

THE IMPACT OF MODERN COMMUNICATION TOOLS ON PROJECT IMPLEMENTATION IN SOFTWARE HOUSES OF PAKISTAN

Hassnain Saati¹ and Kamran Younus²

Abstract

This research investigates the Impact of Modern Communication Tools on Project Implementation in Software Houses of Pakistan. There are many studies conducted on communication tools in projects but very few studies are done on modern communication tools in software houses of Pakistan. The study found 4 independent variables of modern communication tools that are communication planning, communication skills, information technology, and project timeline. Conceptual framework and hypothesis are made due to study of literature review. This research is quantitative research which follows logical approach. This research used primary data. The sample size for this research is 357 calculated from Rao Soft. A questionnaire has been designed for data collection which includes 20 Likert scale agreement questions. SPSS 20 has been used for this research. Firstly pilot testing has been done to check the reliability of questionnaire by sending it to 38 professionals of Software House and analysed on SPSS 20 which give Cronbach's Alpha value 0.876 that shows continue the research with the same questionnaire and then it is sent for complete data collection. Statistical analysis has been done by using multiple regression technique that includes Model Summary. Analysis of coefficient and correlation has been done on collected data which is gathered with the help of questionnaire and this analysis accepted all hypotheses. Correlation analysis also shows the strong positive relationship among variables. The results of this research show that Impact of Modern Communication Tools in Software Houses of Pakistan has a significant impact on Project Implementation and by conducting proper communication planning, communication skills, information technology, and project timeline of candidate for project team will increase the success rate for projects.

Keywords: Software Houses, Modern Communication Tools, Communication Planning, Communication Skills, Information Technology, Project Timeline, Project Implementation

INTRODUCTION

Project communication is input, facts and knowledge transfer between two or more investors and shows a vital act in the development of the project (Zhou, & Deng, 2025). When project agencies grow as well as the difficulty of the project target changes, it becomes more difficult for project teams to maintain effective communication. Despite having distinct experiences in expertise, project team participants representing different areas of knowledge need to interact (Andersen et al., 2025).

Project groups therefore need to grasp and handle project interaction effectively. Efficient communication of the project is accomplished when the purpose of the information transmitted conforms to the meanings of the provided information (Robbins S. P., 1993); the meaning intended by the sender should be compatible with the understanding of the recipient. In addition, effective coordination of the project allows knowledge to travel quickly. Among the all communication tools some of the tools are very widely used including Email, presentation, reports. Meetings By using these tools it become easy for project manager to deliver information to every member on timely basis. Details can be changed whether or not use the precise tool of communication. Importance is when we learn about the particular tool's

¹PhD Scholar, College of Business Management (CBM), Institute of Business Management (IoBM), Karachi, Pakistan. Email:hasnain.zafeer@gmail.com

²MBA, College of Management Sciences (CoMS), Karachi Institute of Economics and Technology (KIET), Karachi, Pakistan. Email: kamran_younus@outlook.com

importance to practice in spread, importance in project implementation, between management to practice the tools (Ongesa et al., 2025).

Planning of communication includes three conclusions to apply which improve project team's trust. To create an atmosphere where team members are comforted with flexible discussing fights, get rid of unblended arrangements, which cannot be adjusted, and usage of communication tools. With advancement in technology communication tools are also modernized. In different industries including software houses, employees are using online tools for internal communication including skype in which feature of audio and video communication is available. Due to this, it while you are travelling you can still in touch with your team. Communication tools play a vital role in different stages of project.

Background

Achieving efficiency in project communication is a direct ambition for all projects since it is positively correlated with project profitability (Kossai, 2014); once effective interaction is carried out, the risk of waste is minimized and assets can be diverted instead to value-added activities. Nevertheless, the quality of project interaction is undermined as organizations do not find appropriate communication tools (Grudin, 1989); because current communication tools will not handle uncertainty, waste space is generated and communication efficiency is reduced. Another possible cause may be that traditional communication tools are appropriate in project communication to meet current needs, but traditional communication tools are tedious and interruptive (Kaplan, 2010). Nonetheless, limited studies include a more in-depth analysis of the effects of new communication tools on effective communication. This study will thus conduct a case study supplemented by a survey where the effect on communication efficiency of traditional communication tools will be observed. Traditional communication tools will be estimated based on criteria that describe effective communication and will be subjected to the mindset towards using modern communication tools in project execution to identify possible refusal to modify.

The main objective of any communication approach is to create goodwill and improve the image of any project (Omorogbe, 2025). Effective communication is an essential success factor that links all the other aspects of project performance during all stages of a project lifecycle. For several causes, the absence of effective communication among project participants and the software house project teams may affect software house projects. The use of electronic communication is enhancing more and more successful in developing effective and efficient coordination for projects (El-Saboni, 2009). In Pakistan, software houses have taken a big step in past 2 decades. There were established departments in government and companies also used to exist in early 90s but the recent growth has made difference in the nature of the industry in recent past. Usual interest of people took a major twist in recent times towards the industry and new companies came into existence due to the same reason. Due to the industry development people have also started completing relevant studies in web development, software development, project management in IT etc. The objective of this research is to observe the effect of modern communication tools on the execution of projects. The analysis will analyze modern communication tools based on factors that identify effective communication with the intention of identifying waste costs but also possible contribution towards communication performance.

Research Problem

This study aims to find issue of modern communication tools that can effect on project implementation in software houses of Pakistan. It is widely accepted that poor communication may causes delay in projects and sometimes also causes failure of the projects. Effective communication will not only help in

implementation of the project but also helps in connecting every member of a team to work together to achieve a common goal. Due to this it is very important to assess how project manager are managing communication tools between team members to deliver project on time. Project cannot become successful by working for different objectives. It is very important that all team members are working on same goals with common interest. When teams are working together for common goal their performance become very important (Lending, 2015)

Research Questions

- Does Timeline and Effectiveness impact on project implementation in software houses of Pakistan?
- Does Information Technology impact on project implementation in software houses of Pakistan?
- Does Modern Planning impact on project implementation in software houses of Pakistan?
- Does Interpersonal Communication impact on project implementation in software houses of Pakistan?

Contribution of Study

The goal of this study is to contribute to the software industry projects throughout the field of project management. This study will discuss about the modern communication tools and management and its impact on project implementation in software houses of Pakistan. This study will discuss how modern communication contributes towards internal and external surroundings. This study will also provide knowledge about modern communication tools, techniques, strategies and modes that can influence projects implementation. As software industry is one of the fastest growing industries of Pakistan so project communication is becoming an important aspect in managing telecom sector projects. This study will discuss that timeline and effectiveness, information technology, modern planning and interpersonal communication that are important factors in implementation of projects.

The Scope of Research

This research analyzes the modern communication tools on project implementation. Modern communication tools taken in this study includes four independent variables; timeline and effectiveness, information technology, communication planning, and communication skills. . Modern communication tools are a broad topic and it can be improved by many factors but this study is aimed to know the impact of modern communication tools on project implementation. Software houses in Pakistan grows in past few years the competition between leading companies to increase their customers and also boost customers different projects of industry and supposed to be consuming efficiently all the potential communication configuration.

LITERATURE REVIEW

Modern communication tools play an effective role in the project implementation process. Among the all communication tools some of the tools are very widely used including Email, presentation, reports. Meetings By using these tools it become easy for project manager to deliver information to every member on timely basis. Details can be changed whether or not use the precise tool of communication. Importance is when we learn about the particular tool's importance to practice in spread, importance in project implementation, between management to practice the tools (Ekstedt et al., 2025).

Critical Chain Scheduling

(CC) scheduling is based on Goldratt's theory of constraints (Mohamed et al., 2025). For minimizing the impact of Parkinson's Law (jobs expand to fill the allocated time), CC uses a 50% confidence interval for each task in project scheduling. The safety time (remaining 50%) associated with each task is shifted to the end of the critical chain (longest chain) to form the project buffer. Although it is claimed that the CC approach is the most important breakthrough in project management history, its over simplicity is a concern for many companies that do not understand both the strength and weakness of CC and apply it regardless of their particular and unique circumstances (Pinto, 1987). The assumption that all task durations are overestimated by a certain factor is questionable. The main issue is: How does the project manager determine the safety time (Hüllmann et al., 2025)? CC relies on a fixed, right-skewed probability for activities, which may be inappropriate, and a sound estimation of project and activity duration (and consequently the buffer size) is still essential (Mitchinson et al., 2025).

Project Implementation

There are five stages in a project's life: (1) initiation, (2) scheduling, (3) implementation, (4) monitoring and control and (5) commissioning and closure (e.g. see Project Management Institute, 2013). Defining key operating concepts such as implementation is quite essential for exposure clarification. Implementation is characterized as a collection of actions planned to enforce a known-dimensional event or system (Kovler et al., 2025). Implementation is described in a similar vein ' as a specific set of actions planned to enforce a known-dimensional operation or system (Salman et al., 2025). Using the concept of Fixsen et al. (2005), implementation procedures are intended and defined in considerable detail to allow independent observers to confirm the presence and intensity of the ' definite set of actions ' linked to implementation. Implementation of the project will lead to a worthwhile project. Implementation of the plan is nevertheless complicated and tough (Pinto, 1987).

Implementation is the most important phase of the project cycle. Successful project implementation will result in a successful project. However, successful project implementation is complex and difficult (Pinto 1987). However, this is not to say that successful project implementation is an impossible feat or a quest for the Holy Grail. The challenge, therefore, is to deploy all efforts to ensure successful implementation, and hence a successful project. Pinto (1987) has developed 10 successful project implementation factors as:

- Project mission: initial clarity of goals and general direction.
- Top management support: willingness of top management to provide the necessary resources and authority or power required for project implementation.
- Project schedules and plans: detailed specification of the individual action steps required for project implementation.
- Client consultation: communication and consultation, and active listening, to all affected parties.
- Personnel: recruitment, selection and training of the necessary personnel for the project team.
- Technical tasks: availability of the required technology and expertise to accomplish the specific action steps.
- Client acceptance: the act of 'selling' the final product to its intended users.
- Monitoring and feedback: timely provision of comprehensive control information at each stage in the implementation process.
- Trouble shooting: ability to handle unexpected crises and deviations from the plan.

Project Timeline

It is very important to consider project timeline while developing project communication plan. Information transfer and effectively depend upon stakeholder's requirement and requests. Communication effectiveness and efficiency be subject to project scope and complication (Marin, 2025). One of most important problem in information transfer and delivery system is the burden of information – excessively e-mails, and excessive data in reports, presentations and gatherings on daily or weekly basis. When project manager decide about the timeline of the information transfer then he or she should also define about the pace of data transmission. This should be considered like project data; reports emails and all information should be delivered on following time. These methods help project manager to build a strong relation with stakeholders (Brewer et al., 2025).

Information Technology

All businesses have been influenced by enormous improvements in information and communication innovation in past few generations. Information technology has also affected the software industry. IT performs vital functions in software project development, management and execution. This enabled for Computer companies with storage purposes and quick access to correct and modified data and made extensive analyses feasible. Information Technology in Software can be characterized as the application of decision support tools that use electronic machines and programs to process, store, analyze, monitor, transmit and present software information data throughout a computer project's life cycle (Al-Hussein, 2010). Including serving as a tool of project and company data management and processing, there are other aspects in which Software took on IT. Such innovations influence the operation of the Software itself and can be divided into four important fields. These are uniformity (including the use of Electronic Data Interchange (EDI) and bar coding), modeling (including computer-aided design (CAD), virtual reality (VR) and augmented reality), collaboration (including video / data conferencing and intranets), integration (InfoBase use and project-specific databases) (Harris, 2009).

Communication Planning

To make a quality communication it is necessary to make a communication plan that covers all aspects of project. Communication plan is important aspect of project, which distributed different tasks with different peoples according to their skills. Improper communication planning may cause delay in delivery of project and sometimes causes failure of the project. It is very necessary to carefully examine the communication plan and to ensure the high quality of project communication. When project manager is developing communication plan, he has to be aware about the company's processes. According to these processes project manager can develop a communication plan, which focuses on the interest of skate holders. Environmental factors are also important factors for the manager during the execution of plan. Such considerations involve market trends, communication networks developed, information system for project management (Kerzner, 2025).

Communication Skills

Previous studies provided evidence regarding the importance of communication in various project management areas such as coordination of teams, leadership, stakeholder management, knowledge management and human resource management. Irrespective of all communication styles, communication itself plays a very important role in project management planning functions. Earlier studies have highlighted interaction to build successful collaboration (Pryke, 2012). Past studies also noted that task

information communication to teams enhances effectiveness of teamwork (Jetu & Riedl, 2012). A study (Sarhadi, 2016) studied two teams: one with same communication style and other with all kinds of communication styles. It was found that the team with all kinds of communication in suitable arrangement usually shows better performance than team that had adopted same communication style. The team with different communication style created better communication network than the other team that had same style. However this area requires more study for better reliable results. In a project environment, it is the appropriate medium for “timely exchange of information, rapid feedback, immediate synthesis of message, and timely closure” (Carlsson, 2001). Written communication includes e-mails, fax, memos, letters, reports, plans (strategic and tactical), legal documents and other forms of information to be transmitted. Writing bid proposals, progress reports, training manuals etc. is an important part of management of Software projects.

Gap in the Study

This study focuses on project implementation through modern communication tools in software houses of Pakistan as limited research has been done in this area. Improper communication planning, lack of focus in information technology, unspecified project timeline and insufficient communication skills effects the project implementation and puts the project in danger of failure. For example, poor communication between project manager and stakeholders as project manager or sometimes stakeholders do not share every aspect of project performance. The research established that using of modern communication tools effects the implementation of projects and thus helps in success of projects (Panchal, 2025).

METHODOLOGY

The following research is carried out to determine the relationship between modern communication tools and project implementation in software houses of Pakistan. The study uses quantitative research strategies. According to Milkova et al. (2025), research methods are an important part of social science as a way to improve academic progress. This is done through creative thinking, taking into account the details of data collection and analysis. In order to successfully solve research problems, it is important to coordinate research with methods used to answer them to avoid arguments and confusion. This section introduces the research background and supports the theories, methods, designs, and methods discussed in later section to address research issues and related goals.

Theoretical Framework

a) Dependent Variable:

Project Implementation

b) Independent Variable:

1. Communication Planning
2. Communication Skills
3. Information Technology
4. Project Timeline

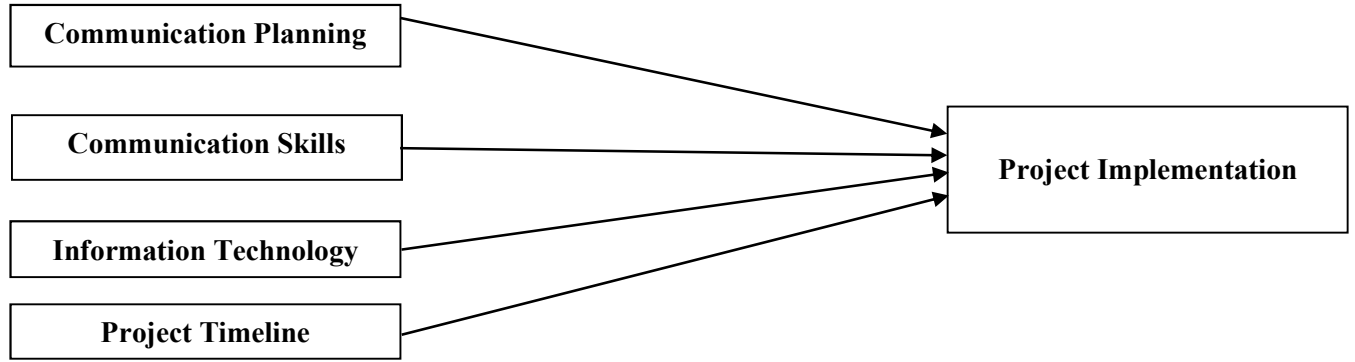


Figure 1: Conceptual Framework

Data and Sampling Framework

The population of this study is the employees who are working in Karachi based software industry. The sample size was fixed by the size of the population in Raosoft software. The sample size resulted to be 357 with 5 % margin of error and 95% confidence interval. The participants of this survey will be project managers and team workers in software houses of Karachi. The Questionnaire technique would be used to collect data from managers who are working in company’s projects.

Statistical Model & Analysis

The data gathered using the questionnaire will be examined accurately by SPSS statistical 20 software using regression- correlation technique as a statistical method for establishing relationships among dependent and independent variables (Mark Saunders, 2008).

Diagnostic Analysis

The questionnaire was used to collect data. The first questionnaire contained 16 questions. For pilot testing it was sent to 15 respondents when the result was analyzed on SPSS20 it was giving Cronbach’s alpha of 0.5, which is poor and not acceptable. For the pilot test, it was sent to 20 respondents and the results were analyzed on the SPSS20 and found to have a Cronbach’s alpha of 0.56, which is poor and unacceptable. Then the questionnaire was redesigned and now contains 20 questions, with only 38 respondents answering the Cronbach’s alpha result of 0.876, which is good and acceptable for the study.

Table 1
Reliability Statistics

Cronbach's Alpha	N of Items
.876	20

Robustness Analysis

The Cronbach’s alpha value is 0.876, so we accepted it and studied further before our study.

RESULTS

In the previous section, a research methodology was established and work was carried out in this area. This section is now the result of research on data collection and research as a result of data. To this end, a questionnaire containing 20 questions was created to view the influence of independent variables (Communication Planning, Communication Skills, Information Technology and Project Timeline) on the dependent variable (Project Implementation). The problem with the Likert scale comes from (1-5) in variety of “Strongly Disagree”, “Disagree”, “Neutral”, “Agree” and “Strongly agree” to examine relationship between variables (Christian, 2014). The questionnaire was filled by 255 respondents who were employed by different software organizations. The SPSS20 software is used to run tests such as simple regressions, use of correlations between the standard deviations and checking the relationships between variables.

Descriptive Analysis

The technique is used to assess the respondent’s analysis of gender, age, marital status, and education details.

Descriptive Statistics on Demographic Variables

Descriptive statistics describes and summarizes information related to the respondents. Demographic data was summarized i.e., age, gender, qualification and tenure by using percentage and frequency distribution.

Table 2

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	64	25.1	25.1	25.1
	Male	191	74.9	74.9	100.0
	Total	255	100.0	100.0	

ANALYSIS: The numbers of respondents are 255. Out of which 191 are male and 64 are female.

Table 3

Age of the Respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 to 30	150	58.8	58.8	58.8
	30 to 40	103	40.4	40.4	99.2
	50 Above	2	.8	.8	100.0
	Total	255	100.0	100.0	

ANALYSIS: Out of 255 respondents, 150 respondents are from 20-30 age group, 103 respondents are between 30-40 ages, and 02 respondents are from 50 above group.

Table 4

Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	121	47.5	47.5	47.5
	Single	134	52.5	52.5	100.0

Total	255	100.0	100.0
-------	-----	-------	-------

ANALYSIS: Out of 255 respondents, 121 respondents are married, 134 respondents are single.

Table 5
Highest Education Attained

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	162	63.5	63.5
	Masters	86	33.7	97.3
	Mphil	5	2.0	99.2
	PHD	2	.8	100.0
	Total	255	100.0	100.0

ANALYSIS: Out of 255 respondents, 162 respondents are bachelors, 86 respondents are masters, 05 respondents are MPhil, and 02 respondents are PHD

Inferential Analysis

Inferential analysis is used for hypothesis testing and to see what the relationship between dependent is and independent variables. The following types of inferential statistics were used in the study.

Correlation Analysis

Relationship between Communication Planning and Project Implementation

H₀: Communication Planning has no impact on project implementation in software houses of Pakistan.

H₁: Communication Planning has impact on project implementation in software houses of Pakistan.

Table 6 (a)
Correlations

	Project Implementat ion	Communicati on Planning	Communica tion Skills	Information Technology	Project Timeline
Pearson Correlatio n	.473**	.405**	.447**	1	.522**
Information Technology Sig. (2- tailed	.000	.000	.000		.000
N	255	255	255	255	255

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

Information Technology does have a positive association with Project Implementation as shown in the table. There is a moderate positive relationship between communication planning, communication skills, and project timeline with Information Technology with values of (0.405) (0.447), and (0.522) respectively. Most of the respondents agree that Information Technology have an effect of Project Implementation. It is important that technical IT skills of an employee are important for project success.

Relationship between Project Timeline and Project Implementation

H₀: Project Timeline has no impact on project implementation in software houses of Pakistan.

H₄: Project Timeline impact on project implementation in software houses of Pakistan. .

After gathering the data from the respondents, the data is then evaluated on the SPSS 20 software where the correlation test is done and the following outcomes are attained from it:

Table 6 (b)
Correlations

		Project Implementati on	Communicatio n Planning	Communica tion Skills	Information Technology	Project Timeline
	Pearson Correlation	.363**	.473**	.405**	.522**	1
Project Timeline	Sig. (2- tailed)	.000	.000	.000	.000	
	N	255	255	255	255	255

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

Project Timeline does have a positive relationship with Project Implementation as shown in the research framework. There is also a strong positive relationship between Communication Planning, Communication Skills and Information Technology understanding with the values of (0.473), (0.405), and (0.522). Most of the respondents agree that Project Timeline have an effect on Project Implementation. Project timeline helps to develop the project communication plan.

Statistical Results

Table 7(a)

Regression Analysis

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.680	.223		7.532	.000
1	Communication Planning	.560	.056	.530	9.932	.000

a. Dependent Variable: Project Implementation

Interpretation: The Standard Error identifies how much the data is deviated from the model or in other words, the deviation from the distribution table. It also tells us the accuracy of the data. The higher the value of standard deviation, the more your data is inaccurate or spread out. In this study, the value of standard Error of Independent Variable is 0.056 it means the data can fluctuate up to 5.6%. It shows the less deviation. The results obtained from the regression analysis are called the standardized coefficients. It determines how much value per change will be observed in the dependent variable if there is a unit change in the predictor value. The p value of the independent variable here obtained is 0.000.

Table 7(b)
Regression Analysis

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.025	.233		8.678	.000
1	Communication Skills	.474	.059	.449	7.994	.000

a. Dependent Variable: Project Implementation

Interpretation: The Standard Error identifies how much the data is deviated from the model or in other words the deviation from the distribution table. It also tells us the accuracy of the data. The higher the value of standard deviation, the more your data is inaccurate or spread out. In this study, the value of standard Error of Independent Variable is 0.059. It means the data can fluctuate up to 5.9%. It shows the less deviation. The results obtained from the regression analysis are called the standardized coefficients. It determines how much value per change will be observed in the dependent variable if there is a unit change in the predictor value. The p value of the independent variable here obtained is 0.000. According to the rule of p, if its value is less than 0.005, Null Hypothesis is rejected. It means that the data is not normally distributed

Table 7(c)
Regression Analysis

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.157	.203		10.598	.000
1	Information Technology	.441	.052	.473	8.550	.000

a. Dependent Variable: Project Implementation

Interpretation: The Standard Error identifies how much the data is deviated from the model or in other words the deviation from the distribution table. It also tells us the accuracy of the data. The higher the value of standard deviation, the more your data is inaccurate or spread out. In this study, the value of standard Error of Independent Variable is 0.052. It means the data can fluctuate up to 5.2%. It shows the less deviation. The results obtained from the regression analysis are called the standardized coefficients. It determines how much value per change will be observed in the dependent variable if there is a unit change in the predictor value. The p value of the independent variable here obtained is 0.000. According to the rule of p, if its value is less than 0.005 H_0 is rejected and the other alternative hypothesis is accepted.

Table 7(d)
Regression Analysis

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

		B	Std. Error	Beta		
1	(Constant)	2.112	.244		8.660	.000
	Project Timeline	.254	.052	.208	4.271	.000

a. Dependent Variable: Project Implementation

Interpretation: The Standard Error identifies how much the data is deviated from the model or in other words the deviation from the distribution table. It also tells us the accuracy of the data. The higher the value of standard deviation, the more your data is inaccurate or spread out. In this study, the value of standard Error of Independent Variable is 0.052. It means the data can fluctuate up to 5.2%. It shows the less deviation. The results obtained from the regression analysis are called the standardized coefficients. It determines how much value per change will be observed in the dependent variable if there is a unit change in the predictor value. The p value of the independent variable here obtained is 0.000. According to the rule of p, if its value is less than 0.005 H_0 is rejected and the other alternative hypothesis is accepted.

DISCUSSIONS

By analyzing the responses that have been collected for the first variable, Results identified that the H_1 is accepted and H_0 is rejected.

H1: Communication Planning affects Project Implementation

By analyzing the responses for the first variable, since p-value is less than 0.05 it is statistically significant and positive beta coefficient value therefore we can say that null hypothesis is rejected and can conclude that Communication Planning causes Project Implementation. The results show that mostly respondents have agreed. It can be summarizes that the hypothesis H_1 is accepted

H2: Communication Skills affects Project Implementation

By analyzing the responses for the first variable, since p-value is less than 0.05 it is statistically significant and positive beta coefficient value therefore we can say that null hypothesis is rejected and can conclude that Communication Skills causes Project Implementation. The results show that mostly respondents have agreed. It can be summarizes that the hypothesis H_2 is accepted

H3: Information Technology affects Project Implementation

By analyzing the responses for the first variable, since p-value is less than 0.05 it is statistically significant and positive beta coefficient value therefore we can say that null hypothesis is rejected and can conclude that Information technology causes Project Implementation. The results show that mostly respondents have agreed. It can be summarizes that the hypothesis H_3 is accepted.

H4: Project Timeline affects Project Implementation

By analyzing the responses for the first variable, since p-value is less than 0.05 it is statistically significant and positive beta coefficient value therefore we can say that null hypothesis is rejected and can conclude that Project Timeline causes Project Implementation. The results show that mostly respondents have agreed. It can be summarizes that the hypothesis H_4 is accepted.

Summary

The overall results show that communication planning, communication skills, information technology and project timeline have positive significant impact on project implementation. Data is collected from 255 respondents through questionnaire which comprises of 20 questions. Modern communication tools are commonly an important factor in project implementation so people of software houses mostly agreed on it. Data is analyzed on SPSS 20 software. It was found that there exists a strong positive relationship between communication planning, communication skills, information technology and project timeline and, also, they have a strong impact on implementation of projects.

CONCLUSION

This section defines the main findings of research, the connections of those findings and the opportunities for future research, to take the results of this research ahead and also limitation of study will be discussed. The reason of this study is to investigate the Modern Communication Tools on Project Implementation in Software Houses of Pakistan. The objective of this study is to find the modern communication tools issues that come during software house projects. Research methodology will be discussed in first section, the main findings of this research will be discussed more and also discuss the results of the study which show the relation between the Modern Communication Tools and Project Implementation in Software Houses of Pakistan. After discussing the research implications, limitations & suggestion for future research will be discussed.

This research is conducted from the professionals of software houses projects. The total population is approximately 5000 professionals (project managers) working in software houses projects of Pakistan. The sample size has been calculated 357 from Rao Soft, for data collection a questionnaire of 20 questions has developed related to communication planning, communication skills, information technology, and project timeline and sent it for pilot testing to 38 professionals to check the reliability of questionnaire, responses has been analyzed on SPSS20 software to find the Cronbach's Alpha to measure the reliability of questionnaire. Cronbach's Alpha for my research is 0.876 which is good and acceptable further questionnaire has sent to professionals for complete data collection.

According to response of respondents and its analysis, main findings are that all null hypothesis are rejected and alternate hypothesis are accepted which shows that Impact of Modern Communication Tools affects Project Implementation in Software Houses of Pakistan. Following are the summary of main findings:

- The results of this research show that 74.9% respondents are male and 25.1% are female.
- Age of most respondents are between 20-30 years, maximum respondents have bachelor's degree with 63.5% and 33.7% having master's degree, most of respondents are single with 52.5% and 47.5% respondents are married.
- According to results of analysis, Modern Communication Tools have impact on Project Implementation in software houses of Pakistan. We found strong positive correlation between communication planning and project implementation. Most of respondents are agree that communication planning affects the project implementation in software houses of Pakistan.
- Our second independent variable is communication skills and results of our analysis are communication skills have also strong positive correlation with project implementation. Most of respondents are agreeing that communication skills affect the implementation in software houses projects of Pakistan.

- Our third independent variable is information technology and according to our results of analysis information technology affects the project implementation. Most of respondents are agree that information technology affects the project implementation and we found strong positive correlation between information technology and project implementation in software houses of Pakistan.
- Our fourth independent variable is project timeline and according to our results of analysis project timeline affects the project implementation. Most of respondents are agree that project timeline affects the project implementation and we found strong positive correlation between project timeline and project implementation in software houses of Pakistan.

Implications of the Study

Theory support the previous theories as discussed in literature review, our study describes that communication planning; communication skills, information technology, and project timeline are the factors that affect the Project Implementation in software houses of Pakistan. The results of this study will help project manager to fill the gap in modern communication tools. So that shareholders and managers should focus on implementing proper modern communication tools to improve the project implementation in software houses of Pakistan. Communication Tools is a very important factor for any project and it impacts on project performance and successfully implementation of projects. It is very important that every organization should focus on implementing time to time meetings to avoid conflicts between project members. Every research has impact on academia as it gives support to earlier theory or it develops a new theory. This study has a great importance for a student who wants to work in software houses projects. This study tells an understanding of project implementation relationship with communication planning, communication skills, information technology, and project timeline. This study has also commercial importance for software house sector as this may help the software houses to execute the projects successfully.

Limitations of the Study

Modern Communication Tools are the critical and important factors in software houses and it is a broad topic that includes many critical factors. Because of time and resource constraints only four variables have been studied which are repeatedly seen in literature review. Many other variables can be identified and research on that in future. Moreover, identification of their solutions can be researched by future researchers.

Suggestions for Future Recommendations

There are several areas of scientific research that were either referenced by this research, or were a secondary concern that arose as a result of this study. Though there were several issues that arose that could not be addressed, as they were outside the scope of this research. Furthermore, researches would be investigating why employees in Pakistan who are working in software houses projects are not properly communicated about the project performance that impacts on project success and ultimately on implementation of projects and this practice is also following in other industries of Pakistan.

REFERENCES

- Andersen, E. S., Grude, K. V., & Haug, T. (2025). *Goal directed project management: effective techniques and strategies*. Taylor & Francis.
- Brewer, J. L., Dittman, K. C., & Thomas, P. J. (2025). *Methods of IT project management*. Purdue University Press.
- Carlsson, B. J. (2001). *Communication in Building projects; empirical results and future needs, in Proceedings of CIB World Building Congress: Performance in Product and Practice*, Wellington, New Zealand.
- El-Saboni, M. A. (2009). Electronic communication systems effects on the success of construction projects in United Arab Emirates. *Advanced Engineering Informatics*, 130 - 138.
- Grudin, J. &. (1989). User Interface Design in Large Corporations. *Coordination and Communication Across Disciplines*, 197-203.
- Hüllmann, J. A., Kimathi, K., & Weritz, P. (2025). Large-Scale Agile Project Management in Safety-Critical Industries: A Case Study on Challenges and Solutions. *Information Systems Management*, 42(2), 138-160.
- Jetu, F. T., & Riedl, R. (2012). Determinants of Information Systems and Information Technology Project Team. Success: A Literature Review and a Conceptual Model. *Communications of the Association for Information Systems*, 30(27). Retrieved from <https://aisel.aisnet.org/cais/vol30/iss1/27/>
- Kaplan, M. A. (2010). Users of the World, Unite! The Challenges and Opportunities of Social Media. *Microelectronics and Computer Technology Corporation* , 59-68.
- Kerzner, H. (2025). *Project management: a systems approach to planning, scheduling, and controlling*. John Wiley & Sons.
- Kossai, M. (2014). Adoption of Information and Communication Technology and Firm Profitability. *Empirical Evidence from Tunisian SMEs*, 9-20.
- Kovler, K., Tsapalov, A., Bobkier, R., Wieggers, R., Schroeyers, W., Kovács, T., ... & Babczuk, A. (2025). Indoor radon and NORM in building materials: Critical analysis of the current European regulation and road map for the next decade. *Journal of Environmental Radioactivity*, 285, 107668.
- Lending, D. &. (2015). A Conceptual Model for Communicating an integrated information systems curriculum. *Jouranal of Computer Information System.*, 20-27.
- Marin, E. (2025). Who Failed Who? A Review of the Policy Initiatives that Target the Reduction of Early School Leaving in Romania. *Educatia 21*, (30), 87-98.
- Milkova, E., Moldoveanu, M., & Krcil, T. (2025). Sustainable education through information and communication technology: A case study on enhancing digital competence and academic performance of social science higher education students. *Sustainability*, 17(10), 4422.
- Mitchinson, S., Johnson, J. H., Milner, B., Lamb, O., & Behr, Y. (2025). Capturing expert uncertainty: ICC-informed soft labelling for volcano-seismicity. *Bulletin of Volcanology*, 87(10), 84-95.
- Mohamed Meabed, E. S., Mahfouz, S. Y., & Alhady, A. (2025). Modified critical chain scheduling for construction projects. *HBRC Journal*, 21(1), 127-143.
- Omorogbe, E. M. (2025). Influence of Corporate Social Responsibility on the Corporate Image of Guinness Brewery in Benin City. *Biannual Review of Glorious Vision University*, 2(2), 115-129.
- Braun, T., Ekstedt, E., Lundin, R. A., & Sydow, J. (2025). Managing stability and change in interorganizational projects: The ambiguous role of digital tools for relational dynamics. *Project Management Journal*, 56(4), 522-542.
- Ongesa, T. N., Ugwu, O. P. C., Ugwu, C. N., Alum, E. U., Eze, V. H. U., Basajja, M., ... & Ejemot-Nwadiaro, R. I. (2025). Optimizing emergency response systems in urban health crises: A project management approach to public health preparedness and response. *Medicine*, 104(3), e41279.
- Panchal, P. B. (2025). Use of integrated intelligence scheduling system (IISS) for heavy civil construction projects. *Journal of Emerging Technologies and Innovative Research*, 12(5), a800-a815.
- Pinto, J. K. (1987). Critical factors in successful project implementation. *IEEE Transactions on*

- Engineering Management*, 22-27.
- Robbins, S. P. (1993). *Organizational Behavior*. Prentice Hall international.
- Salman, O. U., Finel, A., & Truskinovsky, L. (2025). Inertia-induced power law scaling in martensites. *Mathematics and Mechanics of Solids*, 10812865251361074.
- Sarhadi, M. (2016). Comparing communication style within project teams of three project-oriented organizations in Iran. *Procedia - Social and Behavioral Sciences*, 226, 226 – 235. doi:10.1016/j.sbspro.2016.06.183
- Zhou, Q., & Deng, X. (2025). A configuration analysis on knowledge transfer between projects: from horizontal and vertical perspectives. *Engineering, Construction and Architectural Management*, 32(5), 3349-3374.