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Evaluation of Project Implementation Control in Pre-Construction Stage to Improve Service Provider Performance in Government Procurement of Goods And Services

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Abstract

This study aims to determine what evaluation activity factors have an impact on the performance of service providers based on Circular Letter No. 18/SE/M/2021 which is carried out on the type of tender/auction with a single-file evaluation method for the kind of procurement of goods/services that uses the lowest price evaluation method of the post-qualification knockout system on projects with a unit price system. This study found that all independent variables, namely arithmetic corrections, conflicts of interest and indications of collusion, administration, qualifications, technical, price and specifications, design and changes, impact the performance of service providers, which are dependent variables. Technical evaluation activities and qualification evaluations have a dominant influence among other variables on the performance of service providers. This research produces modeling and improvements to improve the performance of service providers in the pre-construction stage, which is expected to minimize problems during the project.

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1 Introduction

Based on Presidential Regulation Number 12 of 2021, government procurement of goods/services is a series of activities carried out by Ministries, Institutions, or regional apparatuses using APBN/APBD funds. This process starts from identifying needs to handing over the results of the work. Meanwhile, according to the 2021 LKPP, the procurement of goods/services includes the stages of identifying needs to handing over the results of the work. The implementation process includes initial planning, selecting providers, implementing contracts, and handing over the final results. Before the procurement is carried out, an evaluation and analysis of needs are carried out to ensure the smooth running of the process according to the plan. Problems are still often found in the procurement process of goods and services. In the 10 years from 2011 to 2020, there was an increase in failed tenders, where it was recorded that failed tenders in 2020 were 22% (Watch, 2021). The construction sector is one of the largest users of the State budget, but there are still many problems in terms of the Procurement of Goods and Services. Currently, there are still shortcomings in the implementation of the pre-construction stage, both shortcomings for service providers and the procurement team for goods and services. Procurement of goods and services has many factors that can influence the results of the procurement process of goods/services itself, namely transparency, market access, and efficiency in government procurement (Zahra et al., 2021).

The PUPR Ministry has official regulations regarding evaluation at the pre-construction stage, as stipulated in Circular Letter Number 18/SE/M/2021 concerning the Operational Guidelines for the Orderly Implementation of Selection Preparation for Construction Service Procurement at the Ministry of Public Works and Public Housing. This regulation is a derivative of LKPP Regulation Number 12 of 2021. The selection process is in the form of preparation and implementation of evaluation of the procurement process of goods and services carried out by the government working group team. Thus, the study will assess the evaluation activities in pre-construction, namely the evaluation of arithmetic corrections, conflicts of interest and indications of collusion, administration, qualifications, technical and prices obtained from Circular Letter Number 18/SE/M/2021 and one of the indicators in previous studies, namely specifications, designs, and changes to expand the success factors of the pre-construction stage at the Ministry of Public Works and Public Housing. This study will focus on the type of tender/auction with a single-file evaluation method for the kind of procurement of goods/services that uses the lowest price evaluation method of the post-qualification knockout system on projects with a unit price system.

The objectives of this research are as follows: 1) Identify the processes of the project implementation control system at the current pre-construction stage. 2) Identifying factors that influence the project implementation control system at the pre-construction stage on the performance of service providers. 3) Identify procurement process activities that impact service provider performance. 4) Developing a model of the relationship between procurement process activities and service provider performance. 5) Determine the pre-construction control process improvement strategy based on significant service provider performance activities (Lahiri & Kedia, 2009).

Literature review
Service Provider Performance

In Indonesia, the performance of construction service providers is regulated by several regulations, both general and specific to the construction industry. Some relevant regulations include LKPP Regulation Number 12 of 2021 concerning Guidelines for the Implementation of Government Procurement of Goods/Services Through Providers and then became the basis for Circular Letter Number 18/SE/M/2021 concerning Guidelines for Orderly Operations for the Implementation of Selection Preparation for Procurement of Construction Services at the Ministry of Public Works and Public Housing which is the basis for the variables in this study. In the pre-construction stage, in terms of the assessment of the pre-construction stage, it is not only related to the performance of the service provider but also related to the evaluation of criteria such as contract price, qualitative characteristics of the procurement object and the qualifications of the procurement party obtained directly from the Minutes of the review and evaluation of the offer in the open tender, namely the criteria for the time of completion of the work and the time of providing quality assurance of services (Belokrylov & Runova, 2017). In the dynamic construction industry, the pre-construction stage is a key stage that determines the success of a project. At this stage, selecting the right service provider plays an important role in ensuring the smoothness and quality of the final project results. The performance assessment of service providers is not merely an administrative formality but a strategic tool that ensures that the selected party has the capacity, competence, and track record that match the project needs. Based on the literature, the performance criteria that can be assessed are quality, quantity, timeliness, cost-effectiveness, supervision needs, and interpersonal

influence (Ali, 2012). In this study, the service provider performance indicators will be used based on PMBOK 6th Edition, namely in the output section at the conduct procurement stage, which is a process to ensure that procurement runs according to plan and the signed contract benefits both parties. The output used is in the selected seller's section, where the selected vendors are service or goods providers who have passed the selection process in the tender based on the evaluation carried out. So, in this study, the author divides the service provider performance indicators into two indicators, namely, the quality of tender implementation and the quality of the contractors produced (Concha et al., 2012).

Project Implementation Control System at Pre-Construction Stage

At this time the Government has facilitated various systems and regulations that apply in the Pre-Construction stage. The pre-construction stage is an important phase that determines the success of the entire project. In the implementation of the current pre-construction stage in Indonesia, it has been well regulated by the Government through:

1) Presidential Regulation Number 12 of 2021 which is an amendment to Presidential Regulation Number 16 of 2018 concerning Government Procurement of Goods/Services.
2) Presidential Regulation Number 17 of 2019 concerning Government Procurement of Goods/Services for Welfare Development in the Provinces of Papua and West Papua.
3) LKPP Regulation is a derivative of Presidential Regulation Number 16 of 2018 in conjunction with Presidential Regulation Number 12 of 2021.
4) Circular Letter Number 18/SE/M/2021 concerning Operational Guidelines for Orderly Implementation of Selection Preparation for Procurement of Construction Services at the Ministry of Public Works and Public Housing.

Evaluation Process of LKPP No. 12 of 2021

The procurement of goods and services regulations are regulated through LKPP Regulation Number 12 of 2021, which then becomes the basis for guidelines for the Ministry of PUPR in making guidelines for the procurement of goods and services within the Ministry of PUPR, namely Circular Letter Number 18/SE/M/2021. Submission of Bidding Documents is used as a reference by the Selection Working Group to prepare the selection schedule and by participants to submit bidding documents. The evaluation stages in general in LKPP Regulation No. 12 of 2021 have a different structure to the evaluation activities carried out by Circular Letter No. 18/SE/M/2021, which states that in the LKPP evaluation process there are four evaluation activities, while in the Circular Letter, there are six evaluation activities, namely as follows.

Table 1
Differences in the bidding document evaluation process

Evaluation Process of LKPP Bidding Document Number 12 of 2021	Bidding Document Evaluation Process Circular Letter Number 18/SE/M/2021
Arithmetic Correction	Arithmetic Correction
Administration Evaluation	Conflict of interest and indications of collusion
Technical Evaluation	Administration
Price/Cost Evaluation	Qualification
	Technical
	Price

Pre-Construction stage problem indicators

In previous research, it was known that several evaluation indicators in the procurement process have an important role in the success of selecting service providers to maximize the expected project results following the performance of the service provider. The indicators that were grouped by researchers are divided into:

a) Administration and regulation
Administration and regulation have an important role because they can help reduce the risk of corruption and ensure regular interaction between procurement officials who are representatives of the government and carry out the procurement process (Belokrylov & Runova, 2017). At the tender preparation stage, thorough preparation in administration will have a very good impact on the procurement process until the end of the project cycle (Witjes & Lozano, 2016). In tender preparation, creating a detailed framework will produce service providers who meet the criteria, who will be responsible for the maintenance period and can reduce risks to reduce the impact of material waste.

b) Finance and price estimates
One of the crucial aspects of the pre-construction process is the preparation of an optimal contract price. The influence of cost estimates in contract prices includes several important aspects, one of which is that errors in contract price estimates can cause failure to maintain cost estimates within expected limits. This shows that accurate contract price estimates are very important in efficient project planning and execution (Salah & Moselhi, 2016).

c) Specifications, design, and changes
Design issues play a key role in project cost escalation and delays and demonstrate the importance of careful planning and design in construction projects (Salah & Moselhi, 2016). Not only design but also method is an important variable to be considered in the pre-construction stage. The importance of the method lies in its ability to identify risks more effectively and allocate risk ownership. Therefore, the pre-construction stage involving design planning and work methods is very important to ensure that all needs and expectations are well-defined, reduce risks, and ensure the success of the project (Rajeev, 2023).

d) Planning and scheduling
Planning and scheduling are critical in the procurement process because inaccurate time estimates in contracts can lead to scheduling failures and can have a significant impact on the success and efficiency of the project (Salah & Moselhi, 2016).

e) Quality resources and equipment
The influence of human resources in the pre-construction process is very significant because they play a key role in various aspects, from preparation and evaluation to decision-making (Dixit, 2022). This shows the importance of investing in human resource training and development in the context of public procurement to improve negotiation skills and, ultimately, procurement performance.

f) Organizations/stakeholders
Effective stakeholder management in the pre-construction process is essential to ensure smooth project progress and the achievement of project objectives (Mwagike & Changalima, 2022). *Stakeholders can* influence decisions regarding design, implementation methods, and risk management. Their early involvement can help identify and address potential risks, ensure that their needs and expectations are met, and increase transparency and mutual trust.

g) Supporting technology
Problems in the technological scope can affect the technique of both the owner and the service provider (Sa'adah, 2020). Service providers may be less responsive or difficult to communicate with due to unstable technology factors when communicating which can result in failure or suboptimal procurement processes. In terms of technology, it also presents other challenges, namely data security and lack of understanding among procurement officials and providers due to lack of training in the manual procurement process to technology-based procurement, which is currently being implemented in Indonesia, especially at the Ministry of Public Works and Public Housing.

h) Trust and transparency
Trust affects procurement because it is an important attribute for procurement negotiators. Trust is considered an important means to achieve successful negotiations and produce legally binding agreements. The level of trust given by the negotiating parties can influence the decisions made during the negotiation session (Mwagike & Changalima, 2022).

In this study, other indicators will be included, namely specifications, design and changes, as one of the research variables to determine the influence on the performance of service providers at the pre-construction stage. The importance of design and method in the pre-construction stage is primarily related to reducing proposal risk. If the scope of work, design requirements, and performance requirements are poorly described and contain vague

statements, this can result in proposal risk. By defining clear design specifications, including specific job qualifications, this indirectly provides a benchmark or specific aspect to be monitored in inspections and compliance testing of the work contract. This will improve the quality of work and lead to mutual satisfaction and trust.

2 Materials and Methods

Based on Presidential Regulation Number 12 of 2021, government procurement of goods/services is a series of activities carried out by Ministries, Institutions, or regional apparatuses using APBN/APBD funds. This process starts from identifying needs to handing over the results of the work. Meanwhile, according to the 2021 LKPP, the procurement of goods/services includes the stages of identifying needs to handing over the results of the work. The implementation process includes initial planning, selecting providers, implementing contracts, and handing over the final results. Before the procurement is carried out, an evaluation and analysis of needs are carried out to ensure the smooth running of the process according to the plan. Problems are still often found in the procurement process of goods and services. In the 10 years from 2011 to 2020, there was an increase in failed tenders where it was recorded that failed tenders in 2020 were 22% (Watch, 2021). The construction sector is one of the largest users of the State budget, but there are still many problems in terms of the Procurement of Goods and Services. Currently, there are still shortcomings in the implementation of the pre-construction stage, both shortcomings for service providers and the procurement team for goods and services. Procurement of goods and services has many factors that can influence the results of the procurement process of goods/services itself, namely transparency, market access, and efficiency in government procurement (Zahra et al., 2021).

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3 Results and Discussions

Current pre-construction stage project implementation control process

Based on the results of the analysis of the implementation of the pre-construction stage project, it is known that all the activities that are the variables of this research are following the five experts who conducted a survey using a questionnaire. However, there are evaluation activities that do not have a significant impact on the performance of service providers in the current government procurement of goods and services process. The evaluation activity was disqualified because of the five experts, three of whom stated that the activity did not have an impact on the performance of the service provider. Thus, if three experts do not agree that the activity has an impact on the performance of the service provider, then the activity is disqualified. The evaluation activities that were disqualified were:

Table 2
Disqualified Evaluation Activities

No	Evaluation Activities	Code	Pre-Construction Evaluation Activities Disqualified	Comment
1.	Arithmetic	X1.2	Unit Price Evaluation	P1: Unit prices are not evaluated at the arithmetic correction stage; what is evaluated is the result of multiplying the volume by the unit price of the work.
2.	Specifications, Design, and Changes	X7.2	Evaluation of Compliance with Indonesian National Standards (SNI)	P1: Currently not part of the evaluation. P4: not a technically evaluated substance
3.	Specifications, Design, and Changes	X7.3	Evaluation of Micro and Small Business Products and Cooperatives from Domestic Production Results	P1: Currently not part of the evaluation. P4: not a technically evaluated substance
4.	Specifications, Design, and Changes	X7.4	Environmentally Friendly Product Evaluation	P1: Currently not part of the evaluation. P4: not a technically evaluated substance

Factors that influence the project implementation control system at the pre-construction stage on the performance of service providers

The factors that influence the project implementation control system at the pre-construction stage on the performance of service providers are found to be: all research variables which are pre-construction evaluation activities are these factors. However, there are still some aspects of the evaluation that are considered less relevant in improving the performance of service providers. The results of this stage of the evaluation show that pre-construction evaluation plays an important role in determining the performance of service providers, but there is still room for improvement in aspects of quality standards, sustainability, and support for micro or small businesses. To improve the effectiveness of evaluation in the pre-construction stage, more attention is needed to more inclusive policies so that the government procurement process is more transparent and fairer and contributes to the development of the performance of the selected service providers. It can be seen in Table 3 where respondents think that these factors still have the potential to not affect the performance of the selected service providers.

Table 3
Pre-Construction evaluation activities that have potential for non-influence

Activity	Code	Expert Assessment Results				
		P1	P2	P3	P4	P5
Material Similarity Evaluation	X2.2	YES	YES	YES	NO	YES
Evaluation of Similarities/Errors in the Contents of Offer Documents	X2.9	YES	YES	NO	YES	YES
Evaluation of the Issuer of the Same Bid Guarantee and the Number is Consecutive	X2.10	YES	YES	YES	YES	NO
Evaluation of Price Bidding Documents	X3.3	YES	NO	YES	YES	YES
Evaluation of Issuers of Bid Guarantees Other Than Commercial Banks Must Have OJK Recommendations	X3.5	YES	YES	NO	YES	YES

Activity	Code	Expert Assessment Results				
		P1	P2	P3	P4	P5
Evaluation of Clarification From Publisher	X3.13	YES	YES	YES	NO	NO
Evaluation of Domestic Component Level (TKDN) Referring to the List of Domestically Produced Goods/Services Inventory	X7.1	YES	YES	YES	NO	YES
Evaluation of Technical Specifications/TOR is Clearly Defined and Does Not Direct to a Specific Product or Brand	X7.5	NO	YES	YES	YES	YES

Procurement process activities that affect service provider performance

In the results of this study, it is known that all evaluation activities that are variable X influence the performance of service providers by conducting internal and external correlation tests. The internal correlation test will use the Pearson method, while the external correlation will use the Kendall's Tau method. It can be seen that the results of the internal correlation test show that all evaluation activities that are variable X influence the performance of service providers where it can be seen that the results show positive results. Several independent variables influence other independent variables, such as X3 and X1, X4 and X3, X4 and X5, X6 and X1, and X7 and X3. These variables have a strong influence on each other because they have a correlation value between 0.60 and 0.799. The results of the internal correlation are seen in Table 4.

Table 4
Internal correlation test results

Correlations								
		X1	X2	X3	X4	X5	X6	X7
X1	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	40						
X2	Pearson Correlation	.347*	1					
	Sig. (2-tailed)	.028						
	N	40	40					
X3	Pearson Correlation	.665**	.572**	1				
	Sig. (2-tailed)	<.001	<.010					
	N	40	40	40				
X4	Pearson Correlation	.330	.467**	.654**	1			
	Sig. (2-tailed)	.054	.002	<.001				
	N	40	40	40	40			
X5	Pearson Correlation	.392*	.469**	.455**	.693**	1		
	Sig. (2-tailed)	.012	.002	.003	<.001			
	N	40	40	40	40	40		
X6	Pearson Correlation	.607**	.222	.528**	.409**	.464**	1	
	Sig. (2-tailed)	<.001	.168	<.001	.009	.003		
	N	40	40	40	40	40	40	
X7	Pearson Correlation	.478**	.501**	.600**	.558**	.561**	.375*	1
	Sig. (2-tailed)	.004	<.001	<.001	<.001	<.001	.017	
	N	40	40	40	40	40	40	40
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

In the external correlation test, the Kendall's Tau method will be used and the results of the external correlation test show positive results so that it is concluded that all research variables influence the performance of service providers. The results of the correlation test can be seen in Table 5.

Table 5
Correlation test results

Kendall's Tau Correlations								
		(X1) Arithmetic	(X2) Conflict of Interest and Indications of Collusion	(X3) Administration	(X4) Qualification	(X5) Technical	(X6) Price	(X7) Specifications, Design and Changes
Y Service Provider Performance	Correlation	.326*	.403*	.380*	.703**	.719**	.384*	.499**
	Sig. (2-tailed)	.040	.010	.015	<.001	<.001	.014	.001
	N	40	40	40	40	40	40	40
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

In the correlation test using Kendall's Tau, the following provisions need to be considered:
a. If $p < 0.05 \rightarrow$ Significant relationship, meaning there is a real correlation between the two variables.
b. If $p > 0.05 \rightarrow$ The relationship is not significant, meaning there is not a strong enough correlation.

Thus, in the external correlation study between variables X and Y, it can be concluded that variable X has a strong and significant relationship with Y due to the Sig. value ($p < 0.05$).

Model of the relationship between procurement process activities and service provider performance

In this study, multiple linear regression analysis will be applied to evaluate the relationship between one or more independent variables to the dependent variable using the stepwise method because it can automatically select the variables that have the most significant influence in the regression model. This study uses the results of previous studies conducted through questionnaires to 40 respondents. The results of the regression test can be seen in Table 6.

Table 6
Regression test results

Model Summaryc					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.719a	.517	.504	.28758	
2	.773b	.597	.576	.26591	2.008
a. Predictors: (Constant), Technical					
b. Predictors: (Constant), Technical, Qualification					
c. Dependent Variable: Service Provider Performance					

In the Adjusted R Square assessment, it is known that the first model has an Adjusted R Square = 0.504, while the second model increases to 0.576, indicating that the additional variable (Qualification) makes a significant contribution to increasing the accuracy of the model. In the error assessment, it is known that the second model has a smaller standard error value (0.26591) compared to the first model (0.28758), which shows that the prediction of the second model is more accurate than the first model. And in the Durbin-Watson value it is known that it has a Durbin-Watson value = 2.008, which is close to the number 2. In the Durbin-Watson test it is known that the value of 2.008 thus it is known that the DW value is greater than 2 and less than 3, and dU n = 40 k = 7 has a value of 1.9243 so that there is a result dU> DW> 4-dU namely 1.9243> 2.008> 2.0757, then it can be concluded that the data is not autocorrelated and shows that there are no serious problems in residual autocorrelation, so this model can be said to

be valid. The regression model is an analysis method to determine the relationship model in this study and shows that the Technical and Qualification variables affect the Performance of Service Providers. Furthermore, modeling will be carried out through the coefficient values generated through linear regression. The coefficient values are shown in table 7 below.

Table 7
Regression Coefficient of Influential Variables

Coefficientsa						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.297	.401		3.237	.003
	Technical	.358	.117	.445	3,072	.004
	Qualification	.321	.118	.395	2,729	.010
a. Dependent Variable: Service Provider Performance						

From the linear regression results, the modeling is as follows: Y **= 1.297+ 0.358X5 + 0.321X4**. After testing 40 respondents on 7 independent variables, the last stage is to model the relationship between the independent variables and the dependent variables. Where it is known that the performance of service providers has indicators, namely the quality of tender implementation (Y1) and the quality of the contractor produced (Y2), which are obtained based on PMBOK 6TH Edition. The results of the linear regression test show that the performance of service providers (Y) is influenced by two dominant aspects, as seen in Table 5, which are independent variables that have an influence, namely technical (X5) and qualitative (X4).

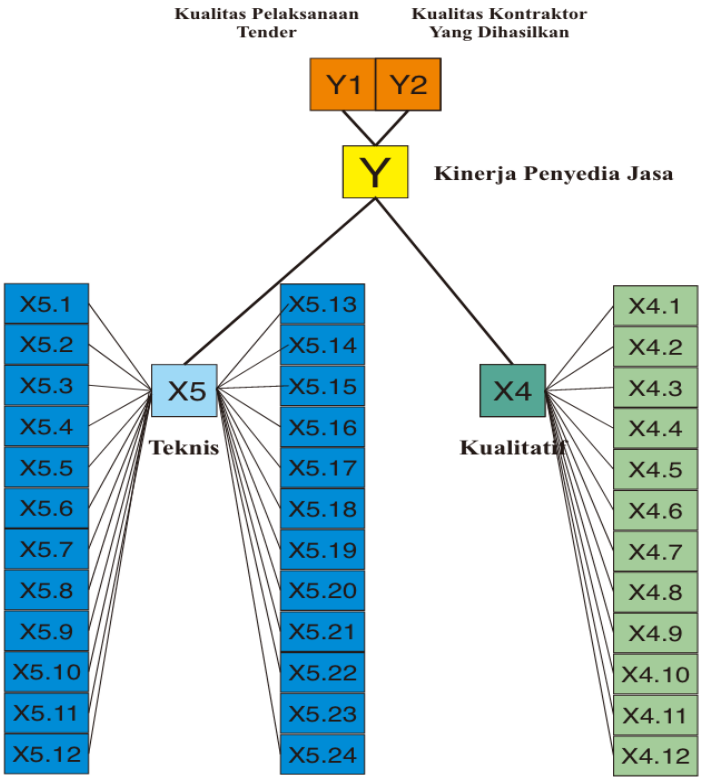

Figure 2. Technical Variable Model and Qualifications for Service Provider Performance Variables

Pre-Construction control process improvement strategy based on evaluation activities of service provider performance

Referring to the validation results of five experts who have backgrounds that match the criteria in this study, which were conducted using the expert judgment method by conducting an interview session via email, it was found that the improvement strategy in pre-construction control needs to be focused on improving technical aspects and strengthening the qualifications of service providers as well as on evaluating conflict of interest and indications of collusion. Improvement aims to increase the efficiency and effectiveness of project implementation, minimize potential construction risks, and ensure that work results follow established quality standards. This section will further describe the improvement strategies that can be applied to strengthen pre-construction control by considering these two main factors based on the results of the final stage of expert validation through expert statements.

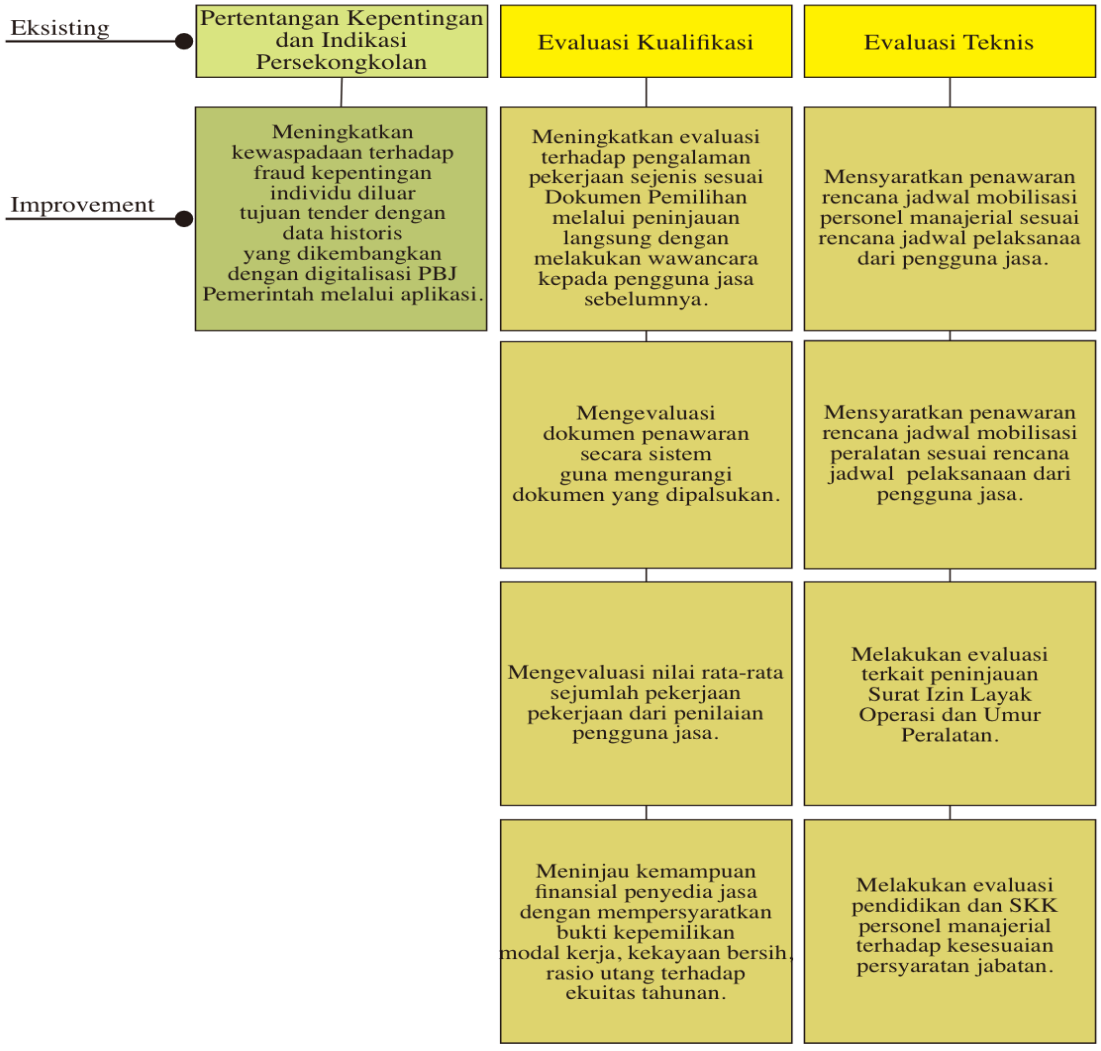

Figure 3. Pre-Construction control process improvement strategy based on evaluation activities of service provider performance

4 Conclusion

This study was conducted in the Ministry of Public Works and Public Housing. This study was conducted on the type of tender/auction with a single-file evaluation method for the kind of procurement of goods/services using the

lowest price evaluation method of the post-qualification knockout system on projects with a unit price system. This study answers that according to five experts who have experience in government procurement of goods and services, all research variables, namely evaluation activities in the pre-construction stage process, are a control system for implementing pre-construction stage projects. However, several activities do not affect the performance of service providers, namely X1.2, X7.2, X7.3, and X7.4. This study also aims to determine what evaluation activities have an influence factor on the performance of selected service providers in the pre-construction process. It was found that all evaluation activities obtained through previous research are factors that influence the performance of service providers, namely arithmetic, conflict of interest and indications of collusion, administration, qualifications, technical, price, specifications, design, and changes. In this study it has also been stated that the entire evaluation activity process has been well understood by the actors in the procurement of government goods and services. After analyzing 40 respondents on all research variables, it was found that pre-construction activities that influence the performance of service providers are all dependent variables, namely the quality of tender implementation (Y1), the quality of the contractor produced (Y2) and the independent variables, namely arithmetic (X1), conflict of interest and indications of collusion (X2), administration (X3), qualifications (X4), technical (X5), price (X6), and specifications, designs and changes (X7) along with the activities therein that have been produced in previous research.

In this study, it was also discovered that the modeling obtained through regression testing was **Y= 1.297+ 0.358X5 + 0.321X4.** It is known that the performance of service providers (Y) is influenced by two dominant aspects, which are independent variables, namely technical (X5) and qualitative (X4). Referring to the validation results of five experts who have backgrounds that match the criteria in this study, which were conducted using the expert judgment method by conducting interview sessions via electronic mail (email), it was found that the improvement strategy in pre-construction control needs to be focused on improving technical aspects and strengthening the qualifications of service providers as well as on evaluating activities for conflicts of interest and indications of collusion.

As a development, further research is recommended to: Increasing Evaluation Activities Considering that variables X5 and X6 have a significant influence on the performance of service providers, it is recommended to review additional evaluation activities outside of the activities currently being carried out so that they can help increase the effectiveness of service providers in carrying out their duties. Research on other evaluation methods at the pre-construction stage can be an addition to further research to expand alternatives in improving the accuracy and efficiency of assessment. Can increase the number of samples or use more complex analysis methods to determine the effectiveness of the assessment of service provider performance. Can examine other factors outside the evaluation activity that may contribute to the service provider's performance to provide a broader understanding of the external factors that influence the effectiveness of the service provider's work.

Conflict of interest statement

The authors declared that they have no competing interest.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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