



Critical success factor of PPP for affordable housing provision in Makkah, Saudi Arabia

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Abstract

Saudi Arabia recently established public–private partnerships (PPPs) in order to increase the private sector’s involvement in financing and providing affordable housing. However, the successful implementation of the PPP for affordable housing in Makkah necessitates careful consideration of possible barriers. As a result, the purpose of this study is to assess the critical success factor of the PPP and to introduce a housing affordable model for the low-income community. The survey method was used in the study to determine the critical success factors of PPP for affordable housing provision, with participants from both the private and public sectors. Using a five-point Likert scale, respondents were asked to rate the degree of influence of prospective critical success factors of PPP. The data gathered was analyzed using statistical tools. The study’s findings describe the critical success factors of public–private partnerships for affordable housing and establish the critical success factors of the PPP model for affordable housing in Makkah. As a result, determining the critical success factors and suggesting a way forward for the government to effectively provide affordable housing for low-income groups, as has been successful in other parts of countries such as the United Kingdom, Australia, and India, among others.

Keywords Public private partnership · Affordable housing · Critical success factors · Makkah

Abbreviations

ALF	Adequate legal framework
AVE	Average variance extraction
BOT	Build–operate–transfer
CR	Composite reliability
CSF	Critical success factor
JGC	Judicial government control
MOUs	Memorandums of understanding
PPP	Public private partnership
PEV	Project economic viability
SFP	Sound financial package
SPSS	Statistical package for the social sciences
SPS	Strong private sector

1 Introduction

The Saudi government recently implemented a major policy reform and endorsed ‘Vision 2030’ as a blueprint for economic growth. On April 25, 2016, the Kingdom’s Deputy Crown Prince, Mohammed bin Salman, unveiled a vision 2030 plan. The plan outlines a clear strategy for reducing Saudi Arabia’s reliance on oil income, with goals identified in all economic sectors. It was implemented with the goal of defining the KSA’s overall course, strategies, priorities, and objectives.

With the implementation of Vision 2030, the Saudi government will prioritize the improvement of affordable

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housing. The plan aims to improve the possession of Saudi household from 47 to 70% by the end of 2030 [1]. This support will increase the percentage of Saudi families that own houses. Currently, 1.5 million Saudis are on the waiting list for affordable housing, a figure that the Saudis consider unacceptable [2]. However, one of the ways the vision intends to address this issue is through private sector participation in housing project financing.

Though the PPP model is still in its infancy in the housing sector, a growing number of Memorandums of Understanding (MOUs) have been signed in recent years with developers in Turkey, South Korea, and China, as well as a variety of other developers [3]. These memorandums of understanding are serving as pioneers for the private sector in meeting Saudi Arabia's urgent housing needs. In 2017, the Ministry of Housing approved a USD 70 million housing development in Riyadh's eastern region. Similarly, Saudi Aramco announced plans in 2017 to build housing projects for employees in Makkah, which is one of the places in need of more affordable housing [4].

2 Methodology

This research uses quantitative methods and is designed to explore phenomena, that is, to explore quantitative data to clarify existing relationships in qualitative data through PPP expert in Makkah.

This study used PPP experts and identified from the literature the success factors of a public–private partnership to provide affordable housing in Makkah. The used of expert is to identify the CSF of PPP for affordable housing in Makkah. The professional background of the group interview has confirmed their understanding of the PPP project. A pioneer survey was conducted to check the effectiveness of the research tool using Cronbach Alpha and Kaiser–Meyer–Olkin statistical methods. It is found that this tool is reliable and effective in preparing questionnaires.

As stated by [5], the questionnaire items should come from a literature review, validated and tested through focus group interviews. The interview was conducted for the purpose of identifying the CSF before the main data collection. The questionnaire has been distributed to the stakeholders of public and private developers participating in the study area to provide PPP. A total of 100 questionnaires were randomly assigned to the target audience (stakeholders of public and private sector officials) in Mecca to participate in PPP housing and real estate developers. The questionnaire returned 85 questionnaires which is 85% return rate. For the purpose of gathering data, key informants were chosen using a purposive sample technique. The benefit of being able to focus the selection of

informants to a particular group or groups of persons who can supply the needed information on the issue was the main factor in the adoption of this sampling technique. One is mindful of the inherent limits of this sample size while selecting it, especially with regard to generalizing the results. The survey's findings were thus primarily used to support the analysis and support the state of affairs in the studied area. Use SPSS software for factor analysis, use intelligent PLS to analyze data, and analyze the data in the questionnaire survey. Many different types of researchers use the statistical package for the social sciences, or SPSS, for advanced statistical data analysis [6].

3 Critical success factors of PPP

Some scholars have examined and established various critical success factors (CSF) lists for various PPP projects. For example, [7] recognized factors that influence the production of BOT infrastructure growth in Asia. Zayyan [8] found success factors that support the achievement of better value for PFI projects in the UK. Consequently, [9]. The CSF of the self-built-transfer (BOT) project was established in China. [10] CSF was identified out of the consideration of the Australian Stadium project; [11] found the CSF implemented by the Lebanese Telecommunications Sector PPP. Observing the factors that contribute to the PPP project, [12] identified four CSFs from a broad review of study reports in various authorities. Helmy [13] identified five key success factors for the Kuwait PPP project. From the broad literature review and expert interviews, [14] similarly recognized four issues that led to the success of the power project. El-Sawalhi [15], however, discovered key success factors for the Palestinian PPP project. The key success factors recognized in the studied literature are summarized. Specific and complementary among the listed issues established in the standard literature, several writers attempt to classify CSF as a broad category of key success factors, both with a series of success sub-factors. Classification is to display the association among related variables [16]. For example, [17] a review of managers and directors of UK administrations involved in PPP projects to examine key success factors in public–private partnerships. The researcher discovers that using factor analysis approaches, key success factors may be divided into five (5) groups. More researchers have similarly developed CSFs for PPP infrastructure development into five groups. The study of [12] classifies four (4) CSFs from the broad literature assessment of investigation studies on PPP. In a similar study, [18] found the CSFs for PPP infrastructure projects in China that are grouped into seven (7) groups of key success factors.

These factors are believed to be highly critical since UK traders are always concerned about them and always offer contracts to large, stable construction enterprises [19]. The implementation of PPP was caused by the UK government's wish to improve the efficiency of service delivery [9]. Therefore, managing the appropriate allocation of each risk for the best party is important to reduce the individual risk premium and total project cost [20]. The availability of financial markets is also important in the UK, as access to financial markets can motivate private sector partners to participate in the PPP/PFI project [21]. As mentioned above, due diligence must be conducted on the growing financial markets in the UK's private financial programs. Chan et al. [18] investigated 18 CSF PPPs in China's infrastructure development. Their findings identified five fundamental factors; [22] studied the relative importance of CSF to the PPP housing project in Malaysia and identified five (5) important factors. Similarly, [23] studied the importance of 18 factors for successful PPP implementation in Malaysia and created the top five (5) CSFs. Hwang et al. [24] studied the positive effects of positive and negative factors affecting Singapore's PPP project and identified eight key factors. However, [25] also examined the relevance of the success factors for public and private sector infrastructure in Nigeria. The results show eight key success factors. In a study investigating the success factors of the Uganda PPP project, [26] identified 32 factors and identified the four most important factors among all three types of stakeholders in the construction industry [27]. Identified five government-led infrastructure projects CSF in Indonesia.

The major success factor categories are considered as potential structures because they cannot be measured directly but need to be deduced from the easily-measured other sub-factors (observational variables) [28]. The success factors that were identified in the literature review are divided into CSF categories to show the relationship between interrelated factors. Five factors are modelled as follows (Fig. 1).

3.1 Adequate legal framework

The adequate legal framework is to ensure the stability of the plan and the recognition of beneficiaries as rights holders [30]. There is also a need to provide a strong legal framework that clearly defines rights, rights, and obligations to ensure safe, secure, and secure planning [30].

3.2 Sound financial package

Sound financial package is an approached in providing a sound financial system and to providing the most present

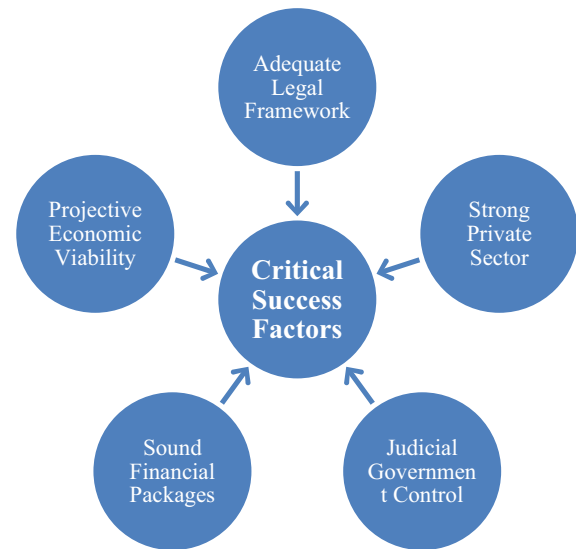


Fig. 1 CSF of PPP for AH source; [29]

and relevant financial planning in the development process [10].

3.3 Project economic viability

The project's economic viability is to assess whether the project is a good public investment decision based on economic feasibility analysis. This assessment can be done before consideration of the PPP project described in the introduction of the PPP project. In other cases, it can be done as part of the PPP evaluation process. Analysis of project feasibility and PPP economic feasibility analysis should be similar to other major public investment projects [23].

3.4 Judicial government control

Judicial government control (JGC) includes government control exercises to safeguard that all parties abide with accepted rules and regulations and discharge their responsibilities carefully. The variables under construction are established on the success factors identified from the literature studied [31].

3.5 Strong private sector

Strong private sector (SPS) correlate to the ability of the private sector partners as for technical ability, partnering experience and financial power of the private sector partner to successfully lift PPP projects [32].

Consequently, from the literature review of the study five critical success factors were identify for the success of PPP for affordable housing in Makkah, Saudi Arabia.

However, Housing is typically regarded as being affordable if the household residing there has sufficient income to cover other essential needs [33]. However, around 25% of monthly income comes from renting costs [34, 35]. Similar to affordable housing, affordable housing refers to a residential unit’s household pricing that is deemed “affordable” within the residential unit’s designated income range. The concept is applicable to buyers and renters in all income ranges, even though the term often applies to lease housing through funding institutions in the lower income range of a geographic region.

4 Results and discussion

4.1 Outcomes and discussion

Figure 2(a) shows that most participants have experience in the PPP projects for several years. These participants have the necessary experience in conducting this research, this study shows that 78.9% of examiners have at least 1–20 years of work experience, while the participant that have over 20 experience have only 25.8% of experience, and 10.9% of the participant have no experience. Figure 2(b) shows the categories of public–private partnerships in Saudi Arabia. Among them, the participation rate of public–private partnerships involved in infrastructure construction is the highest, at 72.3% and 13.3%, respectively, and the participation rate of public–private partnerships is the highest. Does who did not participate in any projects but has the understanding of PPP is 14.5%. Figure 3(a) shows the housing projects of different professionals in a public–private partnership project in Saudi Arabia. Financial institutions accounted for 13% of the respondents, and real estate developers accounted for 54%, of which 32% were government employees. These indicate that the interviewees are from the research field being investigated. This illustrates how to use the data to conduct this research. Figure 3(b) shows the familiarity of respondents in Saudi’s PPP projects. The response shows

that 78.9% of the respondents are still closely related to PPP projects, while 9.8% of the respondents have worked for more than 20 years, and 10.9% of the respondents work for PPP and lack experience. It is worth noting that about 88.7% of the respondents are fully familiar with PPP housing projects in Saudi Arabia.

Table 1 discrimination validity is designed to estimate the level of difference among the latent constructs. The difference is significant when showing either the latent variables are relevant. Discrimination validity is to ensure that single-point measurement projects are not as relevant to individual projects. The legitimacy of discrimination is established when different forms are not strongly related to each other [36]. Therefore, this table indicates that all the constructs are strongly associated with each other as there is no negative issue—however, the values of discriminant validity reflective constructs with the below 0.90. Therefore, discriminant validity is established.

However, [37] proposed the PLS exploration test law, and the factor loading point of all items under this model must be not less than 0.5, and the value of average variance extraction (AVE) must be greater than 0.5. Any item less than 0.5 should be deleted, or if the average variance extraction is less than 0.5, some items with lower load will be deleted. Fornell and Larcker [38] explained that the extracted mean variance (AVE) represents the convergence validity (CV), and the AVE value must be greater than 0.50 or 0.50. In addition, [39] explained that the comprehensive reliability (CR) value should be higher than 0.70, and exploratory research should accept 0.60–0.70. In Cronbach’s Alpha, the lower limit of comprehensive reliability is lower, while the reliability of internal consistency has a higher guarantee.

4.2 Adequate legal framework

Table 2 reveals the adequate legal framework and the first structure, which includes the commitments and obligations of the public and private sector (ALF2) with a load value of (0.694), and the obligations of identifying and understanding customers/owners with a load point (customer) (ALF4). (0.704), the load value of project technical feasibility (ALF5) is (0.739), the load value of technology transfer (‘ALF6’) is (0.708), and the load value of experienced personnel (ALF7) is (0.743), A good legal basis (ALF8) has a load value of (0.710), and a firm and clear agreement (ALF9) has a load value of (0.718). At the same time, an adequate legal framework has the comprehensive reliability of (0.881) and average variance extraction (AVE) (0.514); this shows that an adequate legal framework and an acceptable correct model are very important.

However, as can be seen from the analysis above, Makkah cannot provide affordable housing without adopting

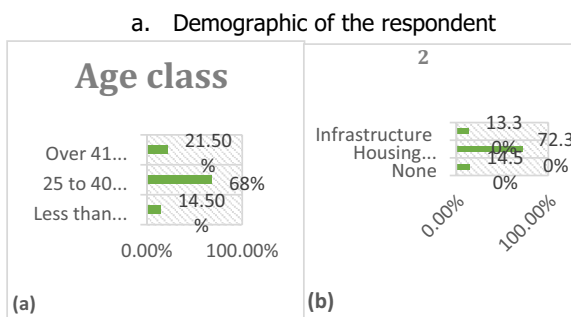


Fig. 2 Occupation and work experience

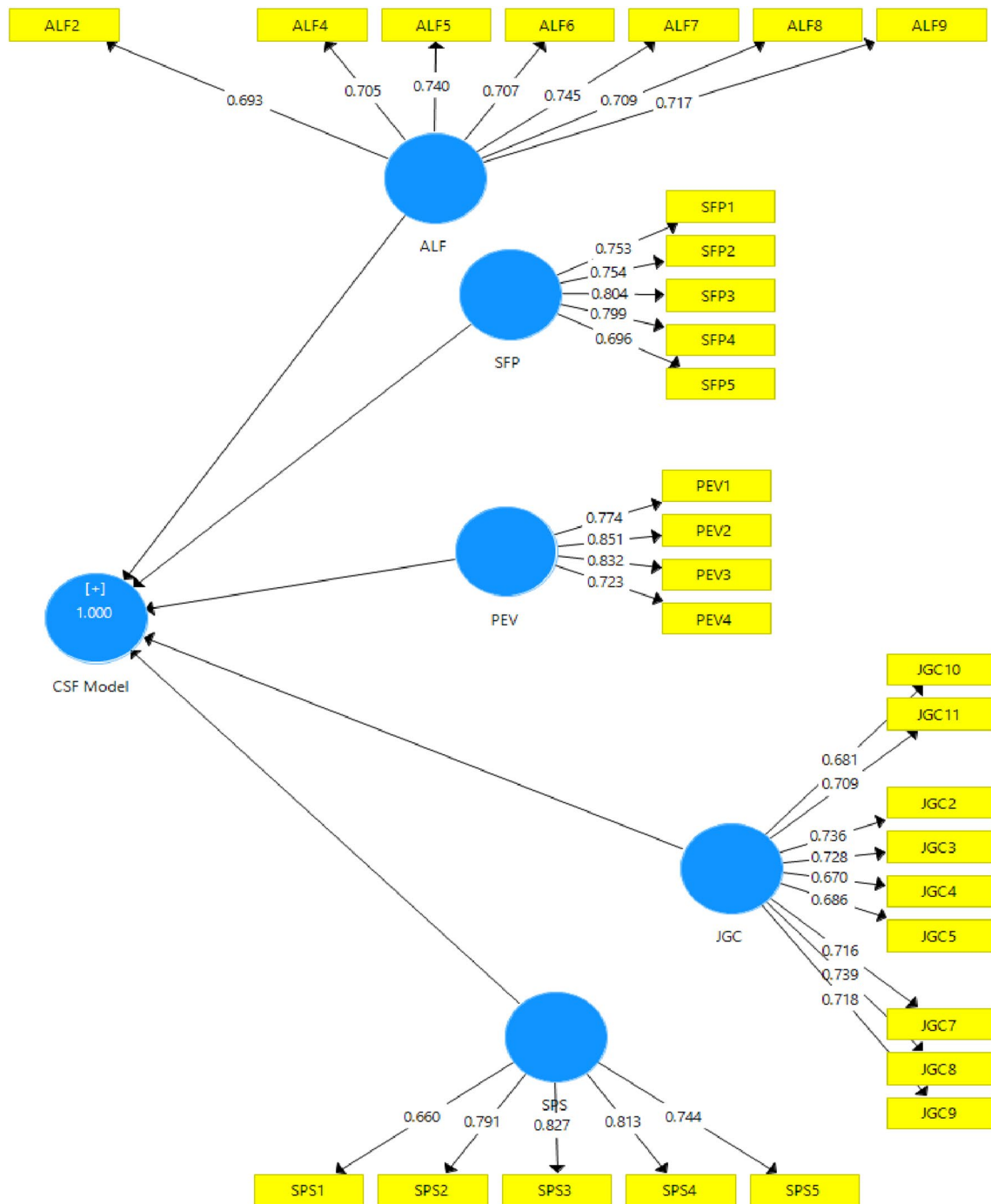


Fig. 3 CSF model

Table 1 Discriminant validity of CSF's

	ALF	JGC	PEV	SFP	SPS
ALF	0.717				
JGC	0.618	0.71			
PEV	0.627	0.742	0.796		
SFP	0.594	0.674	0.69	0.762	
SPS	0.643	0.673	0.565	0.534	0.769

an appropriate legal framework. Appropriate legal framework is an important success factor and is a sub-factor of public and private sector commitments/responsibility, identification of customer/owner obligations, project technical feasibility, technology transfer, availability of competent personnel, and sound laws. A robust and clear agreement is that these factors will help maintain the stability of the plan and ensure that the recipients

Table 2 Composite reliability and convergent validity of CSF model public–private partnership

First order Construct	Second order Construct	Items	Measurement Model Type	Loading (>0.5)	CR (>0.6)	AVE (>0.5)				
Critical success factors of public–private partnership model	Adequate legal framework (ALF)	ALF2	Reflective	0.693	0.881	0.514				
		ALF4		0.705						
		ALF5		0.740						
		ALF6		0.707						
		ALF7		0.745						
		ALF8		0.709						
		ALF9		0.717						
		Sound financial package (SFP)		SFP1			Reflective	0.753	0.874	0.581
				SFP2				0.754		
	SFP3		0.804							
	SFP4		0.799							
	SFP5		0.696							
	Project economic viability (PEV)	PEV1	Reflective	0.774	0.874	0.634				
		PEV2		0.851						
		PEV3		0.832						
		PEV4		0.723						
	Judicial government control (JGC)	JGC10	Reflective	0.681	0.874	0.573				
		JGC11		0.709						
		JGC4		0.670						
		JGC2		0.736						
		JGC3		0.728						
		JGC5		0.686						
		JGC7		0.716						
		JGC8		0.739						
		JGC9		0.718						
Strong private sector (SPS)	SPS1	Reflective	0.660	0.878	0.592					
	SPS2		0.791							
	SPS3		0.827							
	SPS4		0.813							
	SPS5		0.744							

become rights holders in Saudi Arabia. The explanation is that some nations, including Malaysia, the UK, and Australia, as well as other nations worldwide, are capable of improving housing. The reasons for the security status are all income groups. An adequate appropriate legal framework is to ensure the safety of the plan and to recognize the recipient as the original owner. Likewise, it is necessary to provide a durable legal framework for privileges, rights and responsibilities to ensure safety, protection and smooth development [30].

4.3 Sound financial package

Table 2 the sound financial package (SFP) consists of five (5) structures. The structure is: fixed currency for debt and equity financing (SFP1), with a load value of (0.754), and debt repayment (SFP2) has a load point (0.752), alternative funds (SFP3) can be used with a load value of (0.804), financial capability (SFP4) has a load value of (0.799), and cost–benefit evaluation (SFP5) with load value is (0.697). On the other hand, the CR and AVE of the sound financial package (SFP) are (0.901) and (0.581), respectively.

This specifies an important appropriate model where all accepted values are within an important point. The results in the above Table 2 indicates that PPP can provide adequate and affordable housing with financial support. Project financing capability is one of the most important aspects. Therefore, the Saudi Arabian government needs to support PPP through another funding method and by establishing more financial institutions (such as the Federal Mortgage Agency). There is also a need to reduce or adjust high interest rates; providing subsidies will help lower housing prices for all income groups.

A sound financial package is a way to provide a sound financial system, and similarly provides the largest and appropriate financial arrangements available for growth [10].

4.4 Project economic viability

As shown in Table 2, project economic viability (PEV) consists of four (4) projects. These projects are accessible financial markets (PEV1) with a load value of (0.774), a favorable investment environment (PEV2) with a load

value of (0.852), and a stable macroeconomic situation (PEV3) with a load value of (0.831). The participation of society (PEV4) also has a load value of (0.723). On the other hand, the Project economic viability (PEV) contains CR value (0.874) and AVE value (0.634). This shows that the PEV model is appropriate and important, with acceptable values. However, considering the income level of Saudi Arabia, the Saudi Arabian government needs to provide an enabling environment to attract investors to protect individuals who are interested in investing and find that these countries attract people in need. Stakeholders in the private sector are always looking for a corruption-free environment [40]. They don't want to bid on a project and discover the loss because other people have tried to arrive and pay. Therefore, we are responsible for maintaining the process to ensure sustainable permits. These must be reflected and consolidated in our adoption process. The economic feasibility of the project refers to the evaluation of whether the development is worthy of public investment options based on the economic feasibility survey. The assessment can be carried out before the PPP discusses and finds relevant projects. On the other hand, it may be done as part of the PPP assessment process. Project feasibility studies and PPP economic feasibility studies must be similar to other key public capital plans [41].

4.5 Judicial government control

Table 2 shows the Judicial Government Control (JGC) consisting of nine (9) parameters with loading points. The parameters include: action against the wrong developer (JGC10) with a load value of (0.690), the value of land (JGC11) has a loading point of (0.737), the value of appropriate risk allocation (JGC12) has loading of (0.660), reasonable economic policy (JGC2) has a load value of (0.723), a stable political environment ('GC3') has a load value of (0.704), a strong political support (JGC5) has a load value of (0.674), and the sharing authority between public and private is detailed The loading value of score (JGC7) is (0.726), the loading value of strong government support ('JGC8') is (0.744), and the loading value of continuous monitoring (JGC9) is (0.715) respectively. The (CR) value of judicial government control (JGC) is (0.874), and the AVE value is (0.573). Therefore, the Judicial Government Control (JGC) model thus identifies significance and prevailing viewpoints. In order to maintain compliance with accepted standards and principles and to make sure that all beneficiaries carry out their responsibilities, the government has regulatory and control bodies. According on a literature review, the metrics were developed using known success factors [31].

Any PPP's success can be attributed to the government of any nation on earth. As a result, PPP need considerable

government backing to succeed. The findings in Table 2 above demonstrate the importance of government control as one of the crucial success elements for PPP to deliver affordable housing in Saudi Arabia. The assurance of development stakeholders will be supported by the ongoing enhancement of the action sequence, which will also promote greater growth. To ensure that the company won't be required and deprived of just compensation or that the development company won't be stopped, protect government actions, positive privileges granted by development agreements, or certain privileges (similar to foreign exchange tax guarantees) generated by general laws.

4.6 Strong private sector

As shown in Table 2, a strong private sector structure (SPS) has five (5) parameters. These parameters include: the load value of a powerful private consortium (SPS1) has loading point of (0.662), the load value of a true partnership (SPS2) is (0.792), open communication (SPS3) has the load value of (0.826), social support (SPS4) load value is (0.812), and the load value of trust and honesty between parties (SPS5) is (0.743). On the other hand, the strong private sector (SPS) has (CR) points (0.878) and (AVE) points (0.592). This shows that a strong private sector (SPS) model is essential with satisfactory value. The ability to provide housing depends on the type and ability of private developers. Therefore, a strong private sector will have greater execution capabilities. As far as Saudi Arabia is concerned, most private developers are local developers who are not strong enough to provide affordable housing, because most of them cannot finance development, nor do they have funds to finance housing development. Therefore, it is necessary to choose strong private developers who can provide affordable housing. The Saudi Arabian government wants to establish partnerships with a strong private sector and provide guarantees where there is no political influence to challenge its contracting companies. The strong private sector (SPS) associated with private sector capabilities is concerned with the professional sector, associated skills, and the financing capabilities of private sector partners who adopt effectively managed PPP programs [32] (Fig. 4).

Five success elements are identified as key factors in the study's conclusions, as shown by PLs analysis of respondents' opinions. This model is intended to offer 100% of the population access to cheap housing, as opposed to the present PPP conditions in Saudi Arabia, which only benefit high-income groups. On the other hand, the model also acknowledges the connection between crucial success variables in promoting PPP projects' success. The connection suggests that CSFs work together rather than alone to thwart PPP initiatives. For instance, having a robust private sector structure, a project's economic feasibility, judicial

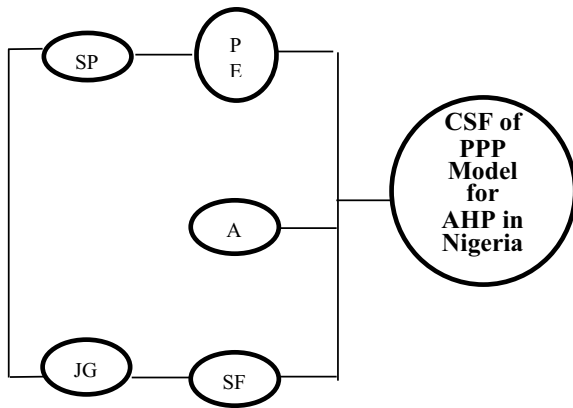


Fig. 4 PPP model for affordable housing

government control, and an effective legal framework all help the private partner join forces with the public in resolving PPP issues.

5 Conclusion and recommendations

However, the main objectives of PPP in this study are to provide an affordable housing model for the low-income community and to evaluate the crucial PPP success factor. The major success characteristics listed in Table 2—adequate legislative framework, sound financial package, project economic viability, judicial government control, and strong private sector structure can be used to produce affordable housing, according to the study's findings in the study area. The basic goal of applying PPP in housing is to provide adequate and affordable housing for low-income groups. The concern is that Saudi Arabia's national policy on housing PPP has not yet reached a consensus. The PPP for housing in Saudi Arabia is uncertain. However, it shows that the PPP approach to affordable housing is considered authority control and is an important part of affordable housing. Therefore, it is suggested that a policy structure should be adopted to realize other PPP alternatives for purchasing affordable housing in Saudi Arabia. The policy structure will eliminate all restrictions on PPP housing by Saudi authority, and then meet the requirements of different socio-economic individuals in the national housing sub-sector. Land allocation and government privilege documents increase the price of housing delivered by PPP. As a result, it is recommended that a good model for the application of additional PPP options in addressing the need for affordable housing in Makka, Saudi Arabia, must be in harmony with those factors. In Makka, Saudi Arabia, it will first disperse all unresolved restrictions of local government establishments and grassroots administrations in PPP for affordable housing provision and then make

the needs of various socioeconomic classes available. Therefore, the government may consider providing free land to provide cheap housing to protect the capabilities and assistance of business partners. Saudi Arabia should consider the system of Malaysian PPP and provide cheap housing for low-income groups. The used of local materials can be used as a substitute for luxury imported materials to build cheap housing. Similarly, mutual assistance programs and government assistance housing programs must be included in the PPP housing strategy to provide low-cost housing for all income groups at reasonable prices.

There is need for further research to look at the problems of PPP for affordable housing in Saudi Arabia and develop a model with success factor that can provide a solution to PPP problems of affordable housing as research by [29].

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Data availability Not applicable.

Declarations

Conflict of interest The authors declare no competing interests.

Ethical approvals All authors agree with all the conditions of the journal for publication.

Consent for publication The participants have been asked and they all agreed in the statement "I understand the general purposes, risks and methods of this research. I consent to participate in the research project and the following has been explained to me: the research may not be of direct benefit to me. My participation is completely voluntary."

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