



Impact of Project Control on Project Success with Mediating Effects of Project Governance

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Abstract

Project success is the accomplishment of project activities within specific time, cost, quality and scope. Every project manager puts his/her efforts in order to achieve these goals. Activities relating to monitoring and controlling are essential to achieve the project success. Different factors like time, cost, and scope are the factors that are kept under review from the beginning till end of the project to make sure the project success is achieved. Thus, the main aim of this study was to examine the effects of project control on project success with mediating effects of project governance. Quantitative method was used in this study. In survey method, for data collection the study used pre-structured questionnaire. Total number of questionnaires distributed was 300 and linear regression and mediation analysis were used in SPSS. The findings suggested that there are positive and significant effects of project control are available on project success and the findings also investigated that project governance had partial mediation analysis. This research could work as the foundation for the other scholars as well as it can be utilized in construction sector projects for planning and controlling purposes.

Keywords: Project Management, Project Control, Governance, Project Success, PMI

Background

Time pressure, imprecise communication, confirmation bias, workload, human error, decision-making, teamwork, stress, weariness, and a lack of competent leadership have all been thoroughly researched variables that contribute to project failure (Zwikael &

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Smyrk, 2011). The value of good project delivery has been enhanced through proper coordination, monitoring, and control roles. Project-based organizations foster this culture in their businesses with the goal of attaining specific project outcomes by focusing on roles and responsibilities that will not only help monitor project operations but also encourage improved contact and client relationships (Pathak and Turner, 2023). According to a global survey conducted by KPMG, 47% of projects are completed on time (KPMG, 2022).

In ordinary projects, three main requirements, such as time, money, and efficiency, are assumed to be met. These factors distinguish project-based activities from regular day-to-day tasks. In modern times, the main problem facing project managers is coping with Project Managed operations in various roles. If Project is not managed then it can damage the projects in several ways, such as time estimates, cost and deployment of resources. The main factors of the project are all those activities and uncertainties generated within the project. These kinds of uncertainties can be managed for project managers but project managers are not aware of those uncertainties in some cases. If cost, time, scope and resource distribution are not handled on time then this may affect the project's progress and may also impede the project's performance. (Stock et al., 2021). Project success in the project lifecycle is now progressively accepted through project management control. It has been found in the most recent research that completion of the mission leads the project to success and is only possible through the project management collection of control (Elia, Margherita, & Secundo, 2021; Khalil et al., 2023). The important element in project management that keeps the completion of the project on schedule is Project Control. The most significant aspect is dynamic planning of a subdiscipline of risk management, baseline planning, and project control that leads to project success (Gemino et al., 2021).

The project has several phases from start to finish, but the timetable serves as a reference point for project management during the planning phase. To manage your project better, you should not miss three important variables such as risk management, masterplan, and many aspects of project management such as cost, time, and scope. The schedule baseline for the project planning phase highlights weekly points in the schedule and compares the actual project execution to the planned project execution specified in the project planning phase to identify project management challenges and opportunities. Appropriate project monitoring should be performed to improve project performance (Kerzner, 2022; Shen et al., 2021; Martinez, 2021). To support project management activities that distinguish between project costs and schedules, Tran, Tran and Nguyen (2024) have developed a methodology for project managers to support project management activities that distinguish between project costs and timeframes. In



the event of a deadline deviation, project managers find it extremely difficult to make judgments on crucial remedial steps. The choosing of the project leadership to lead the project is equally critical to the project's success. Wang, Feng and Wang (2023) and Zhang et al., (2023) used simulations and arithmetic charts to control decision-based activities and assist decisions. Full project control in terms of risk analysis and project uncertainty should be avoided and controlled in such a way that project performance is not harmed. To estimate the performance of a project, a fuzzy collection of theories was introduced (Tran, Tran and Nguyen, 2024; Tao, Xu and Zhang, 2023).

The project has many roles and responsibilities; thus, project managers must make sure that the correct resources are assigned to the proper jobs. The Project Governance framework is essential to oversee non-routine cooperative operations. It has been discussed by a number of authors: In the early 2000s, project governance was recognized (Too & Weaver, 2014, p.30). Project-based firms are increasingly concerned about corporate strategies, effective project governance, and governance frameworks. Control of the governance framework, non-routine operations, and organizational delivery capabilities in any organization, the risk of commercial failure is associated with weak project governance, organizational goals, and duties to stakeholders, as well as regulatory difficulties (Mamatlepa & Mazenda., 2024). Several elements of project management have been studied using a unified approach to project management (Turner & Müller, 2021; Tran, Tran and Nguyen, 2024).

Effective project management enables superior project management by implementing a complete set of task, accountability, and responsibility structures (Too & Weaver, 2014). As a result, these controls ensure that project results are perfectly aligned with the project's business case through influential and controlled project management (Pratap Chandran & K. Purayil, 2020). The literature lacks an understanding of the project control elements that support project control systems. Therefore, the above evidence revealed that quite slight research has been carried out in the past on the contribution of factors in project control and the system that promotes project success. Project-based organizations are worried about these factors that cause these issues because of regular project delays, budget overruns and lack of project governance. The exercise of project control and assessment adds value to the overall efficacy of project preparation, budgeting, and execution by providing corrective measures to discrepancies in the structure imposed in projects sponsored by project management.



Literature Review

Project Control & Project Success

Project managers typically assess the progress of a project by performing a collection of schedules and budgetary controls assigned to the project. The latest approach is to control various variables such as individual team performance, task completion during the project life cycle, and team skills associated with the project (Liu et al., 2009). General framework & controls are introduced in the fast-growing audit and consulting industry to address business goals and compliance problems. In these systems, the goals of Project Control play an important role, raising the likelihood of project completion (Rodrigues et al., 2014).

The CobiT framework is a control objective that can be referred to as a well-established example of IT-relevant technology (ISACA, 2008; Mugandila, 2014). This framework is used to promote legal compliance, such as the Sarbanes Oxley Act or Basel 2 regulatory requirements (Albert, Balve & Spang, 2017). The predominant project management work focuses primarily on project preparation and design phases. The project must also be vigorously managed to convey a successful project, keeping its objectives in focus during the execution phase, and this management is sheltered in project control. Project control is expressed as \encouraging behavior desired to achieve the objectives of the organization '(Cardinal et al., 2010).

Project Control and Project Governance

Project governance provides the mechanism by which the company's priorities and objectives are defined and the path by which the priorities can be accomplished. It includes providing the project's priorities and how to reach those targets. Project management is part of corporate governance. The maintenance of a project consists of identifying the relationship between the key heads of the projects, the funding body, its owners and the agents who have a stake in the company. It describes the framework by which objectives can be set, and how that can be accomplished. The success of a given project is assessed by project controls in relation to the performance metrics set out (Shenhar et al., 2001). In his PHD thesis, Ehsan highlighted that project governance encompasses numerous aspects, including the project's lifetime. It further directs the team with instruments and protocols to be followed for decision-making. This is done to ensure that the set targets are met and value is provided to the stakeholders as promised (Jawad & Ledwith, 2022). Turner further enumerated the governance of the project and stressed that other points are also to be given pivotal importance along with the objectives and decision-making framework. Such variables are also to be specified at corporate level.



Ahola et al (2014) claimed that project governance is all about fulfilling the needs of various stakeholders. Governance inside and outside the organization should be compatible with this consideration. Nistor and Beleju (2014) clarified different aspects of project governance, firstly relating to the position of project manager or supervisor who ensures project operation and the stakeholders in project. The current study focuses on the direct connection between the supervision of projects and the progress of projects. In the practice and methods of project control and project success, there are various other variables that intervene. Among those factors, the most affective and influential factor is project governance (Sankaran et al., 2007; Turner and Miller, 2005). Various hypotheses and literature are available to understand how informal and formal control factors contribute to project performance, each of which has suggested different collection of mediators (e.g., objective clarification, team knowledge, project tracking and project culture (Hesselmann and Kunal, 2014), so the position of mediation needs to be studied. The key task of governance is to provide the processes, structures, responsibilities and accountabilities that enable affective controls on project activities (Ahlemann et al., 2013; Sapountzis et al., 2009).

Project Governance and Project Success

Ralf Müller shares the notion that governance is related to projects, portfolios, and project management, all of which are assumed to be in the context of corporate governance. This includes processes, protocols, value structures, and accountability delegations that enable you to achieve your project's organizational goals. It further ensures that it is applied in a wawa It involves ensuring all of these components are well coordinated with the various levels of the company such that within the defined corporate governance constraints, productive project planning, supervision and execution. This description is vague in what distresses governance structures but, in order to enable the most operative and effective project planning, controlling and execution within the margins of corporate governance, the writer offers such structures with the intent of "arranging the goals at the organization's varying managerial s" (Muller, 2009, p.17).

Understanding project management is only possible when there is a wide understanding of corporate governance, acquiring principles of project management. A project is characterized as a system that is multiple and self-motivated and revolves around a clearly defined process of governance. The need for a dual dependence affects the systemic governance that is a mixture of the team and the client, the project phases and the stakeholders involved. (Keegan & Turner 2001). Project activity management is related to marketable governance, which is widely interlinked with project activities.



Efficient PM governance is focused on ensuring that an organizational effort meets the organizational goals of maintaining effectiveness in execution (Hicks et al., 2013). Crawford and Cooke-Davis (2008) exuded that project governance is a settlement within the parameter of projects, programs and project portfolios of accepted values, processes and systems concerned. It also ties in with single project management.

Mediating Role of Project Governance

Governance has a direct effect on people working in organizations by managers and also has a direct impact by indirect powers working in organizations (Foucault, 1991). Governance occurs in all areas of life and deals with law and circumstance systems, but action and actions of people directly participating in teams can never be regulated (Clegg, 1994). There are several concepts of project management in terms of various programs or project portfolio. In the governance of the project, collective governance has been observed (Muller &Lecoeuvre, 2014). In literature, there is a distinction between project governance and single project governance. As defined by Pinto (2014), both of them have different meanings. In different forms of project-based organizations discussed in literature, such as matrix-based, functional and projectile organizations (Muller et al., 2014), there is a complete deviation in governance. Project governance provides a structure for project activities to initiate, manage and execute, and also supports factors for project control (Turner, 2006).

Because IT governance is an integral part of collaborative governance, established board members and senior members of the organization are responsible for IT governance. Organizational governance works with leadership to ensure that organizational structure, strategies, and practices are consistent with corporate strategy (IT Governance Institute, 2011). Effective governance helps project-based organizations achieve success in the project's technological environment in safe, measurable and accurate information (KoracKakabadse, 2001). It also helps the project manager to create coordinated project schedules, separate team members' tasks, prioritize project activities, and also assist management in assessing project success metrics (KoracKakabadse, 2001). Governance's key argument is that project priorities are associated with the organizational approach that supports the company in promoting activities (Bygstad and Hanseth, 2010). Experimental analysis also indicates that if the project is associated with the project, project output is monitored the Chan, Reich (2007).



Theoretical Framework

On the basis of above literature review, the researcher concluded that there has not been any research conducted in Pakistan in general and in Khybar Pakhtunkhwa specifically which creates a research gap to be filled. Therefore, the following hypothesis are proposed by the author and the following theoretical framework has been constructed.

H1: There is a positive relationship between project control and project success

H2: There is a positive relationship between project Control and Project Governance.

H3: There is a positive relationship between Project Governance and project success

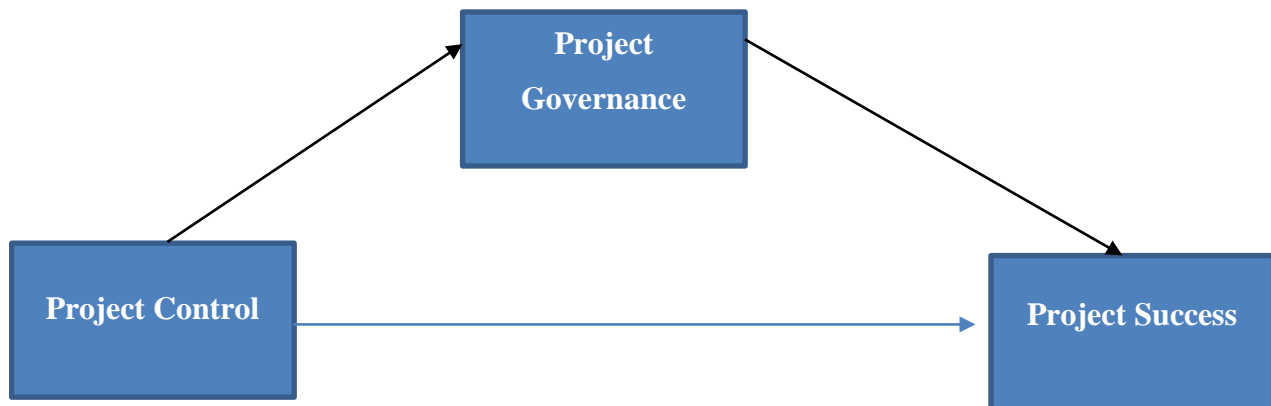


Figure 2.1 Theoretical Framework

Research Methodology

Research Design

Research design is a framework used to collect data from research questions. According to Andrew B. Kirumbi (2018), study design is a set of procedures and methods used to analyze data for various variables used in a study model. Survey design defines different types of surveys, including hypotheses, independent and dependent variables, survey



models, correlation analysis, regression analysis, data collection methods, and survey problems. In our research, we analyze the data through these.

Population and sample size

In addition to population and samples, the approach deals with data collection techniques. Measurement and instrument reliability research are also illustrated by construction sector projects. The information will be collected for the purpose of looking at the effect of Project Control on project success and promoting the position of project governance for their internal and external customers in construction project-based organizations Pakistan.

In any form of analysis, it is not possible to evaluate data from the entire population because the population is almost infinite. Population from small subsection is known as a sample that can be drawn by probability or non-probability technique in research that involves careful sampling of data to interpret the results (Hair, 2015).

Sampling Technique and Sample Size

People employed in construction sector projects will be contacted a particular form of non-probability sampling method that relies on data collection from population participants who are conveniently available to participate in the study to analyze the data using convenience sampling technique. The sample size is nearly 300, and use convenience sampling to gather responses. There will be a total of 300 questionnaires distributed among the respondents.

Instrumentation

Questionnaires to be used in this research is recently used for recent studies in top-level journals, the specifics of scale used in the current study are provided below for the variables Project control, Project Governance, and Project success. Near ended questionnaires would be used to evaluate the study from "Strongly Agree to Strongly Disagree" on four factors, referred to as five Likert scale. 1= Agree strongly, 2= Agree, 3= Neutral, 4= Disagree, 5= Disagree strongly. Such variables from the source of divers will be used. In this analysis, the Project Control variable represents an independent variable. It has 8 things that define the control variable for the project. Questionnaire developed by Iacovou, Charalambos L., Thompson, Ronald L. and H. In the year 2009, Jeff Smith. Wang, Nianxin, Huigang Liang, and Weijun Zhong (2012) established the scale of project governance. The project governance variable is defined in 10 objects. Scale of project progress produced in 2009 by Kuen, C. W., Zailani, S., & Fernando. It had 14 objects which measure the variable of project success.



Data Collection Technique

A pre-structured questionnaire was distributed among the respondents. 300 total number of questionnaires were distributed out of which 241 questionnaires were returned which were further refined later. After refining the questionnaires total correctly filled questionnaires were 232. Most of the respondents having more than five to ten years experience could not be accessed except a few, therefore, below ten years experience holders were also included and focused in the data collection process.

Data Analysis Tools

To analyze the data that will be collected through questionnaire, the software of SPSS will be used. Correlation and regression analysis tools will be utilized for interpretation the results.

Results and Findings

Response Rate

The population was based on projects in Pakistan's construction industry. The primary focus of data gathering was on all responders who were currently working on the projects. There were 300 questionnaires distributed, 247 of which were received, and 232 completed and correctly filled surveys after refining. As a result, 77 percent of people responded.

Reliability Analysis

The questionnaire reliability test for the current survey is shown in the table above. A total of 32 items were used in the table above, based on many variables in the study. Cronbach's alpha coefficient is used to determine the reliability of the questionnaire. According to the criteria of Liem and Gliem (2003) (George and Mallery, 2003: p. 231), the credibility of the questionnaire determined by the alpha test is 0.814, 0.711, and 0.841 for project control, project governance, and project success respectively which is considered excellent.

Table 1: Reliability Statistics

Reliability Statistics		
Variables	Cronbach's Alpha	N of Items



Project Control	.814	8
Project Governance	.711	10
Project Success	.841	14

Regression Analysis

Effect of Project Governance on Project Success

The effects of project control on project governance are seen in Table 4.5. The R-square score is 0.3283, indicating that project control explains 33% of the variance in project success. It also shows that there is a positive relationship between project control and project governance factors that are pointing in the same direction. Because the level of significance is less than 0.05, the results reveal that it is significant at that level. Because the f value is greater and significant, the results show that the model is good fitted.

Table 2: Outcome variable PG in Regression Analysis

Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.5730	.3283	.0014	112.4362	1.0000	230.0000	.0000	

Model							
coeff	se	t	p	LLCI	ULCI		
constant	.1459	.0207	7.0502	.0000	.1051	.1866	
PC	.4258	.0402	10.6036	.0000	.3467	.5049	

Effect of Project Control (PC) and Project Governance (PG) on Project Success (PS)

The following table shows the effects of PC and PG on PS. The R-square value of 0.5519 is also noteworthy. With a change in PC and PG, a 71% percent shift in turnover intention will occur. At the 0.05 level, the coefficient of regression or beta value of 0.2433 and 0.3361 for PC and PG, respectively, is likewise significant. It means that a single unit change in PC and PG will change the outcome variable by 24% and 33%, respectively.

Table 3: Outcome variable PS in Regression and Coefficient Analysis

Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.7429	.5519	.0006	141.0098	2.0000	229.0000	.0000	



Model	coeff	se	t	p	LLCI	ULCI
constant	.0178	.0148	1.2008	.2311	-.0114	.0469
PC	.2433	.0318	7.6576	.0000	.1807	.3059
PG	.3361	.0428	7.8610	.0000	.2519	.4204

Mediation Analysis

The table below shows the results of mediation analysis. Project control was an independent variable, project success was a dependent variable, and project governance was a mediating variable in the current study. Project governance mediates the association between project control and project success, according to the findings, which are also significant because the significance level is less than 0.05. Because both BootLLCI and BootULCI are positive, and zero does not exist between the two bounds, the indirect influence of PC on PS is also significant. As a result, a partial mediation exists. However, because the coefficient of indirect effect is less than the total effect, the mediation is only partial.

Table 4: Direct and Indirect Effects

Total effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.3864	.0293	13.1979	.0000	.3287	.4441
Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.2433	.0318	7.6576	.0000	.1807	.3059
Indirect effect(s) of X on Y:					
Effect	BootSE	BootLLCI	BootULCI		
PG	.1431	.0264	.0951	.1987	

Table 5: Outcome variable PS

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6565	.4310	.0008	174.1838	1.0000	230.0000	.0000
Model						
coeff	se	t	p	LLCI	ULCI	
constant	.0668	.0151	4.4276	.0000	.0371	.0965
PC	.3864	.0293	13.1979	.0000	.3287	.4441



Conclusions

Project control has been found to be positively associated to project success in our research. To track project performance and activities, project managers use a variety of controls. The most essential aspect in each project's success is a fundamental consideration, which includes team performance, assigned tasks, and many criteria connected with project success such as cost, time, and scope. If all of these variables are under control in the project, the project's objectives can be met. Some project management performance metrics, such as risk assessment, planning, scheduling, quality, and scope management, are included in the project control variables, but the commitments, coordination, and capabilities of the people involved in the project are also in the success of the project. It's an important factor. .. Meanwhile, Kerzner (2009) worked on improving the term project success. It entails ensuring that the project is completed on schedule and within the budgetary constraints. Other factors include client willingness, scope variation, and a continuous flow of organisational labour. Agendas touched, percentage used, equal units, and project percentage done are some common characteristics that set well-known metrics (Belassi & Tukel, 1996).

Every project is given a budget, and it is the project manager's obligation to keep project costs within that budget. Throughout the project lifecycle, budget restrictions are altered in an unsustainable manner, which increases the overall cost. To avoid a situation like this, the project manager should specify budget goals. Multiple project activities can be scheduled and quality standards can be managed throughout the project only if a variety of project controls are in place.

The relationship between project management and project success is also supported by agency theory. According to agency theory, an employment relationship occurs when one party (client) performs a project-related task with another party (agent) (Baiman1982). Theoretically, the type of contract between the client and the contractor can affect the success of the project (Eisenhardt1989). It also states that project management, conflict management, avoidance and sensitive information can affect the success of a project (Kirsch 1997; Keil, Mann and Rai2000). As a result, our first hypothesis is confirmed in this study (H1: Project Control is optimistically related to Project Success).

We found that project control has a considerable impact on project governance in this study. In the delivery of any project, the culture of the organisation is extremely important. To complete project operations, several roles and duties are allocated. If project controls aren't in place, there's a good probability it'll fail. Many writers have considered internal project controls in the past, but their impact on project governance



has not been thoroughly examined. The most crucial duty for every project manager is to meet the project's objectives, which can only be done with the proper governance framework in place. As previously said, project governance provides a structure that not only attempts to achieve the company's objectives but also assists the project manager in meeting project milestones.

The second hypothesis as H2. There is a positive relationship between project management and project management. In the case of corporate governance, agency theory is true when it comes to clarifying the information perspective of companies and governance as a contract system (Clarke, 2008). (Muller, 2011). Ralf Müller proposes a definition in which governance is linked to projects, portfolios, and project management. All of these are included in the Corporate Governance Framework. This includes procedures, guidelines, value structures, and delegation of responsibilities that increase the likelihood that the project will achieve the organization's goals. It is also guaranteed to be implemented in a way that is useful to all involved, both internally and externally "(Müller, 2009, p. 4). According to our findings, it has a significant impact on the success of the project. The results show that project management has a positive impact on the success of the project. It provides empirical support for previous studies where robust project management enables good project management.

Project control that is effective leads to project success. The higher the success rate, the better the project monitoring of the system. It also shows that the proper resources for project governance should be accessible, as this will ensure complete support for the project's success. Project governance is a mediating factor between project control and project success, according to our findings. The same signals appear in the confidence intervals, indicating that project governance is mediated. Partial project governance with good check and balance criteria contributes more to effective project delivery, as noticed by the Author during his data gathering.

Our hypothesis can be summarized as (H3: Project success has a favorable impact on project governance) and (H4: Project governance plays a mediating role between project control and project success).

Theoretical Implications

The purpose of this study is to add to the project control literature by examining the effects on project governance and project success. Various studies on project success have been undertaken, with performance metrics defined, but project control and governance as a whole are still regarded the most influential parts of project management literature. Project management necessitates a great deal of research because it is currently regarded as a grey area. Agency theory includes information



systems (Mahaney and Lederer, 2011), social sciences (Shapiro, 2005), and more recently project management (Forsythe et al., 2015; Ceric, 2012). (Example: Zsidisin and Ellram, 2003). Throughout the project life cycle, Khang and Moe (2008) have focused a lot on crucial success elements. In this study, three criteria were heavily examined: time, cost, and scope; however, more performance criteria can be explored and studied in future studies. The impact of project control on the behaviour of individuals working in project-based organisations can be examined in future studies.

Practical Implications

Our research found that project control has a number of implications for project success. Project success is feasible if effective governance is in place. It has also been discovered that the majority of employees in firms are knowledgeable with their job responsibilities and can provide superior project results. Project leaders are responsible for all parts of the project and their main goal is to ensure that the project completes successfully. The project involves a large number of stakeholders performing multiple functions, and various factors such as dispute resolution, contract negotiations, cost management, scope management, etc. can all cause serious problems and endanger the project. I have. Project management is important to balance project management with its impact on project success. Project management can be managed through good governance, and project success is possible when both aspects are managed.

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