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RELATIONSHIP BETWEEN CRITICAL SUCCESS FACTORS FOR PUBLIC PRIVATE PARTNERSHIP (PPP) AND SUSTAINABLE PPP PROJECT PERFORMANCE

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KEYWORDS

Public-Private Partnership; Sustainability, Sustainable PPP Performance; Critical Success Factor Theory

ABSTRACT

Sustainable public-private partnership project performance is great challenge for project management domain. This study aims to investigate relationship between critical success factors for public-private partnership & sustainable public-private partnership project performance. CSF theory has been used to evaluate relationship. Quantitative approach has been used to determine the link between the study variables. Cross-sectional data with a primary method for data collection is used. An adapted questionnaire is used to get the data. The correlation analysis between study variables provides empirical evidence about the significant relationship between CSFs and sustainable PPP project performance. The results therefore provide significant information in deciding about the desired relationship and reaching the conclusion. The study results can be used by researchers and policymakers for the sustainable PPP projects performance and based upon the relationship strength CSFs can be accorded preferences.

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INTRODUCTION

Sustainability is an issue in the modern world and most industry planning revolves around this concern. Owing to its importance, the united nation has incorporated the sustainable development goals in its agenda. Public-private partnership (PPP) projects are considered very important, efficient and effective for sustainability achievements (Wang & Ma, 2021). The governments incorporate PPP projects for the delivery of public assets when the public budgets appear insufficient for this purpose (Liu, Love, Smith, Irani, Hajli & Sing, 2018). In order to achieve a successful PPP project, there exists a long list of critical success factors

(CSFs) that are considered mandatory for successful PPP project implementation (Jamali, 2004; Li, Akintoye, Edwards & Hardcastle, 2005; Chan, Lam, Chan, Cheung and Ke, 2010; Babatunde, Opawole & Akinsiku, 2012; Cheung, Chan & Kajewski, 2012; Osei and Chan, 2015; Liu & Wilkinson, 2016; Opawole, Jagboro, Shakantu and Olojede, 2019). The critical success factors play a significant role in success of PPP projects (Opawole et al., 2019) and the literature has an abundance of studies that provide evidence regarding the influence of CSFs on project success.

According to various studies, many factors contribute to satisfactory and unsatisfactory project performance (Liu et al., 2016). In order to have a successful project, we need to be clear about the impact of CSFs to obtain a good enabling environment for the PPP projects (Opawole et al., 2019), and thus we can have successful and sustainable PPP projects. PPP projects are long-duration projects, therefore, sustainable performance measurement for PPP needs to be very meticulous and complete in all aspects. According to Hwang, Shan, and Lye (2018), the sustainable future of any country is linked with the PPP projects as only sustainable development strives to meet current requirement without sacrificing the interest of future generations (Opawole, Jagboro, Shakantu & Olojede, 2019). Therefore, many researchers, in different contexts and situations have connected the success of PPP projects with sustainable development (Du, Wu, & Zhao, 2018). However, the PPP projects extension with the sustainability perspective because it is not a well-researched area (Dolla & Laishram, 2020).

Consequently, based on the literature gaps, recommendations, and contextual need, main concerns of the study were "what are critical success factors for PPP with the contextual reference to Pakistan, and what is relationship between CSFs for PPP and sustainable PPP projects' performance? The relationship under consideration has already been examined in different situations and contexts with diverse outcomes which are again aimed in present study from the new dimensions. The main objective of this study is to extend the existing knowledge of PPP projects by evaluating relationship between critical success factors and the sustainable public-private partnership project performance. In this study, it has been proved with the help of empirical evidence that CSFs have the positive relationship with the sustainable PPP projects. However, relationship's strength among the variable is different from each other and this variation dictates the importance of particular CSF. Practitioners and policymakers can incorporate these CSFs dynamics in their PPP project planning for sustainable PPP projects.

LITERATURE REVIEW

Public-Private Partnership (PPP)

Public-private partnership is a cooperation and coordination arrangement between public as well as private partners for some specific project that falls under public domain (Wang, Zhang, Zhang, Li, Zhang & Wu, 2018). In this connection, there is no unified definition of

the public-private partnership around the world due to complexities, multidimensionality, and changeability due to their longevity. The public-private partnership has been defined by United Nation as a "Collaborative and monetary arrangement between partners (state or no state) in which partners agree to work together for the attainment of the communal purpose for some detailed tasks by sharing the risks, responsibilities, benefits as well as resources" (Bull, 2010).

Critical Success Factors for PPP

The critical success factors for PPP are the factors that play very important role in project success and their presence or absence impact project performance. Proper identification and accurate application of the success factors in any project will lead to the effective and efficient project management (Liu, Wang & Wilkinson, 2016). Thus, numerous studies have deliberated and described CSFs through research surveys and case studies. The CSFs vary according to the type of project, industry, phases of the lifecycle, individuals, organization, and nationality (Osei & Chan, 2015). This article aims to provide the relationship details between CSFs for PPP projects and sustainable PPP project performance. Therefore, the exploration of CSFs is beyond the scope of this paper. Although the exploration of CSFs for PPP has been done through PRISMA and word cloud in another study (Tipu & Rafique, 2021). Here we will mention the identified CSFs for PPP to proceed toward the paper's scope. Identified CSFs are political factor, technical factor, economic factor, legal factor, and procurement factor.

Sustainability & Measurement System in PPP Projects

Sustainability is the ability to exist continuously, though it is very challenging phenomenon yet it can be achieved by comprehensive management framework in any project (Sebhatu, 2008). The public-private partnership projects are long-duration projects, consequently, the sustainable performance measurement for the public-private partnership needs to be very meticulous, accurate and complete in all aspects. Liang and Wang (2019) have suggested five important dimensions of the sustainable public-private partnership project performance measurement system. Thus, these dimensions are (1) meeting design goals (2) benefits to the end-user (3) benefits to the private sector (4) benefits to the public sector as well as (5) Preparing for future.

Theory Basis of Study

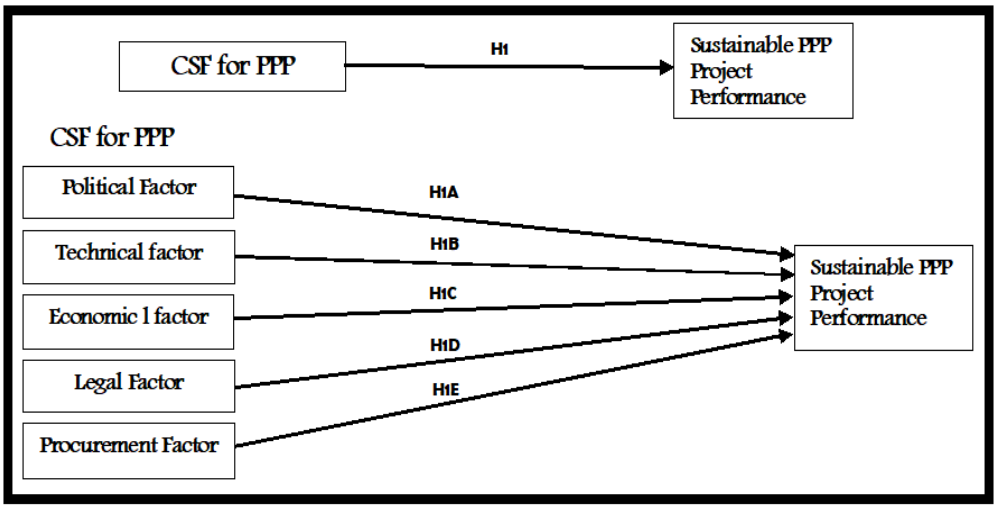
Ronald Daniel presented 'success factor' idea first time in 1961. He proclaimed that there are few factors in any industry that are important for success in that particular field and labeled them as 'success factors' (Daniel, 1961). Later, Rockart introduced the need for the chief executive officer and termed these factors as 'critical success factors (Rockart, 1979). The concept of critical success factor got matured in the shape of critical success factor theory. The CSF theory provides the concept that there are certain factors, which are very important for project success. Moreover, CSFs can be considered as a tool to measure the

performance of a project to achieve the desired goals (Kannan, 2018). Keeping the above in view this study has used CSF theory to evaluate sustainable PPP project performance on identified CSFs.

Research Framework and Hypotheses

Literature concerning critical success factors (CSFs) for PPP projects and sustainable PPP project performance along with the prevalent gap in the literature lead us to formulate our framework. The identified gap tackles the concern of CSF theory for project management of PPP. The framework shows the relationship between CSFs and PPP with sustainable PPP performance as follows:

Figure 1 Conceptual Framework



Based on the conceptual framework of this study, following hypotheses are formulated to conduct the research.

H1: There is a significant relationship between critical success factors and sustainable PPP performance.

- H1a: There is a significant relationship between political factor and sustainable PPP performance.
- H1b: There is a significant relationship between technical factor and sustainable PPP performance.
- H1c: There is a significant relationship between economic factor and sustainable PPP performance.
- H1d: There is a significant relationship between legal factor and sustainable PPP performance.
- H1e: There is significant relationship amid procurement factor and sustainable PPP performance.

RESEARCH METHODOLOGY

This study has used quantitative research methodology to empirically prove relationship between CSFs for PPP and sustainable PPP project performance. The existing measures were used to evaluate each construct in the proposed theoretical framework between CSF and sustainable PPP project performance. These instruments are taken from previous studies & validated as well. These items for each construct were measured on 7-point (1= Strongly disagree to 7= Strongly agree).

Research Population & Sampling Size

The population for this study includes people from the public and private sectors involved in public-private partnership projects. Public sector is comprised of federal government and provincial government organizations (Kumar & Bano, 2017). Dealing with the public-private partnership projects. This includes representation of Pakistan public-private partnership Authority (PPPA) at federal and provincial level as well as that have undertaken the public-private partnership construction projects. Following the objectives of the study generally and specifically to analysis methodology, the scholar used Krejcie and Morgan's Table to calculate my sample size. Based on response of the respondents my sample size is 394 which is sufficient for data analysis.

Sampling Strategy

Following the objectives of this study, the sample size was based on a respondent-driven sampling approach because a comprehensive list of sample frames was not available. The response-driven strategy (RDS) leads the purposive sampling and enables the selection of asymptotically unbiased estimates from snowball samples in a study that has an undefined or unknown population (Opawole et. al., 2019). This technique signifies the advancement in sampling methodology relating to the network-based method. This methodology starts with the set of the initial respondents who further refer to their peers. Thus, RDS sampling method reduces the problem of bias in the sample by combing the network-based method with the statistical validity through the standard probability sampling technique (Salganik & Heckathorn, 2004).

RESULTS OF STUDY

Table 1 Demographic Profile of Respondents

Variables	Characteristics	N	% Age
Sector	Public	112	28.4
	Central Govt	30	7.6
	Local Govt	26	6.6
	Public Enterprise	56	14.2
	Private	281	71.6
	Contractors Only	108	27.4
	Consultant/ Advisor	56	14.2

	Operator/ Manager	118	29.9
Industrial Experience	5 or below	50	12.7
	6-10 Years	80	20.3
	11-15 Years	112	28.4
	15-20 Years	91	23.1
	20 years and above	61	15.5
	Total	394	100.0
PPP Project Experience	1	46	11.7
	2	130	33.0
	3	137	34.8
	4	64	16.2
	5 & above	17	4.3
	Total	394	100.0

In this study, the total sample size was 394 (n=394) and the sample comprised of both the public and private sectors and the detailed description has been thus mentioned in above table.

Normality Test

The normality test of data is mandatory to undertake any parametric statistical test in SPSS software.

Table 2 Normality Test

Descriptive Statistics			
	N	Skewness	Kurtosis
PF	394	-.310	-.195
TF	394	-.418	-.132
EF	394	-.501	-.302
LF	394	-.370	-.168
PrF	394	-.398	.150

The study has got the normal data according to Tabachnick and Fidell (1996) i.e value of skewness must be between + 2 and the value of kurtosis must be between + 1 for normal data.

Reliability Analysis

It is important to verify data for implementation in Pakistani context as it was an adapted questionnaire previously used by Opawole et al. (2019) for independent variables i.e CSFs, Liang et al. (2019) for dependent variables likewise sustainable public-private partnership performance. In this study, the Cronbach's alpha (α) for all the items appeared as follows which is very much acceptable. Thus, in this study, Cronbach's alpha (α) for all the items appeared as follows.

Table 3 Reliability Analysis

Variables	No of Items	Cronbach Alpha (α)
CSF	18	0.732
SPPPP	25	0.909

Correlation Analysis

According to Bryman and Cramer (2001), we can get strength and direction of relationship between pairs of variables through correlation analysis. Correlation coefficient can range from +1 to -1 indicating that -1 is perfect negative correlation and +1 is a perfect positive correlation between variables. The correlation analysis among variables used in this study is mentioned in the table below.

Table 4 Correlation Analysis

		SPPPP	CSF	PF	TF	EF	LF
SPPPP	Pearson Correlation	1					
CSF	Pearson Correlation	.553**	1				
PF	Pearson Correlation	.451**	.714**	1			
TF	Pearson Correlation	.520**	.626**	.309**	1		
EF	Pearson Correlation	.343**	.756**	.580**	.250**	1	
LF	Pearson Correlation	.298**	.638**	.269**	.298**	.265**	1
PrF	Pearson Correlation	.350**	.738**	.317**	.444**	.422**	.395**

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

Table 5 explains the correlation between study variable. The Pearson correlation moment between political factors and sustainable public-private partnership is found positive and significant i.e., r = 0.451, p = 0.000. Thus, it validates that our hypothesis H1(a) that there is a significant relationship between PF and SPPPP. Correlation between technical factors and sustainable public-private partnership is found positive and significant i.e., r = 0.520, p = 0.000. Thus, it validates our hypothesis H1(b) that there is significant relationship between TF and SPPPP. The correlation between economical factor and sustainable public-private partnership is found positive and significant i.e., r = 0.343, p = 0.000. Thus, it validates our hypothesis H1(c) that there is significant relationship between EF and SPPPP based upon results from correlation.

Correlation between legal factor and sustainable public-private partnership is thus found positive and significant i.e., r = 0.298, p = 0.000. Thus, it validates that our hypothesis H1(d) that there is the significant relationship between LF and SPPPP. The correlation between procurement factor and sustainable public-private partnership is found the positive and significant i.e., r = 0.350, p = 0.000. Thus, it validates our hypothesis H1(e) that there is the significant relationship between PrF and SPPPP. Correlation between critical success factors (CSF) and sustainable public-private partnership (SPPP) is found positive and significant i.e., r = 0.553, p = 0.000. It validates our hypothesis H1 that there is significant relationship between CSF and SPPPP.

DISCUSSION

Sustainability is important feature that is being discussed and implemented at international, national, as well as organizational levels. The studies have proved that PPP projects can be accredited to sustainable development concerning the sustainability goals of the united nation (Pinz, Roudyani, & Thaler, 2018). The present study has highlighted the sustainable PPP project performance from CSFs of PPP. Consequently, this study has proven a positive and significant relationship between CSFs for PPP and sustainable PPP project performance. The results of this study are in line with findings of Helmy et al. (2020), Sehgal and Dubey (2019), Pacagnella et al. (2019), Wang et al. (2018), and Luthra, Garg, and Haleem (2016). In this connection, study findings also showed a positive and significant correlation between political and sustainable PPP project performance that aligns study outcomes of Helmy et al. (2020), Opawole et al. (2019), as well as Koops et al. (2017) who have investigated and validated the desired relationship of political factor with project performance and project development and success.

The correlation between the technical factor and sustainable PPP project performance also appeared positive and significant that aligns with the findings of Alvarenga et al. (2019), Opawole et al. (2019), Zhang and Fan (2013), as well as Belout and Gauvreau (2004). These researchers have worked on the project's success and proved that technical factor is very important for the achievement of project success. In this study, we have proved that there is a significant positive relationship between the legal factor and sustainable PPP project performance. Thus, this result aligns with the findings of Helmy et al. (2020), Opawole et al. (2019), Akanni, Oke, and Akpomiemie, (2015) who have proved the significant relationship between legal factor and project performance. The correlation between economic factor and sustainable PPP project performance appeared significantly positive. Thus, the findings align with the study results of Helmy et al. (2020), Opawole et al. (2019), as well as Mishra, Dangayach and Mittal (2011) who established that economic factor is very important for project success.

The relationship between the procurement factor and sustainable PPP project performance also appeared significantly positive. Our findings align with investigation of Pu et al. (2020). Helmy et al. (2020) and Opawole et al. (2019) have investigated the relationship between procurement factors and project success and PPP project success. This simple framework provides evidence for the relationship between CSFs for PPP and sustainable PPP project performance. Consequently, this study has proven the positive and significant relationship between CSFs for PPP and sustainable PPP project performance. In this regard, the study outcome explains the importance of these CSFs for attainment of sustainable PPP project performance. Consequently, practitioners and policymakers can gauge the value of each CSFs by the relationship strength and accordingly can accord the importance for planning any PPP project.

CONCLUSION

This study explains the importance of CSFs for PPP to achieve the sustainable PPP project performance in developing countries. Study outcome explains a significant and positive relationship between CSFs and sustainable PPP project performance. This study provides a great insight into critical success factor theory by establishing relationship between critical success factors and sustainable PPP partnership projects performance. This study unfolds relationship of CSFs (technical factors, legal factors, political factors, finance factor, market maturity, economic factor, and regulation factors) with sustainable PPP performance. This relationship will guide us to maintain favorable environment to have positive PPP projects in our country. We can formulate policy and framework to take measures to have more investment in projects of its kind as the requirement was highlighted. This study would not only be significant for academicians but give valuable insight to PPP project practitioners. The theoretical model will help practitioners to formulate the strategy for sustainable PPP performance. Results of this study will be valuable regarding formulation of policies and strategies to manage PPP projects to have better and sustainable PPP performance. The outcome can be used by PPPA to have policy/strategy point in PPP projects for sustainable PPP performance.

Limitations & Future Recommendations

Scope of study was limited to formulating a framework for sustainable PPP performance from critical success factors. Although there are numerous impediments to achieving the success of any project which have not been considered in this study. As research is highly contexts-specific and the generalizability of the finding is not an aim, thus the countries with similar contexts may implement whatever seems best to them. The study findings can be adopted by the future researcher through development of further areas of own interest. It can provide the basis for upcoming studies on PPP performance and an empirical basis for sustainable PPP performance. The findings of this study can lead the way forward to create a favorable environment for PPP projects to maximize outcome of these projects to bring the sustainability to our homeland, as well as future projects will be dependent upon the successful PPP.

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