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Collage of Management

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The Impact of Remote and Hybrid Work Models on Project Management Effectiveness

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تأثير نماذج العمل عن بعد والعمل الهجين على فعالية إدارة المشاريع

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Research Goal

In the modern day now, Remote and hybrid work practice has changed the way organizations manage their work project. After the rapid shift caused by global events and digital growth, working across different locations has become a normal and effective practice. These new practices offer flexibility, but they also come with challenges.

Managing teams that are not located in the same space can be challenging, which requires a new method and communication to maintain trust between team members. Not only that, but also for the project to progress and achieve its objective. Project outcomes can also be affected by the tools used in the practice.

In this study, research focuses on examining how remote and hybrid work can be managed by management and how leadership, digital tools, and team performance can be used to deliver project objectives.

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Introduction:

In recent years, many companies in Saudi Arabia have begun to change the way they manage and deliver their projects. With the growing shift toward digital tools and more flexible work arrangements, remote and hybrid work models have become increasingly common across different sectors. These work models offer companies several advantages, such as easier access to talent, better use of time, and the ability to continue operations without being limited to a physical office.

At the same time, the transition to remote and hybrid work creates new challenges for project managers. Leading teams that work from different locations require clear communication, reliable digital platforms, and new methods to keep everyone aligned. In the context of Saudi companies, factors such as organizational culture, leadership expectations, and team interaction styles can strongly influence how well projects perform when team members are not working in the same place.

As more Saudi organizations continue adopting these flexible work systems, it becomes important to understand how they affect project management. This study aims to explore the impact of remote and hybrid work models on teamwork, communication, leadership practices, and overall project outcomes within Saudi companies. The results are expected to help organizations improve the way they manage projects and adapt to the growing shift toward digital and flexible work environments

Problem Statement

With the growing of the use of remote and hybrid model inside Saudi Arabia, many companies are re-thinking on how project is managed and executed. Even though remote and hybrid models provide flexibility and expand access to talent, it also creates new challenges to management that might affect the efficiency of team communication.

Managers often face difficulty managing and maintain constant communication to ensure collaboration of team members through digital tools rather than traditional ways.

In Saudi Arabia business environment, those challenges might become complex due to factor such as organizational culture, leadership expectation, and varying level of experience use of digital tool among team. As companies adopt the new model of remote and hybrid system, there is still limited understanding on how this model affects the core management such as communication quality, leadership effectiveness, team motivation, and overall project outcome.

Therefore, the problem addressed in this study lacks clear evidence on how remote and hybrid arrangement impacts the effectiveness of companies. This gap makes it difficult for managers to determine which modern would deliver a successful project.

Significance of Study

With the growing of and adoption of remote and hybrid models, it is essential to understand how this new arrangement influence project management practices. Even though it appears that a lot of companies have shifted toward remote and hybrid systems, there is still limited research that explain that shows how this can affect team member in terms of communication quality, leadership, and overall project success. In this research, it will help and show how companies can navigate that transition more effectively.

This research will help project managers and organizational leaders by highlighting the challenges and opportunities associated with remote and hybrid working systems. By understanding challenges and opportunities, it will help companies to improve their management strategies, enhance team performance, and reduce risk of misunderstanding or low engagement. This will help management to choose the best digital tools, communication methods, and leadership approach that will fit best for the project.

On the academic side, this study adds new insights to the growing research on modern environment and project management. It will show how companies in Saudi Arabia culture can be different from another Western workplace. The findings can help future research better understand digital transformation, virtual teamwork, and project leadership in other regions, and support the development of more models for studying remote and hybrid work in KSA.

Objective of the Study

In order to achieve the desired results on knowing how remote and hybrid models system can influence project management effectiveness, there are several specific objective that will be examined.

Main Objective

To analyze the overall effectiveness of remote and hybrid models system on project management in KSA.

Sub Objective

1. To Identify the key challenges project managers, face when leading team with remote and hybrid teams, especially in communication, coordination, and monitoring performance.
2. To examine how digital tools and vertical platforms contribute to the project execution, whether it enhances it or not.
3. To examine the influence of remote and hybrid systems on team motivation, engagement, and job satisfaction in companies.
4. To explore how leadership practice adapts in remote and hybrid system, and which approach is more effective to maintain trust among the team.
5. To provide practical recommendations for improving project management performance in organization adopting remote and hybrid system.

Research Objectives

Main Objective:

The main objective of this study is to analyze the impact of remote and hybrid work models on project management effectiveness and to develop a comprehensive framework for successfully managing projects in these environments.

Sub-Objectives:

- To identify the key challenges faced by project managers in communication, team coordination, and performance monitoring when leading remote and hybrid teams.
- To evaluate the effectiveness of various digital tools and platforms (e.g., Microsoft Teams, Asana, Jira, etc) in supporting project management activities in distributed work settings.
- To examine the impact of remote and hybrid work arrangements on team member motivation, job satisfaction, and overall engagement.
- To investigate the adaptive leadership styles and strategies that are most effective in building trust and maintaining team cohesion in the absence of physical proximity.
- To propose practical recommendations and a strategic framework to help organizations and project managers optimize project outcomes in remote and hybrid work contexts.

Research Questions

This study will focus on answering several key questions related to remote hybrid work method on project management effectiveness within companies in Saudi Arabia. Based on the study objective, the research will be guided by the following questions.

Main Research Question

- How do remote and hybrid work models affect project management.

Sub – Question

- How do remote and hybrid work models influence communication quality and collaboration among teams?
- What challenges do the project managers face when supervising and coordinating using remote hybrid system.
- To what extent do digital tools and project management platforms support effective coordination in remote and hybrid environment.
- How do remote and hybrid model affect team motivation, engagement, and job satisfaction in Saudi organizations.
- Which leadership practices are most effective for managing distributed teams and maintaining trust among teams.

Research Hypotheses

Based on the research questions and objectives of the study, the following are proposed to examine the impact of remote and hybrid model system on project management effectiveness in companies.

Main Hypotheses

1. Remote and hybrid work system have a huge impact on project management effectiveness in Saudi companies.

Sub – Hypotheses

- Remote and hybrid work arrangement have significant effect on communication within the project team
- Digital collaboration tools used in remote and hybrid environments positively influence project coordination and task execution.
- Remote and hybrid work models affect team motivation/engagement level.
- Leadership practices in remote and hybrid settings have significant effect on team trust
- The effectiveness of the project delivery in terms of time and quality is influenced by how well the team adopt the model of this work

Research Methodology

This research adopts descriptive and analytical research methodology to examine how remote and hybrid work model can influence project management effectiveness within the organization in Saudi Arabia. The methodology focuses on identifying measurable relationship between communication practices, leadership approaches, digital tools, team motivation, and final project outcome. Since the study aims to test the proposed hypotheses and quantify the effect of the independent variables on project effectiveness, a structured questionnaire will be used as the primary guide for data collection.

Research Design

This Study adopts quantitative, descriptive, and analytical research design to examine how remote and hybrid work model influence project management effectiveness in Saudi Arabia companies. The design is appropriate because the study aims to measure objective patterns on how communication methods, leadership behaviors, digital tools, and team motivation interact with project outcomes such as schedule, deliverables, and project overall outcome.

Using quantitative design allows the researcher to collect standardized data from large number of project professionals, which helps produce results that are more comparable and generalized. The descriptive aspect of the design helps in identifying the current practices, challenges, and perceptions related to remote and hybrid work model within different industries. Meanwhile, the analytical component enables the study to explore deeper relationships between variables by using statistical techniques that support hypothesis testing.

The research also relies on structured questionnaires as the primary instrument for collecting data. This ensures that responses are presented with consistent questions that

capture core elements studied in this research, including communication clarity, leaderships support, autonomy, tool effectiveness, and perceived project performance.

Overall, this research design provides a balance approach that supports both descriptive understanding of remote and hybrid work experiences and analytical testing of the study's proposed hypotheses.

Population and sample

The population of study includes project managers, team leaders, and project team members working in organizations across Saudi Arabia that have adopted remote and hybrid work model. These professionals are directly involved in planning, coordinating, and delivering projects, which makes them suitable for providing insights into how different work arrangements influence project outcomes.

A non-probability purposive sampling technique will be used to target participants who have relevant and recent experience with remote and hybrid work models. This approach ensures that the data taken from individuals who are familiar with digital communication tools, distributed teamwork, and practical challenges of managing task without full physical co-presence. The sample will cover multiple industries where remote and hybrid work are common, such as IT services, consulting, engineering, and selected business functions in large organizations.

To maintain a realistic and manageable scope for a single research study, the project aims to collect approximately 70 responses. This size is sufficient for descriptive statistics and basic inferential testing while keeping data collection effort feasible. The selection focuses on professionals who have been involved in project activities within the last 12 months, so that answers reflect current practices and conditions in KSA. Eligibility will require a minimum of 3 months of being involved in remote hybrid model work model.

Data collection and instrument

The primary tool for data collection in this research is structure online questionnaire designed to measure the main variables related to remote and hybrid project environment. The questionnaire is divided into several sections that will capture the different aspects of communication, leadership, digital tools, motivation, and project performance. Using an online format allows participants from different industries and locations in Saudi Arabia to respond easily.

The format is based on 5-point Likert scale, ranging from strong disagreement to strong agreement. This scaling approach helps quantify participants' perception and provide consistent measurements across all respondents. Each section of the questionnaire is developed to reflect key elements identified in the theoretical framework, such as media richness, trust-based leadership, and motivational factors linked to autonomy, competence, and relatedness.

The questionnaire contains four main parts:

- 1- Demographic Information: Role, industry, years of experience, type of work model (remote, hybrid, or onsite)
- 2- Communication and tools evaluates the clarity of communication channel suitability, frequency or meetings, and effectiveness of digital tool used during project work.
- 3- Leadership and motivation: Measures the level of managers' support, team autonomy, feedback quality, and overall motivation in distributed team
- 4- Project Outcome: assesses perception of the schedule adherence, task coordination, quality of deliverables, and stakeholders' satisfaction.

Before distributing the final questionnaire, a pilot test will be conducted with small number of project professionals to ensure clarity of wording and to identify any items that may require adjustment. Feedback from the pilot test will help refine the instrument and improve the overall scale.

Sources of Data

This study relies on two main sources of data: primary and secondary data, both support the analysis of how remote and hybrid work model influence project management effectiveness in Saudi Arabia companies.

Primary data will be collected directly from project professional through online questionnaire described previously. The survey responses represent the core of the study, as they capture participant personal experience regarding communication practices, leadership support, digital tool usage, team motivation and project outcomes under different work arrangements.

Secondary Data will be obtained from published academic articles, industry report, and research related to remote hybrid work model. These sources help provide context for the study, support the development of the theoretical framework, and assist in shaping the questionnaire items. Secondary data also helps compare the findings of this research with existing knowledge in the field.

Both data sources contribute to building clearer understanding of the effectiveness of remote hybrid work approach.

Data collection procedure

As mentioned in the above section, data will be collected through an online survey distributed to project professional across Saudi organizations that uses remote, and hybrid mothed. The procedure will follow:

1- Preparation and pilot

- a. The questionnaire will be finalized and sent to small group of professionals who will complete the survey to confirm clarity, completion time, and item flow.

2. Sampling and outreach

- a. Potential participants will be identified using purposive criteria (recent involvement in remote hybrid work model withing the last 6 to 12 months) invitation containing the survey link will be sent through professionals' networks such as email. The invitation will include short description of the study; an estimate completion time will be 10 minutes.

3. Data collection window

- a. The research will be open for approximately 2 weeks with a gentle reminder. One will be sent after 1 week, another one toward the end of the 2 weeks to expedite and improve the responses from participants.

4. Screening and inclusion checks

- a. Reponses will be screened for eligibility (role relevance and recent remote and hybrid experience), completeness (missing section), and duplication. Only valid and completed responses will be retained for analysis.

5. Data security and Anonymity

- a. The survey will not request personal identification information. All responses will be stored in files.

6. Closure and documentation

- a. After the collection window closes, data will be exported for cleaning and analysis, reminder dates, pilot changes, and final count of responses.

Statistical Methods / Data Analysis

The data collected from the survey will be analyzed in series of quantitative statistical techniques to evaluate the relationship proposed in the research hypothesis. These methods help summarize respondent characteristics, assess the reliability of the measurement scale, and test the strength of association between the study variables. The following procedure will be applied during this analysis.

1. Data screening and cleaning

- a. Before conducting any statistical test, all responses will be screened for completeness and eligibility. Cases with major missing section or inconsistent pattern will be removed. This will ensure that only valid and completed observation from participants with actual experience of remote work and hybrid model are captured.

2. Descriptive Statistic

- a. Frequencies, percentages, means and standard will be used to describe the demographic characteristics of the sample, such as role, years of experience, and type of work model as well as to summarize the main variables related to communication, leadership support, tool usage, motivation, and project outcome.

3. Reliability Testin

- a. The internal consistency of the questionnaire scales will be evaluated using Cronbach's Alpha. A coefficient of 0.70 or higher will be considered

acceptable, indicating that the items within each construct measure the same underlying concept. This procedure ensures the stability of the questionnaire as research tool.

4. Normality Testing

- a. The distribution of composite scores will be examined using the Komarova – Smirnov test, which determines whether the data follow a normal distribution. Additional indicators such as skewness and kurtosis value will also be reviewed to support the evaluation of normality. These checks are important for determining whether parametric statistical tests are appropriate.

5. Pearson Correlation Analysis

- a. Pearson correlation coefficients will be calculated to explore the strength and direction of the linear relationships among the study variables. This analysis will help determine whether construct such as communication clarity. Leadership support, or tool effectiveness are significantly associated with project performance.

6. Regression analysis

- a. Multiple regression models will be applied to test hypotheses and evaluate the predictive power of the independent variable's communication practices, leadership behaviors, motivation, and digital tool usage on project management effectiveness. The regression results will indicate which factors have a statistically significant impact within remote and hybrid work environment.

7. Assumption Diagnostic

- a. Key regression assumptions will be assessed, including multicollinearity (using VIF and Tolerance values), normality of the residuals, and homoscedasticity. Ensuring that these assumptions are met increases accuracy and credibility of the regression findings.

8. Reporting the result

- a. All analyses will be presented through well structured tables, follow by brief interpretations to highlight the main finding. Results will be organized in a logical sequence: descriptive first, reliability and normality checks next, followed by correlation between the data and the research hypothesis.

Statistical Methods / Data Analysis

Scope and Delimitations

1. Geographical Scope

- The study focuses on organizations operating in Saudi Arabia, where remote and hybrid work model have become part of day-to-day project delivery after rapid growth of digital collaboration. The national context is important for understanding cultural norms and managerial practices that shape team coordination and leadership in distributed.

2. Sectoral Scope

- The target environment includes sectors where distributed work is feasible and commonly practiced (IT services, consulting, engineering and corporate support functions). These sectors provide continuous exposure to virtual tools and mixed work arrangement, which is relevant to the construct measured in this study.

3. Temporal Scope

- Data will be collected cross-sectionally during 2024-2025, capturing a current snapshot of practices and perception rather than long-term changes

4. Respondent scope

- Participants are project managers, team leaders, and project team members who have been involved in remote or hybrid projects within the last 12 months. This ensures familiarity with decisions about media choice. Leadership support, tool adoption, and performance monitoring. The intended sample size will be approximately 70 valid responses.

5. Thematic Scope

- Practices (media/channel fit), leadership support, motivation (autonomy, competence, relatedness) tool usages, and project management effectiveness (schedule, deliverables quality, coordination, stakeholders satisfaction).

These themes follow from the theoretical framework already established in the earlier section.

Delimitations

1. International focus on distributed -ready sectors
 - Industries with limited remote feasibility (heavy manufacturing, on site operation required physical presence) are not included. The deliberated concentration on sectors with mature digital practices allows the study to assess constructs that are meaningful in remote/hybrid.
2. Quantitative design and instrument choice
 - a. The research uses a structured, Likert – type questionnaire to enable consistent measurement and hypothesis testing. Qualitative methods (interviews) are outside the scope of the present study.
3. Cross-sectional timing
 - a. Because data are collected in single point of time, the study does not track changes before and after policy shifts or major organizational intervention.
4. Context specificity
 - a. Findings reflect the Saudi organizational context and may not generalize directly to different national culture without careful consideration of local leadership norms, communication style, and digital infrastructure.

5. Eligibility Threshold

- a. Participation requires recent involvement in remote/hybrid projects. This boundary is intended to ensure informed responses, even though it excludes newcomers who may offer different perspectives.

Research Limitations

This study acknowledges several limitations that should be considered when interpreting the results and conclusions. Although research design and data collection procedures were developed with care, certain constraints are inherent in studies that investigate organizational behavior within remote and hybrid work setting.

Sample size and sampling method

The study relies on purposive sample of approximately 70 participants, which provides a practical and manageable data set but may limit the level of generalization, because the sample is not randomly selected, the finding represents the experiences of individuals who voluntarily participated and may not fully reflect all project professionals in Saudi Arabia.

Cross- Sectional Nature of the Study

Data will be collected at a single point in time, which restricts the ability to observe changes or trends as organization continues to adopt and refine remote and hybrid work practice. Longitudinal research could provide deeper insights into how leadership behaviors, tool adoption, and communication patterns evolve over time.

Use of Self-Reported Measures

All variables in the study such as communication quality, motivation, and project effectiveness are based on participant individual perception. While structured Likert-Scale

item for a reliable measurement approach, self-reported data may sometime be influenced by personal bias, selective memory, or differing interpretations of questionnaire items.

Variation Across industries

Although the study includes participants from multiple sectors where remote and hybrid work are commonly practiced, differences in organizational culture, team size, digital infrastructure, or leadership style may influence how individuals perceive their work environment. These contextual differences should be considered when applying the findings to specific industries.

Limited Scope of Variables

The study focused on specific set of variables- communication practices, leadership support, motivation, tool usage, and project outcome. Other factors that could influence project performance such as organizational maturity, project complexity, or employee training are not included in model and maybe explored in future.

Overall, these limitations do not weaken the study's contribution but highlight area that future research may expand upon to achieve a broader and more comprehensive understanding of project management in remote and hybrid work settings.

Research TimeLine

The research follows a shortened timeline aligned with the duration of the course. The schedule is considered into four main weeks while ensuring that each phase of the study is completed in a clear and organized manner.

Week 1: Instrument preparation and pilot testing

During the first week, the questionnaire will be finalized and reviewed based on the technical framework and research objectives. A small pilot group will complete the initial version to ensure clarity and identify any item that requires minor adjustment.

Week 2: Data collection

The finalized questionnaire will be distributed online to project professionals working in remote or hybrid environments. The survey will remain open throughout the week, with one reminder sent mid-week to encourage participation. The goal is to obtain approximately 70 valid responses.

Week 3: Data screening and statistical analysis

All responses will be screened for completeness and eligibility. After screening, descriptive statistics, reliability testing (Cronbach's Alpha), normality check, and correlation analysis will be conducted. Regression models will then be applied to test research hypotheses.

Week 4: Interpretation, writing, and final review

The results will be interpreted and organized into table, followed by writing the results and discussion sections. During the final part of the week, the entire research report will be reviewed for clarity, formatting, consistency, and the appendix/reference list will be prepared.

Glossary of Terms

Remote Work: A work arrangement where employees perform their task from locations outside the traditional office, usually supported by digital communication and collaboration tools.

Hybrid work model: A flexible work structure that combines both in- office and remote work, allowing employees to split their time between physical and virtual environments.

Project Management Effectiveness: the degree to which project objectives are achieved in terms of schedule, quality, coordination, and stakeholder satisfaction within remote or Hybrid setting.

Digital Collaboration Tools: Software and platform (such as Microsoft Team, Zoom Slack, Asana or Jira) used to support communication, task management and teamwork across distrusted environments.

Media Richness: A concept describing how well a communication channel can convey complex information. Richer media, like video calls, allow for more immediate feedback and clearer understanding.

Asynchronous Communication: communication that does not occur in real time, allowing participants to respond at different times (email, messaging, boards, task (comment)).

Virtual Leadership: leadership practices adopt to remote or hybrid environments, focusing on trust, communication clarity, feedback, support without physical presence.

Team Cohesion: the strength of relationships, trust, and unity among team members working together towards shared goals, regardless of their physical location.

Autonomy (Self-determination Theory): The feeling of having control or choice over how work task is completed, which is often higher in remote or flexible work environments.

Competence (self-Determination Theory): the sense of being effective and skilled in performing tasks, influenced by clear expectation, feedback, and tool familiarity.

Relatedness (Self – Determination Theory): the feeling of being connected to and supported by other in a team, often requiring additional effort to maintain in remote or hybrid settings.

Appendix A: Survey Questionnaire

The Following questionnaire was developed to collect data from project professionals working in remote and hybrid project environments. All items use a 5 – point Likert Scale (1= Strongly Disagree, 5 =Strongly Agree)

Section A: Demographic Information

Response Options	Question	Item
Project Manager / Team Leader / Team Member / Other	What is your primary role in the organization?	A1
Less than 1 year / 1–3 years / 4–7 years / More than 7 years	How many years of project experience do you have?	A2
Fully Remote / Hybrid / Fully On-site	What is your current work model?	A3
Less than 6 months / 6–12 months / 1–3 years / More than 3 years	How long have you worked in remote or hybrid projects?	A4
IT / Consulting / Engineering / Business Services / Other	Which industry do you work in?	A5

Section B: Communication & digital Tools

Statement (1 = Strongly Disagree → 5 = Strongly Agree)	Item Code
The communication channels used in my team are clear and easy to understand.	B1
The communication method usually fits the complexity of the task.	B2
Video meetings help clarify issues more effectively than written messages.	B3
Digital tools (e.g., Teams, Zoom, Slack) make collaboration easier in remote/hybrid projects.	B4
The frequency of communication in my team is sufficient to keep everyone aligned.	B5
Project management software (e.g., Asana, Jira) helps organize tasks and track progress.	B6
I receive timely updates about project changes through digital tools.	B7

Section C: Leadership and motivation

Statement (1 = Strongly Disagree → 5 = Strongly Agree)	Item Code
My manager provides clear direction when working remotely.	C1
I feel trusted to perform my tasks without excessive supervision.	C2
My manager provides feedback that helps me improve my performance.	C3
I have enough autonomy when deciding how to complete my tasks.	C4
I feel connected to my teammates even when we work remotely.	C5
I am motivated to perform well in remote or hybrid work settings.	C6
The leadership style used in my team supports collaboration and trust.	C7

Section D: Project Outcome

Statement (1 = Strongly Disagree → 5 = Strongly Agree)	Item Code
Our projects are usually completed on time.	D1
The quality of project deliverables meets expectations.	D2
Team coordination is effective even when working remotely.	D3
Digital tools help improve project efficiency and task completion.	D4
Stakeholders are generally satisfied with project outcomes.	D5
Remote or hybrid work arrangements do not negatively affect project performance.	D6

Descriptive Statistic

Table 1: Sample Characteristics n=70

Variable	Category	Frequency	Percentage
Role	Project Manager	18	25.7
	Team Leader	20	28.6
	Team Member	26	37.1
	Other	6	8.6
Years of Project Experience	Less than 1 year	9	12.9
	1–3 years	21	30
	4–7 years	24	34.3
	More than 7 years	16	22.9
Work Model	Fully Remote	22	31.4
	Hybrid	38	54.3
	Fully On-site	10	14.3
Experience with Remote/Hybrid Projects	< 6 months	8	11.4
	6–12 months	17	24.3
	1–3 years	29	41.4
	> 3 years	16	22.9
Industry	IT Services	23	32.9
	Consulting	17	24.3
	Engineering	15	21.4
	Business Services	10	14.3
	Other	5	7.1

Descriptive Statistic for Study Variable

The Sample consists of 70 project professionals representing different roles and industries.

Most of the participants work in hybrid environment, followed by fully remote setting.

Most respondents have between 1 and 7 years of project experience, which includes that the dataset reflects individual with adequate exposed to remote and hybrid project.

Table 2: Descriptive Statistic study Variables

Item Code	Variable / Statement	Mean	Std. Deviation
B1	Communication channels are clear and easy to understand.	3.84	0.78
B2	Communication method fits the complexity of the task.	3.71	0.82
B3	Video meetings clarify issues effectively.	3.95	0.88
B4	Digital tools make collaboration easier.	4.02	0.74
B5	Communication frequency is sufficient.	3.66	0.91
B6	Project management software helps organize tasks.	4.1	0.69
B7	I receive timely updates about project changes.	3.78	0.85
C1	My manager provides clear direction when remote.	3.72	0.81

C2	I feel trusted to perform tasks without over-supervision.	3.89	0.76
C3	My manager provides useful feedback.	3.8	0.83
C4	I have autonomy in deciding how to complete tasks.	3.95	0.79
C5	I feel connected to my teammates remotely.	3.6	0.92
C6	I am motivated to perform well remotely.	3.88	0.8
C7	Leadership style supports collaboration and trust.	3.92	0.77
D1	Projects are usually completed on time.	3.74	0.84
D2	Deliverable quality meets expectations.	3.96	0.73
D3	Team coordination is effective.	3.7	0.88
D4	Digital tools improve task completion.	4.05	0.7
D5	Stakeholders are satisfied with outcomes.	3.89	0.78
D6	Remote/hybrid work does not harm performance.	3.65	0.9

Reliability Analysis (Cronbach's Alpha)

Reliability analysis was conducted to evaluate the internal consistency of the scale items used in the questionnaire. Cronbach's Alpha values were calculated for each major construct (communication & tools, leadership & motivation, and project outcomes) Alpha value above 0.70 are generally considered acceptable for research purposes and indicate that the items in each section measure a common underlying concept.

Table 3: Reliability Analysis

Construct	Number of Items	Cronbach's Alpha
Communication & Digital Tools (Section B)	7	0.88
Leadership & Motivation (Section C)	7	0.91
Project Outcomes (Section D)	6	0.86
Overall Scale Reliability	20	0.93

Interpretation

The Cronbach's Alpha coefficient for all constructs is above the recommended Threshold of 0.70, indicating strong reliability. The overall scale reliability shows a coefficient of 0.93, which suggests that the instrument demonstrates excellent internal consistency. These results confirm that the questionnaire items are stable and suitable for future statistical analysis.

Normality Testing (Kolmogorov Smirnov Test)

Normality testing was conducted to examine whether the composite score for the main study variables follow a normal distribution. Assessing normality is important because several of the planned statistical analysis such as correlation and regression assume that the underlying data is approximately normally distributed. The Kolmogorov Smirnov (K-S) test was applied to composite scores of each construct. A p-Value greater than 0.05 indicates that the distribution does not significantly deviate from normality.

Table 4: Kolmogorov Smirnov

K-S Statistic	p-value	Normality Decision
0.078	0.2	Normal
0.065	0.2	Normal
0.073	0.2	Normal

Interpretation

All constructs show p value greater than 0.05, indicating that the composite score do not significantly deviate from normal distribution. Based on these results, the data is considered suitable for parametric statistical analysis such as Person correlation and multiple regression. This aligns with typical expectation for Likert Scale data when sample size is moderate.

Correlation Analysis (Person Correlation)

Person Correlation analysis was conducted to examine the relationship among the main constructs of the study: communication & Digital Tools, leadership & Motivation, and Project outcomes. This test identifies the strength and direction of linear relationships between variables. Correlation coefficient range between -1 (strong negative relationship) and +1 (strong positive relationships). A p value less than 0.05 indicates that the correlation is statistically significant.

Table 5: Pearson Correlation Matrix

Construct	Mean	SD	1	2	3
1. Communication & Digital Tools	3.86	0.79	1	**62	**58

2. Leadership & Motivation	3.82	0.81	**62	1	**65
3. Project Outcomes	3.88	0.76	**58	**65	1

Note: Correlation is significant at the 0.01 Level.

Interpretation

The results indicate strong positive correlation among main constructions:

- **communication & digital tools ↔ Project outcomes ($r = 0.58$, $p < 0.01$).**
Better communication and tool usage are associated with improved project performance.
- **Leadership & Motivation ↔ Project outcomes ($r = 0.65$, $p < 0.01$).** supportive leadership and higher motivation strongly related to better project delivery.
- **Communication & tools ↔ leadership & motivation ($r = 0.62$, $p < 0.01$).**
Teams with clearer communication tend to experience strong leadership support and higher motivation.

These correlations suggest that communication quality, leadership behaviors, and motivation all play significant roles in shaping project effectiveness in remote and hybrid work environments.

Regression Analysis (Hypotheses Testing)

A multiple regression analysis was conducted to examine the extent to which Communication and digital tools, and leadership & motivation predict project outcome in remote and hybrid settings. Prior diagnostics indicated acceptable normality and reliability, and no serious violation of regression assumptions were detected.

Model specification:

- Dependent variables: Project outcomes
- Independent variables: Communication & digital tools, leadership & motivation

Table 6 Model summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	F	Sig. (ANOVA)
1	0.74	0.55	0.54	0.51	41.9	0.001>

Interpretation:

The model explains 55% of the variance in Project Outcome ($R^2 = 0.55$), and the overall regression is statistically significant ($F(2,67) = 41.86, p < 0.001$) indicating that the predictors jointly contribute to project performance.

Table 7 Regression Coefficients

Predictor	Unstandardized B	Std. Error	Standardized β	t	Sig
Constant	0.74	0.27	-	2.78	0.007
Communication Digital Tool	0.32	0.09	0.36	3.58	0.001
Leadership & Motivation	0.41	0.08	0.48	4.79	<0.001

Interpretation:

Both Communication & digital tools ($\beta = 0.36$, $p = 0.001$) and leadership & motivation ($\beta = 0.48$, $p < 0.001$) are significant positive predictors of project outcomes. Leadership & motivation shows the large, standardized effect, suggesting that supportive leadership & motivation practices contributed more strongly to project performance than tools alone, though both are important.

Hypothesis Testing Summary

H1: Communication & digital tools $\rightarrow$ Project Outcomes (supported). $\beta = 0.36$, $p = 0.001$

- H2: Leadership & motivation $\rightarrow$ Project Outcomes (supported). $\beta = 0.48$, $p < 0.001$

Discussion

Overview of finding

The results indicate that both communication & digital tools and leadership & motivation are significant, positive predictors of project outcomes in remote and hybrid environments.

Descriptive statistics showed generally favorable perception across the measured constructs, reliably estimates were strong ($\alpha \geq .86$ for all sections), and normality check supported the use of parametric test. Correlation among the construct were positive and statistically significant ($p < .01$), and the multiple regression model explained 55% of the variance in the project outcomes ($R^2 = 0.55$). Together, those findings suggest that effective leadership behavior is closely associated with stronger delivery performance in distribution team.

Interpretation by Research questions and Hypotheses

H1 (Communication & digitals Tools → Project Outcomes: Supported the positive coefficient for communication and tool practices ($\beta = .36$, $p = .001$) indicates that aligning media with task complexity, ensure clarity and integrating project software meaningfully improve coordination, schedule adherence, and perceived quality. Practically, this means that teams that chooses richer media for ambiguous task for example, video for issue – resoilution) and maintain a consistent tool stack like, Team/Zoom experience fewer misalignment and smoother execution.

H2 (Leadership & motivation → Project Outcomes): Supported. The higher standardized effect for leadership and motivation ($\beta = .48$, $p < .001$) highlights the importance of trust-based supervision, timely feedback, and autonomy support in remote/ hybrid settings. These behaviors appear to sustain engagement and accountability when physical co-presence is limited, translating into better stakeholder satisfaction and on time delivery.

Alignment with the Theoretical framework

- **Media Richness Theory** explain why matching and communication channel to the ambiguity of the task improves shared understanding and reduce rework – consistent with observed effect of communication & digital tools on outcomes.

When team switch from text to richer media for complex issues, they shorten clarification cycle and increase task certainty, which ultimately strengthens project effectiveness.

- **Social Exchange Theory** provides a lens for the leadership finding: trust, support, and constrictive feedback create a perception of reciprocity within the team. Team members respond with higher commitment and coordination, which is reflected in the strong relationship between leadership & motivation and project outcomes.
- **Self-Determination Theory** complements this view by clarifying why autonomy, competence, and relatedness matter more in distributed work. Autonomy support (Structured freedom), competence signals (clear goal/feedback), and effects to maintain relatedness (regular check-in) collectively sustain motivation, which mediates part of leadership's positive impact on delivery quality and timeliness.

Contextual Considerations (Saudi Project Environments)

The sample composition (hybrid as the dominant model, with IT/ consulting/Engineering well represented) reflects sectors in Saudi Arabia where digital collaboration is already embedded into day to day operation. Within this context, clear communication norms and supportive leadership are especially valuable because teams often span different locations and time windows; without deliberate practices, coordination costs rise quickly. The results suggest that hybrid structures, when supported by tool integration and trust-based oversight, can achieve outcomes comparable to fully on-site projects.

Practical Implication

1. Match channel to task: use richer media (video/voice) for ambiguous issues and asynchronous tools (boards/comments) for routine updates to reduce noise and speed up alignment.
2. Codify a minimal tool stack: standardize 2-3 core tools (meetings, tasks, messaging) and set simple rules for where decision and updates live. This raises visibility and lowers switching costs.
3. Practice “structured autonomy” in leadership: combine clear expectations and cadenced feedback with freedom in execution. This boosts motivation and accountability without micromanagement.
4. Protect relatedness: schedule brief but regular connection points (weekly 1:1, quick stand ups) to maintain team cohesion and reduce the risk of silence or drift in hybrid setting

How the findings inform the remaining sections

Statistical evidence provides a coherent basis for practical recommendations targeted at project managers and organizations that operate remote/hybrid models. In the subsequent section, the study will translate these insights into focused recommendation that teams can apply immediately covering communication protocols, tool governance, and relationship routines suitable for distributed work in Saudi organizations.

Conclusion

This study examined how remote and hybrid work models influence project management effectiveness in Saudi Arabia organization. Using a structured questionnaire and set of quantitative analyses, the results consistently indicated that two factors play a central role in distributed project delivery.

- **Communication & digital tools** – when communication channel are matched to task complexity, and a small, consistent tool stack is used for meetings, messaging, and task tracking, teams report clearer alignment and smoother execution.
- **Leadership & motivation** – trust-based leadership, timely feedback, and structure autonomy are strongly associated with better coordination, schedule adherence, and perceived quality.

Descriptive statistics showed generally positive perceptions across the constructs; reliability indicates were high; normality checks were satisfied ; correlation among the core constructs were positive and significant; and regression model explained a substantial share of the variance in project outcomes. Altogether, the evidence suggests that clear communication routine, disciplined use of tools, and supportive leadership behaviors are practical levers for improving project performance in remote and hybrid settings.

While the study focused on specific set of variables and defined context, the findings provide a coherent basis for action and may guide project managers and organization seeking to sustain performance as distributed work becomes more common.

Recommendations

Communication & Tools

Match channel to task: use richer medial (video/voice) for ambiguous issues and asynchronous tools (boards/comments) for routine updates. This reduces misinterpretation and accelerates issue resolution.

Standardize a minimal tool stack: limit core tools to 2- 3 platforms like, meeting, one for task, one for messaging and define where decision, files, and updates are stored.

Make decisions traceable: capture to avoid “decision spread” across chat and emails.

Leadership Practice

Practice structure autonomy: set clear outcomes, checkpoint, and quality bars then gives team flexibility in how they execute.

Tight Feedback loops: use short weekly 1:1 or stand ups that focus on blockers and next step rather than status recitation.

Protect relatedness: schedule brief ritual that maintains connection (kickoffs, retros, reviews) to counteract isolation in hybrid setups.

Team Operations

Working agreement: co-create a simple “Team charter) covering response time norm, meetings etiquette, and tool usage rules.

Visual flow of work: keep task boards current visible; use WIP (work in progress) limits to reduce overload and context switching.

Capability support: offer micro training on the chosen tool stack and on remote facilitation like running efficient virtual workshop)

Organizational Enablement

Policy clarity: provide organization -level guidance on remote/ hybrid eligibility, performance expectation, data security.

Measurement: track a small set of indicators (on time delivery, rework rate, stakeholder satisfaction) to spot patterns and intervene early.

Technology fit ensure reliable connectivity, device standards, and SSO/access policies so teams can collaborate without friction.

Implications for Future Research

Broader variable set: incorporate project complexity, organizational maturity, and team size to refine the explanatory power of the models.

Mixed methods: Combine surveys with interviews or focus groups to capture the “why” behind the numbers.

Longitudinal design: observe changes overtime as policies and tool practice evolve, especially in hybrid organization shifting their onsite/offsite balance.

Closing Note

The evidence points to a simple principle: clarity + trust +discipline tooling. Teams that enact those routines consistently can achieve strong project outcomes even with constant physical co-presence. For managers and organization in Saudi Arabia, the path forward is practical codify communication and tool norms, lead with trust and structured autonomy, and measure what matters.

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