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Investigating the Effects of Project Leadership Style, Team Dynamics, and Organizational Culture on Project
Success in Agile Software Development: An Empirical Evidence from KSA

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ABSTRACT

This research work aimed to find the effect of the Project Leadership Style, Team Dynamics, and Organizational Culture on Project Success in Agile Software Development. This research work employed a quantitative methodology and was carefully organized within a descriptive research framework. The targeted specific population was all individuals functioning as subordinates within software development firms and directly engaged in various software development projects. The sample size was 150 participants, and a simple random approach was utilized to select the appropriate sample size. The questionnaire was utilized to collect the data, and it was formed through the online platform Google Forms, and an online link was distributed among the study participants. Data analysis tools such as SPSS and Microsoft Excel were leveraged to analyze the collected data. The results of this research work showed that all three predictors, Project Leadership Style, Team Dynamics, and Organizational Culture, have a statistically significant positive influence on Project Success. The regression analysis highlights that effective leadership, cohesive team dynamics and a strong organizational culture are crucial components for achieving success in projects. One potential limitation of this study is that it solely concentrates on the context of KSA; thus, the unique economic, cultural, and organizational characteristics of KSA might restrict the applicability of the findings to other countries and regions. Furthermore, it is recommended that future research investigate the potential interplay between additional variables, such as the adoption of technology, governmental regulations, or market competition within the realm of the software development industry.

Keywords

Project Leadership Styles, Organizational Culture, Team Dynamics, Project Success, Agile Software Development

CHAPTER I

INTRODUCTION

1.1 Background

The advent of agile software development has significantly transformed the way businesses respond to changes, enhance their performance, and foster innovation within the rapidly evolving digital landscape of the present era (Lukusa et al., 2020). The flexibility inherent in these development methods transcends the boundaries of the development process itself, encompassing project leadership style, team dynamics, and organizational culture. The cohesive alignment of these interlocking elements is of utmost importance in determining the outcome of a software project, whether it be successful or unsuccessful (Ghimire & Charters, 2022).

In addition, to gain a comprehensive understanding of these relationships, it is imperative to acknowledge the notable disparity between the project leadership style in Agile software development and that observed in conventional management contexts (Lukusa et al., 2020). In the Agile methodology, the role of a leader is not focused on micromanagement but rather on facilitating, empowering, and motivating team members. A leader of this nature exemplifies the principles of servant leadership, prioritizing the well-being of the team above their own, consequently cultivating an atmosphere characterized by trust, collaboration, and exceptional performance. The role of the Agile leader entails acting as a coach, providing guidance to the team in terms of self-organization and cross-functionality, as well as addressing any obstacles that may potentially impede their progress (Weichbrodt et al., 2022). The influence of an Agile leader is significant, resulting in a cascading impact that affects not only the performance of the team but also the overall success of the project (Strode et al., 2022).

Furthermore, it is important to note that team dynamics play a significant role in the overall success of Agile projects. The Agile team, which is distinguished by its diverse and cross-functional composition, flourishes through adherence to the principles of transparency, inspection, and adaptation. Agile teams place significant emphasis on fostering collaboration among team members, making iterative progress, and ensuring the consistent delivery of value. The iterative process of planning, developing, testing, and evaluating not only cultivates a climate of knowledge acquisition and ongoing enhancement but also strengthens team unity, elevates motivation, and enhances efficiency. The establishment of a cohesive team dynamic plays a crucial role in facilitating efficient problem-solving and decision-making processes, thereby creating favorable conditions for the successful execution of Agile projects (Wafa et al., 2022).

The significance of organizational culture should not be underestimated within the framework of leadership and team dynamics. A cultural framework that upholds the principles of Agile, which prioritize the significance of individuals and contacts over procedures and tools, the delivery of functional software over wide credentials, client collaboration over agreement negotiation, and adaptability to change over rigid adherence to a predetermined plan, fosters an atmosphere conducive to the successful execution of Agile projects (Mkoba, 2022). An organizational culture that is conducive to Agile methodologies is characterized by trust, transparency, and mutual respect, wherein failures are perceived not as catastrophic events but rather as valuable opportunities for learning and growth. This culture fosters an environment that encourages the development of creativity, innovation, and a persistent commitment to achieving high standards (Sulej, 2021).

The interdependence between project leadership style, team dynamics, and organizational culture in Agile software development has the potential to exert a significant influence on the achievement of project objectives. When these three elements are aligned, they create an atmosphere that optimizes productivity, stimulates creativity, and cultivates a positive and cooperative work culture. The leader assumes the role of the

rudder, providing guidance to the team in effectively navigating the potentially challenging circumstances encountered during project implementation (Weichbrodt et al., 2022). The team functions as a unified entity, engaging in collective learning, adaptation, and the provision of value. In the context of a supportive culture, the organization serves as a conducive environment for the successful implementation and growth of Agile principles (Muhammad et al., 2021).

The concept of leadership in Agile is not a standalone entity but rather functions within the larger framework of the team and the organizational culture. Effective leaders in Agile methodologies are not simply symbolic leaders who give orders; rather, they actively facilitate and encourage team members to assume responsibility for their tasks and pursue ongoing enhancements. The organization cultivates a conducive and transparent atmosphere that promotes open dialogue, constructive critique, and collaborative resolution of issues. This leadership style has been observed to have a dual effect, as it not only has a positive impact on team performance and productivity but also exerts a favorable influence on the team's morale, engagement, and overall job satisfaction (Ellahi et al., 2022).

Conversely, the dynamics of a team are influenced by and influence both leadership and the culture of the organization. Agile leadership has the capacity to cultivate favorable team dynamics through the facilitation of trust, collaboration, and accountability among the members of the team (Gren & Ralph, 2022). On the other hand, leadership that lacks effectiveness has the potential to foster conflict, distrust, and inefficiency, thereby compromising the team's overall effectiveness and impeding the successful completion of the project. Simultaneously, the culture of an organization influences the dynamics of a team through the establishment of expectations, norms, and values that regulate the way team members engage, communicate, and address challenges. An organizational culture that is supportive of Agile methodologies fosters constructive team

dynamics through the adoption of diverse perspectives, the encouragement of collaborative efforts, and the recognition of the importance of continuous learning and innovation (Rehman, 2022).

Ultimately, the role of organizational culture is of great importance in facilitating or impeding the adoption and achievement of Agile methodologies. A cultural milieu that is congruent with the principles and values of Agile methodology fosters a nurturing atmosphere wherein Agile leaders and teams can flourish. This type of culture promotes adaptability, innovation, and a focus on customer needs, allowing the organization to adapt promptly and efficiently to shifts in the business landscape. Conversely, a cultural orientation that places significance on hierarchical structures, exerting control, and adhering strictly to predetermined plans can impede the Agile ethos, thereby presenting obstacles to the successful implementation of Agile projects (Shah et al., 2020).

Furthermore, it is imperative to recognize that the adoption of Agile methodologies entails more than just modifying procedural aspects or implementing new technological resources. This phenomenon encompasses a profound and ingrained cultural transformation that permeates every echelon of the organization (Gren & Ralph, 2022). The process of transitioning to Agile methodologies may present challenges; however, it is imperative for the successful establishment and growth of Agile practices. The successful implementation of an Agile transformation necessitates the presence of capable leadership to provide guidance and support throughout the process, the establishment of efficient team dynamics to effectively execute the necessary changes, and the cultivation of an organizational culture that is open and receptive to sustaining the transformation (Tam et al., 2020).

The achievement of Agile project success is contingent upon a multitude of interconnected factors, each possessing its own inherent significance. The presence of a proficient Agile leader, a harmonious team, and a culture that promotes and embraces Agile methodologies are all essential components necessary for

achieving success in a project. The essence and quality of a successful Agile software development project are determined by the delicate balance and interplay of these factors. The significance of human-centric elements in facilitating the success of Agile projects cannot be emphasized enough, given the rapid evolution of the business landscape (Lukusa et al., 2020).

1.2. Problem Statement

The Kingdom of Saudi Arabia (KSA) has witnessed substantial growth in software development projects in recent years, accompanied by a rising trend in the adoption of Agile methodologies. Nevertheless, notwithstanding the widespread adoption of Agile methodologies, several projects encounter difficulties in attaining their desired outcomes, experiencing setbacks such as delays, exceeding budgetary limits, and a decline in overall quality. The available empirical data indicates that the success of Agile projects is not solely determined by strict adherence to Agile methodologies. Rather, it is influenced by a combination of factors, including the leadership style employed in the project, the dynamics within the team, and the prevailing culture within the organization. However, there is a dearth of comprehensive comprehension and empirical exploration regarding the distinct and combined effects of these factors on the achievement of projects in Agile settings within the context of the KSA. The objective of this study is to fill the existing research gap by investigating the impact of project leadership style, team dynamics, and organizational culture on the outcomes of Agile software development projects in the KSA. The results of this study will enhance comprehension regarding the efficient management and execution of Agile projects within the distinctive cultural and business environment of the KSA. This may lead to enhanced rates of project success and offer valuable perspectives for project managers, team leaders, and organizational decision-makers (Carvalho et al., 2017).

1.3. Research Objectives

The research objectives of this research work are:

- ❖ To examine the relationship between project leadership style and project success in agile software development.
- ❖ To investigate the influence of team dynamics on project success in agile software development.
- ❖ To explore the impact of organizational culture on project success in agile software development.

1.3. Research Questions

- ❖ How does project leadership style influence project success in agile software development?
- ❖ What is the impact of team dynamics on project success in agile software development?
- ❖ How does organizational culture affect project success in agile software development?

1.4. Significance of Study

The rapid evolution of the digital landscape has necessitated the adoption of Agile software development as a crucial strategy for organizations globally to maintain competitiveness. This research offers a broader understanding of the non-technical factors, such as leadership style, team dynamics, and organizational culture, that have a substantial influence on the success of Agile projects. This study contributes to the current body of knowledge by illustrating the interdependent nature of these components and their combined influence on the results of a project. Additionally, this research provides significant contributions to professionals, specifically individuals in leadership positions and team members within KSA. The Kingdom is currently undergoing a swift shift towards a digital economy as a crucial aspect of its Vision 2030 initiative. Through the identification and examination of the distinct characteristics associated with leadership, team dynamics, and culture that play a role in fostering success in Agile projects, individuals engaged in Agile

software development are provided with the necessary insights to enhance their implementation of this methodology (Lukusa et al., 2020).

Furthermore, this study has significant implications for leaders within organizations and policymakers in the KSA. The significance of cultivating a culture that supports Agile methodologies is underscored to facilitate the achievement of successful Agile transformations. This statement emphasizes that the adoption of Agile methodologies is not solely a matter of altering procedures or utilizing different tools but rather a holistic transformation of organizational culture that necessitates intentional and collaborative endeavors. Moreover, the results of the study can provide valuable insights for the creation of training programs, leadership workshops, and organizational change initiatives. This can contribute to the promotion of Agile adoption and the improvement of project success rates in KSA. Additionally, it establishes the foundation for the development of assessment instruments that can be utilized to measure the efficacy of Agile leadership, team productivity, and organizational culture, thereby enabling the ongoing enhancement of these areas. The study makes a distinct scholarly contribution by presenting empirical evidence from a Middle Eastern context, which is presently lacking in Agile research. The inclusion of diverse cultural and economic contexts in Agile research expands its scope, enhancing the generalizability and applicability of its findings (Tam et al., 2020).

1.4.1. Managerial Relevance

In the ever-evolving realm of Agile software development, it is crucial for managers and leaders to possess a comprehensive comprehension of project leadership style, team dynamics, and organizational culture. The findings of this research have significant implications for managers, particularly in the KSA region, as they provide valuable insights that can assist in making well-informed decisions and enhancing the effectiveness of Agile projects. Primarily, managers can enhance their ability to achieve successful Agile outcomes by identifying the precise leadership styles that are associated with such outcomes. This can be

accomplished through training programs that enable managers to adopt these styles or by strategically assigning leaders who possess the appropriate qualities to oversee Agile projects. Furthermore, through a comprehensive comprehension of the fundamental principles underlying team dynamics within an Agile context, managers possess the ability to cultivate an environment that is conducive to collaboration, effectively mitigates conflicts, and ensures the smooth facilitation of cross-functional interactions. Furthermore, a deeper understanding of the influence of organizational culture equips managers with the necessary means to instigate cultural transformations or interventions, if deemed necessary, thereby aligning the overarching organizational values with the principles of Agile methodology. This research not only provides theoretical insights but also offers practical strategies. With the acquisition of this knowledge, managers will be more adept at facilitating successful Agile implementations, resulting in improved resource allocation, timely project completion, and enhanced product quality. Ultimately, this will contribute to business growth and competitiveness within the market.

1.4.2. Scientific Relevance

The scientific significance of this study resides in its thorough examination of the impacts of project leadership style, team dynamics, and organizational culture on the achievement of Agile software development, particularly within the specific context of the Kingdom of Saudi Arabia (KSA). This study further expands the existing comprehension of Agile methodologies by incorporating human and organizational factors, in addition to the technical and procedural aspects. The examination of the interconnectedness between leadership, team dynamics, and organizational culture offers a more comprehensive and intricate understanding of Agile environments. Through the implementation of this research, not only is a crucial gap in the existing literature being addressed, but it also lays the groundwork for future investigations. The empirical data collected from the KSA could be utilized as a foundational basis for conducting comparative research in

various cultural or industrial settings, thereby enhancing the existing body of knowledge on Agile project management. In addition, the emphasis on these components within Agile software development contributes to wider research streams in project management and organizational behavior. This research contributes to the advancement of knowledge in the fields of leadership styles, team dynamics, and cultural aspects by examining their interactions and impacts on project outcomes.

CHAPTER II

LITERATURE REVIEW

The agile leadership style exhibits a notable retreat from conventional hierarchical models and demonstrates a greater alignment with the servant leadership approach. Attiq & Rehman (2020) underscore the significance of Agile leaders assuming the role of facilitators rather than directors. The organization fosters a conducive atmosphere characterized by trust and collaboration, which empowers the team to structure their work and consistently produce software of exceptional quality through iterative processes.

According to a study conducted by Wafa et al. (2022) it was found that in Agile methodologies, leadership does not revolve around exerting control. Rather, it focuses on empowering the team and eliminating obstacles that hinder its progress. The study revealed a robust association between this leadership approach and favorable project results, which is consistent with Agile's fundamental principles of prioritizing individuals and their interactions. The study of team dynamics in the context of agile software development is a significant area of research, as asserted by Gandomani et al. (2020). Understanding how teams function and interact within the agile framework is crucial for successful project outcomes. The dynamics of a team, encompassing the interactions, collaborations, and influences among team members, are of paramount importance in the context of Agile software development. Highly effective Agile teams exhibit key attributes such as the establishment of a foundation of trust among team members, fostering an environment of open and transparent communication, and embracing a collective sense of responsibility.

2.1. The Role and Impact of Leadership Styles in Agile Software Development

The examination of leadership styles in Agile software development has garnered considerable attention in the field of project management and information systems literature, particularly with regard to its

influence on project success (Serrador & Pinto, 2015). The conventional hierarchical leadership models have faced scrutiny in Agile environments, prompting several studies to emphasize the necessity of adopting a leadership approach that is more democratic, flexible, and collaborative (Hoda et al., 2013).

According to Moe et al. (2013), Agile software development commonly perceives leadership as a collective responsibility rather than the exclusive purview of a solitary individual. The servant leadership style has garnered attention in recent years, primarily because of its compatibility with Agile principles (Conforto & Amaral, 2016). Servant leaders exhibit distinct qualities such as prioritizing the needs of the team, fostering their growth and development, and encouraging a significant degree of team autonomy (Ellahi et al., 2022). According to Modi & Strode (2020) empirical evidence suggests that leadership style has a positive impact on trust-building and open communication within a team. Moreover, it creates a favorable atmosphere for learning and has the potential to improve overall team performance.

The positive impact of Agile software development projects has also been observed in relation to transformational leadership, which is distinguished by its components of inspiring motivation, ideal influence, customized consideration, and logical stimulation (Van Kelle et al., 2015). According to (Gren & Ralph (2022), Agile leaders, like transformational leaders, are responsible for motivating teams to adopt change, consistently innovate, and successfully accomplish project goals. According to Garcia & Russo (2019), there is a contention that transformational leadership plays a crucial role in fostering a team-oriented atmosphere that facilitates the implementation of Agile methodologies, including iterative development and continuous improvement.

The literature has extensively documented the significance of leadership in promoting team interaction and cohesion within Agile projects. To be successful in their role, Agile leaders must possess the necessary skills to navigate the intricate social dynamics within their team, adeptly handle conflicts through negotiation, and foster an environment of collaboration and knowledge exchange (Gren & Ralph, 2022). Agile

leadership encompasses the establishment of a secure environment wherein team members are encouraged to undertake risks, engage in experimentation, and derive lessons from failures. This aspect assumes significance within a context that prioritizes adaptability and innovation (Edmondson & Lei, 2014).

The implementation of Agile methodologies is frequently confronted with opposition because of the substantial transformation it necessitates in both work processes and mindset, as asserted by Modi & Strode (2020). The role of leaders in Agile transformations is of utmost importance as they are responsible for mitigating resistance and reinforcing the principles and values of Agile within the organization (Tabassi et al., 2017). Leaders play a crucial role in driving Agile success due to their capacity to embody Agile values and their authority to implement organizational changes (VersionOne, 2018).

According to Parke & Seo (2017) leaders possess the ability to influence an organization's culture and establish a conducive atmosphere for the implementation of Agile practices. However, it is imperative for leaders to modify their leadership approach in accordance with the prevailing cultural context. According to a study conducted by Theobald et al. (2020) the effective adoption of Agile methodologies is contingent upon the presence of a supportive organizational culture that promotes flexibility, learning, and collaboration. In this regard, leaders are identified as key agents in cultivating such a culture.

In addition to the servant and transformational leadership models, scholarly investigations have also examined the applicability of situational leadership in Agile contexts. According to the theory of situational leadership, the most effective leadership style is determined by the level of readiness and maturity exhibited by the individuals being led (Spiegler et al., 2021). In light of the composition of Agile teams, characterized by frequent role rotations and the handling of diverse tasks by members, leaders may find it necessary to adapt their leadership style in response to specific circumstances. According to the study conducted by Dikert et al. (2016) it was observed that Agile leaders frequently alternate between exhibiting directive behavior in the

initial phases of Agile implementation and adopting a supportive approach as the team progresses and develops self-organizational capabilities.

An additional domain of investigation within the realm of Agile leadership pertains to the emotional intelligence exhibited by leaders. In a dynamic and rapidly changing Agile setting, the capacity of leaders to identify, comprehend, and regulate their own emotions, as well as those of their team members, can significantly impact the results of projects (Denning, 2018). According to the proposition put forth by Przybilla et al. (2019) emotional intelligence has the potential to serve as an indicator of leadership efficacy. Batra, Gupta, and Iyer (2018) conducted a study within the Agile framework and found a significant positive relationship between the emotional intelligence of Agile leaders and team performance. This correlation was particularly evident in the effective management of project ambiguities and team conflicts.

Additionally, the transition from a conventional project manager position to that of a Scrum Master within numerous Agile contexts requires a fundamental change in leadership approach. According to Xu & Shen (2015), Scrum masters frequently adopt a coaching leadership approach, wherein they assist the team in comprehending and applying Agile principles, resolving obstacles, and promoting effective communication. The coaching role in question is differentiated from the directive role typically assumed by conventional project managers, necessitating a comprehensive comprehension of Agile values and principles (Van Kelle et al., 2015).

The prevalence of distributed Agile teams has grown in tandem with globalization and remote work trends, thereby introducing an additional level of intricacy. In distributed settings, effective leadership necessitates nuanced adjustments to tackle obstacles such as disparities in time zones, cultural variations, and communication hindrances. According to Nonaka et al. (2016) it is crucial for leaders of distributed Agile teams to possess a heightened level of cultural awareness and effective communication skills to facilitate synchronization and collaboration across geographical boundaries.

2.2. Understanding Team Dynamics in Agile Software Development

Team dynamics refers to the underlying and often imperceptible influences that shape the interactions and performance of team members (Levi, 2018). Within the domain of Agile software development, these dynamics assume a pivotal significance due to the methodology's focus on collaboration, adaptability, and customer-centricity. Yu & Petter (2014) have consistently emphasized the impact of team dynamics on the outcomes of Agile projects, encompassing various aspects such as productivity and product quality. The concept of self-organizing teams is a fundamental aspect of Agile methodology. According to da Silva et al. (2013) these teams have the capacity to independently determine their approach to tasks without the need for explicit instructions from external entities. The concept of inherent autonomy necessitates a developed comprehension of roles, responsibilities, and interpersonal dynamics within a team, providing additional elaboration on the concept, emphasizing that successful self-organization requires a harmonious combination of team empowerment and adherence to project objectives, and this highlights the significance of team dynamics in attaining this equilibrium as stated by Fagerholm et al. (2015).

The foundation of Agile team dynamics is established through the implementation of effective communication strategies. The Agile methodology deliberately cultivates a culture of open communication through the implementation of practices such as daily stand-ups and sprint reviews. The study by Sunner (2016) underscored the significance of these communication practices in elucidating potential obstacles, harmonizing team goals, and establishing a consistent feedback mechanism. However, the effectiveness of communication is not solely contingent upon its frequency. Rather, the establishment of trust and psychological safety within the team is of paramount importance. According to Gren et al. (2019) the concept of psychological safety is crucial for teams to freely express concerns, seek clarification, and suggest novel ideas without the apprehension of negative consequences.

The concept of diversity, encompassing both a variety of skill sets and demographic characteristics, provides an additional perspective through which the dynamics of Agile teams can be comprehended. In Agile environments, there is a prevalent endorsement of cross-functional teams, which consist of members who possess skills that complement one another. This is primarily due to their capacity to effectively tackle complex challenges (Flora & Chande, 2014). However, it is important to note that while having a diverse range of skills within a team can enhance problem-solving abilities, it is equally important to consider demographic diversity, which includes factors such as gender, ethnicity, and cultural background. This demographic diversity can have an impact on team dynamics and the decision-making processes within the team (Drury-Grogan et al., 2017).

According to research conducted by Moe et al. (2015) it has been indicated that effectively utilizing diversity within Agile teams can have a positive impact on fostering creativity and promoting innovation. Conflict, which is bound to occur in collaborative settings, is a crucial element of team dynamics. The iterative nature of Agile methodology has the potential to expedite the emergence of conflicts in certain situations. According to the study conducted by Jeong, Kim & Song (2017), conflicts within Agile teams predominantly arise from disparities in comprehending requirements, uncertainties regarding roles, or interpersonal frictions.

The existing body of literature distinguishes between conflicts that are task-related and those that are relationship-related. It has been suggested that task-related conflicts have the potential to be constructive if they are effectively managed (Anand & Dinakaran, 2016). Agile methodologies frequently employ strategies such as retrospective meetings to effectively manage and resolve conflicts, thereby promoting process enhancements rather than discord (Conforto & Amaral, 2016). The undeniable significance of leadership in influencing Agile team dynamics is a crucial aspect to consider. The Agile manifesto places a strong emphasis on team autonomy, but it is important to recognize the significant role that leaders, such as Scrum Masters or Product Owners, play in fostering a productive team environment. According to the findings of Hoda et al.

(2013) it was observed that leaders who embrace Agile methodologies tend to exhibit facilitative or servant leadership styles. These leaders prioritize empowering their team members, eliminating barriers, and fostering a culture of collaboration (Moe et al., 2015).

In addition to the internal team, Glaiel et al. (2014) highlighted that it is crucial to examine the interplay between the Agile team and its wider ecosystem, encompassing stakeholders and customers, as an additional dimension to be considered. The Agile methodology places significant emphasis on fostering customer collaboration and stakeholder engagement, thereby expanding the team's scope and reach. The inclusion of customers or end-users in sprint reviews and planning sessions brings about a modification in conventional team dynamics, thereby introducing an additional level of interaction and feedback (Inayat et al., 2015). However, effectively handling these amplified dynamics necessitates proficient abilities in communication, resolution of conflicts, and management of expectations (Spiegler et al., 2021).

The concept of learning is intricately intertwined with Agile methodologies and holds a pivotal role in shaping team dynamics. The iterative nature of Agile methodologies and the inclusion of practices such as retrospectives offer teams the chance to engage in reflection regarding their processes, gain insights from both successful and unsuccessful outcomes, and consistently enhance their performance (Venkatesh et al., 2020). A team culture that prioritizes learning also promotes innovation, as it motivates team members to engage in experimentation and take calculated risks (Yu & Petter, 2014). According to research conducted by Zaitsev et al. (2020) it has been indicated that Agile teams that possess a robust inclination towards learning exhibit enhanced adaptability towards evolving requirements and are more inclined to achieve successful project outcomes.

Furthermore, the dynamics of a team in Agile software development are additionally impacted by the physical environment, particularly in situations where team members are near one another. According to Kropp

et al. (2014) the provision of conducive spaces that promote face-to-face interaction, such as open spaces or team rooms, has the potential to improve team collaboration, expedite the decision-making process, and mitigate instances of miscommunication. The emergence of virtual or distributed Agile teams has introduced various factors that influence team dynamics, including technology tools for communication and collaboration, disparities in time zones, and cultural subtleties (Drury-Grogan et al., 2017).

The size of the Agile team is a significant factor that influences team dynamics. According to Serrador & Pinto (2015), the Agile manifesto and various Agile frameworks propose the utilization of smaller teams in order to enhance interaction and expedite decision-making processes. Nevertheless, the implementation of Agile methodologies in extensive projects requires the involvement of a larger team, thereby introducing challenges in terms of coordinating efforts, facilitating effective communication, and ensuring the preservation of team unity. The challenges and strategies of maintaining effective team dynamics in large-scale Agile environments have been investigated in studies conducted by Przybilla et al. (2019).

In addition, it is important to acknowledge the psychological dimensions of Agile team dynamics. The attitudes, beliefs, and motivational drivers of team members have a substantial impact on their interactions and performance. Theoretical frameworks on job motivation, such as the Self-Determination Theory, propose that the implementation of Agile practices, which encompass elements of autonomy, mastery, and purpose, can have a beneficial impact on intrinsic motivation, and this, in turn, can positively influence team dynamics and overall performance (Gatt & Jiang, 2020).

According to Gren & Ralph (2022) the implementation of self-organizing teams plays a crucial role in Agile projects as it facilitates adaptability and the ability to effectively respond to changes. The study discovered that the utilization of self-organizing teams, characterized by the presence of diverse skill sets and a collaborative approach to problem-solving, exhibited a higher likelihood of achieving successful project

outcomes. In a study conducted by Weichbrodt et al. (2022) it was found that Agile teams that perform well tend to cultivate a culture centered around ongoing learning and advancement. This culture ultimately leads to increased productivity and innovation. Hence, there is substantial evidence that establishes a strong correlation between positive team dynamics and successful outcomes in Agile projects. The adoption and success of Agile methodologies are significantly influenced by an organization's culture. The Agile methodology demonstrates compatibility with organizational cultures that prioritize collaboration, learning, and flexibility while potentially encountering conflicts with cultures that exhibit inflexibility, hierarchical structures, and a focus on control.

2.3. The Influence of Organizational Culture on Agile Software Development Success

The role of organizational culture in the assimilation and practice of new methodologies or approaches, such as Agile, is of utmost importance. Aldahmash et al. (2017) indicated that organizational culture is commonly defined as the prevailing norms and practices within an organization, which significantly influence the way tasks are executed. The flourishing of agile software development, which is characterized by its emphasis on collaboration, adaptability, and customer focus, is contingent upon the presence of a specific cultural atmosphere. The Agile Viewpoint places a strong emphasis on prioritizing individuals and their interactions over processes and tools, necessitating the establishment of a culture that centers around people (Felipe et al., 2017).

In his seminal work, Sheffield & Lemétayer (2013) introduced a cultural model that classifies organizations into four distinct quadrants: Control, Competence, Cultivation, and Collaboration. Based on the presented model, it can be inferred that Agile methodology exhibits a strong alignment with the Collaboration quadrant. This quadrant is characterized by cultural attributes such as open communication, shared responsibility, and team empowerment. Tam et al. (2020) conducted an empirical study that revealed that

organizations characterized by a collaborative culture experienced a smoother implementation of Agile practices.

On the other hand, conventional organizations characterized by a hierarchical structure and a top-down approach frequently face challenges when attempting to adopt Agile methodologies. The discrepancy emerges because Agile methodology encourages decentralized decision-making, flexibility, and a certain degree of ambiguity, which poses a challenge to the established norms of a Control-oriented culture (Kruchten, 2018). According to Nagy et al. (2015) the lack of success of Agile methodologies in certain contexts can be attributed not solely to the methodology itself but rather to a lack of alignment between the Agile values and the dominant organizational culture (da Silva et al., 2013).

Feedback and continuous learning are additional principles of Agile methodology that rely on the cultural preparedness of an organization. Agile frameworks promote the practice of iterative development, continuous feedback, and adaptability, which in turn require a cultural environment that places a high value on learning and embraces the concept of change. Stankovic et al. (2013). introduced a taxonomy of organizational cultures consisting of three distinct categories: Pathological, Bureaucratic, and Generative. The author proposed that Agile methodologies are most successful in Generative cultures, characterized by the shared assumption of risks, the perception of failures as valuable learning experiences, and a strong emphasis on collaboration (Abd et al., 2016).

Additionally, existing literature suggests that the effectiveness of Agile methodologies is dependent on an organization's perspective and approach toward failure. The iterative and experimental nature of Agile may face obstacles in cultures where failure is stigmatized (Chiyangwa & Mnkandla, 2017). Kakkar (2019) provided additional support for this viewpoint, contending that Agile's true capacity is realized in contexts that perceive failures as iterative feedback mechanisms rather than obstacles. The correlation between the dimension of trust

in organizational culture and the achievement of Agile success is evident. According to Tam et al. (2020) the presence of a strong sense of trust between management and teams facilitates the ability of the teams to work independently, assume responsibility, and engage in innovative practices without the need for excessive supervision. This aligns with the principles of Agile methodology. Conversely, cultures that exhibit skepticism and a tendency towards micro-management can hinder the natural progression and adaptability typically associated with Agile methodologies (Van Kelle et al., 2015).

Agile methodology also encompasses a substantial focus on customer collaboration, necessitating a cultural framework that prioritizes the customer as the central element (Kalenda et al., 2018). Organizations that embrace a customer-centric philosophy exhibit a stronger alignment with Agile methodologies, as both emphasize the importance of responding to customer feedback and delivering optimal value (Ahmed et al., 2018). On the other hand, in societies that prioritize internal matters or emphasize product-oriented approaches, the transition towards a customer-centric Agile methodology may present greater difficulties. Communication and transparency are crucial elements within the intersection of Agile practices and organizational culture. The Agile methodology places significant emphasis on fostering a culture of transparent and sincere communication, not only within development teams but also throughout all hierarchical levels within an organization (Ababneh, 2020).

Carvalho et al. (2017) indicated that the establishment of a transparent environment facilitates the ability of Agile teams to swiftly adjust to changes, thereby ensuring that project stakeholders are well-coordinated and well-informed (Abdalhamid & Mishra, 2017). In organizational contexts characterized by prevalent information hoarding or top-down communication patterns, the implementation of Agile practices may encounter notable difficulties. In addition to facilitating communication, the implementation and effectiveness of Agile methodologies can be significantly impacted by organizational rewards and recognition

systems. According to Lee & Chen (2019) conventional reward systems that prioritize individual accomplishments may have adverse effects in an Agile setting that prioritizes team collaboration and collective achievements. Therefore, it is imperative for organizations that are committed to adopting Agile methodologies to reassess and modify their incentive systems to acknowledge and incentivize team-based accomplishments and behaviors that are in line with the principles and values of Agile.

Another aspect to consider in organizational culture is the significance of ongoing professional development. The application of agile practices, while initially grounded in fundamental principles, undergoes a process of evolution as time progresses. For example, the emergence of DevOps and Continuous Integration/Continuous Deployment (CI/CD) serves as evidence of the progressive characteristics of Agile methodologies (Truong & Jitbaipoon, 2016). Hence, organizations that cultivate a culture of learning and actively promote the ongoing development of their employees' skills are more aptly positioned to fully leverage the inherent capabilities of Agile methodologies (Van Kelle et al., 2015).

The perception an organization holds towards external partners, such as vendors and contractors, additionally impacts the level of success achieved in Agile methodologies. The Agile Manifesto places significant emphasis on fostering collaboration with customers, as well as extending this collaborative approach to encompass other external stakeholders. According to Kalenda et al. (2018), organizations that foster a culture of strong collaboration with their partners, perceiving them as integral parts of their own teams rather than purely transactional entities, are more likely to successfully implement Agile practices in a comprehensive manner (Gren et al., 2019).

Additionally, an important but frequently disregarded cultural element pertains to the physical work environment. Numerous Agile methodologies, including Scrum, emphasize the significance of co-location or open spaces to facilitate regular communication and collaboration. However, the emergence of

telecommuting, particularly in the aftermath of the pandemic, poses a challenge to this concept. According to Lopez-Martinez et al. (2016), organizations that possess adaptable cultures and embrace remote or hybrid work models facilitated by digital communication tools are demonstrating the viability of Agile methodologies beyond the confines of conventional co-located settings (Moe et al., 2015).

2.4. Interplay between Leadership Style, Team Dynamics, and Organizational Culture in Agile Software Development

The Agile methodology, since its inception in the early 2000s, has significantly transformed the landscape of software development. The adoption of Agile methodologies has not only brought about changes in technical processes but has also had a profound impact on team dynamics, leadership approaches, and organizational culture. Käsälä & Tokumaru (2023) highlighted that in the realm of leadership, Agile projects have exhibited a departure from conventional hierarchical models characterized by top-down decision-making structures. According to Ellahi et al. (2022) servant leadership has gained prominence as a leadership style that aligns well with Agile teams due to its focus on serving and empowering team members. Servant leadership entails the prioritization of the team's needs and the facilitation of obstacle removal, thereby cultivating an environment conducive to team self-organization and autonomy.

According to Fagerholm et al. (2015) it has been suggested that this leadership approach fosters team morale, initiative, and a sense of ownership in the development process. The central focus of Agile methodology lies in team dynamics. The success of Agile methodology is heavily dependent on the team's capacity to engage in collaborative efforts, communicate efficiently, and seamlessly adjust to changes. Importantly, it should be noted that team dynamics are not formed in a vacuum, but rather, they are greatly impacted by the style of leadership and the prevailing organizational culture. For example, when leadership

fosters an environment that encourages open communication, trust-building, and mutual respect, it is more probable that teams will exhibit cohesion, effective problem-solving abilities, and adaptability (Flora & Chande, 2014).

The inclusion of the organizational culture dimension is essential in understanding the significance of a supportive culture in facilitating the adoption and subsequent success of Agile methodologies. According to Kalkan et al. (2020) the implementation of Agile methodologies necessitates the establishment of a corporate culture that fosters collaboration, embraces the concept of change, and places significant importance on customer feedback. Agile teams may encounter difficulties in fully realizing their potential within environments characterized by bureaucracy and rigidity. Agarwal et al. (2021) posit in their cultural model that organizations situated within the 'Collaboration' quadrant exhibit a higher degree of compatibility with Agile practices compared to those positioned within the 'Control' quadrant.

However, the interplay among these three components, namely leadership, team dynamics, and culture, constitutes the fundamental basis for achieving success in Agile methodologies. The study conducted by Dikert et al. (2016) shed light on the intricate interconnections existing among these components. The dynamics of a team can be significantly influenced by various leadership styles, which in turn are equally impacted by the broader organizational culture. For instance, if a leader aspires to embrace a servant leadership approach, the complete implementation of this approach may be impeded by a rigid, hierarchical organizational culture. Conversely, within a collaborative culture, there is a possibility for traditional leadership styles to undergo transformation towards a more team-centric approach in alignment with the prevailing cultural inclination (Gren & Ralph, 2022).

Furthermore, the interplay of team dynamics can exert an influence on the development and evolution of organizational culture as time progresses. As Agile teams flourish, exhibit achievement, and exert influence

on other teams, they possess the capacity to alter the cultural framework of an organization. The observation implies the existence of a feedback loop in which positive team dynamics, facilitated by competent leadership, can establish cultural elements conducive to Agile practices at the organizational level (Gren & Ralph, 2022).

However, Käsälä & Tokumaru (2023) highlighted that difficulties arise when there is a lack of alignment among these three aspects. Assuming the presence of a nurturing organizational culture and the implementation of servant leadership, it is worth noting that the effectiveness of team dynamics is impeded by interpersonal conflicts. Inconsistencies of this nature have the potential to hinder the effectiveness of Agile methodologies. On the other hand, the presence of strong team dynamics and competent leadership can occasionally mitigate cultural misalignments. However, this necessitates ongoing dedication and may not be viable in the foreseeable future (Lopez-Martinez et al., 2016).

Nawaz et al. (2021) seminal research revealed that the adoption of Agile methodologies is influenced by organizational culture, which encompasses fundamental values and norms that can either facilitate or impede the implementation of Agile practices. The study revealed that organizational cultures that embrace and support Agile methodologies, which are characterized by trust, openness, and a focus on customer needs, were found to enhance the success of Agile projects. On the other hand, cultures that prioritize control and rigid structures often present considerable obstacles to the implementation of Agile practices.

In addition, a study conducted by Mkoba (2022) emphasized the significant cultural transformation required to achieve a successful implementation of Agile methodologies. The research findings underscored the notion that Agile methodology entails more than mere modifications to processes or tools; rather, it necessitates a fundamental transformation in the core values and behaviors of the organization, involving all levels of the organizational hierarchy. The existing literature extensively examines the separate impacts of leadership style, team dynamics, and organizational culture on the success of Agile methodologies. However,

there is a dearth of research focusing on the combined effects of these factors. Nevertheless, certain studies suggest a strong correlation between them (Attiq & Rehman, 2020; Lukusa et al., 2020; Mkoba, 2022)

According to research conducted by Ellahi et al. (2022) it was proposed that the leadership style employed within Agile environments has the potential to exert a substantial influence on the dynamics of teams. Furthermore, Shah et al. (2020) posited that the effectiveness of leadership can be influenced by organizational culture. Maqsood (2021) conducted a study and discovered that Agile leaders who demonstrated transformational leadership behaviors, such as offering intellectual stimulation and promoting individualized consideration, had a positive impact on team dynamics. These leaders effectively promoted creativity, empowered team members, and cultivated a supportive and collaborative environment, resulting in increased levels of team satisfaction and successful project outcomes.

Additionally, a study conducted by Muhammad et al. (2021) indicated that organizations that possess a culture characterized by trust, open communication, and a strong emphasis on learning and adaptation are more likely to attain successful outcomes in Agile implementation. The presence of a supportive culture facilitated teams in conducting experiments, undertaking risks, and consistently enhancing their practices, resulting in improved project performance and heightened levels of customer satisfaction.

A study conducted by Attiq & Rehman (2020) indicated that Agile leaders who displayed transformational leadership qualities were able to cultivate favorable team dynamics, which were characterized by the presence of open communication, shared understanding, and collaborative efforts. This phenomenon was made possible by an organizational culture that actively embraced and promoted the principles and values of Agile methodologies. The study placed significant emphasis on the interconnections between these elements and underscored the significance of aligning leadership style, team dynamics, and organizational culture to achieve successful outcomes in Agile projects.

Furthermore, Garcia & Russo (2019) revealed that Agile leaders who fostered a culture of innovation, empowered their teams, and promoted collaboration and knowledge sharing were more inclined to attain elevated levels of business value delivery. The study conducted by Behrens et al. (2021) discovered that leaders who demonstrated a transformational leadership style, which encompassed qualities such as inspiration, intellectual stimulation, and individualized consideration, were able to achieve greater effectiveness in terms of motivating and empowering their teams. Consequently, this resulted in increased levels of productivity. This emphasizes the significance of Agile leaders in establishing a conducive atmosphere that promotes exceptional performance and effective delivery.

Moreover, scholarly investigations, exemplified by the research conducted by Langholf & Wilkens (2021) indicated that Agile teams characterized by robust team dynamics, encompassing proficient collaboration, shared comprehension, and collective responsibility, demonstrated a greater propensity for generating software of superior quality. The team's ability to work together cohesively and collaboratively fostered effective communication, reduced mistakes, and encouraged ongoing feedback, ultimately leading to enhanced software quality.

The examination of customer satisfaction in relation to Agile project leadership, team dynamics, and organizational culture has been conducted, as it is considered a crucial indicator of project success. Koi-Akrofi et al. (2019) found that Agile leaders who exhibited proficient communication skills, actively involved stakeholders, and cultivated a customer-centric perspective were more proficient in meeting customer expectations and attaining elevated levels of satisfaction.

Furthermore, it has been observed that the organizational culture exerts an impact on the level of customer satisfaction within Agile projects. The impact of organizational culture on customer satisfaction in Agile software development teams was examined in a study conducted by Paasivaara et al. (2017). The

researchers discovered that a cultural environment that places importance on customer collaboration, openness, and flexibility had a positive impact on the Agile teams' capacity to comprehend customer needs, adjust to evolving requirements, and provide solutions that aligned with customer expectations. The statement highlights the importance of fostering an organizational culture that embraces Agile methodologies to achieve high levels of customer satisfaction and successful project outcomes.

Various factors have been identified as having an impact on productivity, software quality, and customer satisfaction, which are considered crucial indicators of successful project outcomes. The results underscore the necessity for Agile leaders to embrace transformational leadership styles, promote favorable team dynamics, and cultivate an organizational culture that is congruent with Agile principles (Attiq & Rehman, 2020; Garcia & Russo, 2019; Koi-Akrofi et al., 2019). By prioritizing these factors, organizations have the potential to optimize project performance, ensure the delivery of superior software, and attain elevated levels of customer satisfaction within Agile software development endeavors (Wilkens, 2021).

2.5. Theoretical Framework

The present theoretical framework provides a comprehensive comprehension of the intricate relationship among project leadership style, team dynamics, organizational culture, and project success within the realm of agile software development. This theoretical framework acknowledges the significance of adaptively addressing change and consistently enhancing performance over the course of the project's lifespan. The participative leadership theory posits that leaders who effectively inspire and motivate their team members by fostering a shared vision, exhibiting charisma, stimulating intellectual growth, and demonstrating individual consideration can have a substantial influence on the success of projects (Attiq & Rehman, 2020). The capacity to cultivate a sense of dedication, creativity, and exceptional performance has the potential to yield favorable results in agile projects. In contrast, the theory of servant leadership emphasizes leaders who place a high value

on addressing the needs of their team members, thereby fostering a nurturing atmosphere that promotes cooperation, trust, and the contentment of employees. These leaders facilitate the empowerment of their teams, thereby fostering growth, development, and the attainment of optimal performance (Khassawneh & Elrehail, 2022).

The internal dynamics of the team are a critical factor in determining the success of a project. The social exchange theory places emphasis on the importance of positive interpersonal relationships, trust, and effective communication within a team (Wilkins, 2021). The promotion of cooperation, coordination, and project success is facilitated when team members engage in a reciprocal exchange of resources, including support, information, and cooperation. The theory of shared mental models emphasizes the significance of a collective comprehension and repository of knowledge within a team. The presence of a shared mental model enhances the efficacy of collaborative efforts, coordination, and the process of making informed decisions. The establishment of collective comprehension fosters effective communication, mitigates mistakes, and enhances the overall results of projects within the context of agile software development (Ahmad et al., 2023).

Moreover, according to Edgar Schein's organizational culture theory, the culture existing within a given organization plays a crucial role in influencing behaviors, attitudes, and practices. A corporate culture that is congruent with agile principles, including the promotion of ongoing learning, adaptability, and innovation, contributes to the achievement of project objectives. The establishment of such an environment fosters the development of autonomy, empowerment, knowledge dissemination, and collaboration within the team (Weber & Martensen, 2021).

The present theoretical framework offers a structured approach to exploring the intricate connections and potential mechanisms by which project leadership style, team dynamics, and organizational culture impact the achievement of projects in the context of agile software development. Through the integration of various

theories and concepts, researchers can acquire a comprehensive comprehension of the intricate interplay and influence of these factors on project outcomes (Gren & Ralph, 2022). The proposed framework will function as a tool for analyzing empirical data and extracting valuable insights that can contribute to the development of effective project management strategies within the specific context of agile software development projects. Within the scope of the research subject, this theoretical framework serves as the basis for investigating the impact of project leadership style, team dynamics, and organizational culture on the achievement of projects in the context of agile software development (Koi-Akrofi et al., 2019).

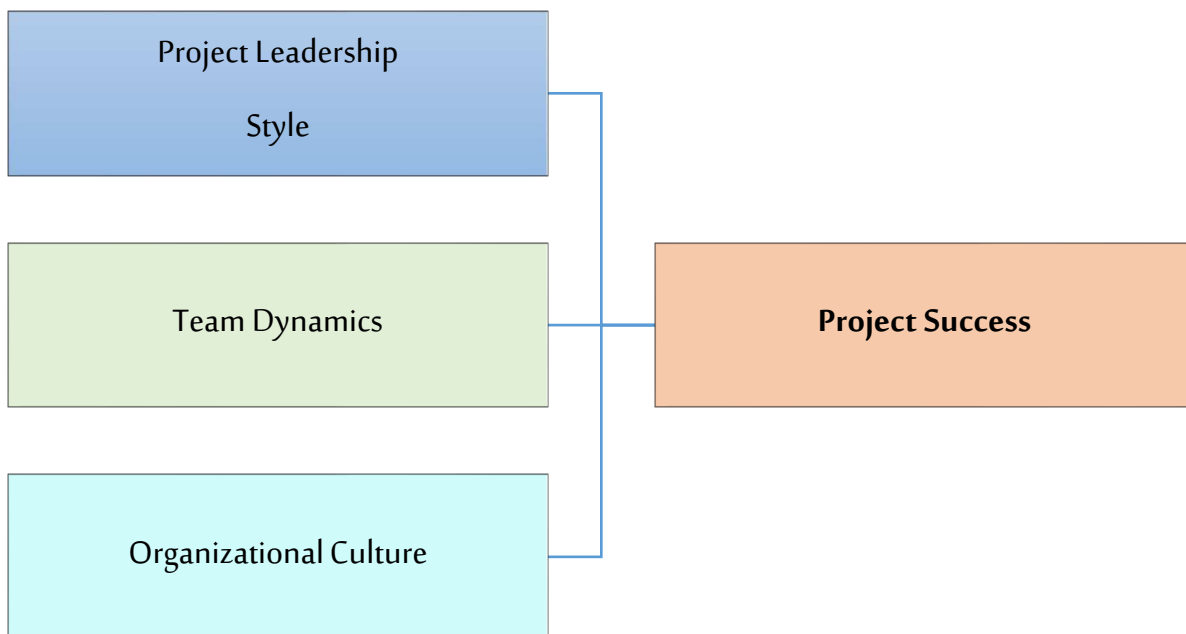


Figure 1: Theoretical Framework

2.6. Research Hypothesis

H_{a1}: Different project leadership styles positively impact project success in agile software development.

H_{a2}: Positive team dynamics (communication, collaboration, shared goals) significantly contribute to project success in agile software development.

H_{a3}: Organizational culture that supports agility, continuous learning, adaptability, and innovation positively affects project success in agile software development.

CHAPTER III

RESEARCH METHODOLOGY

This research work employed a quantitative methodology and was carefully organized within a descriptive research framework. The targeted a specific population encompassing all individuals functioning as subordinates within software development firms and directly engaged in various software development projects. These subordinates constituted a diverse group, spanning not only software development personnel but also employees responsible for both technical and non-technical tasks within the firm. This research work employed the simple random sampling approach, which is deliberated as the most fundamental and extensively utilized approach to get unbiased results. This research was based upon the utilization of a primary data analysis methodology, which required the direct collection of first-hand information from the participants. To accomplish this objective, a thoroughly developed questionnaire was formed as the primary tool for gathering data. The questionnaire was formed through the online platform Google Forms, and an online link to the questionnaire was distributed among the study participants. Data analysis tools such as SPSS and Microsoft Excel were leveraged to examine the collected information. SPSS, a statistical software, was applied for detailed data analysis using various methods. Microsoft Excel was used for data coding and cleaning processes aimed at transforming qualitative information into a numerical format. To determine the internal coherence of the data and measure how well the variables reflect the fundamental construct, Cronbach's alpha was used. To reduce the size and dimensions of the dataset, techniques of multivariate analysis were implemented. Utilizing summary statistics assisted in reshaping the data, while correlation and regression analysis helped measure the relationship and impact between the dependent and independent variables.

3.1. Research Approach

The study employed a quantitative methodology and was carefully organized within a descriptive research framework. The objective of this approach was to conduct a systematic investigation and analysis of different facets associated with software development projects, with the aim of offering a comprehensive understanding of the phenomena being examined. The utilization of a descriptive research design facilitated a comprehensive examination of the variables under investigation while also providing a systematic framework that facilitated the extraction of significant findings from the gathered data. The utilization of a quantitative approach in this study played a crucial role in the quantification and analysis of the responses collected from the participants. This methodology facilitated the transformation of subjective experiences and opinions into quantifiable data, thereby enabling a thorough investigation of the research inquiries and goals. The study sought to utilize a quantitative framework to obtain objective findings and reveal latent patterns within the dataset (Daniel, 2016).

The selection of the descriptive research design was made to improve the clarity and focus of the study. The design employed in this study enabled a methodical depiction and examination of the software development environment, the responsibilities of project leaders, the interactions within teams, and the adoption of agile methodologies. By employing descriptive research methods, the research team can provide a comprehensive portrayal of the attributes and actions witnessed among the designated population, thereby illuminating the fundamental elements that contribute to the achievement of software development endeavors (Doyle et al., 2019).

The implementation of the quantitative methodology facilitated the methodical acquisition of data, which has subsequently undergone analysis and evaluation to derive conclusions. The utilization of the descriptive research design facilitated the systematic investigation and documentation of the essential

components necessary to achieve the research objectives. During the study, data was gathered through the implementation of a meticulously designed questionnaire, while participants were chosen with the aid of simple random sampling to guarantee the attainment of a representative sample. The data obtained from the participants was subsequently subjected to thorough analysis utilizing statistical software tools such as SPSS and Microsoft Excel. This facilitated the extraction of valuable insights and the verification of research hypotheses. The research reached its apex through a comprehensive analysis of the quantitative data, resulting in a comprehensive comprehension of the complex interaction among project leadership, team dynamics, agile methodologies, and the overall achievement of software development projects. The utilization of the descriptive research design enabled the systematic arrangement and exposition of these results, offering a coherent account that encompassed the various dimensions of the research field (Mohajan, 2020).

3.2. Research Design

This research study employed the descriptive research design with the aim of providing a more comprehensive and thorough explanation of the role of project leadership style, team dynamics, and organizational culture on the project's success. In addition, in the descriptive research approach, the relationship between the diverse factors is studied to understand the aspects of the diverse population. The methodology utilized in this research encompasses the collection of first-hand primary data, which is gathered from the online survey through various workers and subordinates working in software development (Sheard, 2018). The self-structured questionnaire was employed to collect the data from the diverse subordinates and workers to gather their perceptions, experiences, and attitudes related to the project's success in agile software development. In addition, the descriptive approach includes the summarization of the results and presents the results through employing descriptive and inferential statistics, including the standard deviation, mean, mode, and frequencies. The analysis also included correlational and regression analysis to identify the relationship

and impact of one variable on others. The obtained results from the statistical analysis were evaluated, and conclusions were made to enhance the understanding regarding the role of project leadership, team dynamics, and organizational culture on the success of projects in agile software development in KSA. The employment of descriptive research design conceded substantial findings and formed a major basis for the subsequent examination and formulation of the diverse approaches and policies pertaining to the organizational culture, team dynamics, and better utilization of leadership styles for the success of the projects (Siedlecki, 2020).

3.3. Target Population (Sampling Technique and Sample Size)

The research targeted a specific population encompassing all individuals functioning as subordinates within software development firms and directly engaged in various software development projects. These subordinates constituted a diverse group, spanning not only software development personnel but also employees responsible for both technical and non-technical tasks within the firm. The sample size for this research study was predetermined to include 150 participants. However, the ultimate sample size was dependent on variables such as the rate of participation and the level of willingness exhibited by potential participants to actively partake in the survey. The adaptable methodology employed in this study allowed for the inclusion of a wide range of experiences and distinct viewpoints from the participants. As a result, a thorough comprehension of the crucial functions performed by project leaders, the dynamics within teams, and the successful application of agile methodologies in software development projects was facilitated (Alvi, 2016).

3.4. Research Sampling

This research work employed the simple random sampling approach, which is deliberated as the most fundamental and extensively utilized approach to get unbiased results. To achieve a comprehensive and

reliable representation of the research participants, a methodology utilizing simple random sampling was implemented. The rationale for selecting this approach was based on its ability to ensure equitable representation of all individuals within the target population as potential participants in the study. The implementation of simple random sampling played a crucial role in minimizing potential biases, thus improving the overall validity of the research results. The initial step of the simple random sampling approach includes compiling an extensive list of the potential respondents of the study, including the workers, subordinates, software, and other related people. A sample of the participants from the population was chosen randomly, and this process also ensured that each candidate had an equal probability of being selected. The employment of the sampling methodology facilitated an unbiased and impartial approach to the process of selection, thereby diminishing the risk of potential bias (Taherdoost, 2016).

3.5. Data Collection Approach

This research was based upon the utilization of a primary data analysis methodology, which required the direct collection of first-hand information from the participants. To accomplish this objective, a thoroughly developed questionnaire was formed as the primary tool for gathering data. The development of this questionnaire was supported by a thorough and comprehensive examination of the existing literature. This review informed the formulation of pertinent and intriguing inquiries, which aimed to facilitate the investigation of the research objectives. The questionnaire was developed as a digital tool, specifically employing the versatile platform of Google Forms. The utilization of this digital medium not only enabled the development of a questionnaire that is easy for users to navigate but also optimized the efficiency of the subsequent data collection procedure. The questionnaire has been developed and designed with careful effort and thoughtful consideration. It has proven to be an effective instrument for collecting a wide range of perspectives from participants, enabling the capture of their experiences, insights, and observations in the

specific context of software development projects. The questionnaire consisted of five parts: the first part contained demographic questions, the second part contained questions regarding project leadership style, the third part contained questions related to team dynamics, the fourth part contained questions related to organizational culture, and the last part comprised the question on the project success (Taherdoost, 2019).

In accordance with ethical research principles, thorough efforts were made to obtain prior consent from all prospective participants prior to the dissemination of the questionnaire. The implementation of these measures not only guaranteed the safeguarding of the rights of the participants but also validated their active involvement in the research. The research study exclusively included participants who provided their consent voluntarily, thereby adhering to the principle of voluntary participation. Utilizing the widespread usage of diverse online communication platforms, the research employed channels such as WhatsApp, email, and other digital mediums to distribute the online questionnaire link. The implemented strategy aimed to optimize the reach and availability of the research, thereby enabling individuals from various backgrounds and situations to both access and actively contribute to it. The act of distributing the questionnaire link was carried out with the aim of accommodating the preferences and convenience of the participants. The research sought to create a participatory environment by adopting various communication channels, allowing respondents to choose the mode of interaction that best suited their preferences (Johnson et al., 2018).

3.6. Data Analysis

The research's data analysis phase was supported by the practical use of specialized tools, specifically SPSS (Statistical Package for the Social Sciences) and Microsoft Excel. The utilization of these robust software solutions played a crucial role in the processing and extraction of significant insights from the gathered data, thereby guaranteeing a meticulous and all-encompassing analysis of the research data. The Statistical Package for the Social Sciences (SPSS) has emerged as a fundamental tool in the comprehensive process of analyzing

data. The statistical software provided a wide range of methods for analyzing and examining the dataset. The utilization of this technology facilitated the researcher in the exploration of the complexities inherent in the gathered data, thereby uncovering concealed patterns, trends, and interconnections that would otherwise remain undisclosed. By employing a range of statistical methodologies, the utilization of SPSS software enabled the extraction of significant and informative data, thereby illuminating the intricacies inherent in the research aims (Pallant, 2021).

Microsoft Excel was instrumental in the initial phases of data analysis, specifically in the tasks of data coding and cleaning. The primary objective of these essential procedures was to convert the qualitative data gathered from the survey into a well-organized numerical framework that could be efficiently examined. The process of data coding involved systematically assigning numerical values to qualitative responses, thereby rendering them suitable for statistical analysis. The process of transforming subjective data into objective data was crucial in extracting valuable insights from the wide array of participant viewpoints. The data cleansing procedure conducted in Microsoft Excel involved various crucial components. The process entailed a thorough examination and verification of the dataset to detect and correct any inconsistencies or inaccuracies. To improve the overall quality of the dataset, extraneous data points were eliminated. The process of refinement implemented in this study aimed to guarantee that the subsequent analysis would be founded upon precise and dependable data, devoid of any distortions that could potentially undermine the integrity of the results (Abulela & Harwell, 2020).

To evaluate the internal consistency and reliability of the data, the researchers utilized Cronbach's alpha, a well-established measure commonly employed in the field of research. The utilization of this statistical technique enabled the research team to evaluate the consistency of the variables and determine their efficacy in representing the underlying constructs being examined. The evaluation played a pivotal role in guaranteeing

the strength and reliability of the research results, thereby bolstering the overall trustworthiness of the findings (Bujang et al., 2018).

As the progression of data analysis unfolded, the multivariate analysis techniques were utilized aimed to decrease the size and dimensions of the dataset while maintaining the essential information contained within it. By utilizing summary statistics, the data underwent a process of reshaping and summarization, resulting in a concise yet inclusive representation of the main findings derived from the study. In addition, the researcher performed correlation and regression analyses to investigate the associations and effects between the dependent and independent variables, yielding significant findings regarding the underlying dynamics within the software development projects (Pallant, 2021).

3.7. Research Validation

The structured questionnaire survey was validated to ensure its ability to precisely measure the intended constructs while holding objectivity and clarity in its statements. In addition, before distributing the questionnaire to the research participants, the researcher validated the questionnaire by three experts in the relevant field to find and address the substantial shortcomings, such as unclear questions or unsuitable statements and formatting. Additionally, the committee containing the three research experts was enlisted to assess the survey and provide significant insights. The questionnaire was thoroughly reviewed by the research experts to ensure its validity. Each expert professor provided feedback, which helped to refine the questionnaire, resulting in its quality and validity. The extensive and comprehensive validation procedure is employed to enhance the overall reliability and strength of the research results, thereby increasing the credibility of the outcomes.

3.8. Ethical Considerations

This research work thoroughly followed the ethical considerations to ensure the safety and confidentiality of the research participants and to maintain the research process's reliability. All the participants of this research work were briefed regarding the purpose and aim of the research work to ensure that all the participants understood the study's objectives and potential risks prior to their participation. In addition, before distributing the questionnaire among the participants, informed consent was taken, and only those participants who were willing to participate were included. The researcher ensured the confidentiality and privacy of the participants were supported to protect the identities and other sensitive information of the research participants. This research work thoroughly followed the voluntary participation of the participants, as not a single participant was subjected to compulsion to participate in this research. Moreover, the results of this study were presented with high accuracy, and any potential conflict of interest was properly disclosed. Furthermore, the results of this research were supported by highly reliable sources to ensure the credibility of the findings to generalize.

CHAPTER IV

RESULTS

This research work is based on finding the effect of project leadership style, team dynamics, and organizational culture on project success in agile software development. This research work primarily centered on the primary data analysis, and data was gathered through the online questionnaire approach. The data was collected from 150 individuals functioning as subordinates within software development firms and directly engaged in various software development projects. This study employed MS Excel and SPSS for the data analysis by using several statistical approaches, including descriptive analysis, multivariate analysis, factor analysis, regression analysis, and correlational analysis. This research work utilized the 20 observed variables to measure the latent variables of the research. Data have been evaluated through the IBM SPSS-26, and the results of the analysis have been exemplified in this chapter.

4.1. Demographic Analysis

Table 1: Frequency and Percentage Analysis Results of Demographic Data

Variables	Options	Frequency	Percentage (%)
Age	25-35 Years	100	66.7
	36-45 Years	43	28.7
	46-55 Years	6	4.0
	More than 55 Years	1	0.7
Gender	Male	107	71.3
	Female	43	28.7
	High School	1	4.7

Education Level	Bachelor's Degree	101	67.3
	Master's Degree	38	25.3
	Ph.D.	4	2.7
Types of Firms in Which Participants Working	Small Startup	20	13.3
	Mid-Sized Company	36	24.0
	Large Corporations	61	40.7
	Consulting/ Contracting Firm	17	11.3
	Other	16	10.7
Working Experience	Less than 1 Year	32	21.3
	1-5 Years	63	42.0
	6-10 Years	37	24.7
	More than 10 Years	18	12.0

The above-showed Figure and Table indicate the results extracted based on the demographic questions asked of the participants. The above figure shows the age of the participants, and it has been indicated that 67% were from the 25 – 35 years age group, 28% were from the 35 – 45 years age group, 4% were from the 45 – 55 years age group, and 1% were more than 55 years of age group. Subsequently, the results show that 29% were females and 71% were male participants. In addition, based on the education level of participants, it has been indicated that 5% of participants have high school degrees, 67% have bachelor's degrees, 25% of participants have master's degrees, and 3% of participants have PhD degrees. Moreover, in terms of types of firms of participants, 13% worked in small-sized firms, 24% worked in medium-sized firms,

41% worked in large-sized firms, 11% worked in consulting and contracting firms, and 11% worked in other firms. Based on the working experience of the participants, 21% have less than 1 year of experience, 42% have 1 – 5 years of experience, 25% have 6 – 10 years of experience, and 12% have more than working experience.

Table 2: Summary Statistics of Demographic Data

	N	Mean	Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Age	150	1.39	.600	.360	2.106	.394
Gender	150	1.29	.454	.206	-1.107	.394
Education Level	150	2.26	.584	.341	.906	.394
Types of Firms in Which Participants Working	150	2.82	1.136	1.290	-.414	.394
Working Experience	150	2.27	.933	.871	-.715	.394
Valid N (Listwise)	150					

The above-shown Table 2 presents a summary of key demographic statistics for a sample of 150 participants. The variables under consideration include Age, Gender, Education Level, Types of Firms in Which Participants are Working, and Working Experience. The table provides essential statistical measures, such as the mean, standard deviation, variance, and kurtosis, for each demographic variable. For instance, the mean age is 1.39, with a standard deviation of 0.600, indicating a relatively young sample population. Similarly, the distribution of education levels has a mean value of 2.26 and a kurtosis of 0.906, suggesting a higher concentration around the mean. The other demographics display various statistical characteristics, reflecting the diversity and specific trends within the sample.

4.2. Results of Frequency and Percentage Analysis

4.2.1 Summary of Project Leadership Style Data

Table 3: Frequency and Percentage Analysis Results of Leadership Style Data

	The project leader effectively communicates project goals and expectations.	The project leader encourages collaboration and open communication among team members.	The project leader demonstrates adaptability and embraces change when necessary.	The project leader provides clear direction and guidance to the team.	The project leader fosters a positive and motivating work environment.
Strongly Disagree	10	9	7	9	5
Disagree	15	11	6	8	9
Neutral	74	37	50	41	52
Agree	41	78	55	64	51
Strongly Agree	10	15	32	28	33

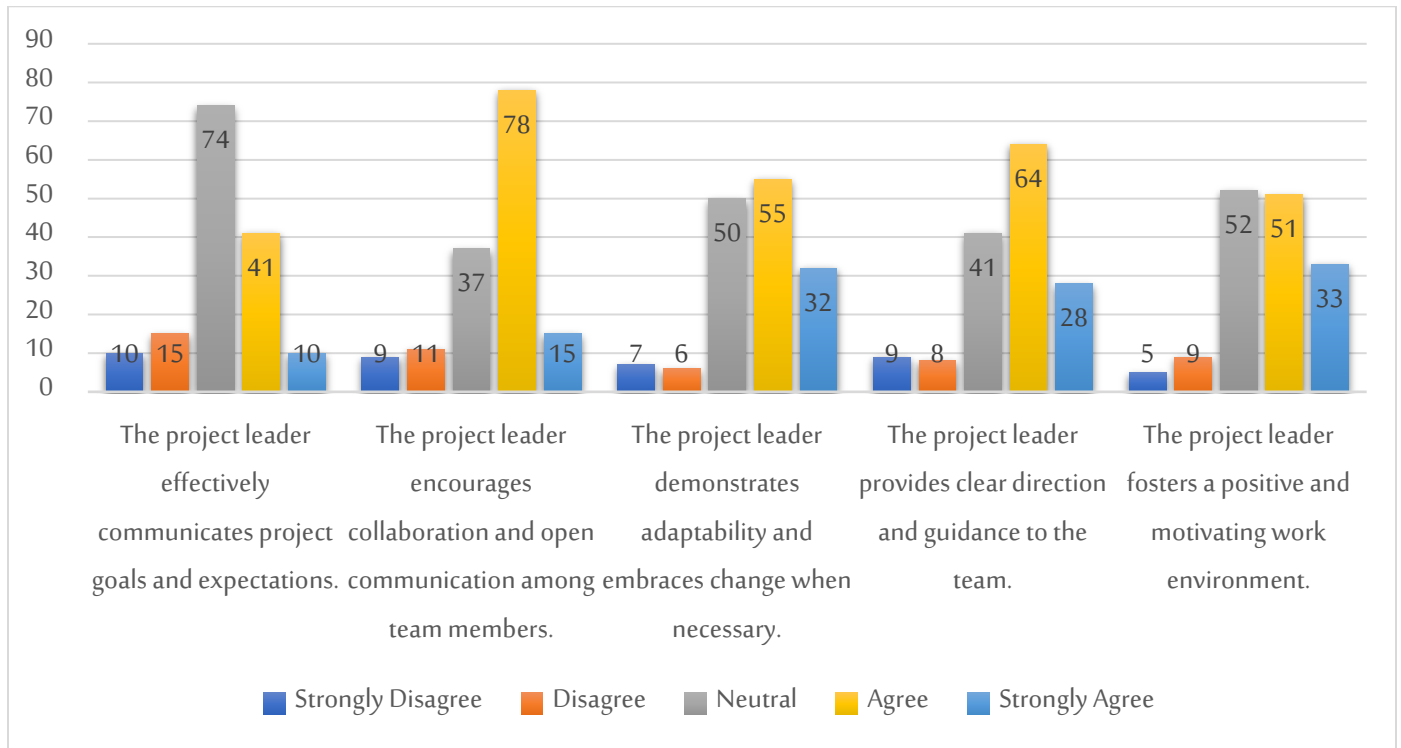


Figure 2: Frequency and Percentage Analysis Results of Leadership Style Data

Table 3 shows that most of the participants have positive views on the project leader's leadership style in the areas of communication, collaboration, adaptability, direction, and motivation. A total of 41 participants agreed, and 10 strongly agreed that the project leader effectively communicates project goals and expectations. This indicates a general approval of the leader's ability to articulate objectives. 78 participants agreed, and 15 strongly agreed that the leader encourages collaboration and open communication. This is a substantial endorsement of the leader's collaborative approach. 55 agreed, and 32 strongly agreed with the leader's ability to adapt and embrace change. This demonstrates a positive perception of the leader's flexibility in the face of change. 64 agreed, and 28 strongly agreed that the leader offers clear direction and guidance. This points to a well-regarded ability to guide the team. 51 agreed, and 33 strongly agreed that the leader fosters a positive and motivating environment. This reveals an appreciation for the leader's efforts to maintain a supportive

workplace. The consistent agreement and strong agreement in these areas reflects a broad approval of the leader's methods and effectiveness in managing the project team.

Table 4: Summary Statistics of Leadership Style Data

	N	Mean		Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
Item 1	150	3.20	.073	.897	.805	.398	.394
Item 2	149	3.52	.080	.977	.954	.756	.395
Item 3	150	3.66	.082	1.009	1.018	.374	.394
Item 4	150	3.63	.085	1.040	1.081	.475	.394
Item 5	150	3.65	.081	.997	.993	.012	.394
Valid N (Listwise)	149						

Table 4 displays the summary statistics of leadership style data across five items, with a sample size ranging from 149 to 150. It reveals the mean, standard deviation, variance, and kurtosis for each item, highlighting the central tendency and dispersion within the data. The mean values range from 3.20 to 3.66, suggesting generally positive evaluations, and the kurtosis statistics provide insights into the tail behavior of the distribution for each item.

4.2.2. Summary of Team Dynamics Data

Table 5: Frequency and Percentage Analysis Results of Team Dynamics Data

	Team members share knowledge and expertise to solve complex problems.	There is a strong sense of trust and mutual respect among team members.	Team members collaborate seamlessly, leveraging each other's strengths.	Conflicts within the team are resolved constructively, leading to better outcomes.	Team members are motivated to achieve project goals and support one another.
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Strongly Disagree	9	6	7	9	11
Disagree	13	11	12	15	14
Neutral	42	44	48	43	38
Agree	68	57	66	59	59
Strongly Agree	18	32	17	24	28

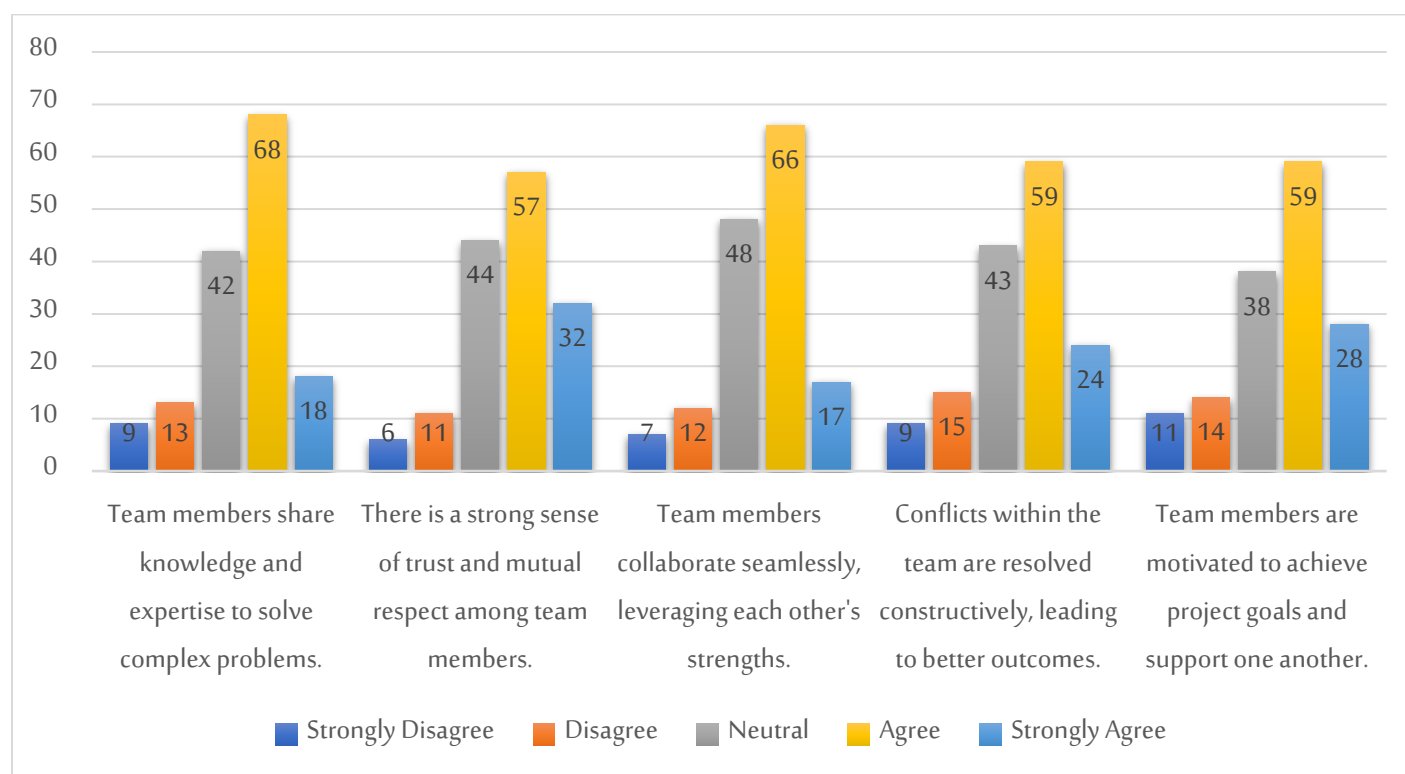


Figure 3: Frequency and Percentage Analysis Results of Team Dynamics Data

Table 5 illustrates a generally positive perception of team dynamics, with most participants endorsing efficient collaboration, trust, conflict resolution, motivation, and knowledge-sharing within the team. 68 participants agreed, and 18 strongly agreed that team members share knowledge and expertise to solve complex problems, showing a robust culture of knowledge sharing within the team. 57 agreed, and 32 strongly agreed with a strong sense of trust and respect among team members, indicating a cohesive and respectful

team environment. 66 participants agreed, and 17 strongly agreed that team members collaborate seamlessly, utilizing each other's strengths, reflecting efficient teamwork. 59 agreed, and 24 strongly agreed that conflicts within the team are constructively resolved, leading to better outcomes, highlighting an effective conflict management approach. 59 agreed, and 28 strongly agreed that team members are motivated to achieve project goals and support one another, underlining a motivated and supportive team culture.

Table 6: Summary Statistics of Team Dynamics Data

	N	Mean		Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
Item 1	150	3.51	.082	1.002	1.003	.320	.394
Item 2	150	3.65	.084	1.023	1.047	.086	.394
Item 3	149	3.51	.077	.942	.887	.441	.395
Item 4	150	3.49	.087	1.067	1.138	-.078	.394
Item 5	150	3.53	.092	1.121	1.258	-.136	.394
Valid N (Listwise)	149						

Table 6 displays the summary statistics of team dynamics data across five items, with a sample size ranging from 149 to 150. It reveals the mean, standard deviation, variance, and kurtosis for each item, highlighting the central tendency and dispersion within the data. The mean values range from 3.51 to 3.53, suggesting generally positive evaluations, and the kurtosis statistics provide insights into the tail behavior of the distribution for each item.

4.2.3. Summary of Organizational Culture

Table 7: Frequency and Percentage Analysis Results of Organizational Culture Data

	The organization promotes a culture of innovation and continuous improvement.	There is alignment between the organization's values and project goals.	The organization encourages autonomy and empowers teams to make decisions.	Open communication channels exist, allowing employees to share their perspectives.	The organization values and rewards teamwork and collaboration.
Strongly Disagree	6	8	7	10	6
Disagree	12	9	19	13	10
Neutral	32	49	39	35	39
Agree	80	57	59	69	65
Strongly Agree	20	27	26	23	30

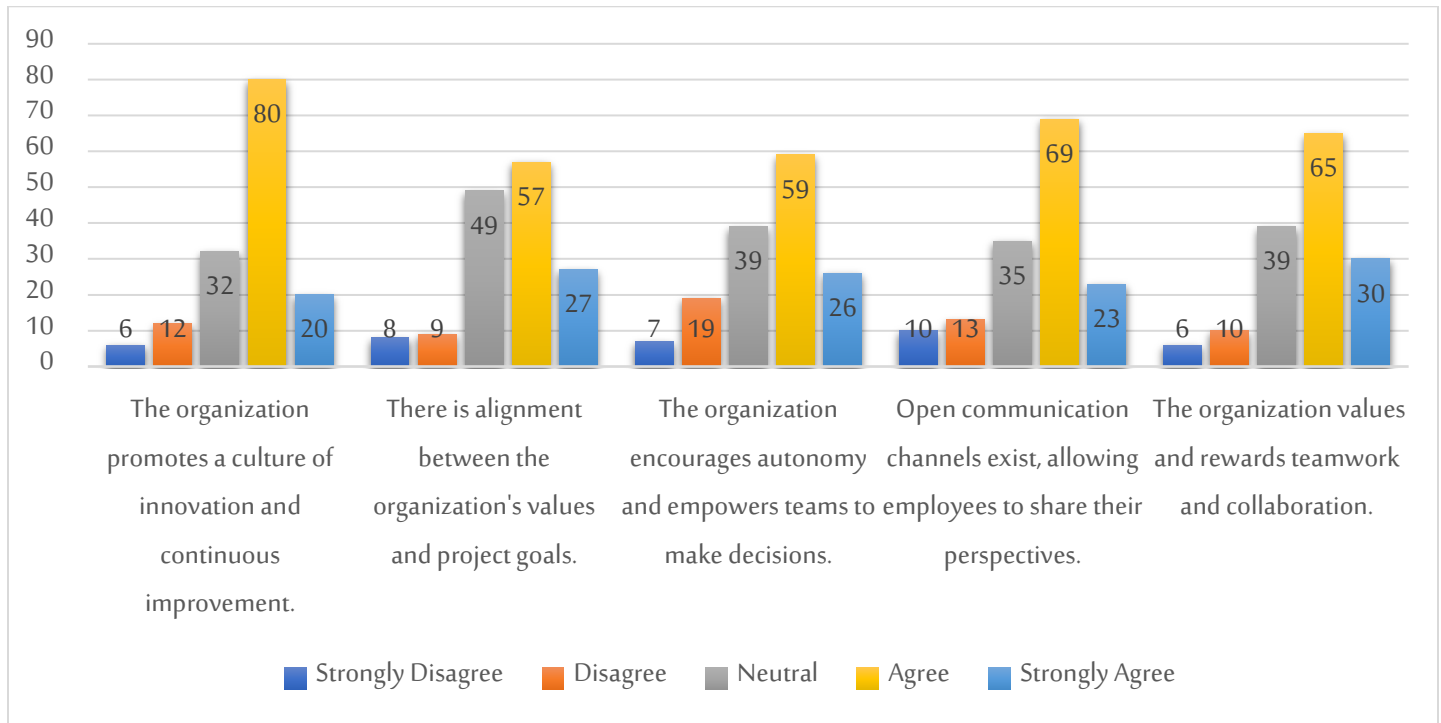


Figure 4: Frequency and Percentage Analysis Results of Organizational Culture Data

The above-shown Table 7 suggests a predominantly positive perception of organizational culture, emphasizing innovation, alignment with values, employee empowerment, open communication, and teamwork. These elements likely contribute to a vibrant and synergistic organizational environment that fosters success and growth. 80 participants agreed, and 20 strongly agreed that the organization promotes a culture of innovation and continuous improvement, reflecting an active encouragement of creative thinking and development. 57 agreed, and 27 strongly agreed that there is alignment between the organization's values and project goals, indicating strong coherence and consistency in organizational direction. 59 participants agreed, and 26 strongly agreed that the organization encourages autonomy and empowers teams to make decisions, signifying a trust in employee judgment and capabilities. 69 agreed, and 23 strongly agreed that open communication channels exist, facilitating employee sharing of perspectives, indicating an emphasis on

transparency and dialogue. 65 agreed, and 30 strongly agreed that the organization values and rewards teamwork and collaboration, underscoring a commitment to cooperative working relationships.

Table 8: Descriptive Statistics of Organizational Culture Data

	N	Mean		Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
Item 1	150	3.64	.078	.950	.903	.823	.394
Item 2	150	3.57	.084	1.025	1.052	.256	.394
Item 3	150	3.52	.087	1.066	1.137	-.282	.394
Item 4	150	3.55	.087	1.066	1.135	.211	.394
Item 5	149	3.70	.080	.976	.953	.400	.395
Valid N (Listwise)	149						

Table 8 displays the summary statistics of organizational culture data across five items, with a sample size ranging from 149 to 150. It reveals the mean, standard deviation, variance, and kurtosis for each item, highlighting the central tendency and dispersion within the data. The mean values range from 3.64 to 3.70, suggesting generally positive evaluations, and the kurtosis statistics provide insights into the tail behavior of the distribution for each item.

4.2.4. Summary of Project Success

Table 9: Frequency and Percentage Analysis Results of Project Success Data

	We achieved the project objectives within the specified timeframe.	We deliver a high-quality product that meets or exceeds customer expectations.	We utilize effective management of resources, and minimize budget	We demonstrated the value and impact of the project on the organization.	We experienced overall satisfaction with the project's outcomes and
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			and time overruns.		the team's performance.
<i>Strongly Disagree</i>	7	6	3	3	11
<i>Disagree</i>	10	10	10	11	12
<i>Neutral</i>	42	55	51	44	46
<i>Agree</i>	73	55	62	63	54
<i>Strongly Agree</i>	18	24	24	29	27

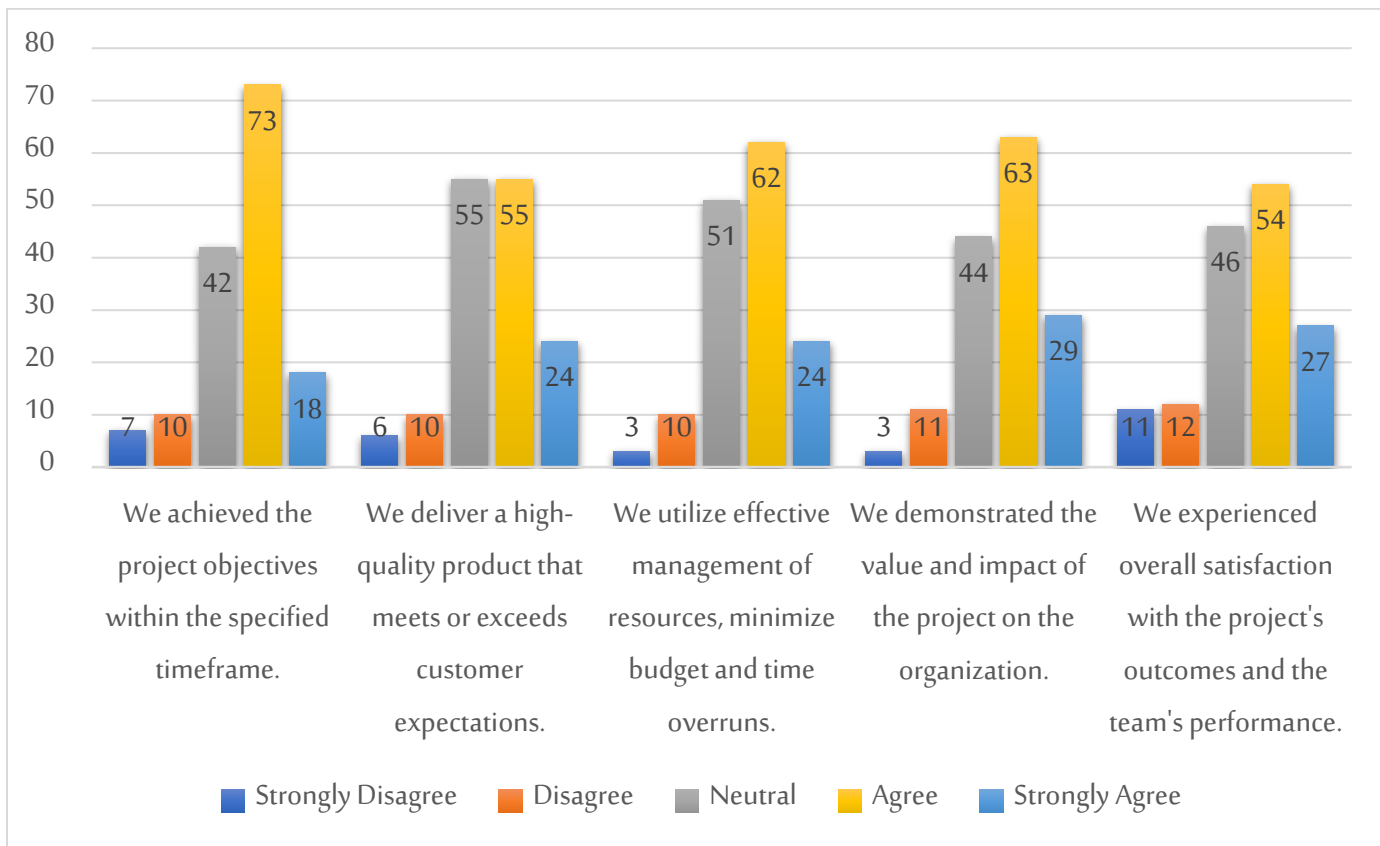


Figure 5: Frequency and Percentage Analysis Results of Project Success Data

Table 9 illustrates a generally positive perception of project success in various facets, including timely achievement of goals, product quality, resource management, demonstrated value, and overall satisfaction.

These results reflect a well-executed project that aligns with organizational expectations and customer needs, likely contributing to the overall success and acceptance of the project within the organization. 73 participants agreed, and 18 strongly agreed that the project objectives were achieved within the specified timeframe, signifying timely accomplishment. 55 participants agreed, and 24 strongly agreed that a high-quality product was delivered that meets or exceeds customer expectations, highlighting a focus on quality assurance. 62 agreed and 24 strongly agreed that resources were effectively managed, minimizing budget and time overruns reflecting efficient management practices. 63 agreed, and 29 strongly agreed that the project demonstrated value and impact on the organization, indicating a tangible contribution to the organizational goals. 54 agreed, and 27 strongly agreed that there was overall satisfaction with the project's outcomes and the team's performance, showcasing positive sentiments toward the project's execution.

Table 10: Summary Statistics of Project Success Data

	N	Mean		Std. Deviation	Varianc e	Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
Item 1	150	3.57	.078	.951	.905	.752	.394
Item 2	150	3.54	.080	.974	.948	.221	.394
Item 3	150	3.63	.074	.902	.813	.189	.394
Item 4	150	3.69	.076	.934	.872	.097	.394
Item 5	149	3.51	.089	1.088	1.184	-.057	.395
Valid N (Listwise)	149						

Table 10 displays the summary statistics of organizational culture data across five items, with a sample size ranging from 149 to 150. It reveals the mean, standard deviation, variance, and kurtosis for each item, highlighting the central tendency and dispersion within the data. The mean values range from 3.57 to 3.51,

suggesting generally positive evaluations, and the kurtosis statistics provide insights into the tail behavior of the distribution for each item.

4.3. Results of Reliability Analysis

Table 11: Results of Cronbach Alpha

Latent Factors	Number of Items	Cronbach's Alpha Score
Project Leadership Style	5	0.88
Team Dynamics	5	0.79
Organizational Culture	5	0.75
Project Success	5	0.77

The above-shown table presents the Cronbach's Alpha scores for four latent factors, each represented by five items. Cronbach's Alpha is a measure of internal consistency, reflecting how closely related a set of items are within a group. The latent factor Project Leadership Style has a high Cronbach's Alpha score of 0.88, indicating a strong internal consistency and suggesting that the items are closely related in measuring leadership style. Team Dynamics and Project Success have scores of 0.79 and 0.77, respectively, showing good reliability. The Organizational Culture factor, with a score of 0.75, also indicates acceptable internal consistency. These scores collectively signify that the items within each latent factor are suitably cohesive for analyzing these specific dimensions.

4.4. Results of Multivariate Analysis

Table 12: Results of Multivariate Analysis

Latent Factors	Number of Items	KMO Test Value	Bartlett's Test of Sphericity	Sums of Squared Loading	Extracted Factors
Project Leadership Style	5	0.78	<0.01	52.23	1
Team Dynamics	5	0.79	<0.01	51.56	1
Organizational Culture	5	0.77	<0.01	55.15	1
Project Success	5	0.71	<0.01	51.67	1

The above-shown Table 12 above displays the results of a multivariate analysis performed on four latent factors, each containing five items. The KMO values range from 0.71 to 0.79, all above the commonly accepted threshold of 0.6, indicating that the data for each latent factor is suitable for factor analysis. Bartlett's Test of Sphericity test checks the hypothesis that the variables are uncorrelated in the population. A value of <0.01 for each latent factor strongly suggests that there are significant relationships between the variables, further justifying the factor analysis. The Sums of Squared Loading values (ranging from 51.56 to 55.15) represent the total variance captured by the factors, reflecting how well the factor captures the underlying constructs. The Extracted Factors column, showing a value of 1 for each latent factor, indicates that one principal factor was extracted for each construct. In summary, Table 12 represents a well-executed factor analysis, where data suitability has been confirmed and relationships between variables have been established.

The extraction of one factor for each latent construct simplifies interpretation and aligns with theoretical expectations, affirming the constructs of Project Leadership Style, Team Dynamics, Organizational Culture, and Project Success in the given context.

4.5. Results of Correlation Analysis

Table 13: Results of Correlation Analysis

		Project Leadership Style	Team Dynamics	Organizational Culture	Project Success
Project Leadership Style	Pearson Correlation	1	.703**	.767**	.718**
	Sig. (2-tailed)		.000	.000	.000
	N	150	150	150	150
Team Dynamics	Pearson Correlation	.703**	1	.735**	.702**
	Sig. (2-tailed)	.000		.000	.000
	N	150	150	150	150
Organizational Culture	Pearson Correlation	.767**	.735**	1	.614**
	Sig. (2-tailed)	.000	.000		.000
	N	150	150	150	150
Project Success	Pearson Correlation	.718**	.702**	.714**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	150	150	150	150

****.** Correlation is significant at the 0.01 level (2-tailed).

The above-shown Table 13 provides the results of a correlation analysis between four constructs: Project Leadership Style, Team Dynamics, Organizational Culture, and Project Success. The Pearson Correlation values, significant at the 0.01 level (2-tailed), reveal the following insights: The Project Leadership Style shows strong positive correlations with Team Dynamics (0.703), Organizational Culture (0.767), and Project Success (0.718). This suggests that effective leadership is closely associated with team collaboration, alignment with

organizational culture, and overall project success. Similarly, Team Dynamics has strong positive correlations with Organizational Culture (0.735) and Project Success (0.702), indicating that cohesive team dynamics are vital for maintaining organizational culture and achieving project goals. Organizational Culture is significantly correlated with Project Success (0.614), indicating that an aligned organizational culture contributes positively to the successful completion of projects. In summary, the results indicate that all four constructs are positively interrelated, signifying that effective leadership, cohesive team dynamics and a well-aligned organizational culture are integral to project success. These correlations underscore the importance of these factors in building a collaborative environment that facilitates the attainment of project objectives.

4.6. Results of Regression Analysis

Table 14: Results of the ANOVA Test						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.990	3	18.997	30.475	.000
	Residual	91.010	146	.623		
	Total	148.000	149			
a. Dependent Variable: Project Success						
b. Predictors: (Constant), Organizational Culture, Team Dynamics, Project Leadership Style						

Table 14 presents the results of an Analysis of Variance (ANOVA) test, focusing on the dependent variable Project Success. The predictors are Organizational Culture, Team Dynamics, and Project Leadership Style. The p-value of .000 suggests that there is a statistically significant relationship between the predictors (Organizational Culture, Team Dynamics, Project Leadership Style) and the dependent variable (Project Success). It confirms that the model is statistically significant at the conventional 0.05 level. In addition, the results of the ANOVA test indicate that the model is statistically significant, and the predictors collectively have a substantial impact on Project Success. It supports the conclusion that Project Leadership Style, Team

Dynamics, and Organizational Culture are significant predictors of project success and should be considered essential components in project management and organizational strategy.

Table 15: Results of Regression Analysis							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypothesis
		B	Std. Error	Beta			
1	(Constant)	-.003	.064		-.046	.963	
	Project Leadership Style	.088	.107	.088	3.821	.000	Accepted
	Team Dynamics	.083	.100	.084	4.836	.000	Accepted
	Organizational Culture	.484	.112	.484	4.323	.000	Accepted
a. Dependent Variable: Project Success							

Table 15 presents the results of a regression analysis with Project Success as the dependent variable. The predictors are Project Leadership Style, Team Dynamics, and Organizational Culture. The t-value of project leadership style is 3.821 and Sig. of .000, and this shows a significant positive relationship with Project Success. The hypothesis is accepted, indicating that a better leadership style is associated with higher project success. With B = .083 and Beta = .084, and a t-value of 4.836 (Sig. = .000), it shows the positive relationship between Team Dynamics and Project Success is significant, and the hypothesis is accepted. The strongest predictor with B = .484 and Beta = .484, having a t-value of 4.323 (Sig. = .000), also indicates a significant positive relationship between organizational culture and Project Success, and the hypothesis is accepted. Additionally, all three predictors, Project Leadership Style, Team Dynamics, and Organizational Culture, have a statistically significant positive influence on Project Success. The regression analysis highlights that effective leadership, cohesive team dynamics and a strong organizational culture are crucial components for achieving success in projects.

These results provide valuable insights for organizations and project managers, emphasizing the importance of these factors in their strategic planning and execution.

All the hypothesis of this research work has been accepted based on the results of correlational and regression analysis.

Ha1: Different project leadership styles positively impact project success in agile software development. (Accepted)

Ha2: Positive team dynamics (communication, collaboration, shared goals) significantly contribute to project success in agile software development. (Accepted)

Ha3: Organizational culture that supports agility, continuous learning, adaptability, and innovation positively affects project success in agile software development. (Accepted)

CHAPTER V

DISCUSSION

5.1 Discussion

The research investigating the effects of Project Leadership Style, Team Dynamics, and Organizational Culture on Project Success in Agile Software Development has yielded substantial insights. The result of the analysis shows that all three predictors, Project Leadership Style, Team Dynamics, and Organizational Culture, have a statistically significant positive influence on Project Success. The regression analysis highlights that effective leadership, cohesive team dynamics and a strong organizational culture are crucial components for achieving success in projects. The findings collectively demonstrate that in the context of Agile Software Development, integrating strong leadership, fostering cohesive team dynamics, and aligning organizational culture can lead to successful project outcomes (Attiq & Rehman, 2020; Lukusa et al., 2020; Mkoba, 2022).

The results of this research work are supported by previous studies, such as the research by Gren et al. (2019), which found that effective leadership in articulating vision and expectations led to higher satisfaction and project success in Agile teams. Likewise, da Silva et al. (2013) emphasized the role of teamwork and collaboration in Agile methodologies, correlating with higher efficiency and project outcomes. Similarly, Ababneh (2020) explored the relationship between a culture of continuous improvement and innovation and found a positive correlation with Agile project success. In addition, Fagerholm et al. (2015) indicated that focusing on team dynamics revealed that trust and mutual respect are integral for successful Agile projects.

Correspondingly, Carvalho et al. (2017) showed that aligning organizational values with project goals positively impacted the success rates in Agile projects. Ellahi et al. (2022) highlighted the importance of adaptability in leadership in the Agile process, correlating with successful project execution. In addition, Garcia

& Russo (2019) found that open communication within the organization was found to be vital in Agile development, enhancing overall success. Glaiel et al. (2014) indicated that motivation and peer support within Agile teams found a significant positive impact on project outcomes. The study by Moe et al. (2013) revealed that effective conflict resolution within Agile teams was found to lead to more constructive outcomes in a study focusing on team dynamics. Similarly, Felipe et al. (2017) found that leadership and organizational culture play critical roles in meeting or exceeding expectations. According to research conducted by Zaitsev et al. (2020) it has been indicated that Agile teams that possess a robust inclination towards learning exhibit enhanced adaptability towards evolving requirements and are more inclined to achieve successful project outcomes.

Moreover, Sunner (2016) highlighted that the empowerment of teams within Agile frameworks found it to lead to increased productivity and success. Theobald et al. (2020) stated that organizations value and reward teamwork and collaboration and found that this emphasis positively correlates with project success in Agile environments. Koi-Akrofi et al. (2019) found that Agile leaders who exhibited proficient communication skills, actively involved stakeholders, and cultivated a customer-centric perspective were more proficient in meeting customer expectations and attaining elevated levels of satisfaction. Furthermore, research conducted by Langholf & Wilkens (2021) indicated that Agile teams characterized by robust team dynamics, encompassing proficient collaboration, shared comprehension, and collective responsibility demonstrated a greater propensity for generating software of superior quality.

5.2. Conclusion

This research work aimed to find the effect of the Project Leadership Style, Team Dynamics, and Organizational Culture on Project Success in Agile Software Development. This research work employed a quantitative methodology and was carefully organized within a descriptive research framework. This research targeted a specific population encompassing all individuals functioning as subordinates within software

development firms and directly engaged in various software development projects. This research work employed the simple random sampling approach, which is deliberated as the most fundamental and extensively utilized approach to get unbiased results. This research was based upon the utilization of a primary data analysis methodology, which required the direct collection of first-hand information from the participants. To accomplish this objective, a thoroughly developed questionnaire was formed as the primary tool for gathering data. The questionnaire was formed through the online platform Google Forms, and an online link to the questionnaire was distributed among the study participants. Data analysis tools such as SPSS and Microsoft Excel were leveraged to examine the collected information. SPSS, a statistical software, was applied for detailed data analysis using various methods. Microsoft Excel was used for data coding and cleaning processes aimed at transforming qualitative information into a numerical format. To determine the internal coherence of the data and measure how well the variables reflect the fundamental construct, Cronbach's alpha was used. To reduce the size and dimensions of the dataset, techniques of multivariate analysis were implemented. Utilizing summary statistics assisted in reshaping the data, while correlation and regression analysis helped measure the relationship and impact between the dependent and independent variables. The result of the analysis shows that all three predictors, Project Leadership Style, Team Dynamics, and Organizational Culture, have a statistically significant positive influence on Project Success. The regression analysis highlights that effective leadership, cohesive team dynamics and a strong organizational culture are crucial components for achieving success in projects.

5.3. Limitations and Scope for Future Research

One potential limitation of this study is that it solely concentrates on the context of KSA; thus, this limits the generalizability of the results to other countries or regions. The unique economic, cultural, and organizational characteristics of KSA might restrict the applicability of the findings to other countries and

regions. The impact of diverse cultures and economies on leadership styles, team dynamics, and organizational culture can vary, potentially resulting in distinct outcomes in different geographic areas. The research methodology may also pose a potential limitation. If the research heavily depends on data collected through questionnaires, it is susceptible to biases such as response bias or social desirability bias, wherein participants may provide responses that are perceived as socially desirable or favorable by both society and the researchers. Additionally, the comprehensive understanding of human behavior and organizational culture poses a significant challenge when relying solely on quantitative measures, potentially leading to the oversight of certain nuances.

To enhance the generalizability of the findings, it would be beneficial to increase the sample size and ensure its diversity across various industries and company sizes. The inclusion of qualitative methodologies, such as interviews or case studies, has the potential to offer a comprehensive comprehension of the functioning of leadership styles, team dynamics, and organizational culture within authentic contexts. Furthermore, it is recommended that future research endeavors investigate the potential interplay between these aforementioned factors and additional variables, such as the adoption of technology, governmental regulations, or market competition within the realm of the software development industry. Adopting a multifaceted approach would yield a more comprehensive and nuanced understanding of the various factors that impact the success of projects in the context of agile software development. Moreover, longitudinal studies have the capacity to track the progression and impacts of leadership styles, team dynamics, and organizational culture over an extended period. This enables the acquisition of valuable knowledge regarding the evolution of these factors and strategies for fostering and overseeing them to achieve sustained success in projects.

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APPENDIX – A

QUESTIONNAIRE

Topic: Investigating the Effects of Project Leadership Style, Team Dynamics, and Organizational Culture on Project Success in Agile Software Development: An Empirical Evidence from KSA

Consent Statement

Dear Respondents, I would like to thank you for your cooperation and for allocating some of your precious time to fill out this questionnaire that was prepared for the purpose of research. I would highly appreciate it if you could take part in this survey. This questionnaire is short as it will take approximately only five minutes. We will not ask for your personal information, and your answers will be treated with complete confidentiality and will be entirely anonymous. The reliability of the research depends largely on the information provided by you as a participant. Thank you for giving the time to complete this questionnaire.

(Demographic Questions)

1. Age of the Participant?

1. 25 – 35 Years
2. 36 – 45 Years
3. 46 – 55 Years
4. More than 55 Years

2. Gender of the Participant?

1. Male
2. Female

3. What is your current Education level?

1. High School
2. Bachelors' degree
3. Master's degree
4. Ph.D.

4. Which type of software development firm do you work for?

1. Small Startup
2. Mid-sized Company
3. Large Corporation
4. Consulting/Contracting Firm
5. Other

5. Years of Experience in the software development:

1. Less than 1 year
2. 1-5 years
3. 6-10 years
4. More than 10 years

Part 1: Project Leadership Style

1. The project leader effectively communicates project goals and expectations.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

2. The project leader encourages collaboration and open communication among team members.

1. Strongly Disagree
2. Disagree
3. Neutral

4. Agree
5. Strongly Agree
3. The project leader demonstrates adaptability and embraces change when necessary.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
4. The project leader provides clear direction and guidance to the team.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
5. The project leader fosters a positive and motivating work environment.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree

Part 2: Team Dynamics

1. Team members share knowledge and expertise to solve complex problems.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree

2. There is a strong sense of trust and mutual respect among team members.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
3. Team members collaborate seamlessly, leveraging each other's strengths.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
4. Conflicts within the team are resolved constructively, leading to better outcomes.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
5. Team members are motivated to achieve project goals and support one another.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree

Part 3: Organizational Culture

1. The organization promotes a culture of innovation and continuous improvement.
 1. Strongly Disagree
 2. Disagree

3. Neutral
 4. Agree
 5. Strongly Agree
2. There is alignment between the organization's values and project goals.
1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
3. The organization encourages autonomy and empowers teams to make decisions.
1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
4. Open communication channels exist, allowing employees to share their perspectives.
1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
5. The organization values and rewards teamwork and collaboration.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

Part 4: Project Success

1. We achieved the project objectives within the specified timeframe.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
2. We deliver a high-quality product that meets or exceeds customer expectations.
 1. Strongly Disagree
 2. Disagree
 3. Neutral
 4. Agree
 5. Strongly Agree
3. We utilize effective management of resources, minimize budget and time overruns.
 1. Strongly Disagree
 2. Disagree

3. Neutral

4. Agree

5. Strongly Agree

4. We demonstrated the value and impact of the project on the organization.

1. Strongly Disagree

2. Disagree

3. Neutral

4. Agree

5. Strongly Agree

5. We experienced overall satisfaction with the project's outcomes and the team's performance.

1. Strongly Disagree

2. Disagree

3. Neutral

4. Agree

5. Strongly Agree

Thanks, Note

The fact that you are reading this message indicates that you have completed our questionnaire and that we owe you a debt of thanks. We are very appreciative of the time you have taken to assist in our analysis and commit to utilizing the information gained to contemplate and implement valuable improvements. We will share these results with you through your State Survey Agency, whom we also thank for their generous participation. Once again, we are extremely grateful for your helpful contribution, your honest information, and your thoughtful suggestions.