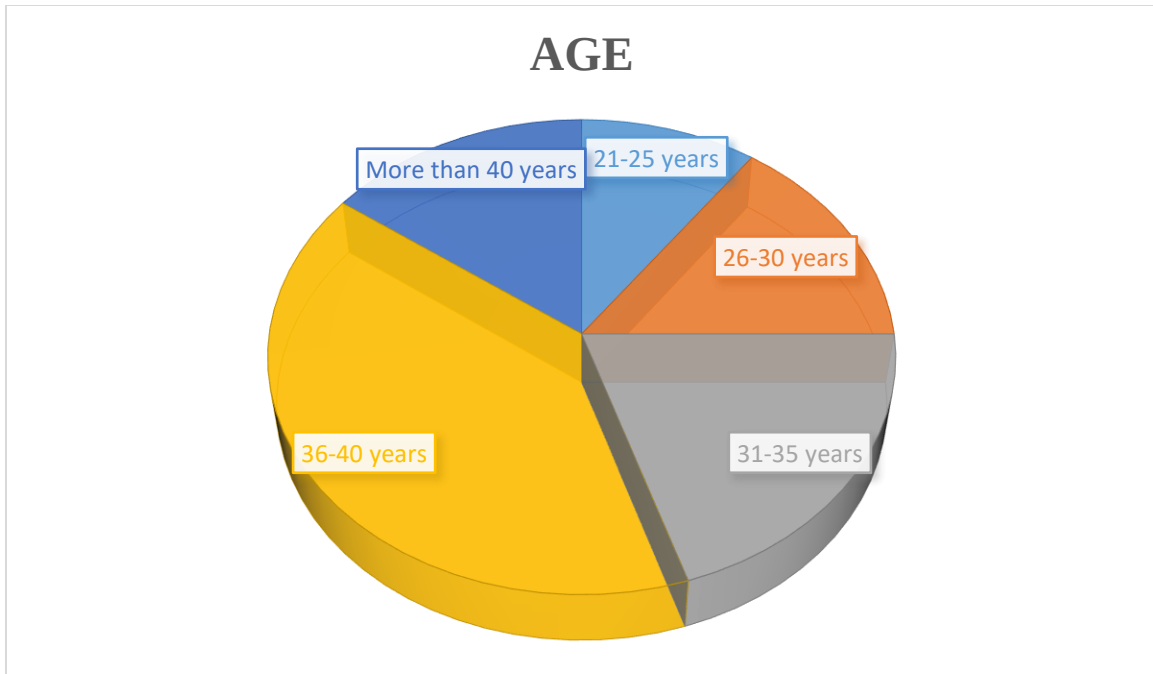


Figure 6: Age

It is clear from the table on the distribution of the study sample according to age that the percentage of the group of 21-25 years old was 10%, and those who were between 26-30 years old had a percentage of 15%, and those who were 31-35 years old had a percentage of 20%, and those who were aged Ranging from 36-40 years, their percentage was 40%, and those who were over 40 years old, their percentage was 15%.

D. Working status

Table 4: Working status

Working status	Frequency	percentage
Employee	90	75%
Executive Director	18	15%
Administrative Manger	12	10%

Total	120	100.0
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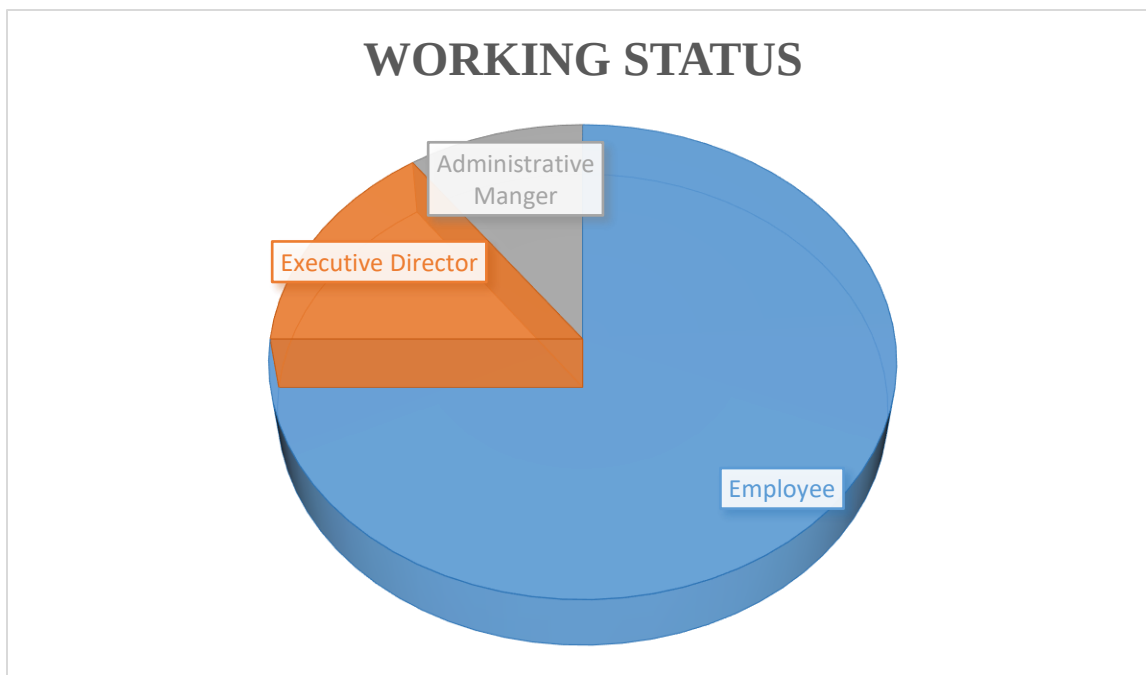


Figure 7: Working status

It is clear from the table for the distribution of the study sample according to Working status that the percentage of Employee is 75%, and the percentage of Executive Director 15%, and Administrative Percentage Manger 10%.

E. Working experience

Table 5: Working experience

Working experience	Frequency	percentage
Less than 1 year	12	10%
1-5 years	18	15%
6-10 years	42	35%

More than 10 years	48	40%
Total	120	100.0

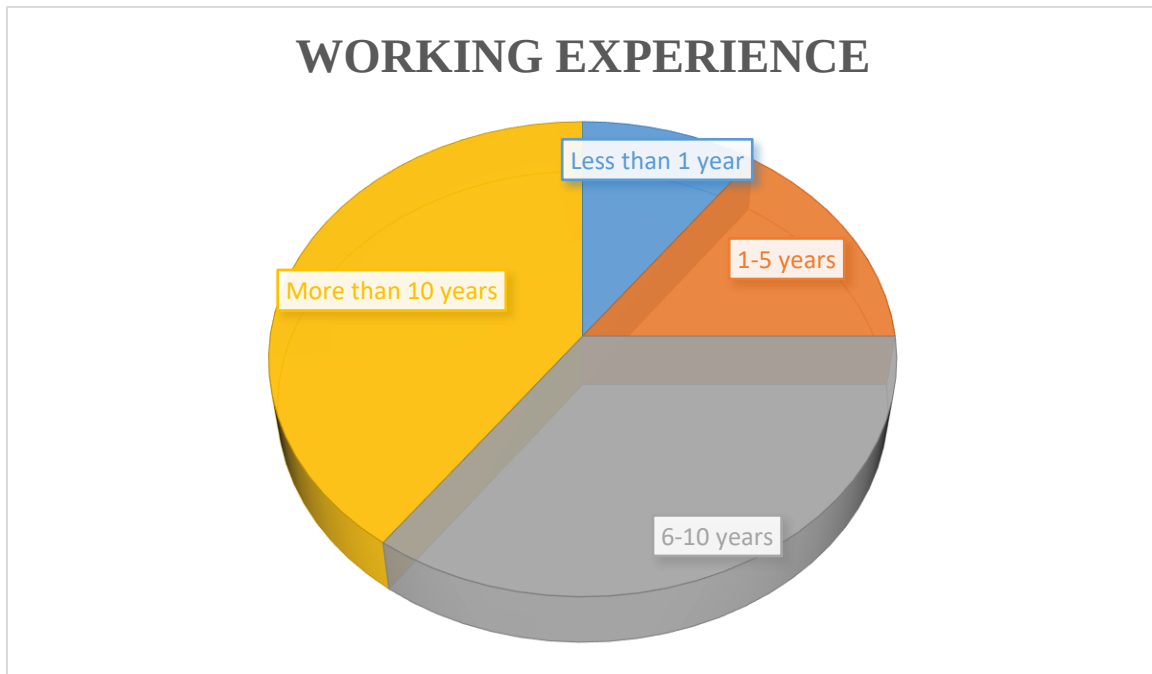


Figure 8: Working experience

It is clear from the table for the distribution of the study sample according to working experience that the percentage of those whose experience was less than 1 year was 10%, and those whose experience was from 1-5 years was 15%, and those whose experience was 6-10 years was 35%, and those whose experience was more than 10 years 40%.

Second: Questionnaire paragraphs

1. Project success using Agile methodology

Table 6: Project success using Agile methodology

Project success using Agile methodology	Mean	Std. Deviation	direction	Ranking
---	------	----------------	-----------	---------

1	Agile methodologies have improved the overall efficiency of project delivery.	2.75	1.410	Agree	4
2	The Agile approach has led to better alignment of project outcomes with business goals.	2.80	1.361	Agree	2
3	The use of Agile has facilitated better collaboration and communication among project team members.	3.00	1.338	Agree	1
4	Agile practices have enhanced the adaptability of projects to changing requirements.	2.80	1.399	Agree	3
5	Agile methodologies have contributed to a faster time-to-market for project deliverables.	2.55	1.395	Agree	6
6	The iterative nature of Agile development has improved the quality of project outcomes.	2.65	1.309	Agree	5
7	Agile methodologies have contributed to increased customer satisfaction.	2.40	1.392	Strongly disagree	7
Project success using Agile methodology		2.7071	1.12244	Agree	

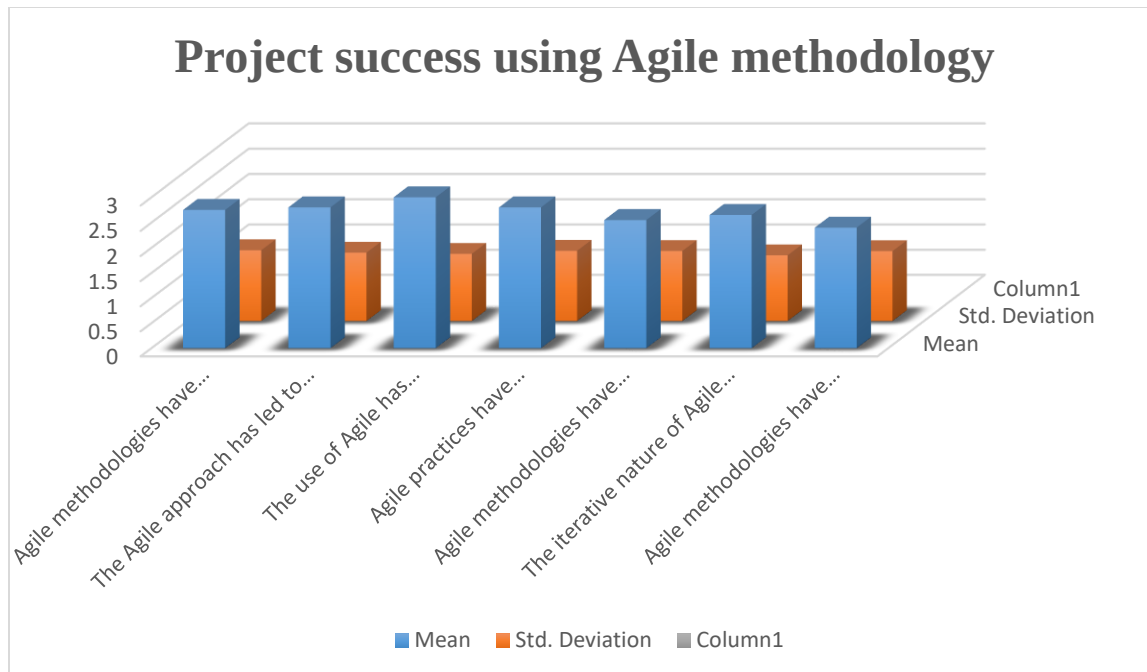


Figure 9: Project success using Agile methodology

It is clear from the previous table that statement No. 3 came in first place with a mean of 3.00 and a standard deviation of 1.338, and the direction of the sample members' answers to this statement was in agreement. Statement No. 2 came in second place with a mean of 2.80 and a standard deviation of 1.361, and the direction of the sample members' answers was in agreement. Statement No. 4 came in third place with a mean of 2.80 and a standard deviation of 1.399, and the trend of the sample members' answers was represented by "I agree," while the first statement came in fourth place with a mean of 2.75 and a standard deviation of 1.410, and the trend of the sample members' answers was represented by "I agree." Statement No. 6 was in fifth place with a mean of 2.65 and a standard deviation of 1.309. The trend of the sample members' answers was "I agree." Statement No. 5 was in sixth place with a mean of 2.55 and a standard deviation of 1.395, The trend of the sample members' answers was "I agree, Finally, statement number 7 is in last

place with a mean of 2.40 and a standard deviation of 1.392, and the trend of the sample members' answers was "I agree.

2. The impact of using Agile

Table 7: the impact of using Agile

	The impact of using Agile	Mean	Std. Deviation	direction	Ranking
8	The Agile methodology has helped in managing project risks more effectively.	2.70	1.380	Agree	9
9	Agile methodologies have encouraged a culture of continuous improvement within project teams.	2.85	1.348	Agree	4
10	Agile methodologies align well with the goals and objectives outlined in Vision 2030.	2.55	1.356	Strongly disagree	13
11	The use of Agile supports the innovation and technological advancements emphasized in Vision 2030.	3.00	1.257	Agree	1
12	Agile methodologies contribute to the efficient utilization of resources, aligning with Vision 2030's economic objectives.	2.80	1.322	Agree	6

13	Implementing Agile methodologies has presented challenges in terms of team adaptation and understanding.	2.70	1.380	Agree	10
14	Despite challenges, the benefits of Agile outweigh the drawbacks in achieving project success.	2.75	1.293	Agree	7
15	There is a need for further training and development to maximize the benefits of Agile methodologies.	2.70	1.342	Agree	8
16	The organization should invest more in promoting Agile principles and practices for project management.	2.80	1.322	Agree	5
17	I believe that the continued use and refinement of Agile methodologies will be crucial for the success of projects in the Kingdom of Saudi Arabia.	2.90	1.334	Agree	2
18	Agile methodologies have enabled faster decision-making processes.	2.65	1.348	Agree	11
19	There is a need for additional training and support to enhance	2.85	1.348	Agree	3

	the effectiveness of Agile practices in our projects.				
20	Agile methodologies have contributed to better risk management in projects.	2.60	1.314	Agree	12
The impact of using Agile		2.7577	1.01714	Agree	

It is clear from the previous table that statement No. 11 came in first place with an arithmetic mean of 3.00 and a standard deviation of 1.257, and the trend of the sample members' answers to this statement was agree. Statement No. 17 came in second place with an arithmetic mean of 2.90 and a standard deviation of 1.334, and the trend of the sample members' answers was agree. Statement No. 19 and Statement No. 9 came in third and fourth place with an arithmetic mean of 2.85, and the standard deviation for the first was 1.348 and for the second was 1.348, and the trend of the sample members' answers represented "Agree."

Statement No. 16 and Statement No. 12 came in fifth and sixth place with an arithmetic mean of 2.80 and a standard deviation of 1.322, and the trend of the sample members' answers was agree. Statement No. 14 also came in seventh place with an arithmetic mean of 2.75 and a standard deviation of 1.293, and the trend of the sample members' answers was agree, and phrase No. 15 came It ranked eighth with a mean of 2.70 and a standard deviation of 1.342, and the trend of the sample members' answers was agree. Statement No. 8 came in ninth place with a mean of 2.70 and a standard deviation of 1.380, and the trend of the sample members' answers was agree.

Statement No. 13 came in tenth place with an arithmetic mean of 2.70 and a standard deviation of 1.380, and the trend of the sample members' answers was agree. As for statement No. 18, it came in eleventh place with an arithmetic mean of 2.65 and a standard deviation of 1.348, and the trend of the sample members' answers was agree. As for statement No. 20, it came in It ranked twelfth with a mean of 2.60 and a standard deviation of 1.314, and the trend of the answers of the sample members was OK. Finally, statement No. 10 ranked thirteenth with a mean of 2.55 and a standard deviation of 1.356, and the trend of the answers of the sample members was Strongly disagree.

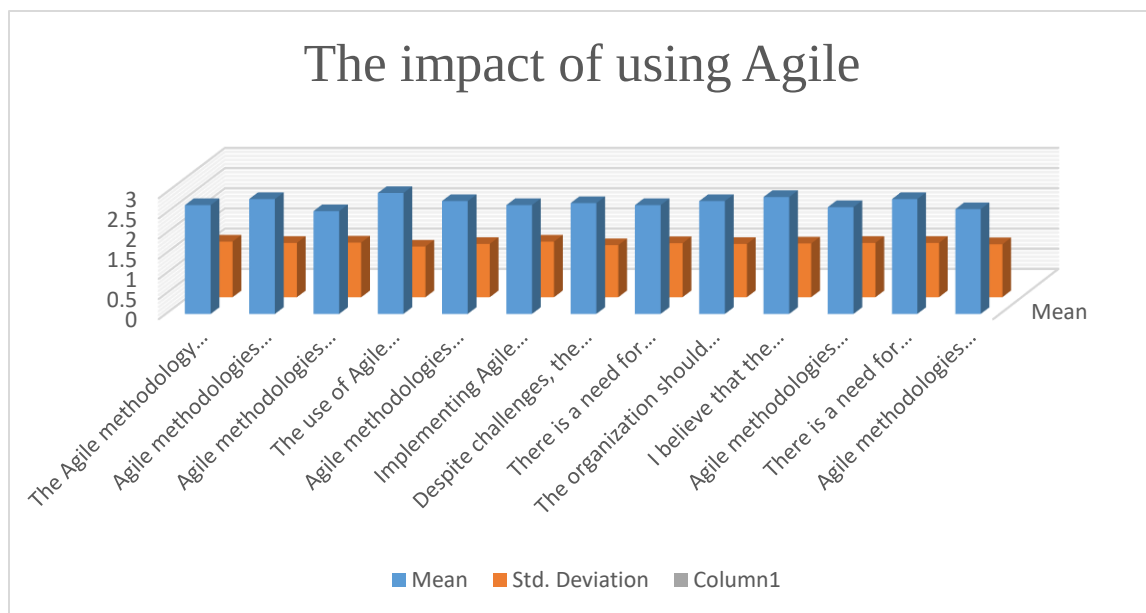


Figure 10: the impact of using Agile

Third: Testing the study hypotheses:

1. **There is a statistically significant impact relationship between the effects of using the Agile methodology and the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030.**

Table 8: t - test

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.717 ^a	.514	.487	.72910	.514	19.051	1	18	.000
a. Predictors: (Constant), A1									

ANOVA^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.127	1	10.127	19.051	.000 ^b
	Residual	9.569	18	.532		
	Total	19.696	19			
a. Dependent Variable: A2						
b. Predictors: (Constant), A1						

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	.997	.435		2.291	.034
	A1	.650	.149	.717	4.365	.000
a. Dependent Variable: A2						

The results of the statistical analysis shown in the table showed that there is a statistically significant relationship between the effects of using the Agile methodology and the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030 at the level of (0.05%), where the significance percentage was (0.000), which shows that the use of the Agile methodology has a significant impact On the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030.

2. **There are statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to demographic variables.**

- **Gender:**

Table 9 Descriptive Statistics of the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to age.

Descriptives								
	N	Mean	Std. Deviation	Std. Error	95% Interval for Mean	Confidence	Mini mum	Maxim um
					Lower Bound	Upper Bound		

A 1	Male	84	2.5714	1.18467	.31662	1.8874	3.2554	1.00	4.00
	Female	36	3.0238	.98319	.40139	1.9920	4.0556	1.43	4.00
	Total	120	2.7071	1.12244	.25099	2.1818	3.2325	1.00	4.00
A 2	Male	84	2.6319	1.00394	.26831	2.0522	3.2115	1.00	4.00
	Female	36	3.0513	1.08204	.44174	1.9158	4.1868	1.00	4.00
	Total	120	2.7577	1.01814	.22766	2.2812	3.2342	1.00	4.00

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
A1	Between Groups	.860	1	.860	.670	.424
	Within Groups	23.078	18	1.282		
	Total	23.938	19			
A2	Between Groups	.739	1	.739	.702	.413
	Within Groups	18.957	18	1.053		
	Total	19.696	19			

The results of the previous analysis showed that there are no statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of the 2030 Vision of the Kingdom of Saudi Arabia due to the gender variable.

- **Nationality:**

Table 10 Descriptive Statistics of the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to Nationality.

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
A 1	Saudi	114	2.7970	1.07678	.24703	2.2780	3.3160	1.00	4.00
	Non-Saudi	6	1.0000	.	.	.	.	1.00	1.00
	Total	120	2.7071	1.12244	.25099	2.1818	3.2325	1.00	4.00
A 2	Saudi	114	2.8016	1.02638	.23547	2.3069	3.2963	1.00	4.00
	Non-Saudi	6	1.9231	.	.	.	.	1.92	1.92
	Total	120	2.7577	1.01814	.22766	2.2812	3.2342	1.00	4.00

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
A1	Between Groups	3.068	1	3.068	2.646	.121
	Within Groups	20.870	18	1.159		
	Total	23.938	19			
A2	Between Groups	.733	1	.733	.696	.415
	Within Groups	18.962	18	1.053		
	Total	19.696	19			

The results of the previous analysis showed that there are no statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to the nationality variable.

- **Age:**

Table 11 Descriptive Statistics of the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to age.

Descriptives							
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	

A 1	21- 25 years	12	3.5714	.60609	.42857	-1.8741-	9.0169	3.14	4.00
	26-30 years	18	2.4286	.24744	.14286	1.8139	3.0432	2.14	2.57
	31-35 years	24	2.5357	1.08405	.54203	.8107	4.2607	1.00	3.43
	36-40 years	48	2.9464	1.20237	.42510	1.9412	3.9516	1.00	4.00
	More than 40 years	18	2.0000	1.73205	1.00000	-2.3027-	6.3027	1.00	4.00
	Total	120	2.7071	1.12244	.25099	2.1818	3.2325	1.00	4.00
A 2	21- 25 years	12	3.1923	.27196	.19231	.7488	5.6358	3.00	3.38
	26-30 years	18	2.7179	.31088	.17949	1.9457	3.4902	2.38	3.00
	31-35 years	24	2.6923	.97301	.48650	1.1440	4.2406	1.46	3.62
	36-40 years	48	2.8654	1.24018	.43847	1.8286	3.9022	1.00	4.00
	More than 40 years	18	2.3077	1.53654	.88712	-1.5093-	6.1247	1.00	4.00

	Total	120	2.7577	1.01814	.22766	2.2812	3.2342	1.00	4.00
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ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
A1	Between Groups	3.803	4	.951	.708	.599
	Within Groups	20.135	15	1.342		
	Total	23.938	19			
A2	Between Groups	1.100	4	.275	.222	.922
	Within Groups	18.596	15	1.240		
	Total	19.696	19			

The results of the previous analysis showed that there are no statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of the 2030 Vision of the Kingdom of Saudi Arabia due to the age variable.

- **Working status:**

Table 12: Descriptive Statistics of the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to working status.

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini mum	Maxim um
						Lower Bound	Upper Bound		
A1	Employee	90	2.7429	1.16334	.30037	2.0986	3.3871	1.00	4.00
	Executive Director	18	3.2381	.71903	.41513	1.4519	5.0243	2.57	4.00
	Administra tive manager	12	1.6429	.90914	.64286	-6.5254-	9.8111	1.00	2.29
	Total	120	2.7071	1.12244	.25099	2.1818	3.2325	1.00	4.00
A2	Employee	90	2.8667	1.10117	.28432	2.2569	3.4765	1.00	4.00
	Executive Director	18	2.3846	.81408	.47001	.3623	4.4069	1.46	3.00
	Administra tive manager	12	2.5000	.81589	.57692	-4.8305-	9.8305	1.92	3.08
	Total	120	2.7577	1.01814	.22766	2.2812	3.2342	1.00	4.00

ANOVA					
	Sum Squares	of df	Mean Square	F	Sig.

A1	Between Groups	3.130	2	1.565	1.279	.304
	Within Groups	20.807	17	1.224		
	Total	23.938	19			
A2	Between Groups	.729	2	.364	.326	.726
	Within Groups	18.967	17	1.116		
	Total	19.696	19			

The results of the previous analysis showed that there are no statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to the Working status variable.

- **Working experience:**

Table 13 Descriptive Statistics of the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to working experience.

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
A1	Less than	12	3.5714	.60609	.42857	-1.8741-	9.0169	3.14	4.00

	1 year								
	1-5 years	18	2.7619	.73309	.42325	.9408	4.5830	2.14	3.57
	6-10 years	42	2.3469	.87231	.32970	1.5402	3.1537	1.00	3.43
	More than 10 years	48	2.7857	1.48658	.52558	1.5429	4.0285	1.00	4.00
	Total	120	2.7071	1.12244	.25099	2.1818	3.2325	1.00	4.00
A2	Less than 1 year	12	3.1923	.27196	.19231	.7488	5.6358	3.00	3.38
	1-5 years	18	3.1282	.81529	.47071	1.1029	5.1535	2.38	4.00
	6-10 years	42	2.5165	.96967	.36650	1.6197	3.4133	1.00	3.62
	More than 10 years	48	2.7212	1.27856	.45204	1.6522	3.7901	1.00	4.00
	Total	120	2.7577	1.01814	.22766	2.2812	3.2342	1.00	4.00

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
A1	Between Groups	2.461	3	.820	.611	.618
	Within Groups	21.477	16	1.342		
	Total	23.938	19			
A2	Between Groups	1.208	3	.403	.348	.791
	Within Groups	18.488	16	1.155		
	Total	19.696	19			

The results of the previous analysis showed that there are no statistically significant differences in the average effects of using the Agile methodology and the success of projects in light of Vision 2030 for the Kingdom of Saudi Arabia due to the variable work experience.

Conclusion:

In conclusion, the study delving into the effects of employing the Agile methodology to achieve project success within the framework of Vision 2030 in the Kingdom of Saudi Arabia reveals valuable insights. The Agile methodology, characterized by its iterative and flexible approach, has demonstrated its adaptability to the dynamic goals outlined in Vision 2030. The findings of this study suggest that incorporating Agile principles in project management enhances the responsiveness, collaboration, and overall efficiency of project teams.

The Vision 2030 initiative, aimed at diversifying the Saudi economy and fostering innovation, aligns well with Agile's emphasis on adaptability and continuous improvement. The study highlights that the Agile methodology's iterative nature facilitates quick adjustments to changing project requirements, ensuring alignment with the evolving priorities of Vision 2030. Moreover, the emphasis on stakeholder collaboration and customer feedback in Agile methodologies resonates with the Kingdom's commitment to inclusivity and engagement.

However, it is crucial to acknowledge that successful implementation of Agile requires a cultural shift, emphasizing open communication, cross-functional collaboration, and a willingness to embrace change. Organizations aspiring to align with Vision 2030 must invest in training and cultural transformation to fully harness the benefits of the Agile methodology.

In conclusion, this study underscores the compatibility of Agile methodologies with the ambitious goals set forth in Vision 2030. While challenges may arise during the transition, the potential for increased project success, adaptability, and stakeholder satisfaction makes Agile a promising approach for organizations striving to contribute to the realization of the Kingdom of Saudi Arabia's transformative vision.

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Appendices:

• Demographic Questions

1. Gender

- ☐ Male
- ☐ Female

2. Nationality

- ☐ Saudi
- ☐ Non- Saudi

3. Age

- ☐ 21- 25 years

- ☐ 26-30 years
- ☐ 31-35 years
- ☐ 36-40 years
- ☐ More than 40 years

4. Working status

- ☐ Employee
- ☐ Executive Director
- ☐ Administrative manager

5. Working experience

- ☐ Less than 1 year
- ☐ 1-5 years
- ☐ 6-10 years
- ☐ More than 10 years

1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree
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Table 14: Questionnaire

NO.	Items	Project success using Agile methodology				
		1	2	3	4	5
1	Agile methodologies have improved the overall efficiency of project delivery.					
2	The Agile approach has led to better alignment of project outcomes with business goals.					
3	The use of Agile has facilitated better collaboration and communication among project team members.					
4	Agile practices have enhanced the adaptability of projects to changing requirements.					
5	Agile methodologies have contributed to a faster time-to-market for project deliverables.					
6	The iterative nature of Agile development has improved the quality of project outcomes.					
7	Agile methodologies have contributed to increased customer satisfaction.					

NO.	Items	The impact of using Agile				
		1	2	3	4	5
8	The Agile methodology has helped in managing project risks more effectively.					
9	Agile methodologies have encouraged a culture of continuous improvement within project teams.					
10	Agile methodologies align well with the goals and objectives outlined in Vision 2030.					
11	The use of Agile supports the innovation and technological advancements emphasized in Vision 2030.					
12	Agile methodologies contribute to the efficient utilization of resources, aligning with Vision 2030's economic objectives.					
13	Implementing Agile methodologies has presented challenges in terms of team adaptation and understanding.					
14	Despite challenges, the benefits of Agile outweigh the drawbacks in achieving project success.					
15	There is a need for further training and development to maximize the benefits of Agile methodologies					
16	The organization should invest more in promoting Agile					

	principles and practices for project management.					
17	Agile methodologies have enabled faster decision-making processes.					
18	Agile methodologies have enabled faster decision-making processes.					
19	There is a need for additional training and support to enhance the effectiveness of Agile practices in our projects.					
20	Agile methodologies have contributed to better risk management in projects.					

Abstract

This research is conducted to Study the effects of using the Agile methodology to accomplish projects success in light of Vision 2030 of the Kingdom of Saudi Arabia. This research was particularly carried out to investigate the agile mechanism implementation and usage which was usually followed in software industry so the data was collected from projects based on Saudi arabia lands. The study was conducted on a sample of 120 employees working in Saudi projects and they were selected randomly. Results show that there is a statistically significant relationship between the effects of using the Agile methodology and the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030 at the level of (0.05%), where the significance percentage was (0.000). It has been concluded from the proposed study that the use of Agile methodology has a significant impact On the success of projects in light of the Kingdom of Saudi Arabia's Vision 2030.

Keywords: Agile methodology use, Project success, Vision 2030 of the Kingdom of Saudi Arabia, effects of using the Agile methodology.

المستخلص

تم إجراء هذا البحث لدراسة آثار استخدام منهجية Agile لإنجاز نجاح المشاريع في ضوء رؤية ٢٠٣٠ للمملكة العربية السعودية. تم إجراء هذا البحث بشكل خاص للتحقيق في تنفيذ واستخدام آلية Agile التي كانت تطبق عادة في صناعة البرمجيات لذلك تم جمع البيانات من المشاريع القائمة على أراضي المملكة العربية السعودية. وقد أجريت الدراسة على عينة مكونة من ١٢٠ موظفاً يعملون في المشاريع السعودية وتم اختيارهم بطريقة عشوائية. أظهرت النتائج أن هناك علاقة ذات دلالة إحصائية بين آثار استخدام منهجية Agile ونجاح المشاريع في ضوء رؤية المملكة العربية السعودية ٢٠٣٠ عند مستوى (٠,٠٥%)، حيث بلغت نسبة الدلالة (٠,٠٠٠). وقد استنتج من الدراسة المقترحة أن استخدام منهجية Agile له أثر كبير على نجاح المشاريع في ضوء رؤية المملكة العربية السعودية ٢٠٣٠.

الكلمات المفتاحية: استخدام المنهجية الرشيقية، نجاح المشاريع، رؤية ٢٠٣٠ المملكة العربية السعودية، آثار استخدام المنهجية الرشيقية.