



An exploration of the key success factors of public-private partnerships as alternative social infrastructure financing strategy: The case of the health sector in Lusaka, Zambia

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Article Info

ISSN (online): 2582-7138

Impact Factor: 5.307 (SJIF)

Volume: 05

Issue: 02

March-April 2024

Received: 01-12-2023;

Accepted: 15-01-2024

Page No: 138-146

Abstract

The study's main goal was to analyze the CSFs of PPPs as an alternative social infrastructure financing strategy in Lusaka, Zambia's health sector. Precisely, the study aimed to examine the factors influencing implementation of PPPs in the Health Sector in Lusaka, Zambia. The study adopted the pragmatism research philosophy, mixed-method research approach and survey research strategy. Purposive and stratified random sampling techniques were employed. Data were collected using questionnaires, interviews and document review and analysed using descriptive, ANOVA, factor, content and regression analyses. The study found that the main CSFs for implementation in the health sector include socio-cultural, political, legal, economic, environmental and technical factors. However, socio-cultural, political, legal, economic and technical factors were found to be significant CSFs for PPP implementation and these formed the proposed framework for implementation of PPPs for the health sector in Lusaka, Zambia. The study therefore concluded that there are several factors that influence successful actualisation and implementation of PPP projects in the health sector in Lusaka, Zambia where the major ones include socio-cultural, political, legal, economic and technical factors. The study recommended the government of Zambia to take into account establishing strong policy frameworks and reliable governance mechanisms to ensure the successful implementation of PPPs in the country's health sector. The study made significant contributions to theory, policy and practice.

DOI: <https://doi.org/10.54660/IJMRGE.2024.5.2.138-146>

Keywords: health sector; public private partnerships; social infrastructure financing; strategy

1. Introduction and Background

Public-private partnerships (PPPs) have emerged as a viable alternative for financing infrastructure development in developing economies (Mandiriza, Fourie & Madumo, 2021) ^[26]. With limited public resources, governments particularly in developing economies are increasingly turning to the private sector to bridge the infrastructure gap and promote sustainable infrastructure development (Leigland, 2020; Mandiriza *et al.*, 2021) ^[24, 26]. In this regard, PPPs have grown in popularity because of their potential to fill the funding gap for urgent infrastructure requirements as claimed by Effiom (2020) ^[14]. This is something that most governments, especially those in developing nations like Zambia, have recognized and are working to address (Chileshe, 2019; Mwanaumo *et al.*, 2020) ^[12, 30]. In Zambia, PPPs have received significant bipartisan backing as a feasible method to augment the country's overall progress and development of social public infrastructure (Muleya, Zulu & Nanchengwa, 2020) ^[29]. As a result, Zambia possesses a strong institutional framework for the execution of PPPs, which is now enshrined in the PPP

Act No. 14 of 2009 (PPP Act) and the PPP Amendment Act No. 9 of 2018 (Mwanaumo *et al.*, 2020; Muleya *et al.*, 2020) [30, 29]. In addition, the Eighth National Development Plan (NDP) (2022-2026) recognise the significance of PPPs in infrastructure development financing as it highlighted the need of the Zambian government to leverage on PPP financing for infrastructure developmental projects resulting in several public reforms to attract PPPs.

However, despite reform initiatives to encourage PPP engagements, the rate of PPP engagement has been slow and unsatisfactory in most developing economies including Zambia (Chilala, 2019) [11]. Numerous studies have revealed that a variety of factors contribute to the different levels of PPP engagement across nations (Bolomope *et al.*, 2019; Rezouki & Hassan, 2020) [8, 34]. However, to the best of the researcher's knowledge and based on a thorough review of the literature, there is not much empirical research on the critical elements that influence the adoption of PPPs as a financing method for infrastructure development in developing economies including Zambia. The majority of current research has focused primarily on the developed world, leaving a sizable gap in the literature when it comes to developing economies, particularly Zambia. To close these gaps in the body of knowledge, it was therefore necessary for the current research to be conducted. This study investigates the factors that influence establishment of PPPs in Zambia's health sector. The research's ultimate objective is to create a framework for the use of PPPs to improve efficient infrastructure growth toward the delivery of high-quality healthcare in Lusaka, Zambia.

2. Literature Review

2.1 Critical Success Factors for PPPs in infrastructure projects

A significant number of studies have studied the critical success factors (CSFs) for PPP implementation across the globe. These studies include that the study by Karimi and Piroozfar (2015) [21] which aimed to identify and analyse the CSFs associated with the implementation of PPPs in Afghanistan and found that the primary challenges that impedes PPPs in Afghanistan include limited accessibility to financial resources, political and social factors. Another study by Wijaya, Suryono and Riyadi (2023) [38] adopting the qualitative approach examined CSFs for PPPs in Indonesia. The study found that the efficacy of PPPs in Indonesia is hindered by the prevailing public administration system in the country, encompassing economic, administrative, legal, political and institutional issues. In India, Sehgal and Dubey (2019) [36] aimed to identify CSFs for PPP projects and revealed that there are 14 CSFs that significantly contribute to the success of PPPs including political and macroeconomic instability.

According to Chilala's (2019) [11] study, the main factors affecting the effective implementation of PPPs in majority of developing economies are inconsistent and unclear PPP policy, a weak regulatory environment, an unstable economic climate, and a lack of political commitment this assertion aligned with (Yankovskaya *et al.*, 2021) [40] However, this study by Chilala (2019) [11] did not focus on the health sector of Zambia. Taking a broader view, Babatunde *et al.* (2014) listed a number of factors that inhibit the implementation of PPPs in developing economies, such as cultural barriers, public opposition, a lack of trust in PPPs, conflicts of interest, weak PPP enabling policies, inadequate regulatory

frameworks, macroeconomic instability, political instability, a lack of coordination and communication, and a failure to engage and consult with key stakeholders. Similarly, Babatunde *et al.* (2015) [6] found that the main barriers to PPP implementation in Nigeria include inadequate stakeholder engagement, public opposition, societal discontent, conflicts of interests, lack of confidence and mistrust in PPPs and weak regulatory frameworks.

The CSFs for PPP implementation in Uganda were also found by Alinaitwe and Ayesiga (2013) [1] to include good governance, supportive legal environment, private sector financial capability, sound economic policies, favourable attitudes toward PPPs, involvement of important stakeholders, and stable macroeconomic environments. Niazi and Painting (2018) [31] also the key CSFs to include appropriate legal framework, political backing, transparency, good governance, accessibility to financial markets, and appropriate risk sharing and allocation of risks. Weththasinghe, Gajendran and Brewer (2016) [37] also discovered that Sri Lanka's lack of adequate enabling environments was the primary barrier to successful implementation of PPPs. Additional factors based on Zhang's *et al.* (2015) SLEEPT approach included lack of confidence and mistrust in PPPs, cultural obstacles, inadequate institutional or legal PPP frameworks, lack of model concession agreements, and poorly designed and structured PPP projects.

In Egypt's education sector, CSFs for PPPs were also investigated by Helmy *et al.* (2020) [16]. According to the findings, political, economic, financial, managerial, operational, and legal factors significantly influenced how successfully PPPs were implemented in Egypt's education sector. In Nigeria, Igboka (2015) [17] studied the CSFs for PPPs in Lagos State and revealed that there are several statistically significant factors that play a crucial role in the success of PPPs. These factors include the establishment of a legal framework for PPPs, the stakeholder perceptions of the value of proposed PPP projects, the identification and allocation of risks, the engineering and technical structure, the accurate identification of necessary competencies, and the provision of appropriate staffing and training (Helmy *et al.*, 2020) [16]. More so, Dairu and Muhammad (2015) [13] found that CSFs associated with PPP projects in Nigeria, include political, economic, legal, and technical factors. The survey's findings serve as a valuable resource for PPP stakeholders in Nigeria, providing guidance on PPP project deliver though not generalizable to the health sector of Zambia.

Ismail (2013) [19] also studied CSFs for PPPs implementation in Malaysia. The study employed a questionnaire survey and found that the key variables contributing to the successful implementation of PPPs in Malaysia are characterised by good governance, a strong commitment from both the public and private sectors, a favourable legal framework, effective economic policies, and the presence of a well-functioning financial market. In a different perspective, Muhammad and Johar (2019) [28] carried out a comparative research study following the case study methodology to examine and compare the CSFs for PPPs in Nigeria and Malaysia and found that the most CSFs are 'stable political system', 'equitable risk allocation', and 'reputable developer'.

Similar to Muhammad and Johar (2019) [28], Osei-Kyei and Chan (2017) [32], Ilukena *et al.*, (2023) [18] conducted an empirical comparison of CSFs for PPPs in developed and developing countries using case studies of Hong Kong and

Ghana. The findings suggested that a positive legal and regulatory environment has a crucial role in both countries. In addition, the primary objective of the study by Minjire (2015) [27] was to examine the impact of regulatory environment and partnership governance on the performance of PPP initiatives in healthcare projects of Kenya. The research employed a descriptive survey methodology and found that partnership governance and the regulatory environment characterised by inadequate regulation, a cumbersome procurement procedure, ambiguity in laws, and inflexible regulations were prominent obstacles that significantly impact PPPs projects within the health sector of Kenya.

More recently, the study Kamau and Achuora (2023) [20] aimed to identify the key determinants of success in the implementation of PPPs in the health sector of Kenya. The study primarily examined the impact of project funding, as well as the legislative and regulatory framework, on the successful execution of PPPs in healthcare initiatives under the Ministry of Health in Kenya. The study's results indicated that project funding, legal and regulatory framework have a positive and significant impact on the implementation of PPPs in the Kenya's Ministry of Health.

From the reviewed literature, there is consensus among scholars regarding the CSFs for PPPs in both developed and developing economies. However, there little is known regarding the CSFs for PPP implementation in the health sector of Zambia. Hence, the study aimed to fill this empirical gap by examining the factors influencing implementation of PPPs in the Health Sector in Lusaka, Zambia.

2.2 Theoretical Framework

The study was pegged on the the PPP Fiscal Risk Assessment Model (PFRAM) which was jointly developed by the IMF and the World Bank in 2016 (Kuwora, 2022; Larina et al., 2021) [22, 23]. This model serves as an analytical instrument for evaluating the potential risks and uncertainties associated with PPP initiatives in developing economies (Kuwora, 2020; Larina et al., 2021) [22, 23]. These risks encompass technical, economic, political and governance aspects (Kuwora, 2020) [22]. The model is a crucial tool in evaluating the potential risks associated with PPP projects (Lessambo, 2022; Raut & Vyas, 2023) [25, 33]. According to Raut and Vyas (2023) [33], this PFRAM model provides a comprehensive analysis of the financial implications that may arise during the lifecycle of such projects, enabling governments to make informed decisions and mitigate potential fiscal risks.

Furthermore, the PFRAM also considers other factors that could affect project viability and fiscal sustainability (Lessambo, 2022; Handema & Haabazoka, 2020) [25, 15]. These include macroeconomic variables like inflation rates and exchange rate fluctuations, as well as project-specific factors such as revenue projections and financing arrangements (Lessambo, 2022) [25]. Precisely, the PFRAM was implemented as an analytical instrument to accurately measure the macro-fiscal consequences of PPP initiatives. This model considers the allocation of risk, legal frameworks, and satisfaction of stakeholders engaged in PPP projects to ensure realisation of benefits and profits (Kuwora, 2020; Lessambo, 2022) [22, 25]. This model was therefore found relevant to this study as it helped in explaining the factors that influence implementation of PPPs as well as stakeholder perspectives regarding PPPs. More so, the model aided in designing the conceptual framework for the study.

2.5 Conceptual Framework

Figure 1 presents the conceptual framework for the study.

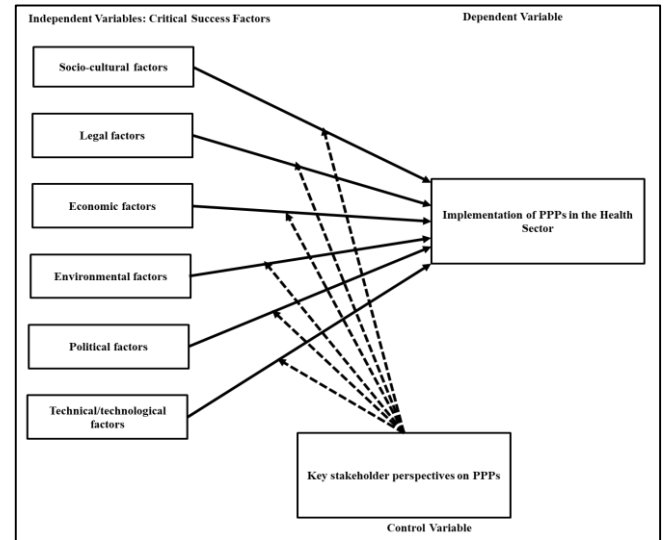


Fig 1: Conceptual Framework for the study

3. Methods

The research methodology was based on the research onion of Saunders, Lewis and Thornhill (2020) [35]. This research adopted the pragmatism philosophy. The study also employed both deductive and inductive research approaches as well as the survey research strategy and mixed-method research design. The target population included 361 individuals drawn from the PPP taskforce for healthcare projects in Lusaka, Zambia. To derive a representative sample of 190 for the study, the following Yamane's (1973) sample size determination formula was employed:

$$n = \frac{N}{1 + Ne^2} = \frac{361}{1 + 361(0.05^2)} = 189.75 \approx 190 \dots \dots \dots (1)$$

Where n, N and e represent the ideal sample size, population size, and sampling error margin respectively. In this study, the researcher basing on the 95% confidence interval, a sampling error of 5% was allowed. The purposive and stratified random sampling techniques were employed. The main data collection methods were semi-structured questionnaires, key informant interviews and document review. A five-point Likert scale was employed s in the questionnaire. Data were analysed in SPSS version 27 using descriptive, content analysis, ANOVA, factor and regression analyses. The following regression model was derived:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + B3X3 + +B4X4 + +B5X5 + +B6X6 + \mu \dots \dots \dots (3.1)$$

Where; Y = PPP implementation; β_0 = Constant term; β_1 - β_6 = Coefficients of independent variables; X1 = Socio-cultural factors; X2 = Political factors; X3 = Legal factors; X4 = Economic factors; X5 = Environmental factors; X6 = Technological factors and μ = error term. The researcher used the Cronbach's alpha and KMO tests to determine the validity and reliability following pre-testing of questionnaires. The research participants were all humans such that the researcher was obligated to adhere to all ethical issues as argued by Bryman (2012) [9]. Thus, the researcher first sought

permission from relevant authorities as well as seeking ethical approval from the university's ethics committee. To access the target respondents, permission was sought from the Lusaka City Council and other relevant authorities. The identified participants were sent a participant information sheet with a consent form in order to obtain informed consent and maintain privacy. More so, the researcher avoided academic misconduct by ensuring honest, professionalism and integrity.

4. Results and Discussions

4.1 Response rate

The researcher distributed 190 semi-structured questionnaires stakeholders of PPP projects in Zambia's health sector. However, 167 questionnaires were determined to be correctly and entirely filled out and were accepted as valid for analyses. In light of this, a successful survey questionnaire response rate of 87.9% was represented. This response rate was deemed satisfactory for this study because Babbie (2020) [7] suggested that response rates to survey questions of at least 70% are excellent for drawing inferences and conclusions from the gathered information. Further, using the data saturation method, the researcher was able to successfully interview 15 people.

4.2 Reliability and Validity analysis

The researcher used the Cronbach's alpha and KMO tests to determine the validity and reliability of the survey questionnaires. The test results are displayed in Table 1.

Table 1: Cronbach's and KMO statistics

Test	Statistic
Cronbach's Alpha	0.886
KMO measure of sampling adequacy	0.646
N of Items	49

Based on the findings in Table 1, the 49-item questionnaire had a KMO statistic of 0.646 and a Cronbach's alpha statistic of 0.886. The findings imply that both the reliability (internal consistency) and validity (adequate sampling) requirements were satisfied by the survey questionnaire used to gather data for the study.

4.3 Socio-Demographic Information of Participants

Table 2 presents the demographic results for the survey and interview participants:

Table 2: Demographic information of respondents (n = 182)

Demographic variable	Category	Frequency (n)	Percentage (%)
Gender	Male	119	65.4
	Female	63	34.6
Age bracket	18-30 years	11	6.0
	31-40 years	93	51.1
	41-50 years	41	22.5
	51-60 years	24	13.2
	Above 60 years	13	7.1
Educational qualifications	Secondary education	21	11.5
	Certificate/Diploma	28	15.4
	Bachelor's degree	72	39.6
	Master's degree	51	28.0
	Other	10	5.5
Experience in PPPs	Less than 5 years	3	1.6
	5-10 years	17	9.3
	11-15 years	81	44.5
	16-20 years	37	20.3
	Over 20 years	44	24.2
Stakeholder group	Public sector	79	43.4
	Private sector	66	36.3
	Other	37	20.3

Source: Survey findings (2023)

In terms of gender distribution, as shown in Table 2, 65.4% of participants were males whilst 34.6% were females. According to the findings in Table 2, 51.1% of participants were aged between 31 and 40 years, while 22.5% were between 41 and 50 years and 13.2% had ages between 51 and 60 years. When the study participants were asked to specify their highest levels of education, 39.6% said they held bachelor's degrees, 28% said they held master's degrees, and 15.4 percent said they held college diplomas or certificates (Table 2). According to the findings in Table 2, 44.5% of the participants had experience in PPPs in Zambia's health sector for 11-15 years and 24.2% had more than 20 years of experience. 20.3% had experience working with PPPs for 16 to 20 years. More so, 43.4% of the research participants represented the public sector, 36.3% the private sector, and 20.3% other stakeholders with direct or indirect stakes in PPP projects.

4.4 Factors influencing implementation of PPPs in the health sector in Lusaka, Zambia

The study aimed to examine the factors influencing

implementation of PPPs in the health sector in Lusaka, Zambia. Data was gathered using survey questionnaires and in-depth interviews and analysed using descriptive, regression and content analyses.

4.4.1 Results from descriptive analyses

Table 3: Factors influencing implementation of PPPs in the health sector in Lusaka, Zambia

Factor	N	M	SD	Mean Rank	F	Sig.
Lack of PPPs enabling environments	167	3.98	0.640	11	13.028	0.000
Lack of transparency and accountability	167	3.99	0.608	10	4.783	0.003
Lack of appropriate risk allocation and sharing mechanisms	167	4.04	0.737	6	4.380	0.005
Unfavourable investment environments	167	3.79	0.730	25	7.332	0.000
Lack of political will and commitment	167	4.06	0.749	3	3.450	0.018
Political instability	167	3.83	0.853	21	3.572	0.015
Lengthy delays due to political debates	167	3.94	0.759	16	2.261	0.083
Politicization of the PPP projects	167	3.83	0.662	22	51.000	0.000
Highly centralized systems for managing PPPs	167	4.06	0.709	4	2.907	0.036
Lack of adequate legal and regulatory frameworks	167	3.75	0.801	28	4.987	0.002
Inconsistent and unclear PPP Policy	167	4.01	0.847	8	2.755	0.044
Weak judicial framework for resolving PPP disputes	167	3.77	1.003	26	3.575	0.015
Lengthy delays in negotiation due to lengthy bureaucratic procedures	167	3.89	0.835	18	1.489	0.220
Unfavourable macroeconomic conditions	167	3.81	0.750	24	52.512	0.000
Inability of private sector to provide long-term financing	167	3.77	0.768	27	9.559	0.000
Inadequate domestic capital/financial markets	167	3.95	0.698	13	5.264	0.002
Unfavourable government economic policies	167	3.96	0.655	12	15.376	0.000
Lack of confidence and mistrust in PPPs	167	4.04	0.589	7	1.645	0.181
Conflicts of interest between state and private partners	167	4.05	0.749	5	0.905	0.440
Lack of engagement and consultation of key stakeholders	167	3.95	0.783	14	2.114	0.101
Embezzlement and misappropriation of infrastructure funds	167	3.89	0.717	19	0.792	0.500
Public opposition or public resistance due to negative attitudes towards PPP financing	167	4.01	0.748	9	3.577	0.015
Societal discontent against the private sector infrastructure financing	167	3.95	0.769	15	2.922	0.036
Incapability of government to manage PPP projects	167	4.32	0.440	1	4.437	0.005
Non-availability of model concession agreements	167	3.82	0.627	23	3.728	0.013
Poorly designed and structured PPP projects	167	3.91	0.686	17	2.676	0.049
Lack of innovative PPP projects	167	3.85	0.694	20	0.666	0.574
Shortage of human expertise in PPP implementation	167	4.09	0.424	2	1.357	0.258

The results in Table 3 showed that the participants rated the factors from "very critical" to "extremely critical," with the mean scores for all the factors ranging from 3.75 to 4.32. As shown by the p-values of the ANOVA F-statistics in Table 3, of the 28 factors, only seven were found to have no statistically significant critical influence on the successful implementation or actualization of PPP projects in the health sector of Zambia. These factors were found to include lengthy delays due to political debates (F= 2.261; p= 0.083), lack of confidence and mistrust in PPPs (F= 1.645; p= 0.181), conflicts of interests between state and private partners (F= 0.905; p= 0.440), lack of engagement and consultation of key stakeholders (F= 2.114; p= 0.101), embezzlement and misappropriation of infrastructure development funds (F= 0.792; p= 0.500), lack of innovative PPP projects (F= 0.666; p= 0.574) and shortage of human expertise in PPP implementation (F= 1.357; p= 0.258).

4.4.2 Results from factor analysis

In addition, factor analysis was done in order to draw meaningful conclusions and inferences about the important elements influencing the execution of PPP projects in Zambia's health sector. The factor analysis also assisted in

From the survey questionnaire, the participants were requested to assign some ranking to 28 factors which were deemed critical to influence implementation of PPPs in health sector in Lusaka, Zambia. The descriptive, mean ranking and ANOVA statistics are presented in Table 3.

categorizing the factors in order to create a model for the successful implementation of PPP projects in Zambia's health sector. Specifically, the factor analysis helped to simplify the 28 factors so that the researcher could better understand the most important ones and interpret the findings. The Varimax rotation technique and the PCA technique were also used. Table 4 displays the test statistics from the KMO and Bartlett in this manner.

Table 4: Results of KMO and Bartlett's tests

KMO Measure of Sampling Adequacy.		0.740
Bartlett's Test of Sphericity	Approx. Chi-Square	5377.265
	Df	378
	Sig.	0.000

The results displayed in Table 4 signify that a KMO index of 0.740 which is greater than 0.7. This KMO statistic of 0.740 lies between 0.7 and 0.8 and this was considered good basing on (Joseph *et al.* (2010). This statistic showed sampling adequacy implying the need to proceed with carrying out the factor analysis.

After passing the KMO and Bartlett's sphericity test, the EFA was carried out using the Varimax rotation method and the

PCA extraction method. The results of the total variance explained are shown in Table 5.

Table 5: Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.830	38.677	38.677	4.391	15.681	15.681
2	3.272	11.686	50.363	3.920	13.999	29.680
3	2.508	8.958	59.321	3.759	13.426	43.105
4	2.095	7.484	66.805	3.518	12.564	55.669
5	1.876	6.701	73.506	3.402	12.152	67.821
6	1.170	4.180	77.686	2.762	9.865	77.686
7	.843	3.011	80.697			
8	.684	2.442	83.139			
9	.664	2.372	85.510			
10	.553	1.974	87.484			
11	.503	1.795	89.279			
12	.473	1.690	90.969			
13	.379	1.354	92.323			
14	.350	1.251	93.574			
15	.302	1.080	94.654			
16	.268	.956	95.610			
17	.251	.896	96.506			
18	.226	.805	97.311			
19	.184	.656	97.968			
20	.174	.620	98.588			
21	.130	.463	99.051			
22	.083	.298	99.349			
23	.058	.207	99.556			
24	.046	.164	99.720			
25	.037	.133	99.854			
26	.018	.063	99.916			
27	.012	.044	99.960			
28	.011	.040	100.000			

Extraction Method: Principal Component Analysis.

The results in Table 5 show that only 6 factors were extracted based on at least one eigenvalue, and the total variance of these factors is 77.686%. Factor 1 explains 15.681% of the variance, factor 2 explains 13.999% of the variance, factor 3 explains 13.426%, factor 4 explains 12.256%, factor 5 explains 12.152%, and factor 6 explains 9.865% of the total variance. These six extracted factors had at least one eigenvalue. Also, the rotated component matrices showed that Factor 1 contained six items (lack of confidence and mistrust in PPPs, conflicts of interest between state and private partners, lack of engagement and consultation of key stakeholders, embezzlement and misappropriation of infrastructure funds, public opposition or public resistance due to negative attitudes toward PPP financing, and societal discontent against the private sector infrastructure financing). Factor 2 had four items (unfavorable macroeconomic conditions, inability of private sector to provide long-term financing, inadequate domestic capital/financial markets and unfavourable government economic policies). Lack of model concession agreements, poorly designed and structured PPP projects, a lack of innovative PPP projects, a lack of human expertise in PPP implementation, and inability of the government to manage PPP projects were the five components of Factor 3. On the other hand, Factor 4 had five items (highly centralized systems for managing PPPs,

inadequate legal and regulatory frameworks, inconsistent and unclear PPP policy, weak judicial framework for resolving PPP disputes, and protracted negotiation delays as a result of protracted bureaucratic procedures). Lack of PPP enabling environments, lack of transparency and accountability, lack of suitable risk allocation and sharing mechanisms, and unfavorable investment environments were the four components of factor 5. A total of four factors made up Factor 6, lack of political will and commitment, political instability, lengthy delays due to political debates and politicization of the PPP projects. These six factors were categorised into political, socio-cultural, legal/regulatory, economic, environmental and technical/technological factors. These were therefore used as independent variables in regression analysis.

4.4.3 Results from regression analysis

Additionally, a multiple regression analysis was conducted to investigate the influence of the identified CFS on the implementation of PPPs in the health sector in Lusaka, Zambia. The six CSFs from the factor analysis (Socio-cultural, Political, Legal, Economic, Environmental and Technical factors) represented the independent variables of the study whilst the dependent variable was PPP implementation. The results are presented in Table 6.

Table 6: Multiple regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.702	0.278		6.129	0.000
1 Environmental Factors	0.024	0.015	0.108	1.628	0.105
Political Factors	0.121	0.023	0.571	5.284	0.000
Legal Factors	-0.040	0.016	-0.263	-2.482	0.014
Economic Factors	0.111	0.013	0.554	8.314	0.000
Technical Factors	-0.039	0.012	-0.182	-3.285	0.001
Sociocultural Factors	-0.018	0.009	-0.122	-1.896	0.060

R-squared = 0.682; F = 37.097 (p = 0.000)

The regression findings presented in Table 6 indicate that four out of the six CSFs were determined to be statistically significant at a significance level of 5% as they corresponding p-values were less than 0.05. These CSFs were found to be political factors, legal factors, economic factors and technical factors. Based on the results, the coefficient for environmental factors of 0.024 ($p = 0.105 > 0.05$) was statistically insignificant at 5% level suggesting that environmental factors do not significantly impact implementation of PPPs in the health sector.

Furthermore, in the context of political factors, a statistically significant positive coefficient of 0.121 was observed at a significance level of 5% ($p = 0.000 < 0.05$). The presented statistics indicate that the political environment in Zambia can significantly influence actualization of PPPs in the health sector. The results are consistent with Kalemba (2011) who noted that political environment in Zambia influenced implementation of PPP projects in the health sector.

The findings in Table 6 further indicate a statistically significant negative impact of legal factors on implementation of PPPs. This is evidenced by the coefficient value of -0.040 and a p-value of 0.014 ($p = 0.000 < 0.05$). The findings suggest that the legal and regulatory environment in Zambia impacts successful implementation of PPPs in the health sector in the country. Minjire (2015) [27] also found that regulatory environment characterized by policy inconsistency affect implementation of healthcare PPP projects.

Furthermore, the coefficient of 0.111 for economic factors which is statistically significant at 5% level ($p = 0.000 < 0.05$) suggest that the economic environment in Zambia influences successful implementation of PPPs in the health sector in Lusaka, Zambia. The studies by Kimario *et al.* (2020) and Joudyian *et al.* (2021) also found that economic environment affect implementation of healthcare PPP projects.

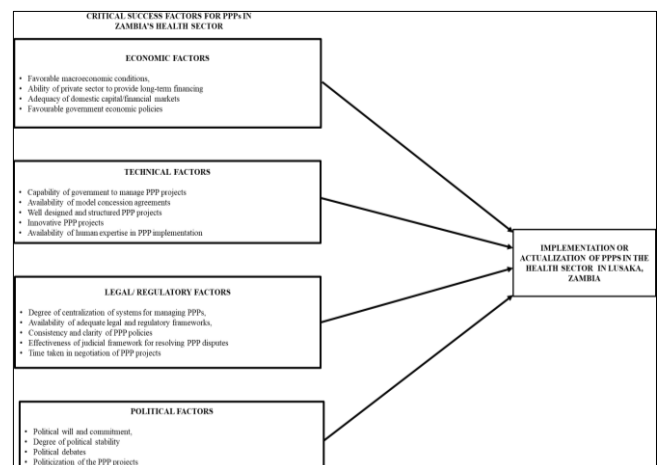
In the context of technical factors, a statistically significant negative coefficient of -0.039 was estimated at a significance level of 5% ($p = 0.001 < 0.05$). These results indicate that technical or technological factors significantly influence implementation of PPPs in the health sector in Lusaka, Zambia. Comparably, the study by Al-Hanawi *et al.* (2020) found that technological factors were among the barriers to the implementation of PPPs in the healthcare sector in Saudi Arabia.

However, the social-cultural factors were found to be statistically insignificant. The coefficient for socio-cultural factors of 0.024 ($p = 0.018 < 0.05$) was statistically insignificant at 5% level meaning that the socio-cultural environment significantly impacts implementation of PPPs in the health sector in Lusaka, Zambia. The studies confirm the findings by Kimario *et al.* (2020) that the social environment

impacts successful implementation of PPP projects in the health sector across the globe.

4.5 Framework for implementation of PPPs for the Health Sector in Lusaka, Zambia

Last but not least, the research sought to create a framework that would direct the implementation of PPPs in Zambia's health sector. Based on the findings, framework in Figure 2 was developed.



Source: Developed by researcher

Fig 2: Model for implementation of PPPs for the Health Sector in Lusaka, Zambia

5. Conclusions and Recommendations

The study's main goal was to analyze the CSFs of PPPs as an alternative social infrastructure financing strategy in Lusaka, Zambia's health sector. In doing so, the study aimed to examine the factors influencing implementation of PPPs in the Health Sector in Lusaka, Zambia. The study adopted the pragmatism research philosophy, mixed-method research approach and survey research strategy. Data were collected using questionnaires, interviews and document review and analysed using descriptive, ANOVA, factor, content and regression analyses. The study found that the main CSFs for implementation in the health sector include socio-cultural, political, legal, economic, environmental and technical factors. However, socio-cultural, political, legal, economic and technical factors were found to be significant CSFs for PPP implementation and these formed the proposed framework for implementation of PPPs for the health sector in Lusaka, Zambia. The study therefore concluded that there are several factors that influence successful actualisation and implementation of PPP projects in the health sector in Lusaka, Zambia where the major ones include socio-cultural,

political, legal, economic and technical factors. The study recommended the government of Zambia to take into account establishing strong policy frameworks and reliable governance mechanisms to ensure the successful implementation of PPPs. The study made significant contributions to theory, policy and practice. However, the study was undertaken in the health sector in Lusaka, Zambia, and it is advisable to perform more research in different regions and sectors of the country to evaluate the generalizability of the findings.

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