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Research Article

Investigating the Practices of Project Governance in Public Sector Infrastructure Program in Pakistan

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The governance of public sector infrastructure projects became an important area of interest in the literature on project management. Today, it is a focal point for policymakers to ensure successful appraisal and implementation of government-sponsored programs. This paper aims to investigate the current practices of project governance (PG) for steering the public sector infrastructure program in Pakistan. An empirical investigation was carried out among professionals of public sector organizations involved in different infrastructure development projects. Latent construct of PG was validated through second-order confirmatory factor analysis (CFA) and quantified the three dimensions of PG, i.e., portfolio direction (PD), sponsorship, effectiveness, and efficiency (SEE), and disclosure and reporting (DR) through the relative importance index (RII) method. The result showed that DR is among the least practicing dimension having RII = 0.55, while PD and SEE have shown similar prevalence with RII = 0.70 and 0.69, respectively. Overall, the most practicing item in the PG was “the alignment of portfolios with objectives and strategy” whereas the lowest practicing item relates to the “completeness of project information distribution due to the multi-layered bureaucratic system.” The findings of this study will guide the decision makers to take appropriate measures for enhancing the effectiveness of PG in Pakistan.

1. Introduction

Project governance (PG) has become an important topic for debate in project literature, and organizations have used this approach to meet organizational strategic objectives. Biesenthal and Wilden [1] found the importance of PG to ensure successful project delivery after analysing exhaustive literature in top-ranking project management journals. Project management scholars have recommended PG to solve the problems at all the stages of project development [2–5]. The need for an effective PG is gaining maturity in recent years. Through PG, project initiatives could be executed successfully while an ineffective PG could result in a project failure [4]. The aim of PG is to mitigate the conflicts and ensure reliable project performance through mechanisms and different sets

of institutional arrangements [6]. PG combines the formal and informal institutional processes and mechanisms for the collaborative relationship among different project stakeholders [7].

In recent years, public sector performance measurement of infrastructure projects has attracted much attention in the literature [8]. Though the developed nations like the United Kingdom and Australia have records of achievements in managing public sector developmental projects [9], there is a dire need for better understanding of project management practices in the context of developing countries. Through effective project governance system, public sector requirements could be addressed fully by minimizing the potential for delaying or disrupting the project and considerable pressures from the stakeholders [10]. Furthermore,

the overall success of the project delivery can be achieved through the synchronization and control of the processes, engaging all the stakeholders, resolving their conflicts of interest, and also by recognizing the value of the project. Infrastructure projects in developing countries are more likely to be affected by unstable political and economic environments [11] as their needs are critical for the economic growth of developing countries. To achieve this, effective governance of the infrastructure development projects has become a need and significant challenge, which defines the success of these projects.

In developing economies like Pakistan, the planning and managing of public sector infrastructure projects have been known as one of the leading dilemmas. The overall performance of government-sponsored projects follows a declining trend for many years [12]. It is not merely because of the limited fiscal capacity, but there is a severe lack of governance ability in the public sector organizations to deliver viable projects [13]. This research will investigate this gap and provide a future direction for effective planning and policy formulation and recommendations. This study emphasizes considering a PG mechanism as an integrated approach for public sector infrastructural projects. Hence, PG of the public sector infrastructure development projects in Pakistan is necessary to gain the potential future benefits.

2. Literature Review

The term “governance” is derived from the Greek verb “Kubernao,” which means to steer. It is defined as the “act of governing or directing the policies, management and activities of an organization at the highest level, with the authority, credibility and responsibility to do so.” According to Hjelmbrække et al. [14], governance is basically about leadership selection, incentives, control systems, and monitoring. The academic-research perspective has also befitted that governance is an important concern of sponsors for megainvestment and, subsequently, it affects the project outcomes [15].

McGrath and Whitty [16] have described PG as “the system by which a project is governed, directed and controlled.” PG is involved in management and governance functions for individual projects and their deliverables [17]. Bekker and Steyn [18] have identified that “PG is a set of management systems, rules, protocols, relationships and structures that provide the framework within which decisions are made for project development and implementation to achieve the intended business or strategic motivation.” Garland [4] has defined PG as “the framework within which project decisions are made.” According to Hjelmbrække et al. [14], by the augmented use of PG from a strategic perspective, the efforts for aligning project outputs to a general strategy can be easily secured. Müller et al. [19] have suggested standardized approaches to PG for the successful completion of the projects. The unsatisfactory performance and failure of large-scale government projects are due to the lack of governing surveillance and ambiguous project outcomes, weak PG mechanism, and ineffective management control [20]. Hence, the project governance

helps in aligning the project output to the strategy of the organization which will help in enhancing the project performance.

Association for Project Management (APM) advocates strategic alignment as a significant source of good governance [21]. Likewise, strategic alignment is also incorporated in the definition of PG in PMI’s practice guide for the governance of portfolios, programs, and projects, as the strategic alignment of project objectives has always been one of the main purposes of PG. “The framework, functions, and processes that guide project management activities in order to create a unique product, service, or result to meet organizational strategic and operational goals” [22]. Narayanan and DeFillippi [23] have characterized five elements which are incorporated in the structure-based governance, i.e., stage gate approval process, stakeholder representation, formal roles and responsibilities, quality assurance, and contracts and sign-offs. Each one of these elements can reveal disparities across organizations and among project classes within the same organization. Müller et al. [19] have also recommended standardized approaches to PG for successful completion of the projects and the project-based part of the organizations. By the augmented use of PG from a strategic perspective, the efforts for aligning project outputs to a general strategy can be easily secured [14]. PG can support a collaborative operational environment and provide a sound basis for achieving project success. PG governance was considered a critical success factor in project execution [4]. Later, this argument was also supported by Pinto [24] who stated that governance of projects provides structure to execute the projects, thus resulting in an increase in the probability of project success.

2.1. Theoretical Perspective and Dimensions of PG. According to Musawir et al. [25], due to the complexity of PG, a single theoretical perspective might not be enough to grasp the underlying mechanisms of governance. In the literature, the following theoretical lenses have been used frequently to discuss PG.

2.1.1. Agency Theory. According to Biesenthal and Wilden [1], in PG, Agency theory is one of the most common perspectives, which is related to managing the conflict of interest that arises from the separation of ownership (principal) from control (agent), where each party is concerned with its own self-interest [26]. Agency costs arise when control mechanisms are applied to ensure that the agent acts in the best interests of the principal. In the project management context, Agency theory has been intensely used to explain the relationship between the owner and manager of a project [27].

2.1.2. Stewardship Theory. On the contrary, according to stewardship theory, the agents should be guided rather than controlled and the theory considers the agents as stewards who act in the best interests of the principal [28]. According to Davis et al. [28], the key concepts of stewardship theory are identification, intrinsic motivation, long-term involvement,

and trust. In PG context, stewardship theory suggests that by empowering the project managers, the shareholders would best be served [1].

2.1.3. Stakeholder Theory. Stakeholder theory acknowledges the importance of relevant stakeholders, i.e., internal/external, and addresses their legitimate interests [29]. The theory suggests that contradictory interests and claims of different organizational stakeholders should be balanced [29]. These claims could range from financial objectives to corporate social performance measures. As the social goals have the potential to limit financial performance, meeting the stakeholder's interests could be challenging [1]. Hence, the underlying governance mechanisms have to explore the approach to balance the paradox. In stakeholder theory, performance is dependent on the organization's understanding of "key business and competitive drivers; its capacities for strategic thought, and its communication and leadership skills in relation to all stakeholders" [1]. In the context of stakeholder theory, PG is a strategy to assist project teams and to respond to numerous stakeholder groups [1].

2.1.4. Transaction Cost Economics Theory. Transaction Cost Economics (TCE) theory is also a well-known theoretical perspective in project governance [30]. According to TCE theory, every economic exchange has a cost, i.e., "transaction cost," and the organizations act to minimize these costs [31]. This theory has some resemblances with agency theory, as both theories seek to curtail the opportunism and self-interest through governance mechanisms [32]. TCE theory emphasizes on individual transactions whereas the focus of Agency theory is on the principal-agent relationship. In the PG context, TCE theory may be applied to define the process of selecting contractors and suppliers [33].

2.2. Dimensions of PG. PG has been divided into four dimensions, i.e., (i) portfolio direction (PD), (ii) project sponsorship (PS), (iii) project management effectiveness and efficiency (PEE) (renamed to project management capability in 2011 by APM [34]), and (iv) disclosure and reporting (DR) [10, 34].

2.2.1. Portfolio Direction (PD). PD ensures that the identified projects are within one portfolio, and it is been evaluated and directed to align with the key objectives and constraints of the organizations [34]. Numerous researchers have studied the importance of project portfolio management. Martinsuo and Lehtonen [35] have studied the contribution of single project management on project portfolio management efficiency. Miguel [36] has explored the relationship of new product development with portfolio management and found that portfolio management is of importance for the existence of the studied firm. The main purpose of the project portfolio management is to maximizing the financial value of the portfolio, to linking the portfolio to the firm's strategy, and to balancing the projects within the portfolio in accordance with the firm's capacity [37].

2.2.2. Project Sponsorship (PS). PS has been discussed quite a lot times in project management standards documents such as in PMBOK Guide published by the Project Management Institute (2013) and in Association for Project Management (APM) [34]. According to PMI [38], "the project sponsor is generally accountable for the development and maintenance of the project business case document." APM [34] has described PS as a vital link between the top-level management of the organization and the management of the project with decision-making, directing, and representational accountabilities. In all kinds of governance, top management and sponsors have played a significant role, and they have ensured the necessary support and the governance requirement for PG [39].

2.2.3. Project Management Effectiveness and Efficiency (PEE). PEE makes sure that the project teams have the capabilities to attain the project objectives, and the capability is dependent on the factors such as skills, experience, available resources, and the access to tools and process [34]. According to Hyväri [40], the technical side of the project management tools and techniques has well developed and utilized, and he suggested to put emphasis on developing leadership skills. For the success of the project management, the human factor is equally important along with the effective resources and instruments [41].

2.2.4. Disclosure and Reporting (DR). DR ensures reliable information, availability of reports in time for the decision-making process, and also the access of necessary project reports to legitimate project stakeholders [34]. Open culture and disclosure are the requirements for effective reporting [34]. Hesitance by the project team members in reporting the real status of the projects is also considered as an important factor in project failure [42]. Time urgency and flaws in the responsibilities have a significant impact on the willingness of an individual to the disclosure of bad news [42]. Higher authorities must keep an eye on the favourable status report. There should be an independent verification of the information for the accuracy of project reports [34].

Sirisomboonsuk et al. [43] have pointed out different aspects overlapping in PS and PEE dimensions. They have combined these two dimensions into one that have measured the PG in three main dimensions, i.e., (a) PD, (b) PS and PEE, i.e., sponsorship, effectiveness, and efficiency (SEE), and (c) DR. Sirisomboonsuk et al. [43] have also measured the PG in three dimensions, i.e., (i) PD, (ii) SEE, and (iii) DR for their research.

Table 1 summarizes the adapted constructs, indicators, and rationale for survey questionnaire from past studies and theories to investigate the practices of PG in public sector infrastructure projects.

3. Research Methodology

A cross-sectional, quantitative study has been conducted to address the study objectives. A well-structured questionnaire survey was administered among professionals working in the Planning Commission of Pakistan and its suboffices in all

TABLE 1: Operationalization of constructs and survey questionnaire.

Constructs	Operationalization	Survey questionnaire (rationale)	References
PD	Alignment	Projects in the portfolio are aligned with development objectives and strategy	[22, 38, 43, 44]
	High return	Portfolio of new projects contains a high value to your organization (high return)	
	Breakdown of spending	Breakdown of spending (resources) in the portfolio of projects truly reflects your organizational strategy	
	Balance	Portfolio of new projects has an excellent balance in terms of long versus short term, high versus low risk, across markets and technologies, and so on	
	Available resources	The appropriate number of new infrastructure projects available according to the resources, i.e., people, time, and money	
SEE	Comparison	Compared with previous projects, they have a stronger project leader/personnel management/teamwork	[22, 38, 43, 45]
	Administrative activities	Needs a high amount of administrative activity	
	Project leadership	Leadership has been difficult	
	Project support	Projects were supported by organizational management	
DR	Risk	Projects have affected the organization due to the unfair treatment of the project	[22, 38, 43, 46]
	Timely	Communication received from the executing agencies regarding the status of the infrastructure project is timely	
	Accurate	Communication received from the executing agencies regarding the status of the infrastructure project is accurate	
	Adequate	Communication received from the executing agencies regarding the status of the infrastructure project is adequate	
	Complete	Communication received from the executing agencies regarding the status of the infrastructure project is complete	
	Credible	Communication received from the executing agencies regarding the status of the infrastructure project is credible	

provinces. This is a federal institution, which undertakes policy development and planning initiatives for infrastructure projects in collaboration with the Ministry of Finance.

The reason for the selection of these professionals was to have more relevancies in terms of their maturity, involvement, participation in planning, and policy making. Furthermore, all of them were gazetted government with sound educational background and satisfactory knowledge in providing sufficient details and input for the questionnaire survey.

Representative sample size estimation is always important in the study generalization. There are two main approaches to finalize the sample size (1) using proper statistical formula (4) based on the required statistical analysis. In the study, we justified our selected sample using both approaches. Firstly, in this study, the researchers have access to the complete population of the study. Yamane [47] proposed formula in this particular scenario in which a researcher has complete sampling frame of the population. In the past, different researchers have been continuously using this formula in their researchers in different time spans [48–51], which enhanced its applicability and validity of usage.

The formula is given as

$$n = \frac{N}{1 + Ne^2}, \quad (1)$$

where n is the sample size, N is the population size, and e is the margin of error.

In this study, we have a total population of 1009 employees who meet our inclusion criteria of the study. The margin of error is actually the amount of error which the researcher can tolerate. Higher the value of margin of error can lessen the reliability of results and ultimately generalization of the study. Therefore, the input value for the margin of error was 0.05 in the current study which is also recommended by the previous researchers [48–51]. The sample size of the study is

$$n = \frac{1009}{1 + 1009(0.05)^2}, \quad (2)$$

$$n = \frac{1009}{1 + 1009(0.0025)} = 286.44 \cong 287.$$

This formula calculated the sample size of 287 employees who were selected from the population of 1009 population through simple random sampling (SRS) approach due to the availability of complete sampling frame.

Secondly, the sample size depends on the statistical analysis requirements. In this study, mainly second-order CFA was used as a multivariate statistical technique. The literature suggested that a ratio of 20:1, i.e., subject to variable (STV) ratio, should be used for better results and their generalization [52–54]. In this study, there were 15 items of PG; therefore, according to the suggested STV ratio, the sample size should be 300 ($15 \times 20 = 300$) in this study.

Now researchers are in a better situation to select the sample size which can justify both compulsory requirements: representative sample size through statistical formula and sample size as per statistical analysis:

$$\begin{aligned} \text{representative sample size through statistical formula} &= 287, \\ \text{maximum sample size as per statistical analysis} &= 300. \end{aligned} \quad (3)$$

Therefore, researchers opted the sample size of 300 to fulfill both the criteria as discussed above. Moreover, the difference between the two approaches was not too much; therefore, it is a better choice to choose a higher number of respondents in this case.

A questionnaire with a covering letter was mailed with the assurances of anonymity and confidentiality in collating and handling their responses. The respondent's response was rated on a five-point Likert scale (1–5), grading from less frequent to highly frequent: never, rarely, sometimes, often, and always. In pretesting, the response rate was 75%; therefore, the sample size was inflated 25%, i.e., 375 to get the required sample size of 300. Out of the 375 questionnaires, 310 responses were received. Ten responses were discarded because of incomplete response and missing values, and finally, samples of 300 were selected for the final statistical analysis. In the questionnaire, the respondents were asked to respond to the questions on the bases of the completed project as on 30th June 2018.

Different statistical techniques are used to analyse the data and address the objectives. Cronbach's alpha (reliability coefficient) is used to measure the internal consistency of data. Preferably, a reliability coefficient of a scale and subscales should be greater than 0.70 [55]. In addition to that, descriptive statistics was also reported for both types of variables: qualitative and quantitative. The main purpose of the study is to validate the latent construct of PG in Pakistan's context. PG was a main latent construct in the study, and it was further measured through three more latent dimensions having 15 observable items. Therefore, second-order confirmatory factor analysis (CFA) was performed. The goodness of fit of the models and CFA was assessed using absolute and relative indices. The absolute goodness-of-fit indices are the root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), and adjusted goodness-of-fit index (AGFI). Chi square/df is another important index which is used to measure the goodness of fit. The relative goodness-of-fit indices computed are the comparative fit index (CFI), Tucker–Lewis index (TLI), and normed fit index (NFI). The recommended criteria for all fit indices are given in Table 2. Using these recommended criteria, goodness of CFA is evaluated and decided about validation of the latent constructs.

Another objective of the study is to evaluate the occurrence of practices of PG in Pakistan's context. For this purpose, relative importance index (RII) method was used to examine the relative occurrence of different practices. In RII, weighted scores were determined in the first step, and then, it is compared with the corresponding importance ranking

of the variable [56, 57]. A mathematical expression is shown in equation (1) to find the relative index:

$$\text{RII} = \frac{\sum w}{A \times N} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5 \times N}, \quad (4)$$

where w indicates the weightage assigned to each variable, A is the highest weight, and N is the total number of respondents. The RII value ranges from 0 to 1 with 0 not inclusive. The transformation matrix is used to measure the comparison of RII with the corresponding importance level is as follows [58–60]:

high (H)	$0.8 < \text{RI} < 1.0$,
high-medium (H-M)	$0.6 < \text{RI} < 0.8$,
medium (M)	$0.4 < \text{RI} < 0.6$,
medium-low (M-L)	$0.2 < \text{RI} < 0.4$,
low (L)	$0.0 < \text{RI} < 0.2$.

4. Results and Analysis

4.1. Demographic Information. The significance of demographic information cannot be undermined for a meaningful quantitative analysis. During the survey, the respondents were asked about their background and general information.

As the aim of the research is focused on the public sector infrastructure projects, it was envisioned to get on board all the working professionals as per sample having sufficient experience. Table 3 shows a summary of the respondent's demographic information. The analysis shows that respondents were gazetted officers and belong to BPS 17 to BPS 20 according to Government of Pakistan's service structure. In this study, 78% male and 22% female professionals have participated in the survey. All the respondents have satisfactory working experience, which ranges from 5 years to 28 years. The result of the survey also shows that 55% of the respondents were master degree holder and some of the respondents have also acquired additional postgraduate qualifications, i.e., MS/M.Phil. and Ph.D. with a percentage of 30% and 3%, respectively. It reveals that respondents have a good academic background for providing sufficient details and inputs for the outcome of this research work. Their views are important and valuable in order to establish the findings.

Demographic data also show that departments were adopting planning manual designed by Planning Commission of Pakistan as a primary reference guideline. Beside this, no other standard methodology of project management such as Project Management Body of Knowledge (PMBOK) and PRINCE2 has been followed in public sector organizations.

4.2. Second-Order CFA. PG is measured in three dimensions, i.e., PD, SEE, and DR. In this study, before using these dimensions and its items, validation was done through second-order CFA. Second-order CFA is a technique which is used to evaluate the validity of complex construct which is being measured in two steps: first to confirm latent

TABLE 2: Goodness-of-fit indices.

Goodness-of-fit indices	GFI	AGFI	Chi square/df	RMSEA	CFI	TLI	NFI
Recommended values	≥ 0.90	≥ 0.90	≤ 3.0	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90
Estimated values	0.901	0.884	2.917	0.074	0.952	0.932	0.942

TABLE 3: Respondent's contextual information.

Variables	Frequency	Percentage (%)
<i>Gender</i>		
Male	234	78
Female	66	22.0
<i>Basic pay scale (BPS)</i>		
BPS 17	163	54.3
BPS 18	99	33.0
BPS 19	32	10.7
BPS 20	6	2.0
<i>Highest formal education</i>		
Bachelors	35	11.7
Masters	164	54.7
M.Phil./MS	92	30.7
Ph.D	9	3
<i>Adopted standard</i>		
Planning manual (PC)	300	300
PMBOK	0	0
PRINCE2	0	0

dimensions of the main construct through observable items and next confirmation of the main construct through confirmed dimensions measured at first step.

The second CFA results have shown that individual dimensions and main construct were valid dimensions and construct, respectively, to use in the current study context. At the first step, the factor loads are depicted in Figure 1 through unidirectional arrows, which showed that all items of three dimensions were significantly contributing to measuring the latent dimensions of PG. All factor loadings were above than 0.50 (recommended threshold). Further, factor loads of these three dimensions to measure the main construct were also significant. All parameters estimates were assessed at 0.05 level of significance. Figure 1 shows that PD dimension of PG has the highest factor load (0.98) in three dimensions. It also showed the positive contribution of the dimension in measuring the PG. However, DR has the least value (0.57) in this second step of CFA analysis. But these three dimensions or subconstructs still showed significant factor loads which were greater than 0.50. Practically, in the Pakistani context, this dimension has got less focus and less practiced. Therefore, it has a less but significant factor load in measuring PG. All the factor loads in the first step of CFA produced positive value within the measurement of individual dimensions.

4.3. Model Fit Summary. For the validation of the first- or second-order construct, there are different criteria to assess the goodness of fit. Figure 1 depicts the second-order CFA findings with standardized regression coefficients which were significant in the CFA to measure the main construct (PG). Table 2 shows that this CFA followed all the absolute,

relative, and parsimonious goodness-of-fit criteria suggested in the literature [61]. The value of AGFI (0.884) was a little lower than the recommended values. However, other criteria were followed by the recommended values. It means that this construct of PG is valid and can be used in further analysis.

4.4. Reliability Analysis and Ranking Analysis for PG. Cronbach's alpha coefficient was used to measure the reliability of the collected data. This coefficient determines the internal consistency of the constructs, i.e., PD, SEE, DR, and their coefficient values were 0.910, 0.907, and 0.950, respectively, as shown in Table 4. As the values were greater than 0.70 (recommended), the internal consistency showed a satisfactory and acceptable level.

In this study, the feedbacks were received on a Likert scale (1–5). So, the use of parametric methods is not practicable and applicable for assessing preferences of the respondents [62]. RII method was used for determining the relative importance of PG of public sector infrastructure projects.

The RII value ranges from 0 to 1 with 0 not inclusive. If the value of RII is higher, then the percentage of that particular item of PG will also be higher.

Table 5 and Figure 2 (radar diagram) showed the RII of the PG practices in public sector infrastructure projects along with the corresponding ranking. The ranking has been done at three levels: firstly, within the five items of individual dimensions, secondly, between 15 items of PG, and at the end, mean index of three dimensions were computed and ranked accordingly. It was observed that top five practicing items having "H-M" importance level contributing towards the PG were (1) alignment of project portfolio with the objectives and strategy; (2) breakdown of spending (resources) in the portfolio of projects truly reflecting the organizational strategy; (3) portfolio of new projects contains high value; (4) completed projects need high amount of administrative activities; and (5) as compared to previous projects, have a stronger project leader/personnel management/teamwork. The mean index of the PD, SEE, and DR is 0.70, 0.691, and 0.551, respectively, which indicates that DR has a low mean index as compared to the PD. The items having "M" level of importance was the communication received from the executing agencies regarding the status of the project is credible, adequate, accurate, timely, and complete. Note that the criteria for the practicing items were rated with "high-medium (H-M)" and "medium (M)" importance levels.

5. Discussion

Based on the above discussion, a structured mechanism of the PG approach is necessary to set the vision, project

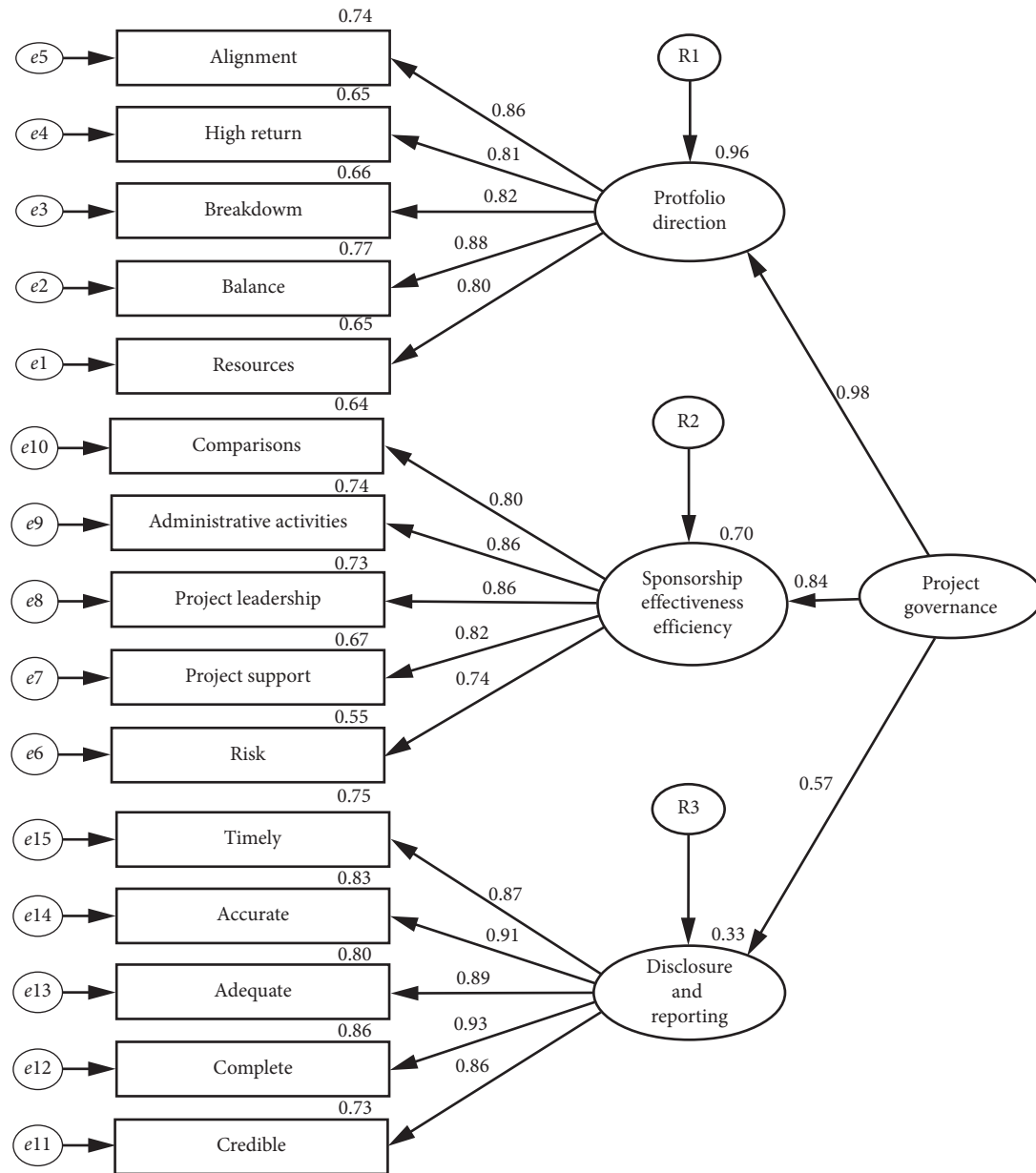


FIGURE 1: Second-order CFA for PG.

TABLE 4: Reliability analysis.

Sr. no.	Name of construct	Reliability coefficient
1	PD	0.910
2	SEE	0.907
3	DR	0.950
4	Overall	0.942

priorities, and structure for planning and decision-making and for defining the roles and responsibilities of all the stakeholders [20]. PG delivers access to best practices and indifferent expert opinion [10]. This will be helpful in building an organizational structure to support planning, development, fiscal management, resolving the conflicts and monitoring, and evaluation of the projects [20]. The mechanism will provide the representation of the minority's

as well as the majority's viewpoints of the stakeholders and confer the legitimacy of the decisions related to the projects [20]. Without a proper governance mechanism, only the loudest voices get heard, and the possibility of crises and project failures is also higher [20]. This research has validated and ranked the PG attributes in Pakistan's context.

The findings indicated that the level of importance towards contributing the practices of PG is "H-M" and "M." All the items scored more than 0.50, and the midpoint on the relative index scale implying that all the items were indeed important for project professionals. This shows contribution towards the project life cycle, where the professionals have enabled to use their skill levels for the organization's benefit [63]. As PG has been playing an important role in the successful delivery of public sector projects [10].

TABLE 5: Ranking of PG practices.

PG	RII	Ranking within the dimensions	Overall ranking within the items	Mean index of dimensions	Ranking of the dimensions of PG	Importance level
<i>PD</i>				0.70	1	
Alignment	0.743	1	1			H-M
High return	0.717	3	3			H-M
Breakdown	0.723	2	2			H-M
Balance	0.672	5	9			H-M
Resources	0.682	4	8			H-M
Mean index	$x = 0.70$					H-M
<i>SEE</i>				0.691	2	
Comparisons	0.702	2	5			H-M
Administrative activities	0.712	1	4			H-M
Project leadership	0.698	3	6			H-M
Project support	0.687	4	7			H-M
Risk	0.656	5	10			H-M
Mean index	$x = 0.691$					H-M
<i>DR</i>				0.551	3	
Timely	0.544	4	14			M
Accurate	0.547	3	13			M
Adequate	0.558	2	12			M
Complete	0.525	5	15			M
Credible	0.578	1	11			M
Mean index	$x = 0.551$					M

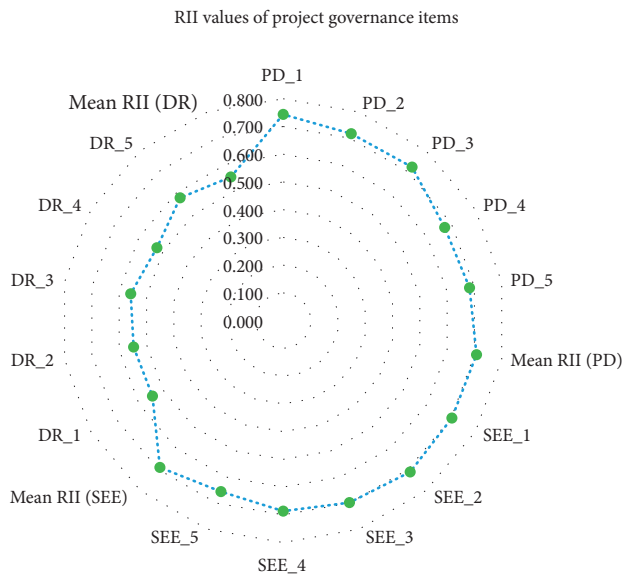


FIGURE 2: Radar diagram.

There is a dire need to improve the DR practices as the importance level was medium for this construct. PG can be significantly influenced by the DR in public sector infrastructure projects as it plays an important role in PG as it disseminates information to different stakeholders for the accomplishment of their role effectively [10]. The ineffective DR weakens the link between the project and the organization’s key strategic priorities, measures of success, which is one of the cases where public projects run into difficulties [10] whereas the transparent communications and processes are among the attributes of good governance.

As revealed from the analysis, the DR has a lower ranking in PG practices due to the gap in different management layers. In a public sector organization, official documents follow a prescribed series of steps through different administrative layers and ministries. The delays in the approval process are sometimes extraordinarily long. Important messages are not disseminated appropriately by the higher management to the project managers, which is one of the important reasons for project failure in the public sector. Owing to a lack of communication, the top hierarchy is unable to communicate appropriately to the lower level management. Careful consideration should be given to reporting of information which enables direction about policy, guidance, and best practice [10].

The use of standardized methodologies such as PMBOK and PRINCE2 is the sum of knowledge within the profession of project management [64, 65]. Surprisingly, it was revealed that the current practices of planning in public sector projects are not being aligned with the aforementioned standards. It can be argued, that by ignoring the importance of standardized project management methodology, project managers are increasing the cost of achieving the project deliverables [12, 66]. Ineffective project performance has become a great distress for the government, project managers, and contractors and professional organizations. In order to cater this issue, organizations like the Project Management Institute have also put together an effort to improve the performance of governmental projects by developing the “Government Extension to the PMBOK® Guide” which is tailored for government projects [67].

6. Conclusions

This paper contributes to investigating the current practices of project governance in Pakistan's context, which has a long-lasting impact on the performance of public sector infrastructure projects. The study is noteworthy for government officials, researchers, professionals, and non-governmental organizations. Due to the multiple underlying risks and complexities, the governance of infrastructure programme constitutes a critical element in strategic planning in developing countries. Analysing the prevailing practices, DR was found the most problematic dimension which reduces the PG in public sector infrastructure projects due to bureaucratic hierarchy. It should be addressed by shortening the management layers. The top machinery of the government has to establish a reliable, independent, and comprehensive PG structure to strengthen and implement the infrastructural development projects. Apart from these guidelines of Planning Commission of Pakistan, standardized project management methodologies need to be followed for ensuring better PG process, formal planning, estimation processes, monitoring, controlling, and process to document the lessons learned. As there is pressure to manage projects successfully and efficiently, the importance of PG will definitely increase in the future; therefore, there is a need for further studies to find a suitable PG framework. This extensive research could be based on the qualitative, and an attempt made to deepen the understanding of project-oriented organizations.

This study put emphasis on project governance as an integrated approach for public sector infrastructural projects. There is a need to comprehend and understand the project governance mechanism and identify the issues in the practices of project governance for successful completion of the projects. To implement the PG mechanism, there is a need to craft a holistic control package, which could provide the representation of the stakeholders' point of view and ensure its acceptance and established the legitimacy of the decisions.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors would like to mention that they have no conflicts of interest associated with this research endeavour.

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