Journal of Infrastructure, Policy and Development 2024, 8(10), 6397.
https://doi.org/10.24294/jipd.v8i10.6397

Article

Impact of client relationship on project delay: Moderating role of project governance

Iqra Ayaz[1], Muhammad Faizan Khan[2], Muhammad Tanveer[3], Mansour Mrabet[3], Syed Hussain Mustafa Gillani[2,*]

[1] Department of Management Sciences, Comsats University, Islamabad 45550, Pakistan
[2] Department of Management Sciences, Kohsar University, Murree 47180, Pakistan
[3] Business Administration Department, Imam Mohammad Ibn Saudi Islamic University (IMSIU), Riyadh 11646, Saudi Arabia
*** Corresponding author:** Syed Hussain Mustafa Gillani, hussain.mustafa@kum.edu.pk

CITATION

Ayaz I, Khan MF, Tanveer M, et al. (2024). Impact of client relationship on project delay: Moderating role of project governance. Journal of Infrastructure, Policy and Development. 8(10): 6397. https://doi.org/10.24294/jipd.v8i10.6397

ARTICLE INFO

Received: 14 May 2024
Accepted: 18 June 2024
Available online: 23 September 2024

Abstract: The projects of the IT industry are considered successful when they are completed within the timeline, budget, and client satisfaction on a specific project. Although client relationship is not given much importance in the delay of a project, through several studies it has been seen that the project is delayed in the IT industry due to a lack of awareness about the project to the client. The objective of this study is to inspect the impact of client relationships on project delay. Drawing on stakeholder theory and agency theory, this study investigates how client relationship influences project delay through project awareness and the role of project governance as moderator. A deductive approach of reasoning was used to test the hypotheses formulated under the current research work and proceed by using the quantitative method. This study employed a cross-sectional research design, where data was collected at a specific point in time through a survey strategy. Data was collected from the sample of 288 respondents from the IT companies of Rawalpindi and Islamabad. The data was collected using a convenience sampling technique. The demographics of the respondents were analyzed through the IBM-SPSS software program. The assumptions and the reliability of the model were also tested in SPSS. In this study, it was discovered that effective management of client relationships significantly reduces project delays, with project awareness being a crucial factor in this mitigation process. The results revealed that client relationship was negatively associated with project delay and project awareness. Whereas this linkage was mediated by project awareness. This study concludes that adequate project awareness and fruitful project governance reduce project delays and lead to positive client relationships.

Keywords: client relationship; management; project delay; project awareness and project governance

1. Introduction

Information Technology (IT) projects are considered effective when they are finalized and released within the given time, budget, and plan, and as per client's requirements and demands. However, IT projects are often not accomplished within the expected timeframe due to unidentified uncertainties and unpredictability that occur before, during or after the completion of the project (Gebrehiwet and Luo, 2017; Shah et al., 2023). Riazi et al. (2018) concurred that the term delays can be defined in multiple ways in the context of IT project development. A project delay is regarded as the time consumed outside the deadline of the contract, or beyond the deadline of the project given to the client. Maruping et al. (2019) added that delays could occur because of a variety of reasons including equipment failures, weather conditions,

incorrect or missing data, labor shortages, conflicts, and project mistakes. Developing and sustaining a healthy and transparent relationship with clients is one of the essential factors for project completion without experiencing any delays. Before IT became a norm, it was easy to deal with clients as direct information exchange, business dealings, and knowledge circulation were carried out (Maruping et al., 2019). Whereas, as per Lechler et al. (2012), modern times have made IT a basic necessity in the regular operations and functioning of businesses; which has increased the adoption of IT technologies that continue to develop and grow, globally. Therefore, the major cause of delay in IT projects is hardware or software breakdown, which is attributed to an unexpected condition. Other major causes involve changes in the project plan during its execution, and in the requirements of design or draft by the client (Tereso et al., 2019; Tanveer, 2022). In the sector of IT, client relationship has a prominent place as all projects are taken as per the demands and needs of the client after verifying the prototype, and project plan, and setting a deadline (Saleem et al., 2019). Woźniak et al. (2021) alluded that the acceptance or rejection of the final project is based on the client's satisfaction. Hence, it becomes necessary for a project manager to sustain a strong and positive relationship with clients for the successful completion of the IT project without the occurrence of any delays. However, when clients are given brief insights about the project from time to time, the chances of project acceptance are amplified, and project delays are decreased largely as client satisfaction is increased. Ojelabi et al. (2018) explained that client relationship management assists in catering to unidentified and untimely deliverables that typically make the project execution slow as well as unproductive; and occupy team members with confusion. The reason is that clients are mostly or often unaware of what they exactly need from the project. Additionally, Ibraigheeth and Fadzli (2019) identified that projects often suffer due to bad performance in terms of quality defects, poor communication with clients, and time overruns. An unhealthy relationship with clients and inefficient project management are the major causes of poor performance of a project. Despite this, there is a scarcity and lack of investigation regarding the effects of client relationships on project performance. Although few studies have assessed and examined the impact of client relationships on project accomplishment, gaps are apparent concerning developing mutual goals and understanding project requirements between client and project manager (Levin et al., 2018). Larsen and Bong (2016) have studied the influence of poor management on projects. However, a research gap has been identified concerning the determination of the mediating role of project awareness in client relationships and project delays. Besides, a gap was also observed concerning the analysis of the moderating effect of project governance between project awareness and delay specifically in terms of reviewing the perspectives of project managers in Pakistan. Therefore, intending to address this identified gap, the focus of the study is to know the circumstances to find the problem due to which a project is delayed keeping in mind the satisfaction of a client. The relationship between client involvement and the indicator can affect the project's success.

RQ1: What is the impact of client relationships on project delay?

RQ2: What is the mediating effect of project awareness between client relationship and project delay?

RQ3: What is the moderating effect of project governance between project

awareness and project delay?

The objectives of the study are as follows:

- To determine the impact of client relationships on project delay.
- To examine the mediating effect of project awareness in client relationships and project delay.
- To examine the moderating effect of project governance between project awareness and project delay.

2. Literature review

2.1. Theoretical framework

One component of doing project management research is to thoroughly explain and justify why authorized and effective project management methods operate in practice. The theoretical underpinnings of these activities, as well as the problem of whether additional activities can be beneficial in which situations, demand more examination. Even though the body of literature on project management is extensive and useful (Shenhar and Dvir, 2007), it takes a pragmatic approach and frequently ignores the underlying difficulties and interconnectedness. Stakeholder theory and agency theory are the supportive theories of the research under investigation which elaborates on the effect of a client relationship on the project delay. On the other hand, the research of Uribe et al. (2018) mentioned that the stakeholder theory is considered as the capitalist view which increasingly stresses the interconnectedness association among the business and the investors, communities, employees, suppliers and clients as well. These are significant members of people having an effective stake in the organizational success. For this purpose, the theory argues that the organization must develop value for the stakeholder. Therefore, in the current context, to avoid project delays the IT sector must develop a strong association with the client and evaluate the role of project governance as well.

Project governance and project awareness

Project governance refers to the framework of policies, processes, and structures that guide and control project activities to achieve the desired objectives (Derakhshan et al., 2019). It involves decision-making processes, accountability mechanisms, and oversight to ensure alignment with organizational strategies and stakeholder interests. Effective project governance is crucial for managing risks, resolving conflicts, and ensuring project success. Project awareness, on the other hand, refers to the understanding and knowledge that stakeholders, particularly clients, have about the project's scope, objectives, processes, and expected outcomes (Mirza and Ehsan, 2017). Maintaining adequate project awareness among clients is essential for managing their expectations, fostering collaboration, and minimizing misunderstandings or miscommunications that could lead to project delays or failures. This study contributes to the literature by investigating the interplay between client relationships, project awareness, and project governance in the context of IT project delays. By examining the mediating role of project awareness and the moderating role of project governance, the study provides insights into the mechanisms through which client relationships influence project outcomes.

2.2. Client relationship

Several stakeholders are constantly involved in every phase of projects, and their interests and requirements must be taken into account while making managerial choices to ensure successful project completion milestones (Osei-Kyei et al., 2017). Consumers are one of the most important stakeholders as they play a pivotal role in projects since they are the ones who are most likely to benefit from and utilize the project. In fact, without clients, no project would operate. They define the scope of a project, affect its execution, and evaluate the project's outcome (Rose and Schlichter, 2013). Clients are also among the key stakeholders when it comes to determining project milestones (Osei-Kyei et al., 2017). In the study by Chung et al. (2020), it has been discovered that the client's lack of experience in projects is one of the main reasons for a project delay. Inexpert project developers may confront a dilemma and not understand how to resolve it instantly because of their lack of experience. While they seek to find ways to address the dilemma, project work is delayed. To build cooperation and combine satisfaction among parties the relationship between them should be strong and trustworthy. The large emphasis on this part of project management is because a project's success is categorized into two factors; client satisfaction and client relationship management (Salykova and Abylova, 2019). Remarkably, the Association for Project Management (APM) reported that only 22% of projects can be measured exclusively when project funders and client satisfaction are factored in.

2.3. Project delay

In the present study project delay is the dependent variable. Moreover, certain causes result in project delays. There are five major causes of project delay which comprises of: "client's financial problems", "delay in the approval of finalized work", "late delivery of projects", "deprived site organization and management between several parties", and "poor arrangement of resources and duration approximation/preparation" (Sanni et al., 2020). Project delay is considered the core variable of a project's success. In the words of Tanveer (2019), project time can be reduced by utilizing project governance by following the procedures to meet the requirements of the clients. According to Chung et al. (2020), changes in the contracts are a part of the change administration process or alteration in the demands which is produced by the clients in the project execution. The software development process is considered to be complicated and involves several changes. Additionally, these adjustments usually lead towards changes in the project instructions as well. Furthermore, change order in the IT project is a task that has been included or eliminated from the actual scope of an agreement that changes the primary value of the contract or the time of completion. A change order is a problem for the project in terms of both extra time and extra costs (Chung et al., 2020).

It has been stated by Adeleke et al. (2019), that clients can experience delay due to having a problem, unaware regarding how to solve it and immaturity of clients in the projects. Thereby, this will lead to delays in the projects which can extend the destined schedule. Furthermore, ten highly critical worldwide delay factors comprise of sponsor/ owner/ client's economic difficulties, changes in design insufficient client

knowledge/building methods and approaches. Other factors include contractors' financial difficulties change orders in design by client, poor planning and scheduling, delays in client's payment, poor site administration and guidance resources shortage, shortage of skills and inadequate design (Abulhakim and Adeleke, 2019).

2.4. Project governance

As per the research of Derakhshan, Derakhshan and Turner (2019) project governance reflects on the procedures of decision-making and direction which significantly influence the project. In the existing study project governance is a moderating variable. Governance focuses on the theories, common direction, and nature of all patterns of the rules. Furthermore, proper scheduling should be made by acquiring suitable methods to govern and control the project and for better control over the outcome of the project governance. In organizations conducting projects small and large, the project manager on one hand should focus on project completion and on the other hand on project performance to meet the requirements of the clients. On the other hand, innovative attributes of projects, are complex due to their effects on the performance of a project (Tanveer, 2019). A project manager would control and govern all the activities and procedures that are carried out in the completion of a project. Additionally, information about the resources, risks and deliverables are passed on to clients and contractors during the planning phase. Any alteration caused by clients during the implementation process may lengthen the project schedule which could result in project delay (Tanveer, 2019).

2.5. Project awareness

Lack of project awareness and immaturity of the project shows that the planning and dealing with the project is not appropriate which leads to the project delay (Sambasivan and Soon, 2007). Verenych et al. (2019) agreed with the previous statement and stated that due to a lack of awareness among stakeholders about project processes, irregularities in activities occur, the project budget is exceeded, the project implementation process is delayed, and the project is closed. The knowledge about project responsibilities and roles, processes, standards, and project outcomes come under the hat of project awareness. According to Mirza and Ehsan (2017), triple constraints are very important for projects which are cost, time and scope which impact one another. Due to the time delay in the project, either the scope or the cost needs to be adjusted. The project manager needs to have a deeper understanding of the details of the project to achieve the best outcomes of the project (Amjad, 2018). In IT projects time delays are a common issue in the failure of a project and this possibly happens due to lack of communication with the client. As indicated by Meng and Boyd (2017) to make a healthy relationship with a client a project manager needs to govern the project, look after all the issues and pros of the project and define them clearly to the client. Clients must be aware of the demands and needs they expect from the project and what outcomes they require from the project. The absence of project awareness among the client and project management team can lead a project to fail and it is the responsibility of a project manager to be aware, and to deliver the knowledge of the project to clients so that a project may not exceed the timeline (Irfan et al., 2021).

According to Keers and van Fenema (2018), the lack of or insufficiency of a shared performance system, which includes collaborative-based performance matrices for effective performance monitoring, has a detrimental influence on development. The main reason for deficient performance coupled with an organized perspective is an insufficient awareness of the parties, interests, and authority relationships with clients surrounding the project (Zaman, 2020). The principal cause connected with client commitment is due to the poor situation, transparency, and communication with external parties influenced by the project throughout its life cycle (Denicol et al., 2020). During the projects, the communication system plays a very important role in establishing the relationship between clients and project managers (Silva, 2018). Furthermore, the skills of negotiation with bargaining parties and partners are also stressed as important success factors by many researchers. As indicated by Shakeri and Khalilzadeh (2020), communication means to the aware properly of information among the project stakeholders. It incorporates all the processes required to ensure collection, dissemination, proper flow of project information and awareness, and proper and timely development of the project. The relationship between the project organizations and project stakeholders (clients) should be strong (de Oliveira and Rabechini, 2019). Now, organizations have experienced awareness among project managers and project management methodologies to gain an extreme level of success rate for the projects (Mainga, 2017).

2.6. IT outsourcing and risk management

IT outsourcing has become a common practice, where organizations outsource part of their IT functions to third-party service providers. However, this practice introduces schedule risks that need to be managed effectively. Liu et al. (2024) proposed a two-level principal-agent model for schedule risk control of IT outsourcing projects using a genetic algorithm. Their model aimed to minimize the schedule risk cost for both the client and the service provider. Another study by Shah et al. (2022) developed a bi-level whale optimization algorithm for risk management scheduling of IT projects considering outsourcing. Their approach optimized the scheduling of activities and resources while accounting for outsourcing risks.

2.7. Conceptual model

In **Figure 1**, the independent variable taken is client relationship, the dependent variable is project delay, project awareness is taken as a mediator and project governance plays the role of moderator. The research model is adapted from existing research on project success with a slight variation to fit the study under investigation. Following are the hypotheses:

- H1. Client relationships have a negative impact on project delay.
- H2. Project awareness has a negative impact on project delay.
- H3. Project awareness mediates the relationship between client relationship and project delay.
- H4. Client relationship has a positive impact on project awareness.
- H5. Project governance moderate relationship with project awareness and project delay.

The model is developed for research given below:

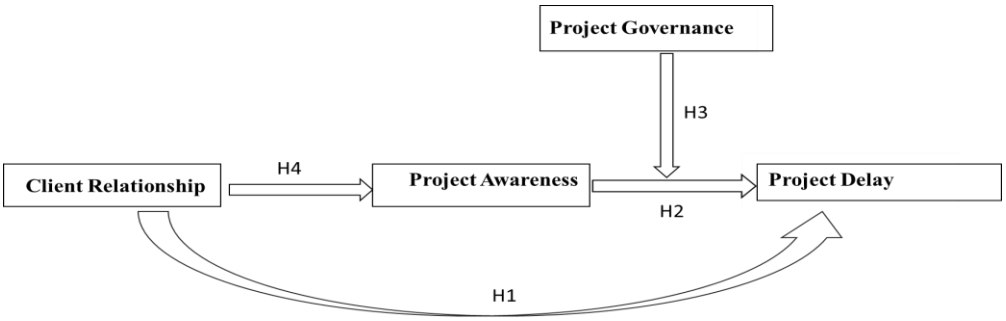

Figure 1. Model of the study.

3. Methodology

The conduct of this research was carried out using a quantitative method. The survey strategy was used for data collection in a structured form from a suitable sample size. For this, the questionnaire is formulated, and data is collected from the project managers working in IT companies in the defined time. Four variables are derived from the study client relationship, project delay, project governance, and project awareness. The variables in this study were measured using multi-item scales adapted from previous literature. Client relationship was measured using a 5-item scale from Rose and Schlichter (2013). Project delay was measured with a 4-item scale from Chung et al. (2020). Project awareness was assessed with a 6-item scale adopted from Mirza and Ehsan (2017). Finally, project governance was measured using a 5-item scale from Derakhshan et al. (2019) All items were rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Convenient sampling is applied as the country is facing lockdowns due to COVID-19. During the survey, there was a strict lockdown in Pakistan. From these software houses, a total of 288 willing participants were selected for this study. To determine the sample size for the current study, the formula for the sample size calculation was utilized.

$$n = \frac{z^2 \times p \times q}{e^2} \tag{1}$$

Based on the above calculation, it can be determined that the average sample size which is best suited for the current research is 290. The demographics of the respondents were analyzed through the Statistical Package for Social Sciences (SPSS) software program. The model's assumptions involving SPSS reliability were tested. Busily, the veracity of measured variables was examined first. Next, SPSS was used for analyzing regression model significance and assumption validity as well as adjusted values checking. Moving on to the material verification, the working estimates for these variables were obtained. The collected data was mainly analyzed through correlation and regression analysis, which were obtained through SPSS.

4. Results and discussion

4.1. Demographics results

The average, standard deviation, skewness, and kurtosis of each demographic variable were calculated and they are presented in the table.

4.1.1. Work experience

In **Table 1**, the terms of experience out of 288 participants, 81.9% had 1–5 years of experience, 9.4% had 6–10 years of experience, 5.6% had 11–15 years of experience, and 0.7% and 2.4% had 16–20 years and more than 20 years of experience, correspondingly.

Table 1. Work experience.

Experience	Frequency	Percent
1–5	236	81.9
6–10	27	9.4
11–15	16	5.6
16–20	2	0.7
More than 20	7	2.4
Total	288	100

4.1.2. Gender distribution

In **Table 2**, the male respondents accounted for 59.7% of the 288 respondents, while female respondents accounted for 40.3%.

Table 2. Gender distribution.

Gender	Frequency	Percent
Male	172	59.7%
Female	116	40.3%
Total	288	100%

4.1.3. Education

In **Table 3**, a total of 288 responses, 1.4% were intermediate, 39.2% were graduates, 56.9% had completed a master's degree and 2.4% had a PhD.

Table 3. Education.

Education	Frequency	Percent
Intermediate	4	1.4
Graduation	113	39.2
Masters	164	56.9
PhD	7	2.4
Total	288	100

4.1.4. Job sector

In **Table 4**, the job sector statistic shows what numbers of participants work in the public and private sectors. It is *t* according to the job sector variable, 13.5% of IT workers work for the government, while 86.5% work for private companies.

Table 4. Job sector.

Job sector	Frequency	Percent
Public	39	13.5
Private	249	86.5
Total	288	100

4.1.5. Age group

In **Table 5**, the age contributes to experience which is related to client relationships. While 83.7% were between the ages of 20 and 30, 12.5% were between the ages of 31 and 40, and 3.8% were between the ages of 41 and 50.

Table 5. Age.

Age	Frequency	Percent
20–30	241	83.7
31–40	36	12.5
41–50	11	3.8
51–60	0	0
61 above	0	0
Total	288	100

4.2. Correlation analysis

In **Table 6**, we see the correlation analysis:

Table 6. Correlation analysis.

Variables	Mean	SD	1	2	3	4
1 Client Relationship	4.344	1.97	(0.75)			
2 Project Awareness	5.191	1.51	0.33**	(0.77)		
3 Project Governance	4.600	1.71	0.52**	−0.042**	(0.76)	
4 Project Delay	5.406	1.29	−0.25**	0.214**	−0.299**	(0.78)

$N = 288$, $*p < 0.05$ $**p < 0.01$.

The table displays characteristics such as means, standard deviations, correlation coefficients, and Cronbach alpha reliability. Significant correlations were found between client relationships and project awareness ($r = 0.33$, $p < 0.01$), project governance and client relationships ($r = 0.52$, $p < 0.01$), and project delay ($r = -0.25$, $p < 0.01$). In addition, a statistically significant relationship was found between Project Awareness and Project Governance ($r = 0.42$, $p > 0.01$), as well as between Project Awareness and Project Delay ($r = 0.214$, $p > 0.01$). Furthermore, despite the association between Project Governance and Project Delay not being significant ($r = -0.299$, $p > 0.01$), Cronbach alpha was used to determine internal consistency. The overall alpha value was 0.78, indicating a high level of reliability. However, the SPSS analyses explained the relationship between the variables using correlation and Cronbach alpha. Correlation analysis reveals linear relationships between variables, which Cronbach alpha tests can use to assess scale reliability and determine how

trustworthy the data is.

4.3. Regression analysis

Hypothesis one suggests that client relationships play a negative role in project delays. This means that a decline in client relationships is accompanied by an increase in delays, whereas a rise in client relationships results in a decrease in delays. The statistical analysis ($\beta = -0.106^{**}$, $p < 0.000$) revealed a negative β value, indicating a negative impact of currency devaluation. Additionally, a ΔR^2 value of −0.11 indicates that a client relationship is linked to an 11% decrease in project delay. In **Table 7**, the findings of the hypothesis testing under consideration support the adoption of Hypothesis 1, which is essentially a thesis stating that there is a negative correlation between client relationship and project delay.

Table 7. Regression analysis.

Predictors	**Project Delay**			
	β	***R*²**	**ADJ*R*²**	**Δ*R*²**
Client Relationship	−0.106**	0.11	−0.007	0.11

* = $p < 0.05$, ** = $p < 0.001$.

Hypothesis 2 suggests that project awareness has a negative impact on project delays. This implies that as client project awareness increases, project delays decrease, and conversely, as project awareness decreases, delays increase. The statistical analysis reveals a significant negative relationship ($\beta = -0.103^{**}$, $p < 0.000$), indicating that project awareness is indeed negatively associated with project delays. Furthermore, the ΔR^2 value of 0.10 indicates that project awareness accounts for a 10% reduction in project delays. In **Table 8**, the findings support the acceptance of Hypothesis 2, which posits a negative influence of project awareness on project delays.

Table 8. Regression analysis.

Predictors	**Project Awareness**			
	β	***R*²**	**ADJ*R*²**	**Δ*R*²**
Project Delay	−0.103**	0.01	−0.007	0.10

* = $p < 0.05$, ** = $p < 0.001$.

Table 9. Regression analysis.

Predictors	**Client Relationship**			
	β	***R*²**	**ADJ*R*²**	**Δ*R*²**
Project Awareness	0.616**	0.424	0.422	0.424

* = $p < 0.05$, ** = $p < 0.001$.

According to Hypothesis 4, there is a positive relationship between the development of client relations and project knowledge. The stronger the client connections, the higher the project awareness, and vice versa. Weak client relationships result in poor project awareness levels. The statistical analysis ($\beta = 0.616^{**}$, $p < 0.000$) shows a significant positive relationship between increased client satisfaction and project awareness. The R^2 value of.0424 indicates that the client

relationship has a significant 42.4% increase in project perception. In **Table 9**, hypothesis 4's findings support the positive effect of client relationships on project success.

4.4. Mediation analysis

As Hypothesis 5 asserts, the relationship between client relationships and project delays is conditional. Based on the data in **Table 10**, the indirect effect on project delays caused by project awareness through client relationships is between 0.0133 and 0.1580 with a 95% confidence level, and it does not equal zero. As a result, our hypothesis is supported, as client alignment serves as a link between client relationships and project delays. This denotes/implies a partial mediation in the sense that, in addition to the direct path between the independent variable (IV) and dependent variable (DV), significant paths exist between IV and moderator, as well as between the moderator and DV. As a result, this setting demonstrates that the two paths for direct media effect and generalization are significantly weak.

Table 10. Mediation analysis.

IV	Effects of IV on M	Effect of M on DV	Direct Effect	Total Effect	Bootstrapping results in an indirect effect LL 95% CIUL 95% CI
Client Relationship	0.234**	0.336**	−0.6313**	−0.5525**	0.0133 0.158

It shows the relationship of IV, DV and the Mediator M.

Figure 2 shows the indirect effect of client relationships on project delay. The coefficients of path *a*, *b*, and *c** are presented in **Figure 3**. Where $a = 0.234$, $b = 0.336$, $c = -0.633^{**}$ (-0.552^{**}).

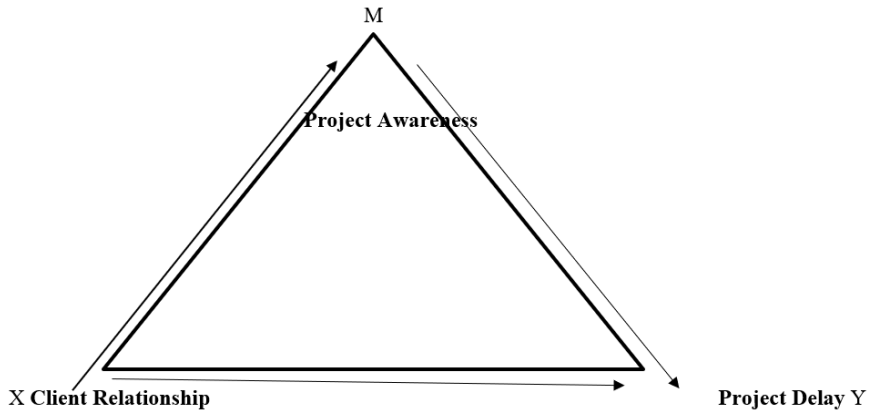

Figure 2. Mediation analysis.

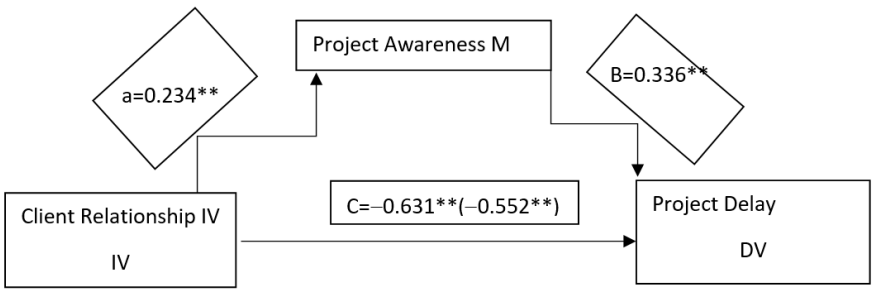

Figure 3. Coefficient analysis.

4.5. Mediation method

Moderation analysis

Hypothesis 3 posited that increased project governance positively correlates with client relationship enhancement, leading to greater project awareness and acting as a moderator in this study. Examination of **Table 11** reveals a 95% confidence interval ranging from −0.0969 to 0.0358 for the interaction terms, indicating moderation effects on the relationship between client relationship strength and project awareness. However, the R^2-change value of 0.0019 with a p-value of 0.3962 suggests no significant moderation effect. Therefore, the results do not support Hypothesis 3, which proposed that Project Governance strengthens the relationship between client relationship and project awareness through moderation.

Table 11. Moderation analysis.

Variables	B	SE	T	P	LLCI	ULCL
					95% CL	95% CL
Constant	1.50	0.9707	1.5553	0.1210	−4.011	3.4206
Project Governance	0.29	0.0344	0.8487	0.3962	−0.0969	0.0358

n = 288; **p < 0.01.

4.6. Control variables

To account for potential confounding effects, we included age and gender as control variables in the regression analyses. The results showed that age had a small but significant negative effect on project delay (β = −0.09, p < 0.05), suggesting that older respondents experienced slightly fewer project delays. However, gender did not have a significant effect on project delay. The inclusion of these control variables did not substantially alter the main findings reported earlier.

5. Results

Table 12 summarized the findings which indicate the acceptance of Hypotheses 1, 2, and 4, while Hypothesis 3 is rejected based on the analysis results. The relatively small R^2 value for Hypothesis 2 (R^2 = 0.10) is reasonable given the complex nature of project delays, which can be influenced by numerous factors beyond just project awareness. While project awareness is an important factor, other variables not included in this study may also contribute significantly to project delays. The validity of these results is supported by meticulous data analysis. These outcomes reflect the affirmation and negation of hypotheses within the Pakistani context. Previous literature highlights that client-driven changes in software projects often disrupt project timelines, leading to additional work and project delays (Adeleke et al., 2019). These delays not only incur substantial cost overruns but also impede economic progress. Consequently, our findings suggest a negative correlation between client relationships and project delays, a positive impact of client relationships on project awareness, and the mediating role of Project Awareness in the relationship between client relationships and project delays. Additionally, the significance of Project Governance in moderating the relationship between project awareness and project delays was found to be insignificant.

Table 12. Hypothesis results.

Hypotheses statement	Result	
H1	Client relationships have a negative impact on project delay.	Accepted
H2	Project awareness has a negative impact on project delay	Accepted
H3	Project governance moderate relationship with project awareness and project delay.	Rejected
H4	Project awareness has a positive impact on client relationships.	Accepted
H5	Project awareness has a mediating role in client relationship	Accepted

6. Discussion

The analysis demonstrates that the foremost effects of the hypothesis are validated. The results revealed that client relationship has a significant effect on project delay and triggers it to reduce if the client is given proper information about the project deliverables, pros and cons and proper awareness of a project. Relationships with clients depend upon the communication system. The skill of negotiation with bargaining parties and partners is also stressed as an important success factor by many researchers. It is found very critical to develop strong relationships between clients and contractors. There is a great importance and need for trust between managers, owners, consultants, and clients. There is an influence of good relationships with clients on performance especially in IT projects for which the needs of clients should be fulfilled and they must be provided with quality products. On the other hand, timely payment by the owner constitutes a good relationship. A client's primary function is to hire a qualified professional project manager. Such a feature provides extensive experience with similar projects, excellent business skills, and advanced project management. It is critical to ensure that project managers have the authority to control resources and are fully aware of their tasks and duties, as well as meeting the expectations of senior management. The project manager must then assemble a skilled and cooperative team to carry out the plan, execute contracts, and complete the project within the timeframe specified. These findings contradict previous research in various contexts, which suggested that regional differences, particularly between Pakistan and other regions, were the cause of cultural and organizational factor variations. Employees in Pakistan often have distinct personalities and tendencies that set them apart from those outside of the countries. As a result, this study concludes that client relationships have a negative relationship with project delays, while project awareness serves as a mediator in this relationship. However, project governance does not moderate the relationship between client relationship and project awareness.

7. Conclusion

This study was intended to examine the impact of client relationships on project delay with the mediating role of project awareness and the moderating role of project governance. After conducting the analysis, it was disclosed that the moderating impact of project governance was insignificant with project delay and client relationships in the corporate sector of Pakistan. Furthermore, project awareness was revealed to regulate the association between client relationships and project delay. In the context

of Pakistan, this study emphasized the significance of client relationships and their influence on project delay. Understanding the tasks and duties of a worker or project manager, as well as how they affect project delays and client relationships, is the foundation of project awareness. It should be noted that this research may not be completely applicable to the day-to-day operations of traditional organizations. It is not uncommon to encounter time and cost issues in such organizations' projects. As a result, research studies are required to identify the factors that contribute to delays and their impact on projects, as well as Pakistan's unique characteristics. Pakistan is heavily investing in infrastructure and development projects, the majority of which are in the IT sector. Improving project management methods in Pakistan can be accomplished by leveraging existing research and managerial practices. In the first place, it comes down to the owner's commitment. If the owner is committed to project development, the staff will receive proper training, resulting in project success. Addressing project implementation delays and interruptions requires a multifaceted approach that considers managerial, technical, social, legal, and financial aspects. Companies must focus on developing customer relationships and the impact of delays. Finally, surveys should be conducted to determine the types of project terrains used by various organizations in Pakistan. It is important to note that the findings of this study are particularly relevant to the IT project context, where client involvement, communication, and managing evolving requirements are critical success factors. The dynamic nature of IT projects, coupled with the rapidly changing technological landscape, necessitates a strong emphasis on cultivating client relationships, promoting project awareness, and implementing robust project governance practices. By addressing these factors, IT organizations in Pakistan can improve their project management capabilities, enhance client satisfaction, and achieve better project outcomes.

7.1. Future implications

The current study was conducted to demonstrate how client relationships affect project delays. On the one hand, the research demonstrates the effectiveness of the current policy guidelines, but on the other, several additional constraints should be considered. This study only looked at project-oriented organizations, where most projects are limited in terms of time and cost by management.

In stark contrast to project spheres, which are designed to be completed in a limited time with fewer resources, traditional organizations are intended to last a very long time. Newly formed project teams, may not be dedicated enough to meet the project's scheduled deadline. Due to time and financial constraints, attention was limited to organizations based in Islamabad and Rawalpindi, respectively. For another, this company is unaware of the projects, and the clients who participated in this research chose based on their interests.

The later research can broaden its scope to include organizations from Pakistan and provide a more comprehensive picture of the situation of project activities. Exploratory studies should focus on determining the causes of delays and their effects on projects, particularly those at the Pakistan headquarters and other offices. Given the importance of client relationships, the next step in the research should be to

determine how clients may have caused or contributed to the factors that are causing the project to fall behind schedule. Research on project delays shows that the reasons for delays vary depending on the project context, proposed country locations, and project nature.

It is difficult to determine which is the most or least effective project approach because there is no single universally applicable approach across all work fields. As a result, we must address all of these suggested causes to avoid future delays in project implementation. A shift from focusing solely on the execution process to a more holistic approach to the project cycle, which is an essential component of planning, can assist project owners and clients in developing and implementing strategies for effective project realization management. The variety of causes that cause a project delay may determine the project's outcome in different parts of the project and team. Research results show that project delays are case-specific, and they should be investigated based on their historical off-time period and country. As a result, there is a significant gap in documenting the project delay activity area. As a result, studying them may be one of the future aspects.

Pakistan is currently making efforts to improve infrastructure and undertake various development projects, with an emphasis on the IT sector. To ensure the project's success, Pakistan should rely on existing information as well as the necessary project management practices. Along with the challenges, Pakistan has faced project development issues, but those in charge of project progress are also selective about which projects to pursue. The lack of participant interest and supervision while carrying out projects is frequently cited as the primary factor contributing to project failures in Pakistan. To enforce this, senior executives should devote more time to projects, properly channeling resources, and implementing an effective approach to project success. Among construction professionals, seeking existing literature, revising errors, and resolving constraints by the deadline are the foundations for completing the project successfully.

Some pitfalls appear during project implementation, such as contract delays and interruptions. Distractions and obstacles, such as those impeding current issues, influence the risks of potential topics. Currently, research focuses on a few coping responses to timely delivery from various sources such as the work environment, technical, social, legal, financial, or other delays. It sheds light on the due diligence for operational research, as well as the causes of bottlenecks and delays. As a result, this paper proposes that a more in-depth study be conducted in Pakistan so that other organizations can learn the best project management practices.

7.2. Suggestions and implications

Based on the findings of this study, several suggestions can be offered to IT project managers and organizations. First, cultivating strong client relationships through effective communication, managing expectations, and involving clients throughout the project lifecycle can help mitigate project delays. Second, enhancing project awareness among clients by providing regular updates, clarifying requirements, and addressing concerns can further reduce the risk of delays. Third, while project governance did not moderate the relationship between project awareness

and project delay in this study, implementing robust project governance practices is still recommended for better risk management and overall project success.

Author contributions: Conceptualization, IA and MFK; methodology, MT; software, SHMG; validation, SHMG, MM and MT; formal analysis, MM; investigation, IA; resources, SHMG; data curation, MT; writing—original draft preparation, IA; writing—review and editing, MFK; visualization, MM; supervision, MFK; project administration, SHMG; funding acquisition, MT. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Abulhakim, N., & Adeleke, A. Q. (2019). The factors contributing to accident occurrence on Malaysia building projects through partial least square structural equation modelling. Social Science and Humanities Journal, 4(1), 1096–1106.

Adeleke, A. Q., Bahaudin, A. Y., Kamaruddeen, A. M., et al. (2019). An Empirical Analysis of Organizational External Factors on Construction Risk Management. International Journal of Supply Chain Management (IJSCM), 8(1), 932–94.

Amjad, S. (2018). Impact of project control on project success with mediating role of project governance and moderating role of project leadership [PhD thesis]. Capital University.

Ballesteros-Sánchez, L., Ortiz-Marcos, I., & Rodríguez-Rivero, R. (2019). The Impact of Executive Coaching on Project Managers' Personal Competencies. Project Management Journal, 50(3), 306–321. https://doi.org/10.1177/8756972819832191

Chung, R. M., Adeleke, A. Q., & Ajibike, W. A. (2020). Client Delay Factors Affecting Building Project Performance Among Kuantan Malaysian Construction Industry: Through Partial Least Square Structural Equation Modeling. Journal of Business Management and Economic Research, 4(1), 38–55. https://doi.org/10.29226/tr1001.2020.182

De Oliveira, G. F., & Rabechini Jr, R. (2019). Stakeholder management influence on trust in a project: A quantitative study. International Journal of Project Management, 37(1), 131–144. https://doi.org/10.1016/j.ijproman.2018.11.001

Denicol, J., Davies, A., & Krystallis, I. (2020). What Are the Causes and Cures of Poor Megaproject Performance? A Systematic Literature Review and Research Agenda. Project Management Journal, 51(3), 328–345. https://doi.org/10.1177/8756972819896113

Derakhshan, R., Turner, R., & Mancini, M. (2019). Project governance and stakeholders: a literature review. International Journal of Project Management, 37(1), 98–116. https://doi.org/10.1016/j.ijproman.2018.10.007

Gebrehiwet, T., & Luo, H. (2017). Analysis of delay impact on construction project based on RII and correlation coefficient: Empirical study. Procedia engineering, 196, 366-374.

Ibraigheeth, M. A., & Fadzli, S. A. (2019). Fuzzy Logic Driven Expert System for the Assessment of Software Projects Risk. International Journal of Advanced Computer Science and Applications, 10(2)

Irfan, M., Khan, S. Z., Hassan, N., et al. (2021). Role of Project Planning and Project Manager Competencies on Public Sector Project Success. Sustainability, 13(3), 1421. https://doi.org/10.3390/su13031421

Keers, B. B. M., & van Fenema, P. C. (2018). Managing risks in public-private partnership formation projects. International Journal of Project Management, 36(6), 861–875. https://doi.org/10.1016/j.ijproman.2018.05.001

Liu, M., Xu, C., Jin, H., et al. (2024). One-2-3-45: Any single image to 3d mesh in 45 seconds without per-shape optimization. Advances in Neural Information Processing Systems, 36.

Larsen, K. R., & Bong, C. H. (2016). A tool for addressing construct identity in literature reviews and meta-analyses. Mis Quarterly, 40(3), 529-552.

Levin, E., Quach, T. N., & Thaichon, P. (2018). Enhancing client-agency relationship quality in the advertising industry–an application of project management. Journal of Business & Industrial Marketing, 34(2), 463-473.

Lechler, T. G., Edington, B. H., & Gao, T. (2012). Challenging classic project management: Turning project uncertainties into business opportunities. Project Management Journal, 43(6), 59-69.

Maruping, L. M., Daniel, S. L., & Cataldo, M. (2019). Developer centrality and the impact of value congruence and incongruence

on commitment and code contribution activity in open source software communities. MIS Quarterly, 43(3), 951-976.

Mainga, W. (2017). Examining project learning, project management competencies, and project efficiency in project-based firms (PBFs). International Journal of Managing Projects in Business, 10(3), 454–504. https://doi.org/10.1108/ijmpb-04-2016-0035

Mahmood, H., & Tanveer, M. (2024). Examining the Role of Women's Labor Participation in CO_2 Emissions in Saudi Arabia. International Journal of Energy Economics and Policy, 14(3), 102–108. https://doi.org/10.32479/ijeep.15740

Meng, X., & Boyd, P. (2017). The role of the project manager in relationship management. International Journal of Project Management, 35(5), 717–728. https://doi.org/10.1016/j.ijproman.2017.03.001

Mirza, E., & Ehsan, N. (2017). Quantification of Project Execution Complexity and its Effect on Performance of Infrastructure Development Projects. Engineering Management Journal, 29(2), 108–123. https://doi.org/10.1080/10429247.2017.1309632

Ojelabi, R., Oyeyipo, O., Afolabi, A., & Amusan, L. (2018). Presence of social client relationship management within the Nigerian Construction Industry. Buildings, 8(4), 60.

Osei-Kyei, R., Chan, A. P. C., Javed, A. A., et al. (2017). Critical success criteria for public-private partnership projects: international experts' opinion. International Journal of Strategic Property Management, 21(1), 87–100. https://doi.org/10.3846/1648715x.2016.1246388

Riazi, S. R. M., Loh, Y. S., Said, I., et al. (2018). The use of supply chain management to overcome low labour productivity issues in the Tenth Malaysia Plan public sector projects. Malaysian Construction Research Journal, 3(1), 178-191.

Rose, J., & Schlichter, B. R. (2012). Decoupling, re-engaging: managing trust relationships in implementation projects. Information Systems Journal, 23(1), 5–33. https://doi.org/10.1111/j.1365-2575.2011.00392.x

Saleem, Y., Crespi, N., Rehmani, M. H., & Copeland, R. (2019). Internet of things-aided smart grid: technologies, architectures, applications, prototypes, and future research directions. Ieee Access, 7, 62962-63003.

Salykova, L. & Abylova, V. (2019). Critical success factors in project management. 1, 2. PM World Journal, 8, 1-13

Sambasivan, M., & Soon, Y. W. (2007). Causes and effects of delays in Malaysian construction industry. International Journal of Project Management, 25(5), 517–526. https://doi.org/10.1016/j.ijproman.2006.11.007

Sanni-Anibire, M. O., Mohamad Zin, R., & Olatunji, S. O. (2020). Causes of delay in the global construction industry: A meta analytical review. International Journal of Construction Management, 22(8), 1395–1407. https://doi.org/10.1080/15623599.2020.1716132

Shah, A., Zhang, Y., Tanveer, M., et al. (2022). Effect of Product Assortment, Internet of Things, Order Fulfillment, Green on Purchase Intention Through the Mediating Role of Shopping Assistance. Journal of Advanced Manufacturing Systems, 22(01), 123–147. https://doi.org/10.1142/s0219686723500075

Shakeri, H., & Khalilzadeh, M. (2020). Analysis of factors affecting project communications with a hybrid DEMATEL-ISM approach (A case study in Iran). Heliyon, 6(8), e04430. https://doi.org/10.1016/j.heliyon.2020.e04430

Shenhar, A., & Dvir, D. (2007). Reinventing Project Management: The Diamond Approach to Successful Growth and Innovation. Boston: Harvard Business School.

Silva, K., (2018). Soft Skills Influence in Project Managers in the Cloud Space [Marster's thesis]. Harrisburg University.

Tereso, A., Ribeiro, P., Fernandes, G., Loureiro, I., & Ferreira, M. (2019). Project management practices in private organizations. Project Management Journal, 50(1), 6-22.

Tanveer, S. (2019). Impact of Project Planning on Project Delay with the Mediating Role of Project Awareness and Moderating Role of Project Governance 9(1), 88-98.

Tanveer, M. (2022). Supply Chain and Logistics Operations Management Under the Era of Advanced Technology. Integrating Blockchain Technology into the Circular Economy. IGI Global, 126–136. https://doi.org/10.4018/978-1-7998-7642-7.ch008

Uribe, D. F., Ortiz-Marcos, I., & Uruburu, Á. (2018). What is Going on with Stakeholder Theory in Project Management Literature? A Symbiotic Relationship for Sustainability. Sustainability, 10(4), 1300. https://doi.org/10.3390/su10041300

Verenych, O., Sharovara, O., Dorosh, M., et al. (2019). Awareness Management of Stakeholders During Project Implementation on the Base of the Markov Chain. In: Proceedings of the 2019 10th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS). https://doi.org/10.1109/idaacs.2019.8924375

Woźniak, P. W., Karolus, J., Lang, F., et al. (2021). Creepy technology: what is it and how do you measure it? In: Proceedings of the 2021 CHI conference on human factors in computing systems. pp. 1-13.

Zaman, U., Abbasi, S., Nawaz, S., & Siddique, M. S. (2020). Linking sustainability management and success in construction

projects: Moderating influence of high-performance work systems. Pakistan Journal of Commerce and Social Sciences (PJCSS), 14(3), 661–684.