Effectiveness of communication processes in the Agile Project Management Approach in the UAE Utility Sector

فعالية عمليات الاتصال في نهج إدارة المشاريع الرشيقة في قطاع الخدمات في دولة الإمارات العربية المتحدة

by

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ABSTRACT

The goal of this study is to find out how well the communication processes in the UAE Utility Industry work with the Agile Project Management Approach. For this reason, the present study will incorporate a quantitative research methodology that will allow the researcher to verify secondary data on the agile project management strategy. The utility sector in the UAE will be surveyed, as will its management, to gather primary data. Agile project management has suitably made it possible to obtain an appropriate balance between stability and dynamism while providing an opportunity for quick and smart strategy, structure, and process. Due to potentially strong investment from the private sector and collaboration with global investor engagement, the utility sector is considered to be one of the strongest and most lucrative businesses that offers a wide range of services.

Research into the many facets of communication has the potential to improve utility sector efficiency and the effectiveness of related undertakings, contributing to structuration theory.

Team members should have a voice in the agile project management process, maintain open lines of communication with stakeholders, and discuss problems in a timely manner to increase tolerance and acceptance.

نبذة مختصرة

الهدف من هذه الدراسة هو معرفة مدى جودة عمل عمليات الاتصال في صناعة الخدمات في دولة الإمارات العربية المتحدة مع نهج إدارة المشاريع الرشيقة. لهذا السبب، ستدرج الدراسة الحالية منهجية بحث كمية تسمح للباحث بالتحقق من البيانات الثانوية المتعلقة باستراتيجية إدارة المشاريع الرشيقة. سيتم مسح قطاع المرافق في دولة الإمارات العربية المتحدة، وكذلك لجمع البيانات الأولية. جعلت إدارة المشاريع الرشيقة من الممكن بشكل مناسب الحصول على توازن مناسب بين الاستقرار والديناميكية مع توفير فرص وهيكل وعملية سريعة وذكية. نظرًا للاستثمارات القوية المحتملة من القطاع الخاص وتعاون و مشاركة المستثمرين، يعتبر قطاع المرافق أحد أقوى قطاعات وأكثرها ربحًا والتي تقدم مجموعة واسعة من الخدمات.

البحث في العديد من جوانب الاتصال لديه القدرة على تحسين كفاءة قطاع المرافق وفعالية التعهدات ذات الصلة، مما يضيف إلى دراسات نظرية الهيكلة.

يجب أن يكون لأعضاء الفريق صوت في عملية إدارة المشروع الرشيقة، والحفاظ على خطوط اتصال مفتوحة مع أصحاب المصلحة، ومناقشة المشكلات في الوقت المناسب لزيادة التسامح والقبول.

DEDICATION

I would like to dedicate this dissertation to my family, friends, and mentors who have supported me throughout my academic journey. To my parents, who have always encouraged me to pursue my passions and have been a constant source of support, thank you.

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

In recent years, the utility sector has seen rapid changes brought about by organizations in a never-ending rush to adapt. The UAE possesses one of the most attractive utility sectors, which draws an extensive range of businesses with the presence of foreign investors and strong private sectors. Although in recent years it has faced an economic slowdown, critical projects with significant focus in areas involving solar, nuclear, and desalination energy are constantly developing at a rapid pace (Bacon, 2018). Utilities provision is a challenging endeavor. It requires a proper mechanism with the inclusion of innovative ideas and technologies that enable constant innovation that fulfills today's needs of the public and the challenges that occur in the utility sector. Most countries are seeking the adaptation of innovative techniques that offer them a chance to deal with the modifications (Bacon, 2018) and one of these is agile management (Booth et al., 2018). The incorporation of agile project management techniques provides flexibility in project management that is not provided by traditional methods of management. It allows for continuous improvement throughout the project's lifespan, and by adapting to new developments, it boosts client satisfaction (Stern, 2017).

A group of practitioners developed agile project management to adapt to the changing economic climate. that need continuous amendments through developing practices that permit constant accumulation, enhancement, and altering targets and requirements (Medinilla and Medinilla, 2012). Several organizations are increasingly executing agile techniques owing to their acknowledgement of the benefits achieved from them, although not all organizations can implement agile management as there are a few definite aspects that determine the capability of

the firm in order to espouse agile management (Bergmann, and Karwowski, 2018). Flexibility is one of agile project management's main selling points. Due to the fact that individuals and firms do not want to get bound to using only one method with only a few rigid steps, this is resolved by the Agile method of project management.

Several methods have been developed by researchers in the field of project management, but none of them gives better results than agile project management (Medinilla and Medinilla, 2012). It is not always the case, as due to the restrictions of the project, the project management method requires a specific type of method. Other than that, Agile is one of the most widely used, outcome-oriented, and proven methods of project management (Mohammad, 2017). Project management is not just the process; it is the style through which the project is managed. For people, it’s crucial to realize that a disastrously bad choice in project management approach might have a domino effect on the whole endeavor (Peter, 2009). The right decision by project management will benefit the project and make it easier for people to carry out the task activities (Peter, 2009).

It is essential that all project management departments work in tandem to ensure that the project is finished on schedule, down to the smallest details (Zulch, 2014). Communication, if not achieved effectively, poses a great threat to project management because, through communication, the activities of the project remain synchronized (Katerega, and Sebunya, 2017). Also, for the organization, the process of communication is tough due to the fact that there are several departments, and synchronization among the different departments, distinct teams, and team members is crucial to achieve. Without the communication plan and the best strategy to cope up with the communication hurdles the project activities will not be achieved in an efficient way. Achieving better results from projects requires agile project managers to

pay close attention to their communication methods (Yagüe et al., 2016). Furthermore, various researchers, such as Serrador and Pinto (2015) and Bergmann and Karwowski (2019) have outlined how substantial success can be achieved via the use of an agile project management approach.

Even though agile project management is widely researched, it has shown to be very effective for project success due to the benefits outlined above. However, very few researchers have focused on empirically evaluating the communication aspect and its effect on project success. A significant problem exists in terms of these aspects and relationships, which are discussed and outlined in the following problem statement section.

1.2 Problem Statement

The main point discussed in the research is that agile project management bridges the gap that stakeholders constantly enquire for predetermined alterations, either during the concession phase or during the design phase, which can have an unexpected impact on the project's success (Larson, 2018). Involving stakeholders is significant in each stage of development in order to manage the alteration requests as quickly as possible while originating how the involvement of stakeholders eradicates several red flags that affect the project positively. It has also been revealed how the changes in agile management would have been carried out in accordance with some causes, such as inefficient communication processes, communication challenges, management styles, fewer opportunities to formalize systems, or it can also be consistent with project sponsors, which can have a negative impact on project success in the utility sector. Although with all these drawbacks, agility was more successful, which responded better to the challenges of the utility sector in the UAE (Azanha et al., 2017). Communication is a critical

process, and it is very important that the process of communication be carried out through the best strategies of communication so that the stakeholders and the process of the project will be managed in an effective manner (Azanha et al., 2017). Also, communication in agile project management can lead to enhanced success of the projects, and it requires more focus in the research. Furthermore, multiple researchers have conducted research in terms of agile project management in different sectors, such as the consulting sector (Foschini, 2021), ICT sector (Kaczorowska, 2015), public sector (Bogdanova, Parashkevova and Stoyanova, 2020), telecommunication sector (Balashova and Gromova, 2017), and various others. Furthermore, the utility sector consists of various sub-sectors that focus on the water utility sector, electricity utility sector, solar energy utility sector, and other energy-based sectors. The sector also faces various challenges in terms of project failures, high losses, increased delays in delivering projects, poor procurement, increased costs, and other multiple risks (Mtembi and Kanakana, 2015), which is why there is a significant need to develop agile project management supported through effective communication approaches in the utility sector. In this regard, a study by Marrewijk (2018) has outlined interim supervised meetings that should be designed to bring transformation and address opposition in the utility sector. The authors also mention that a proper communication strategy that is a bottom-up approach can be implemented to resolve the delicate issue of interfering with the transformation process. The importance of middle managers lies in the fact that they connect the gaps between structures, which represents that communication can serve as an important aspect to enhance the success of utility infrastructure projects (Marrewijk, 2018). Implementation of communication-based agile project management will significantly enhance project success in the utility sector. Based on the above discussion, the following aims and objectives have been developed.

1.3 Research Aim and Objectives

The aim of this investigation is to determine the effectiveness of communication processes in an agile project management approach and their impact on project success in the UAE's utility sector projects.

- To understand the importance of communication in agile project management.
- To investigate the types of communication challenges that the UAE utility sector faces in regards to agile project management.
- To evaluate the impact of communication in agile project management on the project success of the UAE's utility sector projects.
- To find an agile management style of communication that will be helpful to the leaders of the UAE's utility sector.

1.4 Research Questions

- What is the importance of communication in agile project management?
- What types of communication challenges will the UAE utility sector face?
- What is the impact of communication in agile project management on project success of the UAE's utility sector projects?
- How will the agile management style of communication be helpful to the leaders of the utility sector in the UAE?

1.5 Research Gap

Agile project management has evolved to facilitate the transition of adapting to a new business environment, focusing on new projects, and enhancing these endeavors. But there aren't many

well-defined, effective methods or rigorous reviews of their outcomes in the literature (Conforto and Amaral, 2010). Most proposed solutions aim to enhance project achievement outcomes by establishing a better dynamic strategy that can be adapted to the varying circumstances of each project. Agile project management is one method used to measure a project's overall success in the current day (Highsmith, 2009). The adaptability of agile project management to different projects is still being investigated, but progress is being made. The utilities industry is only one of several that has fluctuating systems engineering needs, which not only affects project timeliness and success but also the expenses involved (Tam et al., 2020). As a result of these ever-evolving standards, a growing number of initiatives are failing (Salman et al., 2020). Project breakdowns are dragging down productivity levels across businesses. The responsible person is kept up-to-date and involved in all aspects of the project's development thanks to the agile project management system, which makes the lives of both project executives and market owners much easier (Madampe, 2017). Effective communication is essential in agile project management, and other aspects including communication approach, team characteristics, decision-making processes, and the nature of the project all contribute to improved communication (Salman et al., 2020). Such sophisticated interaction has the potential to affect productivity in the workplace. A number of projects in the United Arab Emirates' utilities industry might benefit from better communication as part of agile project management. As an additional complication, utility project management faces a number of obstacles, including a lack of leadership, an inability to innovate, a high incidence of failed projects, and concerns about environmental impact and regularity compliance (Sutling et al., 2015). Focusing on elements like communication strategy, team dynamics, decision-making, and project specifics may help build a better communication method and alleviate these problems. Few academics

have explored agile project management in the context of the UAE' utility sector. Examples include (AlZwainy, Mohammed and Raheemb, 2016; Elkhatib et al., 2022; Tawfik, 2018; Ajam, 2018) who have described how agile project management is being used in the UAE's several sectors that fall under the umbrella of the utilities industry. However, there is a strong research gap in regards to the elements that contribute to improved communication within the context of agile project management, which in turn affects project success.

1.6 General Definitions

1.6.1 Agile Project Management

Agile project management is a method of delivering a project across its lifespan in iterative and incremental steps. It values human feedback and communication, adjusts change, and generates working results. It oversees software development initiatives that aim for regular releases and iteratively incorporate user input (Cooper and Sommer, 2018). The agile life cycle is poised for many incremental or iterative steps headed for project completion. Due to the advantages that iteration provides, it is often used in software development projects to increase flexibility and speed.

1.6.2 Communication Processes

Communication is the process by which a message or information is sent from one party to another through a chosen channel, breaks through the slowing barriers. A sender starts the communication process and receives feedback in the end, making the process cyclical. It should be a continuous and dynamic interaction that includes both influencing and being influenced by the numerous variables (Nordquist, 2018).

In agile project management, there are a number of potential barriers to effective communication. Agile management's communication approach may significantly affect the success of a project if it is grounded on a theory like structuration theory, which explains the linkages between socially constructed interpretations, rules, and authority and the contexts in which individuals and groups interact (Cao et al., 2013). The self-organizing essence of agile teams results in team independence and variability; adaptive and evolutionary advancement empowers brief iteration project results; and communication inside the agile teams and with various stakeholders is the cooperating attribute (Ochodek and Kopczyńska, 2018), which is an extremely significant aspect of a project. The communication component is significant in the domain of agile project management since it influences the adaptability of agile organizations to the changing project context (Conforto and Amaral, 2010). Daily stand-up discussions and personal bonding for peer evaluation of individual accomplishments are components of agile team collaboration, which also increases project success. These sessions allow client employees to explain product specifications and offer input on project development and success (Carneiro, Silva and Alencar, 2018).

1.7 Research Significance

As agile project management is so crucial in today's technological age, the results of this research will ultimately benefit society. The findings of this research will represent a substantial effort to popularize agile project management in the business world and to boost the motivations of those who operate in this field. Project managers interested in strategic management will find this research to be illuminating as well. They may put business plans into action by using the agile project management method at work, particularly in regards to the many paradigms around

the efficient use of this method. Project managers and workers may gain a competitive edge by learning about the needs of their workforce, especially in the utilities industry, and the advantages of agile project management. In addition, suggestions for assessing agile project management in light of the utilities industry will be provided as part of this study (Miller, 2019).

Furthermore, this study will be beneficial to the utility sector and business practitioners in managing projects through an effective communication process in the areas of project management, strategies, and objectives. It will also provide a reference for current operations and future research by researchers and analysts on the subject of agile project management and utility sector companies. The utilization of communication processes and the usage of the Agile method are still not adopted by a number of organizations, as they have a different perspective regarding them. As a result of this research, misconceptions about agile project management will be dispelled, and agile project management will be used more effectively. Project management and the role of communication in it are not related to any specific field because the communication stage is the fundamental process of every industry and an element of project management (Demirkesen and Ozorhon, 2017). Also, the project management process is not restricted to any one field; every industry and every project require project management, which makes the study very beneficial and wide-ranging. It is very important that the study that is being conducted be categorized by the number of files, or generalized more than specific, because it will impact the entire community in this way. It is fundamental that the study does not promote any one profession or perspective; rather, the study should be converted into larger perspectives and aspects of the topic so that it can be implemented by the majority of professions that are directly and indirectly related to the topic (Larsson and Larsson, 2020). The benefits of such generalization are also provided by this study, as it includes several broad aspects of the

topic that encircle many fields, including management, human resources, managerial aspects, industrial information, employee aspects, and more.

1.8 Theoretical Background

The underpinning theory of the current research is structuration theory. According to West and Turner (2009), its emphasis is on the norms and cultures within the organization. The power structures for making decisions are identified because of the rules established in the organization, which also exist in the development of projects. Due to the structuration being implemented within organizations and their projects, the quality of agile projects may decrease or increase (Stones, 2017). According to structuration theory, organizations spontaneously generate their unique principles and standards, which are regarded as patterns (Giddens, 1993). Furthermore, the author asserts that such frameworks are generated by duration and place. The theory examines social interaction in terms of both geographical and spatial aspects, and projects in the utility sector do occur at multiple locations and in multiple spatial dimensions. Duration and location provide a framework for the contact since they underpin the effort to communicate information to another individual. The issue is that in geographically and temporally dispersed teams of projects in the utility sector, both the sender and recipient of information will have distinct contexts (Fernandez and Fernandez, 2008). Therefore, while one individual is prepared to address any project-related topic, that individual who wishes to share information may not be ready to do so. Such challenges might damage the management process and lower the quantity of communication, which could lead to a drop-in engagement in meetings and hence undermine confidence in team members, which can have a significant adverse effect on project success. Organizations and groups without defined rules and conventions, such as those with a significant

staff turnover rate, will defer to those who have worked on the task the longest or who have the characteristics of being a leader (Highsmith, 2009). In such a scenario, the authority of the specialist will be irrational since it will be determined not by the individual's qualifications but by factors such as their personality or the length of time they have spent working on the project, which can positively impact project success. As a result, poor judgments may be favored, and the team's confidence may suffer as a result of a lower-than-expected final product (Ismail and Mansor, 2018). Therefore, it is an important theory to be considered in the agile project management communication process, which can have an impact on project success in the utility sector.

1.9 Thesis Outline

This dissertation is comprised of five chapters.

Chapter 1 – Introduction

The primary focus of this chapter is on setting the stage for the research. This chapter sets the stage for the subsequent assessment of the literature on the topic, which examines the efficacy of communication procedures in an agile project management strategy in the UAE utilities industry. Also, the study's research questions, goals, and objectives are discussed, as well as the focus of the study itself, which is on the advantages and disadvantages of agile project management's communication procedures in the UAE's utilities industry. Communication challenges and an agile management style of communication that are beneficial for the leaders of the utility sector in the UAE are also being investigated. Furthermore, the operational definitions of the core concepts are also incorporated in this chapter.

Chapter 2 – Literature Review

The second chapter provides evidence of a literature study on the efficacy of communication proccess in an agile project management methodology in the UAE utilities industry. In this chapter, we theorize on the efficacy of various communication procedures involved in the agile project methodology as they pertain to the UAE's utilities industry. Along these lines, the conceptual framework, hypothesis generation, and other elements related to project success are also outlined in the chapter.

Chapter 3 – Research Methodology

In this chapter, we go deep into the study's approach and framework. It discusses the rationale, framework, methodology, population, and size of the study's samples. In addition, the chapter displays the various techniques for data collection and transcription, as well as the various devices used for measurement.

Chapter 4 – Data Analysis and Findings

Results of the analysis are presented in this chapter, escorted through data staging, interpretation, and discussion. The chapter tests the hypothesis of the study based on demographics, then produces the results and their validation. The discussion will be done in comparison with the old studies.

Chapter 5 – Conclusion and Recommendations

The research conclusion can be found here in Chapter 5. Furthermore, recommendations, limitations, and future considerations are covered in it. Ultimately, the appendices are located at the end of the thesis.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Here, we take a look back at the theoretical underpinnings of our investigation on the efficacy of agile project management's emphasis on communication procedures within the UAE utilities industry. In this chapter, we examine the structuration theory that serves as a theoretical foundation for the present study and provide an explanation for the connection between agile project management and successful project outcomes. The incorporated critical review illustrates agile project management with reference to different aspects, including its benefits, factors that can enhance agile project management, communication process and style, importance, and challenges. This chapter further examines the link between effective communication and project success in an agile project management context. With variables and their links to the research objectives in mind, this chapter systematically provides information from the empirical literature on the efficacy of the agile project management technique. Finally, the factors and measures taken into account in this study are described, together with the conceptual framework and hypothesis formulation.

2.2 Theoretical Background – Structuration Theory

In structuration theory, the repetition of social systems through repeated activities that follow the same pattern is emphasized (Giddens, 1993). It's a theory that emphasizes how cognitive functions are crucial to the formation and maintenance of interpersonal connections (Ismail and Mansor, 2018). According to the structuration theory, any type of organization, including a project, is a collection of relational interactions created by human actors through the negotiation

of interpretations, responsibilities, and communication rules (Mouzelis, 1989). Players engage in introspective representation and interpretation of the activities and responsibilities of various stakeholders, and they may reach explicit agreement on common interpretations, concepts, and norms as part of this process (Tan, 2011). Explicit assumptions that guide and constrain behavior emerge from unconnected, dispersed intellectual conceptions (Orlikowski, 2000). Connections and the power imbalances between players within them, such as those over resource distribution, rely heavily on pre-reflective thinking to maintain stability. Preconceived depictions, both ideas propagating in the larger societal domain and particular characterizations, such as planning, that players develop reflectively, impact a project's structure from this vantage point (Orlikowski, 2000). However, its functional social structure is the result of iterative engagements, wherever classifications and different aspects meet, and whereby actors make meaning of and harmonize these intersections. Provisional networks may develop into a persistent landscape of common framing and patterns that players may learn to efficiently traverse under steady and consistent communication settings (Mouzelis, 1989). Partial connections are redundant, contradictory, and fragile, and actors are always grappling with their varied needs and specific breakdowns in the diversified, dynamic setting of a complicated enterprise (Gao, 2007). Mutual impacts among development organizations and factors like industrial relationships or home organizational abilities have been elucidated using structural theory (Scarbrough et al., 2004). According to structuration theory, the aforementioned process takes a long time but results in long-lasting world characteristics. To conform regulations to institutionalized standards and ethical implications, to balance their contradicting requirements, and to rationalize preserving them despite recurrent shortcomings and disputes, they may need local negotiations and institutionalization (den Hond, Frank et al., 2012). Even if processes are controlled by actors'

thinking, particular theoretical processes may nonetheless explain materiality's participation in projects. Studying structuration theory might help scholars learn more about the role of free choice and self-expression in project management. As a response to structuralist theories that equated social structures with imposed functional rules or grammars of activity, Giddens proposed the notion of structuration (Crossley, 2011). Knowledge's function in project management may be better understood with the help of structuration theory. An abstract (theoretical) consciousness of actors as distinct from the study's principal emphasis is downplayed in favor of a more practical (pragmatic) consciousness of actors. This is owing to the fact that knowledgeable stakeholders are permitted to browse social processes and supervise their own activities in areas that are not and are not completely communicated (Giddens, 1993). As a conclusion, structuration theory emphasizes the importance of power and interests within project-based organizations and projects. According to Giddens (1993), power consists of two components: actors' ability to effect transformational acts (motivated, for example, by their own interest or desire) and established disparities among actors in their access to assets (the means by which those actions are carried out). The presumption of regularized relationships of independence and reliance amongst actors is thus important to understanding project power (Giddens, 1993). Finally, structuration theory contributes to a practice-oriented perspective by drawing attention to the reality that project organizations face, in part, as a result of mindless repetition of previous systems, as well as attempts to reconcile disparate practices and envision new ones. In the absence of issues or changing and unpredictable settings, project players depend on regular, often subliminal, cognitive models of social networks and of the material environment of activity. They are cognizant of power and resource imbalances, but they also

understand that more powerful players rely on them. A representation of Gidden's structuration theory is carried out in the following figure:

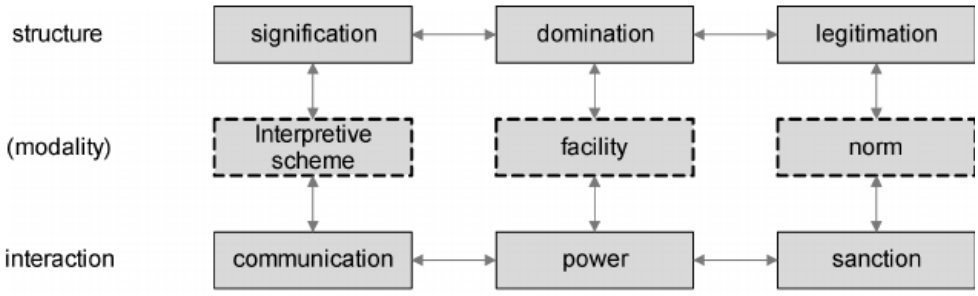

Figure 1: Structuration Theory

(*Source: Giddens, 1984*)

Furthermore, there is a scarcity of literature that explores innovative approaches to analyzing the ways in which team dynamics, organizational context, and other factors facilitate or impede the implementation of change in a given project. When considering the myriad of activities and decisions that go into a project for a business, the issue of how much effect one individual may have on the firm's sphere of operation emerges, and vice versa. Or, to put it another way, does structure dictate communication, or does communication dictate structure? How do you find the links between them, and how does that help you make decisions? Gidden's Structuration Theory, which has been utilized for some time in organizational theory to explain and grasp change in any project, seeks to give a tangible theoretical framework for answering such concerns (Whittington, 2015). This revolutionary idea that structure and communication are inextricably linked and mutually dependent was first advanced by Giddens (1984). Agents depend on structures for making choices and taking action, and the structures they interact with are created, validated, and shaped by the agents' own activities. For the agile technique to be successful in

the project, it is critical to have the right people on board and to provide them with a supportive environment to work in. Although this may seem theoretical, the concept has significant real-world applications: although in organizations it is not just persons who count (managers, workers, etc.), it is also very vital that management be integrated via the communication process (Elbasha & Wright, 2017). Project choices and communication are shaped by organizational norms and conventions and the environment in which a firm works. On a similar note, structuration theory will guide the development of communication and guide project choices and elements, which will further enhance the project's success.

2.3 Agile Project Management

Agile project management is predicated on the tenets that the time between planning and carrying out the plan must be drastically reduced, that the planning process must not include all the details of its application, and that it is necessary to be creative and to learn to make sense of one's surroundings. As opposed to the sequential set of well-defined procedures characteristic of traditional project management, agile project management is characterized by brief iterations of recurring and continuous production of value propositions and continuous deployment of code revisions. Agile project management necessitates a shift in management's mindset and approach. The focus of agile project management is not on the software or hardware being utilized, but rather on the user and the client-team dynamic. This is because it is highly assured and proven through research that focusing on the involvement of people helps the business expand. Given the present state of affairs in the UAE's utility (energy) industry, the agile methodology and preference for the connection between the customer and organization are invaluable in making the process more credible and trust-worthy by incorporating the people.

People should be included in every step of the process (Betta and Iwko, 2019). Agile project management likewise places constraints on participant participation, but it does so with a greater emphasis and focus than do more conventional approaches to project management (Betta and Iwko, 2019). The ability to communicate effectively is critical in a variety of situations, including negotiation, order fulfillment, shipment, customer satisfaction, and others. There will be no gains in project management by concentrating simply on procedures and technologies if communication breaks down. Client satisfaction and efficient project management are the results of individual and collaborative efforts. In addition, research shows that when the organization and the people involved in a project engage and build trust, the project is managed and the outcomes are guaranteed, which has a further added benefit for project success (Grass, Backmann and Hoegl, 2020). Pollack and Algeo (2014) observed that typical project management in the utilities industry requires unique approaches to planning activities and achieving goals. However, Kolipoulous et al. (2018) suggested that utility company management concentrate on agile methods and new techniques of development since it is backed by technology and gives a comprehensive grasp of the ideas in the organization that can determine the success of projects.

2.4 Advantages of Agile Project Management

Various researchers have outlined the advantages of agile project management. Project success relies on the manager's capacity to adapt to changing conditions, as described by Ciric et al. (2018) and Nguyen et al. (2018), who both note that agile project management promotes adaptation and flexibility. One of the benefits that Bogdanova et al. (2020) outlined is that agile project management increases innovation because it allows significant planning and focus that

create innovative behavior among employees and also enhances the performance of projects. The authors also mention that it enhances the quality of projects, which contributes to project success. Talukder et al. (2017) also outline that it increases employee satisfaction among all employees who are involved in order to assume responsibility for their own job as members of an approved team. The flexibility to respond to adjustments and distribute the tasks into various versions during the project is crucial to such fundamentals (Boehm and Turner, 2003; Omar, Abdullah and Yasin, 2011). To achieve its goals, an agile methodology first establishes a foundational set of outcomes, then establishes intermediate goals, and finally, it continually evaluates and enhances its final deliverables. Essential features of an agile approach include the distribution of responsibilities among team members and the active engagement of all team members in all project-related discussions, whether official and informal (Lalic et al., 2022; Omar, Abdullah and Yasin, 2011). Agile methodologies are currently prevalent, and there are indications that they improve project success (Conforto and Amaral, 2010; Serrador and Pinto, 2015).

Although it's clear that agile project management has some notable benefits, successful adoption requires that businesses take a number of aspects into account. Aslam and Ijaz (2018), for example, explain how successful agile project management requires a large lot of personnel skills and expertise. Paula (2020) argues that in order to successfully apply agile project management, businesses must make a large number of changes and be scalable (Bogdanova et al., 2020). In addition, communication is one of the most crucial aspects, since it is required for both efficient and flexible project management (Gal et al., 2018).

The current research focuses on communication in agile project management because communication is among the factors that can overcome the shortcomings of project

management, such as poor scheduling, high costs, poor planning, a lack of effective leadership, and other such challenges (Salman et al., 2020). The success rate of utility projects may be boosted greatly with the help of agile project management provided there is good communication involved. In the next part, we'll go deep into the topic of communication in agile project management and explain how it works in more depth.

2.5 Communication in Agile Project Management

2.5.1 Importance of Communication Processes in Agile Project Management

Agile project management places a premium on open lines of communication as a key to a successful project's completion. Data and information sharing, as well as the effective exchange of data amongst team members, are all examples of communication (Sharp and Robinson, 2010). Collaborative involvement, feedback, and collaboration made possible through clear and effective communication are what Conforto and Amaral (2010) call the "basic facilitators" of agile efforts. Specifically, when communication is inadequate throughout project execution, errors are prone to occur, which may lead to poor administration of required adjustments, worse performance, as well as the project's failure. In this context, Kamaruddin, Arshad and Mohamed (2012) claim that excellent communication helps individuals find practical approaches to complicated problems while they proceed to carry out the project, allowing difficulties to be resolved prior to the completion of revisions. In addition, AltSimmons (2015) states that communication promotes team effectiveness since the team's actual and digital environments offer essential locations for individuals to cooperate, communicate, organize, and exchange data. Therefore, communication may facilitate the swift and effective completion of project duties. As seen in the following figure, communication is the core to developing an effective

exchange among all involved stakeholders and further improving the effectiveness among them. In addition, it should be emphasized that structuration theory also symbolizes structure, people, and communication, as defined in AltSimmons's (2015) agile framework, which incorporates all components that facilitate the execution of agile project management.

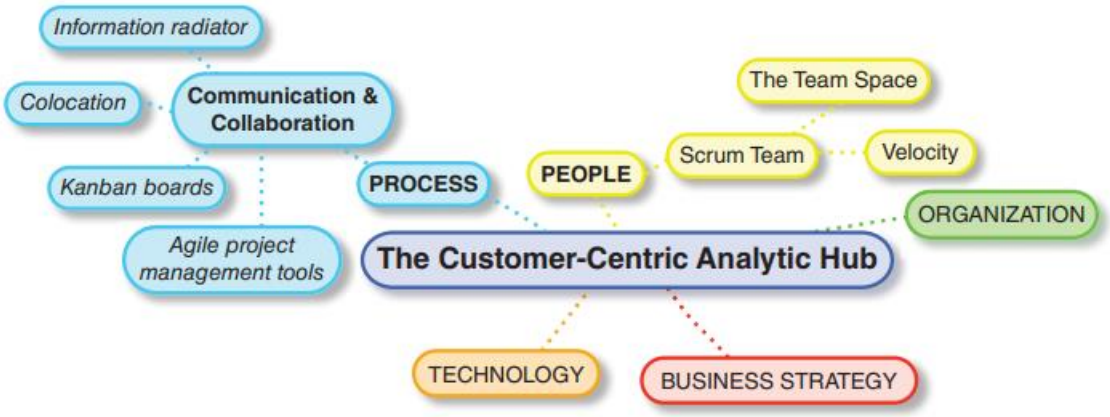

Figure 2: Communication-Related Considerations in Agile Project Management

(*Source: AltSimmons, 2015*)

It can be observed that communication is highly crucial in agile project management. However, various communication challenges exist that hinder agile project management, which are discussed in the following section.

2.5.2 Types of Communication Challenges During Agile Project Management

Various communication-related challenges can occur during agile project management, which can lead to the failure of projects. Different researchers have outlined various communication-related challenges in the context of agile project management. For instance, Salameh (2014) has outlined that poor understanding of business outcomes, utilizing imprecise terminology and jargon, unclear business advantages and design specifications, and a lack of projected outcomes

are significantly related to poor communication in agile project management. Talukder et al. (2017) and Marthandan et al. (2018) outline how poor documentation and unclear project specifications and requirements contribute to unimproved communication, which leads to project failures. In regards to establishing communication channels and systematic communication, a lack of systematic structures can be a huge concern for companies in the long run and can contribute to poor project performance (Aslam, and Ijaz, 2018). In terms of teams, Alzoubi and Gill (2014) mention that large, distributed teams also have communication challenges because of communication speed, type of communication, and incongruence in relation to team members' thoughts, attitudes, values, and related aspects. Lack of conceptual modeling and architecture can also become a challenge in agile system maintenance (Aslam, and Ijaz, 2018). Furthermore, a competitive landscape and changing situations also create communication challenges in agile project management (Miller, 2013). Ng and Cruz (2021) outline that discrepancies in working hours and poor organizational administration are also significant challenges related to poor communication in agile project management.

It can be observed that a lack of communication can have adverse effects on the success of a project, which is why it is important to adopt an effective communication style for agile project management. The following section outlines different types of communication styles that can be adopted by leaders to engage in effective and agile project management.

2.5.3 Different Communication Styles for Agile Project Management

It is critical for project managers in the utility sector to focus on the agile management communication style throughout their management.Some key communication styles of agile management that a leader can select during their management in the utility sector are analytical

style, intuitive style, and functional style. For instance, Akkaya and Üstgörül (2020) mention that leaders who opt for an analytical communication style lead with facts without intervening in their emotions, concentrate on concrete statistics and data, and often hate unclear information, which helps them to employ rational thinking and data in order to make decisions and work on project-related concerns. In terms of intuitive communication style, Svejvig and Grex (2016) mention that leaders who opt for an intuitive communication style lead with an uncomplicated and clear-cut approach and rapidly make decisions since they don't over-examine the situation or get besieged easily, which allows them to be competent enough to overarch situations for leveraging opportunities and overcoming challenges. Akkaya and Üstgörül (2020) outline that leaders who choose a functional communication style will lead with getting through details because they value strategies, timelines, plans, and specifications, and they focally analyze the procedures, communicate for end objectives, and prefer to perceive things presented in a rational fashion, which also enhances trust and engagement among various stakeholders in the organizations.

It can be observed that various aspects like challenges, factors, and other characteristics are linked with communication in agile project management. Thus, in the following part, we critically analyze the literature on the aspects that might impact communication in agile project management.

2.5.4 Factors affecting Communication in Agile Project Management

Researchers in the field of agile project management have discovered and explored a number of factors that have an impact on communication. The following table summarizes the results of a systematic literature study conducted to discover influences on communication.

Table 1: Factors Affecting Communication in Agile Project Management

Authors	Focus of Research	Research Context	Factors affecting Communication
(Hummel, Rosenkranz and Holten, 2013)	Provide a comprehensive understanding of the function of communication in agile systems development via an organized and thorough study of the literature. Despite its accepted significance, the authors found that the understanding of communication and agile systems is limited since only a few researches facilitates the communication process.	General context	Team distribution Team size Project domain
(Ochodek and Kopczyńska, 2018)	Examine and rate agile practices depending on how their relevance is seen by professionals for software development.	Worldwide context	Scope of Project Effective workspace (culture)
(Gemünden, Lehner and Kock, 2018)	Identify various elements that are crucial for project management and can further help in development of project-oriented organization.	General context	Organizational structures Decision-making Quality of Teamwork Team distribution
Salameh, 2014	Compare traditional project management and agile project management based on various disciplines, such as communication, change, scope, risk management, and leadership approach.	General context	Team distribution Project requirements Communication channels
(Alzoubi, Gill and AlAni, 2015)	Develop an agile strategy from the architectural body of knowledge for addressing the hitherto unexplored distributed agile development communication difficulties.	General context	Internal team conflicts Team size Communication approach Team distribution Organizational structure Project domain Quality of teamwork
(Liubchenko, 2016)	Analyze practices linked to communication and develop an agile project management framework.	General context	Team size Decision-making support Project scope
(Cunha, Moura and Vasconcellos, 2016)	Identify various factors that are involved in agile processes in software project management.	General context	Communication approaches Decision-making skills

In agile project management, it is clear that the communication strategy (which can be thought of as a communication style or type), decision-making support, team size, team distribution, and collaboration quality are all crucial considerations in the communication processes that may be prioritized. These factors were chosen because they have been shown to have a substantial effect on employee communication abilities and their connection to corporate results. In the sections that follow, we'll go deep into each of those elements.

2.5.5 Communication Approach

High-performance does depend on effective communication methods, techniques, and approaches. The flow of information, comprehension, and knowledge through an organization is what keeps it functioning (Hummel, Rosenkranz and Holten, 2013). A well-planned and all-encompassing communication approach is an essential ingredient for any effective transformation or enhancement to take place (Cunha, Moura and Vasconcellos, 2016). The communication plan determines the tenor and focus of the enhancement process. In order to be successful, a company's strategy must be tied to its overall mission (Ali et al., 2021). Having your organization's plans in sync usually results in better results. Positive motivation for progress may be influenced by well-planned means of communication, such as engaging in formal communication and information communication, which can allow leaders to be highly engaged with the employees (Bakar and Mustaffa, 2013). Maintaining a unified front and delivering regular updates on progress is only possible with open lines of communication. Development and innovation in a company may be greatly influenced by its communication methods, processes, and practices (Hummel, Rosenkranz and Holten, 2013). Furthermore, in regards to the utility sector, Mio (2010) has placed an emphasis on having effective communication to improve the quality of utility projects.

2.5.6 Decision-making Support

The decision-making process consists of the steps taken between being aware of an opportunity to respond and forming a determined decision on how to proceed (Liubchenko, 2016). In conventional project management, the project manager makes all of the decisions alone, whereas in agile project management, the project manager facilitates decision-making according to all group members (Ali et al., 2021). The authors also mention that for businesses to succeed, agile project management requires improved decision-making processes and allows for greater flexibility. Communication also helps to reduce project costs by facilitating abridged visual projections as part of decision-making from controlling requirements reduction and redundant documentation, which can further determine project success (Gal et al., 2018). Having an efficient means of conveying choices made by managers to all relevant parties is a major factor in the function that communication performs in facilitating decision-making, which also contributes to the efficiency of projects (Cunha, Moura and Vasconcellos, 2016). In terms of the utility sector, it primarily involves decision-makers in the public organizations and the consumers of the country, which requires the top management to be precise and provide high-quality decision-making to improve the success of projects (MacGillivray et al., 2006; Mio, 2010).

2.5.7 Team Size

The number of employees in a project team is referred to as the "team size" (Hummel, Rosenkranz and Holten, 2013). To be further precise, it is said that smaller agile teams find it simpler to communicate due to the increased complexity of team cooperation as team size increases (Conforto et al., 2014). The formation of tacit knowledge is aided by working in smaller groups because of the greater chance of spontaneous, face-to-face communication

(Conforto et al., 2014). Similar to the challenges of communicating in a dispersed setting, it seems that bigger development scenarios provide similar challenges for teams, requiring them to carefully select the communication approaches they use (Shastri, Hoda and Amor, 2016). Reportedly, increased communication is another benefit of using agile principles on large development initiatives, especially in the utility sector. Communication among different teams of varying sizes can contribute to the success of utility projects.

2.5.8 Team Distribution

Team distribution is the degree to which a project's employees are geographically dispersed or are in one location (Hummel, Rosenkranz and Holten, 2013). Researchers have shown that teams that are physically near to one another are more productive, such as in shared offices, are better able to collaborate using notepads, progress monitors, and other forms of arbitrary communication (Sutherland et al., 2007). But research has shown that shared, open offices may be disruptive to communication as well, making it difficult for workers to concentrate in a busy environment (Salameh, 2014). As a result, it is clear that the mode of team distribution may have an impact on the effectiveness of information sharing in agile project management for utility sector projects.

2.5.9 Teamwork Quality

When we talk about the quality of a team, we're just referring to how well they communicate with one (Hoegl and Gemuenden, 2001). Management-related activities like task planning, resource allocation, and management by goals may all be used to gauge team performance, as can measures of the task process, the task strategy, and the quality of the task activities done by individual team members (Hoegl and Gemuenden, 2001). Consistent and well-organized team

communication is crucial as it shows how much time is spent on communication and the amount of spontaneity there is in the communication (Lindsjørn et al., 2016). When compared to formal channels of communication, informal channels allow for the rapid exchange, discussion, and evaluation of ideas and achievements among group members. Also essential for effective communication would be that employees feel comfortable sharing knowledge honestly and openly with one another (Hackman, 1983). Closed-off interaction can prevent the information sharing that could be useful for completing shared projects. When working in an agile environment, team members are frequently co-located in tight quarters or an open floor plan, which enhances communication among them (Lindsjørn et al., 2016).

2.6 Project Success

The management of teams in organizations is given a lot of emphasis to ensure that members work together to tackle inbound responsibilities (Rodney, 2009). Project management techniques and processes are critical to project governance and supervision, and their effective implementation appears to be directly related to project success or failure (Ika, 2009). The increasing difficulty of business activities has led to a growth in the adoption of project management techniques, such as agile project management methods (Sandstø and RemeNess, 2021). Multiple studies have shown that the implementation and approach to project success are complex, with varying definitions depending on the specifics of the project and the stakeholders involved (Ika, 2009). Distinct stakeholders have various priorities and goals, so their evaluations of the project's performance will vary (Joslin and Müller, 2015). The following scenario exemplifies how stakeholders' goals can differ (Joslin and Müller, 2015). For instance, a project's accountant may declare it a success if actual expenses fall short of projections (Albert,

Balve and Spang, 2017). On the other hand, engineers evaluate projects based on the quality of their designs, whereas customers focus mostly on how well a product meets their needs (Albert, Balve and Spang, 2017).

The following table will concentrate on the factors that might define project success, since the phrase "project success" can be construed in a variety of ways depending on the context.

Table 2 Determinants that can determine the project success

Authors	**Focus of Research**	**Research Context**	**Determinants of Project Success**
(Agarwal and Rathod, 2006)	Determine the perspective of what builds a successful project.	Software industry	Cost Time Scope Customer (Stakeholder satisfaction)
(Koelmans, 2004)	Determine and evaluate the determinants of project success	South Africa	Budget Schedule (Time) Project Quality Scope
(Serrador and Turner, 2015)	Evaluate the project success factors, like budget, time, project scope, stakeholder success, team satisfaction, client satisfaction, end user satisfaction and their impact on project efficiency in general project management context.	Worldwide context	Budget Time Project Scope Stakeholder success Team satisfaction Client satisfaction End user satisfaction
(Turner and Zolin, 2012)	To help management of major projects anticipate how different stakeholders see the project's success and identify and evaluate a list of project success indicators.	Australia	Time Cost Performance (Quality) Client satisfaction

From the above table, it can be observed that the most common project success indicators are project cost, schedule, scope, quality, and stakeholder satisfaction, and each of these is discussed in the following sub-sections.

2.6.1 Project Cost

Project success is heavily influenced by a number of factors, one of which is the cost (Mizuno et al., 2001). It is critical for utility companies to set budgets, incur the least amount of losses, and perform accurate cost estimations to ensure project success (Rani et al., 2021). Unit cost, cost growth, and budget factor are also considered when determining the project's success (Ingle and Mahesh, 2022).

2.6.2 Project Schedule

Inaccurate time-related estimates are frequently cited as a primary cause of software project failure (Kumaraswamy and Chan, 1998). Verner, Evanco and Cerpa (2007) claimed that delays in starting or finishing a project were the most common reason for its failure. Estimated dates for project completion, completing on schedule according to cost projections, and similar factors have been highlighted as being insufficiently developed and assuming everything would go well, as the writers note (Gemino, Reich and Serrador, 2020). More initiatives have failed because of insufficient time constraints than for any other reason, according to (Verner, Evanco and Cerpa, 2007). To that end, the project's adherence to its timeline is a crucial factor.

2.6.3 Project Scope

It is the responsibility of project managers to define the basic parameters of a project at the initiation phase, such as its purpose, budget, and list of stakeholders (Hummel, Rosenkranz and

Holten, 2013). All of these steps go under the umbrella term "planning," and their common goal is to coordinate and share information so that the project's scope may be established, clarified, and defined (Alzoubi, Gill and AlAni, 2015). By selecting the set of capabilities and objectives for a project according to its value, such as additional profit or market dominance, agile project management places an emphasis on establishing a project's scope and requirements (Kumaraswamy and Chan, 1998), which will further determine the success of the project.

2.6.4 Project Quality

When it comes to the performance and success of utility projects, quality is one of the most important criteria (Mane and Patil, 2015). It is possible to define the quality and scope of a project as the degree to which its participants' objectives are met, also known as their level of satisfaction (Collins and Baccarini, 2004). The authors stress the importance of paying increased attention to quality. The level of customer satisfaction in the utility industry is directly correlated with the quality of the projects that are produced in that industry. Consequently, the application of a quality management framework is an essential instrument for efficiently and satisfactorily handling the aim of project success and stakeholder satisfaction (Collins and Baccarini, 2004).

2.6.5 Stakeholder Satisfaction

People and groups whose objectives may indeed be impacted by the project's progress or whose participation in the project is essential are considered stakeholders (Xiong et al., 2015). In general, the government, private sector suppliers, top-management executives of government organizations, and customers (public) are the major stakeholders in utility projects. A successful project must manage and fulfill the needs of different stakeholders. Because of the interconnected nature of participants and other stakeholders and the weight that their preferences

might have on the project's outcome, it's crucial that stakeholders' satisfaction be investigated as the project progresses, which can further indicate the project's success (Turner and Zolin, 2012).

2.7 Relationship between Communication Processes in Agile Project Management and Project Success

The success of every business or organization hinges on its ability to effectively communicate. Improvements in quality, profits, innovations, and market share are just some of the positive results that have been linked to better communication inside organizations, which further benefits the projects overall (Highsmith, 2009b). Many unfavorable effects, such as anxiety, workplace irritation, lack of conviction, lack of dedication, job-loss intention, and absenteeism, may be caused by inadequate communication in the workplace (Miller, 2019). One of the most important factors in the successful implementation of an organization's strategic goals is good communication. Strategic planning-level communication that is well-considered, proactive, and effective is crucial to the success of projects and organizations (Alzoubi and Gill, 2014). Communication is seen as an essential part of every successful business. The ever-evolving nature of modern business has necessitated the use of efficient channels of communication by a number of companies in order to meet their customers' demands while allocating fewer resources. There is no way to succeed in such an unstable workplace with a poor communication system. Therefore, companies in the utility sector should eliminate barriers to communication and create structured, collaborative, and transparent channels of dialogue among the project team members. According to structuration theory, better results in terms of overall project outcomes may be achieved by focusing on several areas of communication. The utility industry

in the UAE lacks an in-depth empirical evaluation of the impact of communication in agile process management on project success. This hypothesis was derived from a review of the aforementioned research and suggests a strong link between effective communication and the success of projects, which is presented as follows:

H1: There is a positive impact of communication processes in agile project management on the project success of the UAE's utility sector projects.

2.8 Conceptual Framework and Hypothesis Development

The primary study hypothesis was tested using the conceptual framework, which was created to examine the link between communication processes in agile project management and the projects' success in the UAE's utility sector. The research's conceptual framework in the following figure demonstrates a causal connection between communication processes in agile project management (independent variable) and the project success of the UAE's utility sector projects (dependent variable).

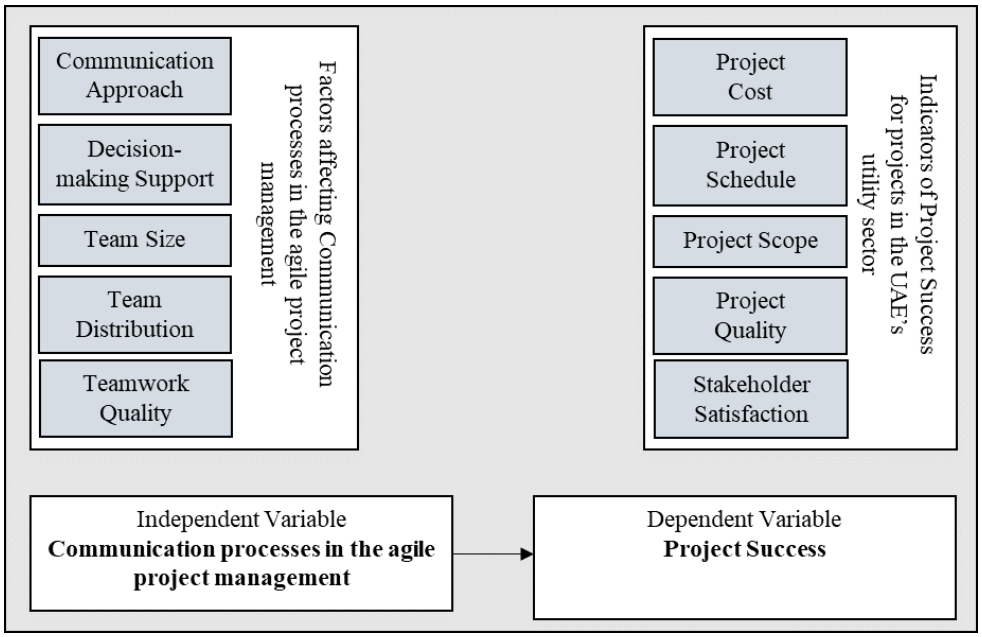

Figure 3: Conceptual Framework

Based on the above conceptual framework and a critical review of theory and literature, the following hypotheses will be tested in the current research.

H1: There is a positive impact of communication processes in agile project management on the project success of the UAE's utility sector projects.

2.9 Variables and Measurements

From the above discussion, it can be noted that various factors of the independent variable have an impact on the dependent variable, for which a scale needs to be adopted to prove the hypothesis. The variables and factors are derived from past literature, which needs to be analyzed and evaluated in the context of the UAE's utility sector. All the variables, their factors, and their measurement items, along with the references, are represented in the following table.

Table 3 Measurement items of Communication Process in Agile Project Management

Variable	Factors	Questionnaire Measurement items	References
Communication Processes in Agile Project Management	Communication Approach	We utilize our communication skills better in agile practice	Ali et al., (2021)
		We are always on the lookout for new channels of communication that will help us reimagine and reengineer our business to better meet the needs of our clientele.	Ali et al., (2021)
		Formal communication is accurate and active.	(Bakar and Mustaffa, 2013)
		The way in which my organization communicates makes me feel like I belong there.	(Bakar and Mustaffa, 2013)
		Leaders in this organization are open to ideas and they engage in informal communication with us.	(Bakar and Mustaffa, 2013)
	Decision making	With fluctuating market conditions and how we interact with our customers, we formulate and execute choices quickly and effectively.	Ali et al., (2021)
		Communication management frameworks provide substantial support in improving the productivity of workers and in making specific and appropriate decision-making choices	Gal et al. (2018)
		Decisions are taken inclusive of all stakeholders and all are engaged in the decision-making process.	(Liubchenko, 2016)
	Team Size	In general, small groups benefit most from using an informal communication style.	(Hummel, Rosenkranz and Holten, 2013)
		While working in larger groups, it's important to adopt a more formal mode of communication.	(Hummel, Rosenkranz and Holten, 2013)
		Team size is a very crucial element for communication in agile teams.	(Hummel, Rosenkranz and Holten, 2013)
	Team Distribution	Teams that share a physical space have fewer barriers to communication.	(Hummel, Rosenkranz and Holten, 2013)

		Several problems arise when trying to communicate effectively across a distributed workforce (For instance, Time differences).	(Hummel, Rosenkranz and Holten, 2013)
		Agile projects aid in overcoming such difficulties by requiring constant and open communication between team members.	(Hummel, Rosenkranz and Holten, 2013)
		In a decentralized system, it's important to use a variety of means of communication.	(Hummel, Rosenkranz and Holten, 2013)
	Teamwork Quality	The team communicates with one another often, informally, directly, and openly.	(Hoegl and Gemuenden, 2001)
		The team's individual efforts are properly organized and in harmony.	(Hoegl and Gemuenden, 2001)
		Each team member is given the opportunity to contribute their area of expertise.	(Hoegl and Gemuenden, 2001)
		Individuals in a team work together to achieve common goals.	(Hoegl and Gemuenden, 2001)
		Members put up their maximum effort to complete the team's objectives.	(Hoegl and Gemuenden, 2001)
		Each member of the team cares about the group's success and is invested in keeping it together.	(Hoegl and Gemuenden, 2001)

Table 4 Measurement items of project success

Variable	Factors	Questionnaire Measurement items	References
Project Success	Project Cost	Proper cost estimations are carried out of the projects.	(Mizuno et al., 2001)
		Skilled people are involved in carrying out cost estimations of projects.	(Mizuno et al., 2001)
		Requirements are followed and accurate cost reporting of projects is done.	(Mizuno et al., 2001)
		Unit cost of the project is maintained and achieved.	(Ingle and Mahesh, 2022)

		Cost growth of the project is consistent.	(Ingle and Mahesh, 2022)
	Project Schedule	The projects in the organizations have a pre-planned schedule.	(Verner, Evanco and Cerpa, 2007)
		The projects have all the details about the delivery dates.	(Verner, Evanco and Cerpa, 2007)
		The project schedules can be changed throughout the project.	(Verner, Evanco and Cerpa, 2007)
		The project schedules can be negotiated with the relevant stakeholders.	(Verner, Evanco and Cerpa, 2007)
		The estimates of project's schedule are accurate and satisfactory.	(Verner, Evanco and Cerpa, 2007)
		The project's schedule requirements get modified due to assignment of various stakeholders.	(Verner, Evanco and Cerpa, 2007)
		The project manager makes sure that there are no unrealistic durations of the project.	(Kumaraswamy and Chan, 1998)
	Project Scope	A lot of ventures need extra-documentation formality for the interest of knowledge retention.	(Hummel, Rosenkranz and Holten, 2013)
		Determining the scope and boundaries of a project early on is essential.	Alzoubi, Gill and AlAni, 2015
		Variations in the project are inevitable and are handled competently.	(Kumaraswamy and Chan, 1998)
		There is an effective mechanism flow of information among the team members to meet project requirements.	(Kumaraswamy and Chan, 1998)
	Project Quality	All the responsibilities and duties by stakeholders are followed while completing the project.	(Mane and Patil, 2015)
		Proper sampling and testing of projects and related aspects is done.	(Mane and Patil, 2015)
		Quality of workmanship is maintained throughout the project.	(Mane and Patil, 2015)
		Proper procedures are in place within the organization to maintain the quality of projects.	(Mane and Patil, 2015)

		Meetings are regularly held to ensure the quality of projects.	(Mane and Patil, 2015)
		Quality control is done accurately in terms of all projects.	(Mane and Patil, 2015)
	Stakeholder Satisfaction	The project is of an acceptable quality.	(Xiong et al., 2015)
		The project gets finished as per the cost and schedule-related estimates.	(Xiong et al., 2015)
		The project generates profit.	(Turner and Zolin, 2012)
		Quality criteria have been met with this project.	(Turner and Zolin, 2012)
		The whole project experience was positive for the crew.	(Turner and Zolin, 2012)
		The venture introduces business-related and profit generating skills for the overall company and its stakeholders.	(Xiong et al., 2015)

2.10 Chapter Summary

Here, we looked at the conceptual groundwork for a future study on the topic of how an agile approach to project management might improve communication procedures within the UAE utilities sector. In this chapter, we explored structuration theory as a lens through which to see the importance of effective communication in agile project management. A critique of agile project management was presented, which shed light on its communication approach, importance, and issues. Successful project completion was also highlighted in relation to the communication practices inherent in agile project management. This section presents a systematic analysis of the empirical literature on the effectiveness of the agile project management approach, highlighting the variables that have been endowed with connections to the topics covered in this research. Eventually, the study's hypothesis and the underlying

components and measurements were provided. The next chapter will explain why this specific technique was chosen for this investigation.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

In this Chapter we will lay out and discuss the methodology we'll use to investigate the given issue. The purpose of the study's approach was to aid researchers in overcoming the obstacles inherent to the research process and making effective use of the information and findings gleaned from a survey of the relevant literature. Research approaches and categories will be selected in light of predetermined goals regarding the prioritized issues. Also, we'll be covering the following topics under their respective subheadings: research methodology, research approach, study design, population, sample size, data collecting, and data analysis. Also, the outcomes of the investigation will be quite near to the selected measurement equipment.

3.2 Research Philosophy

According to Hürlimann (2019), research philosophy is defined as a school of thought produced by researchers that can be utilized in order to perceive that the study was executed in alignment with the demands and requirements of the phenomenon. It provides an agenda that directs a researcher on how research should be performed on the basis of real ideas and knowledge of nature.

Research in philosophy is offered in an array of categories that include interpretivism, positivism, pragmatism, and realism. The interpretivist philosophy is concerned with the comprehension and elucidation of incidents that initiate human desires and perceptions. Positivism is concerned with those occurrences that employ scientific methods in order to develop human ideas. While pragmatism is a paradigm that should emphasize the mix method,

on the other hand, the philosophy of realism depends on the independent ideas that emerge through reality inside the human mind (Starostin, 2021).

In the current study, a researcher will select the positivism research philosophy because the current research focuses on evaluating the empirical correlation between using agile methods and having a successful project in the UAE's utility sector. It acts as a primary guide for the study's statistical correlations among its chosen constructs.

3.3 Research Approach

According to Nzembayie et al. (2019), a research methodology may have included methods that might have been used in the study to broaden the theoretical postulations provided for data collection, analysis, and effective visualization. It does so by focusing on the real meaning of the issues raised in the study.

There are many different aspects to a research strategy, as outlined by Song (2018), who cites the inductive and deductive strategies as examples. In inductive research, the focus is on preexisting hypotheses and empirical evidence that are expected to guide the investigation. This method has found widespread use in qualitative studies (Iovino, and Tsitsianis, 2020). Whereas the scientific examination of the topic at hand usually corresponds to the deductive research technique. Quantitative studies often use this tact.

With keeping the above in mind, the researcher will choose the constituents of the deductive research approach for the current study because they fit with the quantitative research design. A researcher will study excerpts from previous research and analysis on communication in an agile project management approach and interpret existing theories associated with it. They then

screened the research hypotheses that had been generated. A researcher would deduce meaning from the phenomenon in order to reach rational reasoning conclusions about it.

3.4 Research Design

By tying together, the study's aims and findings, the research design provides a logical framework for drawing conclusions. The analytical design is a general method that includes numerous aspects of research in a logical and consistent manner (Doğan, and Adams, 2018). The sources of data acquisition, assessment, and explanation are the foundations of research design; hence, research strategies are important. Designs identify the data gathering and analysis techniques that fulfill the study objectives and goals, which run parallel to the researcher's interpretive purpose. Dannels (2018), on the other hand, differentiates between quantitative and qualitative research designs. In which the qualitative research design is concerned with responding to the phenomenon's research question. It is comprised of ethnographic, phenomenological, and case studies. While quantitative research designs are either experimental or descriptive, A descriptive analysis only associates the research variables, whereas an experimental analysis establishes variable causality. Part of this process involves referencing and critiquing the work of previous credible researchers and analysts, as well as putting current data and causal relationships through their paces.

In this light, the current study will use a quantitative research methodology that allows the researcher to verify secondary data on the agile project management strategy (Reyes, and Scott, 2021). Furthermore, an agile project management strategy bolstered by the researcher's contextual experiences will form the foundation of this study design, together with subjective figures and facts of communication processes.

Several design methodologies could be adopted in the research, but the choice of the most suitable and the implementation of that are important in the study. The study will provide outcomes and results that are in accordance with expectations due to the effective research design and implementation. The study's credibility will grow if a suitable research technique is used, which is why it's crucial to make an informed decision about this.

Research design or methodology is the merger of the objectives or aims of the research with the research methodologies (Abutabenjeh, and Jaradat, 2018). Those are being created through several decades of knowledge and experimentation in the research and study fields. It is very important to have knowledge about the research methodology so that the best methodology can be implemented. If the researcher or the person who is carrying out the study does not have knowledge about the research methods and sampling, which is the best method in which situation, and lastly, how to implement that one best-fit method in the personal research, all of this information is a must-have for the researcher, as it provides strength and a firm basis for the study.

3.5 Population

In the terminology of research, a population is an all-encompassing group that includes persons, items, organizations, events, animals, and so on. This inclusive group should have similar binding qualities or attributes, which are the primary concerns, as well as a research interest. The common qualities and characteristics of the population differentiate it from other persons, things, organizations, events, species, and so on. Occasionally, a population can be easily counted, which is referred to as a finite population (Crespo-Herrera et al., 2021). While an unlimited or unrecognized number of populations can be referred to as an infinite population.

Typically, the population’s descriptions and common binding traits of its members are similar. The population offered to be sampled, and from the obtained results, conclusions were drawn.

Two types of study participants are "target populations" and "available populations," as defined by Asiamah et al. (2017). When researchers talk about their "target population," they are referring to the whole group of products or people to whom they want to apply their results. Because of their unreliable nature, the target population is referred to as the theoretical population. Accessible population is a subset of target population and is also known as the study population since it is the group most likely to put research results into practice. To better understand how to improve project performance via communication in agile project management within the UAE utilities industry, this study will choose its population based on the specific goals of the research. To acquire reliable data, a researcher will focus on people who work in or are somehow associated with the UAE utilities business.

3.6 Sample Size

For this purpose, we will use the term "sample size" to refer to the total number of individual observations or samples measured under statistical conditions, such as a public opinion poll or scientific experiment. A sample size is a subset of a population that is chosen for a survey or experiment. It's an essential component of any empirical study whose goal is to establish assumptions and draw conclusions about a market segment based on a sample. It's a word used in research technique to calculate subject statistics (Martino et al., 2017). Even though it is a comparatively straightforward concept, the selection of sample size is a decisive factor in research. When dealing with a tiny sample size, it will yield erratic findings, while an excessively large sample size wastes a great deal of resources and time.

Due to the fact that this study is strictly quantitative, it is appropriate for the researcher to choose an appropriate sample size. Given that this research aims to draw inferences about the utilities sector in the UAE in order to draw population-level conclusions from a survey, its sample size should reflect this (Braun, and Clarke, 2021). While conducting a survey, a researcher vitally selects individuals who represent the broader population of the utility sector, despite the method used. The research sample size is 61 respondents from companies and individuals in the UAE's utility sector.

3.7 Time Horizon

There are two different study designs that are going to be implemented during the course of the time horizon. The first kind of research is called a cross-sectional study, while the second type is called a longitudinal study. Because of its cheap cost, rapidity, and simplicity of execution, cross-sectional research is useful for creating and assessing relationships, testing new measurements or processes, and providing the framework for additional investigations. When compared to other types of research, cross-sectional studies cover shorter periods of time. The longitudinal research design entails carrying out studies over the course of an extended period of time. The current research is a cross-sectional analysis of the effect that agile project management's communication methods had on the completion rates of utility-related projects in the United Arab Emirates over a very short time frame.

3.8 Data Collection

Data collection has traditionally been the most important and complicated aspect of research technique. The schematic, as constructed, explains how data for the assigned phenomena will

be acquired. Munoz et al. (2021) define data collection as the method or sources used to acquire data. The acquired data explains the dependability of the complete process under development. In most research contexts, primary and secondary sources are employed to obtain data. Meaningful information and data acquired throughout time may be driven into valuable insights for current and future research and activities from various sources.

For this investigation, the researcher plans to make use of both primary and secondary data. The utility firms' upper management and utility industry professionals in the UAE will fill out a survey questionnaire to provide the bulk of the study's information. Complete data on the subject are collected through survey and questionnaire for use in the study's examination of the project from several angles. This questionnaire gives us a thorough Via the study of internet resources like Academia, Google Scholar, Sci-Hub, and so on will be used to collect secondary source data from previously published publications and research works (Waring, 2021). In contrast, we'll be using the data gathering tool to analyze contextual and theoretical connections and publications to learn how and why an agile project management method improves communication processes in the UAE's utilities industry.

3.9 Data Analysis

The activity of presenting a systematical evaluation and exemplifying data in the context of summarizing and weighing it up using statistical or systematical approaches is known as data analysis. It is the final and most crucial phase in the research process. The primary data is mostly based on statistics and is gathered through various tools, software, and tests. The findings of these are analyzed in order to get trustworthy conclusions on precession. (Zhang et al., 2017). The tools of data analysis should be designed and chosen strategically, as they direct the entire

research. Furthermore, it aids in crafting a transparent understanding of the research transformation and paradigm through the accumulated findings and constructive interpretations, which can wrap up the considerable and valuable information. The research studies employ data analysis to pull out the parallel data between what had been examined earlier and what has been summarized currently.

Researchers use a variety of approaches and employ a wide range of data analysis methods, each optimal in different contexts. Viewpoint analysis, diagnostic analysis, and predictive analysis are the three most common types (Čereška et al., 2018). As a result, the diagnostic analysis provided by the instruments will be used in the planned investigation. The purpose of this research is to examine how well the utilities industry in the United Arab Emirates (UAE) is using the communication procedures inherent to agile project management.

3.10 Measurement Instrument

A measuring instrument is a tool used to collect, acquire, and evaluate data in connection to research topics, objectives, and questions. Typically, the measuring instrument is chosen by the researcher and is used in conjunction with the assigned phenomenon's study approach (Balestrieri et al., 2021). There are several methods by which a researcher can seize the data from the targeted respondents for the assigned research work. The term "data" includes all kinds of information that researchers acquire from the study participants.

Researchers can use measurement tools from a variety of categories. The type of measuring instrument used is determined by the nature of the investigation. It comprises interviews, observations, indices, scales, surveys, and so on (McCallaghan, and Heyns, 2021).

Consequently, for the assigned study purpose, a researcher will go with the survey questionnaire method designed on the Likert scale. The questionnaire will propose the variables undertaken in the conceptual framework of the research. Basically, it seeks out the individual's opinions within a decided sample or population on the research problems and issues directly associated with the objectives of the assigned research. The questionnaire will comprise both free-form and structured questions meant to gauge how well the agile project management strategy in the UAE utilities industry is communicating with its customers.

3.11 Reliability and Validity

The outcomes of several researchers using the same data are called reliability. To ensure data reliability, results must be transparent. This study's data dependability was confirmed using Cronbach's alpha. A measurement's accuracy determines its validity. Analyzing the device's data verifies its accuracy. Triangulation, member checking, researcher reflexivity, and peer debriefing are methods for study verification. The researcher focused on assessing the study's scales using triangulation. Member verification by subject matter experts ensured the study's validity. The supervisor also evaluated and verified the data.

3.12 Ethical Considerations

The primary ethical concern is obtaining consent from research participants after full disclosure of all relevant information. Every question was explained to participants, as well as how the data will be used and the range of possible outcomes. On the informed consent form that is part of the survey form, participants read the information related to the research and, if they agree, are directed to the next page, which means they are providing consent for participating in the

research (refer to the appendix). By signing this permission form, participants understand that they have the freedom to withdraw from the research at any time and have access to their own data. By going through the informed consent procedure, both the researcher and the subjects established their mutual awareness of the study's aims and responsibilities. In all cases, the confidentiality of the participants was maintained. The participants were informed that at any moment they might ask to examine their dataset and the material collected throughout the study. Participants were instructed to contact the researcher using the details included on the permission form if they had any questions or concerns about the study. The researcher's laptop had a password-protected folder where all participant data was kept.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

In order to quantify the value of communication in agile project management, a statistical study was performed. The results of many statistical tests are shown in this section. They include analyses of demographics, normalcy, correlation, and regression. Responses were coded according to the coding technique and converted into numerical values before analysis was performed. Moreover, outliers and missing values were checked for in the obtained data, and both were determined to be absent. The following parts include the results, an interpretation of the results, and a discussion.

4.2 Demographic Characteristics

Based on the demographics of the respondents in the study, the generalizability of the study is determined.

The study's generalizability is established by examining the demographics of the participants.

70.5% (n = 43, N = 61) of the participants were men, and 29.5% (n = 18, N = 61) were women, as determined by the analysis. In addition, 23% (n = 14, N = 61) of most responses fell within the 26 and 35 years, 45.9% (n = 28, N = 61) were between the ages of 36 and 45 years, 23% (n = 14, N = 61) were between the ages of 46 and 55 years, and 8.2 % (n = 5, N = 61) were old with age more than 55 years. In addition, 14.8% (n = 9, N = 61) of responders' years of experience ranged from 1 to 5, 19.7% (n = 12, N = 61) had between 6 and 10 years of experience, 18% (n = 11, N = 61) had between 11 and 15 years of experience, and 47.5% (n = 29, N = 61) had above 15 years of experience.

Based on individual-based demographics, it can be observed that most of the participants (employees of UAE's utility sector) were males, which also indicates that the sector is highly male-dominated. Also, most of the participants were middle-aged individuals because they belonged to 30s and 40s. In terms of work experience, the individuals were highly experienced because most of the participants had an experience of more than 10 years and 15 years.

In terms of analyzing organization-based demographic characteristics related to individuals who responded to this study, organizational size, organizational age, and companies practicing agile project management were analyzed. Based on these demographics, it was observed that 24.6% (n = 15, N = 61) of respondents were from organizations that have 100 to 500 employees, 41% (n = 25, N = 61) of respondents were from organizations that have 501 to 1000 employees, 16.4% (n = 10, N = 61) of respondents were from organizations with less than 100 employees, and 18% (n = 11, N = 61) of respondents were from organizations with more than 10000 employees. In terms of organizational age, 9.8% (n = 6, N = 61) of respondents were from organizations that are less than 5 years old, 23% (n = 14, N = 61) of respondents were from organizations with their age between 5 and 15 years, 16.4 % (n = 10, N = 61) of respondents were from organizations with their age between 16 and 25 years, and 50.8% (n = 31, N = 61) of respondents were from organizations with age more than 25 years. Also, regarding the companies practicing agile project management, 100% of respondents said yes to the same.

With the organizational size demographics, it was observed that most of the participants were from organizations with 501 and 10000 employees, which are primarily medium enterprises, which indicates that the UAE's utility sector has employees with around 500 employees. Furthermore, most participants were affiliated with organizations that were at least 25 years old, which means the employees were from organizations that were quite aware of how changes had

occurred over so many years. Also, when employees were asked if they practiced agile project management, all the participants mentioned that they did, which indicates that organizations are adaptive in terms of occurring changes, engage in effective planning, and focus on enhancing organizational outcomes.

Table 5 Demographics

Distribution	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Female	18	29.5	29.5	29.5
Male	43	70.5	70.5	100.0
Age				
26 to 35 years	14	23.0	23.0	23.0
36 to 45 years	28	45.9	45.9	68.9
46 to 55 years	14	23.0	23.0	91.8
More than 55 years	5	8.2	8.2	100.0
Work Experience				
1 to 5 years	9	14.8	14.8	14.8
11 to 15 years	11	18.0	18.0	32.8
6 to 10 years	12	19.7	19.7	52.5
More than 15 years	29	47.5	47.5	100.0
Organizational Size				
100 to 500 employees	15	24.6	24.6	24.6
501 to 10000 employees	25	41.0	41.0	65.6
Less than 100 employees	10	16.4	16.4	82.0

More than 10000 employees	11	18.0	18.0	100.0
Organizational Age				
16 to 25 years	10	16.4	16.4	16.4
5 to 15 years	14	23.0	23.0	39.3
Less than 5 years old	6	9.8	9.8	49.2
More than 25 years	31	50.8	50.8	100.0
Practice of agile project management				
No	0	0	0	0
Yes	61	100.0	100.0	100.0

4.3 Reliability Analysis

The questionnaire's reliability was examined by calculating each dimension's internal consistency using the questionnaire's scales. Cronbach's alpha was computed for each item, and it can be seen from the table that the values of Cronbach's alpha for all dimensions used in the study are above the threshold value of 0.6, indicating that there was no problem with the reliability of data with the entire measurement instrument used in the current study.

Table 6 Reliability Analysis

Dimension	Cronbach’s Alpha
Communication approach	0.762
Decision-making support	0.768
Team size	0.686
Team distribution	0.74
Teamwork quality	0.837

Project cost	0.817
Project schedule	0.74
Project scope	0.717
Project quality	0.907
Stakeholder satisfaction	0.930

4.4 Normality Analysis

Non-normal distribution might disrupt correlation and regression analysis, therefore knowing whether the data gathered in the research follows a normal distribution is crucial. This is a crucial condition that must be satisfied before any linear regression can be performed. Skewness and kurtosis values may be calculated to check for non-normality in the data. According to studies, the ideal ranges for skewness and kurtosis are -3 to +3 and -10 to +10, respectively. This led to a normalcy test, the results of which are shown in the table below.

Table 7 Normality Analysis

Items (Variable)	**Skewness**	**Kurtosis**
	Statistic	Statistic
CA1	-0.917	1.057
CA2	-0.829	0.517
CA3	-0.403	0.992
CA4	-0.901	1.255
CA5	-0.791	0.675
DM1	-0.594	0.964
DM2	-0.585	0.823

DM3	-0.785	0.432
TS1	-0.998	1.061
TS2	-0.566	1.610
TS3	0.078	-0.110
TD1	0.169	-1.299
TD2	0.009	-0.013
TD3	-1.369	4.630
TD4	0.299	0.223
TQ1	-0.751	4.097
TQ2	-0.948	3.384
TQ3	-1.082	1.703
TQ4	-1.487	3.832
TQ5	-0.668	3.593
TQ6	-0.885	1.801
PC1	-1.867	5.345
PC2	-1.241	5.797
PC3	-0.574	4.390
PC4	-0.668	3.593
PC5	-1.403	3.385
PSC1	-0.740	7.655
PSC2	-1.598	4.442
PSC3	-1.139	2.409
PSC4	-1.076	4.427
PSC5	-2.218	7.797
PSC6	-0.147	-1.331
PSC7	-1.668	6.689

PSP1	1.026	0.892
PSP2	0.752	-1.484
PSP3	-1.478	2.929
PSP4	-1.063	4.797
PQ1	-1.939	8.630
PQ2	-0.931	3.146
PQ3	-0.948	3.384
PQ4	-0.503	1.868
PQ5	-0.951	3.228
PQ6	-0.819	2.334
SS1	-1.076	4.427
SS2	-1.132	1.871
SS3	-1.725	7.147
SS4	-1.016	4.023
SS5	-1.870	6.896
SS6	-0.636	3.810

The accompanying table displays the results of a normality test, revealing that all of the items had skewness values between -3 and +3, and kurtosis values between -10 and +10, indicating that the data was regularly distributed. As a result, it may be put to use for linear regression and correlation analysis as well.

4.5 Correlation Analysis

Whether or whether the study's variables are correlated is established by a correlation analysis. It may also be used to put a numerical value on the level of association between the various

independent variables. Whether a correlation is positive or negative may be calculated with the help of the Pearson correlation coefficient. A positive correlation indicates that there is an increase in value between the two variables when one increases. As one variable's value increases, the other variable's value decreases (and vice versa) if the correlation is negative. If the Pearson correlation coefficient is between 0.5 and +1, the two variables have a strong positive link, a moderate negative correlation if the value is between -0.5 and -1, and no correlation if the value is 0.

Table 8 Correlation Analysis

Correlations			
		Communication in Agile Project Management	Project Success
Communication in Agile Project Management	Pearson Correlation	1	.647**
	Sig. (2-tailed)		0.000
	N	61	61
Project Success	Pearson Correlation	.647**	1
	Sig. (2-tailed)	0.000	
	N	61	61
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation study showed a Pearson correlation value of 0.647 between effective communication in agile project management and the successful outcome of the project.

Also, we determined whether or not there was a relationship between the two variables by calculating the correlation between each independent variable factor and each dependent variable component.

Table 9 Correlation among Factors

Correlations											
		Communication Approach	Decision-making support	Team Size	Team Distribution	Teamwork Quality	Project cost	Project schedule	Project scope	Project quality	Stakeholder Satisfaction
Communication Approach	Pearson Correlation	1	.705**	.236	.363**	.584**	.280*	.377**	.545**	.392**	.403**
	Sig. (2-tailed)		.000	.067	.004	.000	.029	.003	.000	.002	.001
	N	61	61	61	61	61	61	61	61	61	61
Decision-making support	Pearson Correlation	.705**	1	.497**	.322*	.564**	.323*	.330**	.410**	.484**	.548**
	Sig. (2-tailed)	.000		.000	.011	.000	.011	.010	.001	.000	.000
	N	61	61	61	61	61	61	61	61	61	61
Team Size	Pearson Correlation	.236	.497**	1	.339**	.284*	.288*	.201	.199	.331**	.457**
	Sig. (2-tailed)	.067	.000		.008	.027	.024	.120	.125	.009	.000
	N	61	61	61	61	61	61	61	61	61	61
Team Distribution	Pearson Correlation	.363**	.322*	.339**	1	.473**	.421**	.541**	.528**	.334**	.301*
	Sig. (2-tailed)	.004	.011	.008		.000	.001	.000	.000	.009	.018
	N	61	61	61	61	61	61	61	61	61	61
Teamwork Quality	Pearson Correlation	.584**	.564**	.284*	.473**	1	.497**	.535**	.597**	.498**	.466**
	Sig. (2-tailed)	.000	.000	.027	.000		.000	.000	.000	.000	.000
	N	61	61	61	61	61	61	61	61	61	61

Project cost	Pearson Correlation	.280*	.323*	.288*	.421**	.497**	1	.739**	.571**	.681**	.578**
	Sig. (2-tailed)	.029	.011	.024	.001	.000		.000	.000	.000	.000
	N	61	61	61	61	61	61	61	61	61	61
Project schedule	Pearson Correlation	.377**	.330**	.201	.541**	.535**	.739**	1	.744**	.626**	.546**
	Sig. (2-tailed)	.003	.010	.120	.000	.000	.000		.000	.000	.000
	N	61	61	61	61	61	61	61	61	61	61
Project scope	Pearson Correlation	.545**	.410**	.199	.528**	.597**	.571**	.744**	1	.635**	.583**
	Sig. (2-tailed)	.000	.001	.125	.000	.000	.000	.000		.000	.000
	N	61	61	61	61	61	61	61	61	61	61
Project quality	Pearson Correlation	.392**	.484**	.331**	.334**	.498**	.681**	.626**	.635**	1	.875**
	Sig. (2-tailed)	.002	.000	.009	.009	.000	.000	.000	.000		.000
	N	61	61	61	61	61	61	61	61	61	61
Stakeholder Satisfaction	Pearson Correlation	.403**	.548**	.457**	.301*	.466**	.578**	.546**	.583**	.875**	1
	Sig. (2-tailed)	.001	.000	.000	.018	.000	.000	.000	.000	.000	
	N	61	61	61	61	61	61	61	61	61	61
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

Except for the correlations between team size and project scope and team size and project timeline, the preceding table shows a substantial and positive link between all the components. For instance, there is a positive correlation between communicated approach and the project's cost ($r=0.28$, $p<0.05$), the project's schedule ($r=0.377$, $p<0.05$), the project's scope ($r=0.545$, $p<0.05$), the project's quality ($r=0.392$, $p<0.05$), and stakeholder satisfaction ($r=0.403$,

$p<0.05$). Similarly, decision-making support was positively and significantly related to project success characteristics such cost ($r=0.323$, $p<0.05$), schedule ($r=0.33$, $p<0.05$), scope ($r=0.410$, $p<0.05$), quality ($r=0.484$, $p<0.05$), and stakeholder satisfaction ($r=0.548$, $p<0.05$). Team distribution, another aspect of communication in agile project management, was found to have a positive and significant relationship with factors of project success, including project cost ($r=0.421$, $p<0.05$), schedule ($r=0.541$, $p<0.05$), scope ($r=0.528$, $p<0.05$), quality ($r=0.334$, $p<0.05$), and stakeholder satisfaction ($r=0.301$, $p<0.05$). Success indicators such project cost ($r=0.497$, $p<0.05$), schedule ($r=0.535$, $p<0.05$), scope ($r=0.597$, $p<0.05$), quality ($r=0.498$, $p<0.05$), and stakeholder satisfaction ($r=0.466$, $p<0.05$) were also shown to have a positive and significant association with teamwork quality. Stakeholder satisfaction ($r=0.457$, $p<0.05$), project quality ($r=0.331$, $p<0.05$), and project cost ($r=0.288$, $p<0.05$) are the only three success variables identified to correlate with team size, one of the communication method components in agile project management.

4.6 Regression Analysis

Linear regression analysis aims to estimate the dependent variable's value relative to the independent variable. Regression analysis method reveals out how an independent variable influences a dependent one. The following tables depict the Model summary, coefficients, and ANOVA tables to assess how agile project management communication affects project success.

Table 10 Model Summary

Model Summaryb									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.647a	.419	.409	9.00042	.419	42.573	1	59	.000
a. Predictors: (Constant), Communication in Agile Project Management									
b. Dependent Variable: Project Success									

According to the above table, which is the Model summary, it can be observed that 41.9% of the variance in project success is due to communication that occurs in agile project management at F (1, 59) = 42.573, $p < 0.01$. The p value is significant, which indicates that communication has a significant and positive impact on project success.

The accompanying table, which is the Model summary, shows that communication is responsible for 41.9% of the variance in project success when using agile project management (F (1, 59) = 42.573, $p < 0.01$). The p value is statistically significant, suggesting that effective communication significantly contributes to project success.

Table 11 ANOVA Statistics

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3448.749	1	3448.749	42.573	.000b
	Residual	4779.448	59	81.008		
	Total	8228.197	60			
a. Dependent Variable: Project Success						
b. Predictors: (Constant), Communication in Agile Project Management						

The next table also shows that communication is statistically significant and correlated favorably with venture success (Beta = 0.647, $p < 0.01$).

Table 12 Coefficients

Coefficientsa								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	36.980	11.573		3.195	.002	13.823	60.137
	Communication in Agile Project Management	.914	.140	.647	6.525	.000	.634	1.194
a. Dependent Variable: Project Success								

Linear regression analysis suggests that effective communication in agile project management contributes to successful outcomes. As part of agile project management, effective communication occurs when the project team pays attention to details like progress updates and stakeholder goals. Effective communication also provides the project team or stakeholders with a comprehensive grasp of the project's concerns and challenges, which makes them prepared for agile projects in the utility sector. Without a thorough feedback process, it is doubtful that a project's obstacles and concerns would be identified, which might lead to unforeseen and difficult-to-handle consequences. Hence, communication is highly necessary to determine project success.

4.7 Discussion

It was hypothesized in the current study that communication in agile project management positively impacts the project success of the UAE's utility sector projects. Based on the results of correlation and regression analysis, the hypothesis was proven to be true.

The present research tested the hypothesis that effective communication in agile project management would increase the likelihood that utility sector projects in the United Arab Emirates would be completed successfully. The hypothesis was validated by the outcomes of a series of statistical tests measuring correlation and regression.

Findings from the present research are consistent with Miller (2019), Alzoubi and Gill (2014), and Lindsjørn et al. (2016), among others, who have also indicated that communication must be very effective to benefit the projects in the long run. Communication allows the stakeholders working on projects in the UAE's utility sector to engage in effectively exchanging information to determine the project's success based on factors like time, cost, quality, scope, and stakeholder satisfaction. It was also identified that communication in agile project management could be successfully determined based on its sub-constructs, such as communication approach, decision-making support, team size, team distribution, and teamwork quality. In many cases, the in-depth conversation that takes place throughout the process of problem resolution or planning helps improve project quality, cost, and schedule.

The interrelationships between the independent variables and the factors they influence are also explored. For instance, the project's communication strategy is related to the project's other success elements such as its cost, schedule, scope, and quality. A project's budget may be impacted by the communication approach utilized. When everyone participating in a project has

shared knowledge of the project's goals, timetable, budget, and duties, misunderstandings and miscommunications are less likely to arise, saving time and money (Ali et al., 2021). For instance, the project's cost, quality, and scope may all suffer if the chosen method of communication is disorganized or lacking clear rules, leading to misunderstandings between team members and stakeholders that necessitate redoing work or allocating more resources to fix errors. To keep the project on track and below budget, however, it might be helpful to use a well-structured communication method with established expectations and standards for communication to ensure that all parties involved are working toward the same goals (Mio, 2010). Stakeholder satisfaction is also impacted by the communication approach since it may enlighten, establish trust, resolve problems, and maintain open channels of communication. By excluding stakeholders from the process and ignoring their requirements, a poor communication approach may lead to unhappiness.

Accurate cost estimates and ongoing management of those estimates are essential to keeping a project within its budget, and effective decision-making support may aid in doing both. In addition, it might help maintain the project's forward momentum by revealing and fixing any problems that could cause delays in the timeline (Gemino, Reich and Serrador, 2020). Further, it may help guarantee that the most important aspects of the project are prioritized and finished on schedule. In addition, good decision-making support can prevent the project's scope from expanding beyond what was originally planned by ensuring that the project's goals and requirements are well-defined and accepted by all parties involved. This helps prevent costly and time-consuming issues like scope reduction. Implementing quality control methods and making educated judgments regarding trade-offs between cost, time, and quality may help guarantee the project is completed at the desired quality level, and good decision-making

support can contribute to this. Last but not least, decision-making support may aid in identifying and managing the requirements and expectations of stakeholders throughout the project (Cunha, Moura and Vasconcellos, 2016). To top it all off, it may aid in the detection and resolution of any problems or disputes that may emerge, resulting in happier stakeholders overall.

The distribution of the team is yet another key aspect of communication in agile project management (Salameh, 2014). The project's outcome and the factors that contribute to it might be significantly altered by this factor. This means that the cost of a project may fluctuate depending on how team members are divided up. Costs for transportation, communication, and tools might rise if team members are spread out over a wide area. Co-location, on the other hand, may boost productivity, which in turn can cut down on the project's final price tag. If members of the team are in different time zones or locations, it can be more difficult to coordinate their efforts and communicate, which can lead to delays (Hummel, Rosenkranz and Holten, 2013). On the other hand, if they are co-located, it can reduce the amount of time needed for communication and decision-making, which could potentially speed up the project schedule. If members of the team are not situated in the same physical location, it might be more difficult to cooperate and make choices that are in alignment with the project objectives, which can lead to scope reduction in the project. The allocation of work among team members may have a significant effect on the project's quality. It may be more difficult to create consistent standards and ensure that all team members are working toward the same quality goals if team members are geographically separated. On the other hand, having team members co-located may make it simpler to give assistance, training, and feedback, which helps to guarantee that quality standards are being followed (Hummel, Rosenkranz and Holten, 2013). Likewise, ensuring that they are constantly informed, involved, and satisfied with the project's progress. Contrary to

this, having stakeholders physically based in the same area as the team makes it much simpler to keep them informed and engaged in the project, which may lead to an increase in the level of satisfaction they feel with the final product.

Quality teamwork may result in cost savings by encouraging effective resource usage, decreasing rework, and making it simpler to handle problems that might influence the budget, whereas bad teamwork can result in higher expenses due to misunderstandings, a lack of responsibility, and delays (Lindsjørn et al., 2016). Like strong communication and cooperation, effective teamwork may help get things done on schedule, whereas poor teamwork can cause setbacks like miscommunication, disorganization, and strife. Poor teamwork quality, in which members of the team work in isolation or communicate poorly, can lead to misunderstandings about what is included in the project, whereas good teamwork quality can help ensure that the project stays within scope through encouraging good communication and teamwork (Hoegl and Gemuenden, 2001). By encouraging team members to work together and share their expertise, as well as decreasing the amount of time spent on rework due to miscommunication or misunderstanding, effective teamwork may enhance the overall quality of a project. By encouraging open lines of communication and fostering cooperation with stakeholders, good teamwork may help guarantee that everyone involved is happy with the project's conclusion.

The size of the project team's communication network is correlated with the project's overall cost, quality, and stakeholder satisfaction, but not with its timeframe or scope (Conforto et al., 2014). According to the literature, bigger teams may contribute to greater project costs owing to higher wages, benefits, and other expenditures associated with a larger workforce, but a larger team can also result in better efficiency and productivity, which can balance the extra costs (Shastri, Hoda and Amor, 2016). As more resources are available to examine and test the

deliverables and address the demands and concerns of various stakeholders, a bigger team may result in improved quality control, which can lead to higher levels of satisfaction. Stakeholder satisfaction might suffer, though, if a larger team has difficulties with dispute resolution and communication. In this analysis, no correlation was found between team size and either project duration or project scope.

As noted in the literature, such as Shastri, Hoda and Amor (2016), the link between team size and each of the project success characteristics is complicated and relies on many other variables, such as the team's structure, communication, and degree of cooperation, as well as the needs of the project itself. Therefore, it is critical to examine the unique aspects of each project and choose the right-sized team appropriately.

Communication increases the value of in-person engagement and also enhances the implementation of technology, which can further determine the success of the project (AltSimmons, 2015). Due to the global nature of the utility sector, it is essential for stakeholders in different locations to be able to communicate and connect with one another for productive outcomes; technological advancements like the widespread use of virtual meetings are one way in which technology can improve the effectiveness of agile project management as compared to more traditional approaches. Communication also increases project success because it helps in managing teams, establishing positive connections with the clients, saving costs, managing risks, and adhering to a predetermined project budget (Aslam, and Ijaz, 2018). Moreover, the communication involved in agile project management sets it apart from conventional project management since it enables workers to perform more effectively in self-directed teams. To put it another way, in order for a project to be agile, it needs to be organized in a way that allows for proactive and rapid adaptation to change, taking advantage of chances to improve value

outputs. One consistent characteristic of agile project management is developing and implementing multi-skilled, decentralized teams (Alzoubi and Gill, 2014). With an appropriate communication approach, team quality, size, and distribution, the outcomes of the project can increase. Additionally, self-management teams established as part of agile project management depend on knowledge and communication to build new solutions, the success of which ultimately determines the project's success. Agile project management uses a more collaborative, flattened organizational structure, and it allows the company's stakeholders to acknowledge and adopt changes that can change the course of the project by enhancing and altering its scope (Alzoubi and Gill, 2014). Furthermore, the enterprises in the UAE's utilities industry may accomplish the project within the available budget and time if they use agile project management, which has been acknowledged as one of the most essential components that define the best result for the clients. Due to the importance of learning in iteratively producing the maximum value possible for a project, APM also puts a major focus on client interaction throughout the whole project.

Even more, previous studies have identified several difficulties connected with utility sector projects that might be mitigated by using agile project management practices. For example, agile project management and its related communication significantly benefit project success because it can encourage firms in the UAE's utility sector to be very proactive and adopt new and innovative changes that can create significant value for the firm. In terms of communication, it is an essential component in the accomplishment and execution of the project, and appropriate consideration is accorded to their point of view as well. For example, Hummel, Rosenkranz, and Holten (2013) cast doubt on the idea that good communication is crucial to the completion of any given project. While this proved correct, it also highlighted the need of transparent and

trustworthy communication in order to get the best possible results for the project. Communication has been strongly linked to various aspects of successful project completion, such as the impact on stakeholders, the fulfillment of specific specifications, the project's effectiveness, and commercial success and benefits. This is done in a way that reflects the varied nature of successfully completing a project.

When one considers the reality that individuals in an organization need to be confident to adopt a project before it may go ahead, it is hard to dispute the relevance of communication (Salameh, 2014). In addition to this, communication has the potential to influence both dedication and fulfillment (Hartwick and Barki, 2001). Furthermore, Alzoubi, Gill and AlAni (2015) discovered that communication adequacy is one of the predictors of users' desire to employ the platform since it establishes a common agreement among stakeholders. Cunha, Moura, and Vasconcellos (2016) concluded that effective communication was critical to the timely and profitable implementation of a project. The collaboration between departments may be completed more quickly and easily as a result. Both Bakar and Mustaffa (2013) and Liubchenko (2016) stressed the importance of communication as a driving force behind the success of the company's innovative projects. The benefits and drawbacks of the installed systems are laid bare for everyone to see. From the preceding discussion and conclusions, it is clear that communication is crucial to the success of projects in the UAE's energy industry when using agile project management.

4.8 Chapter Summary

Descriptive statistics based on the aforementioned study showed that effective communication is significant for project success. Correlation research reveals a favorable and substantial

relationship between open lines of communication and the final product quality in agile project management. The data also exhibits no abnormalities in terms of skewness and kurtosis, as measured by the normalcy test. Moreover, a regression study showed that in an agile project management setting, the quality of communication significantly affects the outcome.

Discussion is conducted in accordance with the study's conclusions via comparison and contrast with other research found in the literature. The following part discusses what this research has learned and how it may be used in the real world. In addition, the study's shortcomings and future suggestions are discussed in light of the results.

CHAPTER 5: CONCLUSION

5.1 Summary

The aim of the current research was to determine the effectiveness of communication processes in an agile project management approach and their impact on project success in the UAE's utility sector projects. Four objectives were tested in the current study, which were: to understand the importance of communication in agile project management; to investigate the types of communication challenges that the UAE utility sector faces with regard to agile project management; to evaluate the impact of communication in agile project management on the project success of the UAE's utility sector projects; and to find an agile management style of communication that will be helpful to the leaders of the UAE's utility sector.

The first objective was achieved by doing a critical literature review, and researchers such as Kamaruddin, Arshad and Mohamed (2012), AltSimmons (2015), and Conforto and Amaral (2010) emphasized the importance of communication in agile project management. For instance, AltSimmons (2015) mentioned that communication allows for increased collaboration among the stakeholders, helps them in effective decision-making, gives more clarity about respective roles and responsibilities, and establishes a positive work environment, especially when handling projects. Having open lines of communication between team members is an excellent way to boost morale and productivity in the workplace. To sum up, effective communication is essential to the success of any agile project management effort (Arshad and Mohamed, 2012).

The study's secondary objective was to learn more about the barriers to open communication in the UAE utilities industry with regards to agile project management, which was also achieved based on a critical review, and it was identified that a poor working environment, a lack of

procedures, project complexity, team size, team distribution, and the quality of teamwork could all create communication-related challenges. In some of the results presented in Section 4.3, it was identified in one of the items (TD1) that participants expressed concerns about poor communication in teams that are not co-located.

By using hypotheses testing based on linear regression analysis, the third goal of this study was accomplished; this time, the effect of communication in agile project management was assessed on the completion of projects in the UAE's utilities sector. The findings reported in Section 4.7 show that effective communication is linked to more successful agile projects. When it comes to agile project management, good communication is more crucial than ever. Effective communication helps guarantee that everyone working on a project has the same understanding of their roles and duties and is aware of any changes that may affect the project's progress or timeline. However, by keeping the lines of communication open with the customer throughout the development process, Agile teams may be better able to meet the ever-changing expectations of their clientele. When everyone in the team is on the same page and sharing information effectively, they are more likely to work together effectively, which in turn improves the odds that the project will be completed on time, under budget, and to the required quality standards. The level of trust between the team and the stakeholders is another crucial aspect that may determine the success or failure of a project. When team members think their ideas and suggestions are being taken into account, they are more likely to care about the project and be motivated to participate. Finally, the degree of communication between team members is crucial to the success of a project because it encourages collaboration, builds trust, and ensures that everyone is working toward the same goals.

The fourth objective was to find an agile management style of communication that would be

helpful to the leaders of the UAE's utility sector, which was achieved through statistical analysis. Based on the analysis, it was found that the communication approach, decision-making style, and focus on team-related aspects can really help leaders in the UAE's utility sector enhance project success. Communication strategy, decision-making support, team size, team distribution, and collaboration quality were shown to positively and significantly affect project outcomes including cost, scope, quality, schedule, and stakeholder satisfaction, as detailed in Section 4.6.

To sum up, the study's goals reveal that the success of agile project management in the UAE's utilities industry depends critically on the efficacy of communication mechanisms.

5.2 Research Limitations and Future Recommendations

There were certain limitations to this study that should be taken into account by researchers hoping to expand on these findings. One limitation was that the sample size was rather small, since it was drawn from just one industry in the UAE (utilities), and hence may not be representative of the total population of agile project managers. The construction industry, government, and other service-based industries may all benefit from agile project management. In the future, academics may examine these fields to see whether effective communication is a key factor in project success. There were also many elements discovered to be connected with each other in terms of communication and project performance; nevertheless, it is vital to analyze whether each component can be evaluated as a variable in order to investigate the effect of one variable on another. Moreover, the present study did not aim to assess whether or not a thorough comprehension of the topic under study existed based on the specific views and attitudes of stakeholders. Future researchers can also conduct in-depth semi-structured

interviews with project managers to gather their perspectives on why communication is so important to the success of projects, what factors should be taken into account to improve communication among stakeholders, and what kinds of obstacles can be expected along those lines. However, quantitative approaches may not be enough for studying the complex social and behavioral processes of communication, which might lead to faulty or insufficient findings. One of the limits of the study is its relatively small sample size, which calls for future researchers to build on the study's quantitative and qualitative foundations by evaluating a more representative sample. Communication is only one aspect of agile project management that may be studied further; future study might also look at other aspects, such as cooperation, teamwork, leadership, team structure, and related issues. As communication often involves several parties, including customers, team members, upper management, and others, it's important to take their perspectives into account. Future studies might also zero in on the topic of integrating technology, since this is one of the most important ways to boost project results. Future studies may also concentrate on exploring issues like cross-departmental collaboration and team development.

5.3 Theoretical and Practical Implications

Agile project management is well-suited to a hazy environment. In a hazy environment, it's difficult to accurately define the solution's design and requirements from the project's outset. Adaptability and flexibility are critical benefits that make it simple to develop and specify the design and requirements for continuing project solutions (Ciric et al., 2018). At the moment, in an ultra-competitive market, it is critical for the company to maintain its leadership position via its goods. To achieve a greater degree of quality, innovation and imagination are required. While

agile project management emphasizes innovation and creativity in order to maximize company value, an overemphasis on planning and control may tend to suffocate innovation and creativity (Bogdanova et al., 2020). The agile methodology may be used to subordinate project expenses in a variety of ways. By implementing this project, you will begin the process of decreasing returns by significantly reducing unnecessary paperwork as a result of managing requirements reduction (Gal et al., 2018). Quality is a critical component of process development rather than a sequential activity in agile project management. It contributes to quality improvement, which contributes to the project's success (Gal et al., 2018). Agile project management should result in increased customer satisfaction and more efficient solutions since the client is actively involved in providing input and feedback throughout the development process (Thorgren, and Caiman, 2019). Agile project management should also result in increased employee satisfaction from all employees who are involved in order to gain responsibility for their own job as a member of an approved team (Talukder et al., 2017). It may enhance organizational synergy by overcoming organizational barriers and fostering a culture of collaboration and trust that results in organizational tools (Hidalgo, 2019).

To better align and manage the organization's operations, processes, and human resources, agile project management is more than simply a project management method. The company as a whole has to recognize the value of agile project management and its function as an enabler of efficient communication. In project management, communication is like a backbone that holds everything together. Management of activities, tasks, and other elements will not help the company progress if there is no fruitful communication (Buganová, and Šimíčková, 2019). Based on the results of this research, it is clear that adopting an agile methodology for managing projects increases both the likelihood of project success and the growth prospects of the industry.

Agile procedures imply that improvements are made to all facets of the project, which boosts the possibility that it will be effectively finished. The implications of agile project management in the company aid with the activities and procedures involved in each project, especially when compared to other tools and methods used in project management. Project success in the modern day is less dependent on the tried-and-true methods of project management, which have become mostly obsolete, and more on the adaptability and scalability of the technology used to execute the project.

Some of the theoretical implications of the current study are outlined below.

The current study can contribute to the structuration theory by focusing on how communication can structure the success of a project and assist businesses in developing a communication pattern for effective outcomes.Also, the research can help in developing a communication framework that can consider various factors of communication like communication approach, decision-making support, team size, team distribution, and teamwork quality, which can be further tested in different contexts and industries. As no previous research has experimentally analyzed the influence of communication in agile project management based on the five components, the hypothesis investigated in the present study represents a fresh theoretical contribution. Research into the many facets of communication has the potential to improve utility sector efficiency and the effectiveness of related undertakings.

The practical implications of the current study are outlined below.

Team members may be more likely to work together and creatively solve problems if they feel they have a voice in the agile project management process. Maintaining open lines of communication with stakeholders may help keep them invested and informed, as well as

guarantee that their wants and needs are being met. If problems are discussed and dealt with in a timely manner, they may have less of an impact on the project's timeline and budget. Tolerance and acceptance may increase if people were able to share their views and be heard, leading to greater understanding and acceptance among all parties. A project's success in terms of time, money, and quality might hinge on how well its participants are able to communicate with one another. It's possible that morale on the team would rise if everyone felt that their voices were being heard and they were contributing to the project. Managing risks and avoiding project failure or delay may be aided by prompt communication in the event that any issues arise. Project managers may help keep teams united and prevent misunderstandings when they keep everyone in the loop about developments and how they will affect the project. Furthermore, leaders in the UAE's utility sector should promote open discussion and encourage all points of view from team members. Having frequent team meetings, promoting input, and facilitating connections among team members are all ways to achieve this goal. Leaders must model effective communication by delivering the information in a clear and concise manner, actively listening to others, and avoiding overly technical language that may be difficult for others to understand. Agile project management relies heavily on regular stand-up meetings, often known as daily lineouts. Leaders should stress the importance of these gatherings and urge their teams to participate so that they may exchange ideas, voice issues, and come to a consensus on objectives.

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APPENDICES

Appendix A Questionnaire

Survey Questionnaire

Dear Participant,

I invite you to participate in a research study entitled: “Effectiveness of communication processes in the Agile Project Management Approach in the UAE Utility Sector”. I am currently enrolled in the M.Sc. in Project Management at The British University in Dubai, and I am in the process of writing my Master’s Dissertation.

The aim of this investigation is to find the Effectiveness of communication processes in the Agile Project Management Approach in the UAE Utility Sector. Please take some time out to fill out this survey and help in completing this study.

The survey has been designed to collect information on the following hypotheses:

- There is a positive impact of communication processes in agile project management on project success of the UAE’s utility sector projects.

Your participation in this study is completely voluntary. You are free to choose not to participate in the research and to discontinue your participation in the research at any time without facing negative consequences. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your individual answers to this questionnaire.

If you agree to participate in this study, please answer the questions on the survey as best you can. It should take approximately 20 Minutes time to complete.

Once you are done answering all the questions you must click the Submit button at the end of the survey. This submits the survey data for analysis.

If you have any questions about this study, feel free to contact (Mutasim Abdalla Hassan Afifi, 20199956@student.buid.ac.ae) and I'll be more than happy to assist you.

Thank you for your assistance in this important endeavor.

Sincerely yours,

Mutasim Abdalla Hassan Afifi

Part A: Demographics

1. What is your gender?
    a. Male
    b. Female
2. What is your age?
    a. 26 to 35 years
    b. 36 to 45 years
    c. 46 to 55 years
    d. More than 55 years
3. How much work experience do you have?
    a. 1 to 5 years
    b. 6 to 10 years
    c. 11 to 15 years
    d. More than 15 years
4. What is the size of organisation that you are currently employed in?
    a. Less than 100 employees
    b. 100 to 500 employees
    c. 501 to 10000 employees
    d. More than 10000 employees
5. Since when is the organisation in existence?
    a. Less than 5 years' old
    b. 5 to 15 years
    c. 16 to 25 years
    d. More than 25 years
6. Does your organisation practice agile project management?
    a. Yes
    b. No

Communication Process in Agile Project Management (Independent variable)

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	We utilize our communication skills better in agile practice					

2	We constantly look for communication ways to reinvent/reengineer our organization to better serve our customers					
3	Formal communication is accurate and active.					
4	Organization's communication makes me identify with it or feel a vital part of it.					
5	Leaders in this organization are open to ideas and they engage in informal communication with us.					
6	We are quick to make and implement appropriate decisions in the face of market/customer communication changes					
7	Communication management frameworks provide substantial support in improving the productivity of workers and in making specific and					

	appropriate decision-making choices					
8	Decisions are taken inclusive of all stakeholders and all are engaged in the decision-making process.					
9	Informal communication is mainly suited for small teams.					
10	Larger teams have to use more formal communication (e.g., for coordination and to document knowledge).					
11	Team size is a very crucial element for communication in agile teams.					
12	Communication is easier for co-located teams.					
13	Distributed teams face numerous challenges related to communication (e.g., different time zones).					
14	Agile projects help to overcome those challenges by forcing the teams to communicate.					

15	Different communication modes are necessary in a distributed setting.					
16	There is sufficiently frequent, informal, direct, and open communication in the team.					
17	The individual efforts are well structured and synchronized within the team.					
18	All team members are able to bring in their expertise to their full potential.					
19	Team members help and support each other in carrying out their tasks.					
20	Team members exert all efforts to perform the team's tasks.					
21	Team members are motivated to maintain the team and there is team spirit among the members.					

Project Success (Dependent variable)

	Questionnaire Measurement items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Proper cost estimations are carried out of the projects.					
2	Skilled people are involved in carrying out cost estimations of projects.					
3	Requirements are followed and accurate cost reporting of projects is done.					
4	Unit cost of the project is maintained and achieved.					
5	Cost growth of the project is consistent.					
6	The projects in the organizations have a pre-planned schedule.					
7	The projects have all the details about the delivery dates.					
8	The project schedules can be changed throughout the project.					

9	The project schedules can be negotiated with the relevant stakeholders.					
10	The estimates of project's schedule are accurate and satisfactory.					
11	The project's schedule requirements get modified due to assignment of various stakeholders.					
12	The project manager makes sure that there are no unrealistic durations of the project.					
13	In various projects, more formal documentation is needed to retain knowledge.					
14	It is important to outline the project scope in the initial stages of project.					
15	The project is prone to necessary variations, which are done effectively.					
16	There is an effective mechanism flow of information among the team					

	members to meet project requirements.					
17	All the responsibilities and duties by stakeholders are followed while completing the project.					
18	Proper sampling and testing of projects and related aspects is done.					
19	Quality of workmanship is maintained throughout the project.					
20	Proper procedures are in place within the organization to maintain the quality of projects.					
21	Meetings are regularly held to ensure the quality of projects.					
22	Quality control is done accurately in terms of all projects.					
23	The project is of an acceptable quality.					

24	The project gets finished as per the cost and schedule-related estimates.					
25	The project generates profit.					
26	The project is of desired quality.					
27	The project team had a satisfactory experience while working on the project.					
28	The project introduces business-related and profit generating skills for the overall company and its stakeholders.					