Strategy for increasing tender success in Jakarta’s e-tender construction project

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Abstract. Electronic tender or e-tendering system in the procurement of goods and services in Indonesia from the perspective of the government is considered to be a tool to realize good governance and public services, because it will increase cost efficiency, effectiveness, faster cycle times, increase package transparency tendered work, provides better public monitoring, promotes fair competition and increases government accountability. However, in the implementation of e-tendering for construction projects, many tenders have failed. This research aims to identify the factors that cause tender failures and develop strategies to increase the success of e-tendering for construction projects in Jakarta. Identification of the factors causing the tender failure was obtained from a literature study and these factors were validated by experts. Questionnaires were distributed to project owners, tender committee, and contractors who have participated in e-tendering system for public construction projects in Jakarta. From the data obtained, statistical analysis using validity test, reliability test, comparative analysis and descriptive statistical analysis used to obtain factors that cause e-tender failures. Proposed strategies for increasing e-tender success for construction projects were obtained from literature studies and expert judgment.

1. Introduction

Jakarta provincial government budget is the largest of the other provincial governments in Indonesia. The largest budget of the Jakarta province compared to other provinces in Indonesia has led to the highest procurement of goods and services in the Jakarta Province compared to other provinces in Indonesia [1]. The realization of absorption of the Jakarta provincial government budget in the 2013-2018 period did not meet the set target of 90%. In 2015 the absorption of the budget was 66.18%, in 2016 it was 82.15%, in 2017 it was 82.56% and in 2018 it was 82.03%. Based on Governor Regulation No. 12 Year 2019 the target of absorption of the budget of Regional Apparatus Work Unit (SKPD) is 90%. The low absorption of the Jakarta provincial government budget in the last 4 years which is below 90% indicates there are some problems in the procurement of goods and services. one of the reasons is the number of failed tenders, especially in construction services tenders. In 2016 out of 208 construction service tenders, there were 30 tenders that failed. In 2017, out of 229 construction service tenders, there were 56 tenders that failed. In 2018 out of 473 construction service tenders there were 69 tenders that failed [2].
Contractor selection and evaluation plays an significant role and requires high attention, particularly for government-led public construction projects. Evaluation and selection of contractors is important and essential for the governmental agency responsible for the success of the construction process [3]. It is important to choose a competent contractor to deliver successful construction projects [4]. Public tenders also faced many issues such as unqualified candidates, counterfeiting of qualified documents or unreasonable tender costs [5]. Therefore, this study aims to identify the factors that cause tender failures in e-tendering for construction services and develop strategies to increase the success of tenders using e-tendering for construction services in the Provincial Government of Jakarta.

2. Literature review
In Indonesia the e-procurement system is also known as the Electronic Procurement Service (LPSE). LPSE is an electronic system provider of government goods/services procurement. LPSE itself operates an e-procurement system called the Electronic Procurement System (SPSE) developed by the Government Goods/Services Procurement Policy Agency (LKPP). The organizational unit that carry out the execution of procurement of goods and services in Indonesia consists of budget user (PA), budget user authorization (KPA), technical implementation officer (PPTK), commitment making officer (PPK) as government representative project manager, procurement services unit (UKPB), which includes procurement team (pokja pemilihan) or tender committee [6].

E-tendering is one of 10 types of e-procurement [7] which is an online procurement process, which starts from registering the provider or supplier, downloading the contract, submitting the bidding document, and conducting a tender evaluation [8]. E-tendering is an growing and evolving mechanism available to the construction industry's public and private sectors for the efficient procurement of goods and services [8]. From a supplier perspective, e-tenders can increase sales productivity, order accuracy, orders are quickly accepted, reduce time to receive payments, order status information in real time. the benefit of public e-tendering is to centralize data to improve auditing and analysis [9]. Electronic tenders eliminate direct human interaction at the supply stage and other service work stages, reducing corruption significantly, and improve internal efficiency in government agencies [10].

The implementation of e-tendering in Indonesia is divided into four types, consisting of e-tender and rapid e-tender for the selection of suppliers of goods/construction/other service work, e-selection and rapid e-selection for the selection of consultancy service providers [11]. There are several causes of tender failure such as there were no participants who submitted the qualification documents after the extension was given, there was an error in the evaluation process, no participant submitted the bid documents after giving the extension time, no participant passed the bid evaluation , there were errors found in the bidding document or not in accordance with the provisions of Presidential Regulation No. 16 Year 2018 and all bidding price are above the owner estimate (HPS) [6].

3. Methodology
The approach used for this study was literature review, experts judgement and distribution of questionnaires. The Likert scale measure was used to test the questionnaires and interpret the data respectively, while the strategy was drawn up from the study of literature and expert judgment.

3.1. Literature review
Review of the literature was undertaken to identify various issues that caused construction work tender failure in e-tender. Ten research papers were used in the tendering process to base 52 established issues.

3.2. Expert judgment
At this stage expert judgment is used to validate the research variables. The validation was carried out by 5 experts who had certificates of expertise in the public procurement for more than 10 years with professional experience of at least 10 years in the procurement of goods and services by Government. Feedback from the experts that the tender failure factors were reduced from 52 to 23.
3.3. Determination and distribution of the questionnaire
The aim of the questionnaire was to determine the frequency of the issue of e-tendering which make e-tender failed. The questionnaire placed closed questions. Questions of the questionnaire were based on the e-tendering issue that make tender failed which occurs during process e-tendering. The questionnaires were calculated using Likert scale evaluation. For the questionnaires a 5-point numerical scale was used to assess the respondent's understanding of the e-tendering issues frequency. They were classified as: very uncommon (1), uncommon (2), rarely (3), regularly (4) and very commonly (5). Questionnaires were distributed to all interested parties who involved in the e-tendering process, including PA, KPA, PPTK, PPK, Pokja UKPBJ and contractors located in Jakarta. From all questionnaires distributed to all stakeholders, 67 respondents filled out the questionnaire distributed consisting of 8 Service Users, 29 tender committee and 30 Contractors in various calcifications of age, gender, work experience in the field of goods and services procurement and certificate ownership.

4. Results and discussion
Statistical analysis used in this research are validity test, reliability test, comparative analysis, and descriptive statistics analysis. Statistical analysis is assisted by using statistical software. The data was inserted into the database, extracted from the questionnaires.

4.1. Validity and reliability test
Validity test is reviewed by comparing Corrected Item-Total Correlation with r table. R table at α 0.05 with free degrees df = (N-2), in this study the number of respondents N = 67 became df = 65. R (0.05; 65) in one-way test = 0.2404. The basis for making decisions if r arithmetic is positive and r arithmetic> r table, then the variable is valid and if r arithmetic is negative or r arithmetic < r table, then the variable is invalid. From the validity test results obtained by 1 invalid variable, which is X22 (bidders cannot login to SPSE). Reliability test is reviewed by comparing the value of r Alpha (Alpha Cronbach) with the value of r table. If the value of r is positive Alpha and> r table. From the results obtained all Cronbach's Alpha values> 0.60, it can be concluded that this research variable is reliable.

4.2. Comparative analysis
Comparative analysis with Kruskal-Wallis based on differences in work experience in the procurement of goods / services, shows all variables have Asymptotic Significant (2-tailed) which is greater than the level of significant (α) 0.05. So, the null hypothesis (Ho) is acceptable and Ha is rejected for all variables. The results of comparative analysis with Mann Whitney based on differences in stakeholders position, shows the results of all Asymptotic Significant (2-tailed) values on each variable greater than the level of significant (α) 0.05. So, the null hypothesis (Ho) is accepted and Ha is rejected for all variables. Then the results of comparative analysis with Mann Whitney based on differences in ownership of goods / services procurement certificates, shows the results of all Asymptotic Significant (2-tailed) values on each variable greater than the level of significant (α) 0.05. So, the null hypothesis (Ho) is accepted and Ha is rejected for all variables. Thus, it can be concluded that there are no differences in respondents' perceptions that are different based on work experience, stakeholders position and ownership of procurement certificates.

4.3. Descriptive statistics analysis
Descriptive statistical analysis aims to obtain the mean value of the overall assessment that has been given by the respondents of the variable in question.
Table 1. Most frequent issues that cause e-tender failure.

| No | Sub Indicator/issue factors                                                                 | Mean |
|----|--------------------------------------------------------------------------------------------|------|
| X7 | The bid document is incomplete [6], [12]                                                   | 2,97 |
| X2 | Complex prequalification requirements [14], [15]                                           | 2,88 |
|    | Qualification of ownership of quality, environmental, safety and occupational health management certificates (for high risk construction and / large business qualifications) is not appropriate [6], [13], [12] | 2,88 |
| X15| X15 Qualifications of project team personnel are inappropriate [6], [13]                   | 2,84 |
|    | Technical specifications are less than the requirements [6], [13], [12]                     | 2,81 |
| X9 | The qualifications of the main equipment for carrying out the work are not appropriate [6], [13], [12], [14] | 2,76 |
| X10| Managerial personnel qualifications for work performance are not appropriate [6], [13], [12] | 2,76 |
| X23| Lack of PPK knowledge regarding Government goods / services procurement [16]                | 2,75 |
| X20| The contractors are not ready with proof of qualification [12]                             | 2,70 |
| X19| Incomplete / unclear tender document. (drawings, contracts, and specifications) [14], [19] | 2,66 |
| X8 | The method of carrying out the work is not appropriate (does not explain completion of the work) [6], [13], [12] | 2,64 |

| No | Sub Indicator/issue factors                                                                 | Mean |
|----|--------------------------------------------------------------------------------------------|------|
| X17| Remaining real ability (SKN) does not meet requirements (for medium and large business qualifications) [6], [13] | 2,63 |
| X13| Basic ability scores (KD) do not meet (for medium and large business qualifications) [6], [13], [12] | 2,61 |
| X18| The amount of project overhead costs included in the bid costs [12]                          | 2,57 |
| X3 | Selection document error [12]                                                               | 2,54 |
| X11| Work Safety Plan (RKK) not submitted [6], [15], [12]                                       | 2,48 |
| X12| Remaining package ability (SKP) does not meet (for small business qualifications) [13], [12], [14] | 2,40 |
| X21| Extension of company administration documents has not been completed (Business Entity certificate (SBU), Construction Service Business Permit (IUJK), Certificate of Expertise (SKA) or Certificate of Skills (SKT)) [14] | 2,39 |
| X1 | Short project duration [15], [17], [18]                                                    | 2,31 |
| X6 | The bid letter did not in accordance with the selection documents [13], [12]                | 2,31 |
| X5 | Bid guarantee is not in accordance with the selection documents [13], [12]                 | 2,27 |
| X4 | The tender process is not in accordance with Presidential Regulations No.16-year 2018 [12]   | 2,09 |

From the above table, there are 22 variables which cause tender failure from the most frequent to the rarest.
4.4. Development of strategies to increase e-tender success

The proposed strategy was established from literature review and the proposed strategy was validated by experts who held certificates of competence in the procurement of goods and services for over 10 years and at least 10 years of practical experience in the procurement of government goods and services.

Table 2. Strategy for increasing tender success in e-tenders for construction services.

| No | Indicators | Recommendation Stages | Recommended Actions |
|----|------------|-----------------------|---------------------|
| 1  | Errors contained in the selection document or not in accordance with the provisions of the legislation related to the procurement of government goods/services and/or Ministerial Regulation with the issue factor the lack of PPK knowledge regarding Government goods/services procurement. | Determining procurement planning | PA assigns PPK to attend technical training that is more directed to the implementation of PPK tasks in the field, such as technical training on strategies for formulating HPS and technical Specifications [16] |
| 2  | After the extension of time, no participant submitted a qualification document with the issue factor the complexity of prequalification requirements. | Determining qualification evaluation method | Tender committee uses the prequalification Method only for complex projects [20] or construction tender package above 100 billion [21] |
| 3  | There was an error in the evaluation process with the issue factor there were error in the selection documents. | Determining procurement planning | Tender committee makes requirements for prequalification simplier [21] |
| 4  | All bids after correction are higher than HPS with the issue factor the incomplete/unclear of tender documents. (drawings, contracts and specification). | Determining a team experts Determining Drawings, technical specifications/Terms of Reference (KAK) Determining owner estimated | Tender committee requires prequalification requirements only to find out the contractor's current data, such as current workload, financial position and remaining resources [22] UKPBJ places inexperienced tender committee members with more experienced ones in a team [23] |
| 5  | All bids after correction are higher than HPS with the issue factor The amount of project overhead costs included in bid costs. | Determining procurement planning | PA/KPA assign technical assistants who work from technical offices [16] KPA conducts a final review between the design of the consultant planner with the applicable standards and regulations [24] |
| 6  | After the extension was granted, no participant submitted a qualification document with the issue factor the project duration is too short. | Determining and announcement of the General Procurement Plan (RUP) Information session (aanwijzing) | PPK calculate project overhead costs affected by the conditions and characteristics of the construction project being worked on, such as project location, project size, project quality, level of difficulty on site, project size, project complexity [25] PA/KPA schedules a tender process at the RUP at the beginning of the year because the contractor tends to be afraid of working on the end of the year project with little time related to legal issues that might be encountered if it cannot complete the work on time [26] |
| 7  | No offer passed the bid evaluation with the issue factor that the technical specifications was less than required. | Determining Drawings, technical specifications/Terms of Reference (KAK) | Tender committee confirms to bidders that the specifications used are those contained in the specifications/RKS books and drawings (not the specifications mentioned in BQ) [27] PPK maintains detailed drawings with work scope, detailed criteria and clear directions on what is to be submitted in the tender [28] |
| 8  | No offer passed the bid evaluation with the issue factor that the bid document is incomplete. | Tender announcement Registration and bidding documents obtaining | Contractors re-examine the completeness and requirements of each e-tender activity before registering [29] Contractors must read the requirements in the Selection document [21] |
| 9  | There are no bids that have passed the bid evaluation with the issue factor that the basic ability value (KD) does not meet the requirement (for medium and large business qualifications). | Registration and bidding documents obtaining Registration and bidding documents obtaining | Contractors register tenders according to the value of KD owned [30] Contractors must read all the requirements, based on the Minister of PUPR Regulation No. 7 of 2019 e-tenders with HPS values above 10 billion, must take into account the KD value [21] |
|   |   |
|---|---|
|Table 2. Cont. |   |
|10 | There are no bids that passed the bid evaluation with the issue factors that the personnel qualifications of the project team does not meet the requirement. |
|11 | No bids have passed the bid evaluation with the issue factor that the qualifying ownership of quality, environmental, safety and occupational health management certificates (for high risk construction and big business qualifications) not suitable. |
|12 | There are no bids that have passed the bid evaluation with the issue factors that managerial personnel qualifications for work performance are not appropriate. |
|13 | There are no bids that have passed the bid evaluation with the issue factors that the Remaining Real Capability (SKN) does not meet requirements (for medium and large business qualifications). |
|14 | There are no bids that passed the bid evaluation with the issue factors that the qualifications of the main equipment for the implementation of the work to be inappropriate. |
|15 | There are no bids that passed the bid evaluation with the issue factor that the Remaining Capability Package (SKP) not fulfilling (for small business qualifications). |
|16 | No bid passed the bid evaluation with the issue factor that the method of carrying out the work was not appropriate (did not explain completion of the work). |
|17 | There were no participants who submitted the bidding documents after there was an extension of time with the issue factor that the extension of the company's administrative documents had not been completed (SBU, IUJK, SKA/SKT). |
|18 | There are no bids that have passed the bid evaluation with the issue factor that the bidder did not submit the Work Safety Plan (RKK). |
|19 | There are no bids that have passed the bid evaluation with the issue factor that the bid guarantee is not in accordance with the selection documents. |

|   |   |
|---|---|
|   | Announcement of the General Procurement Plan (RUP) |
|10 | Contractors prepare at least 1 SKT for small businesses and 1 SKA for medium and large businesses [31] |
|11 | Contractors prepare construction safety system certification by completing Permits/Certification of operators and tools, completing construction safety system documentation, completing construction safety system procedures complete with evidence of records, conducting an construction safety system audit conducted by a certification body appointed by the Ministry of Manpower [32] |
|12 | Contractors must attach a certificate (SKT/SKA) at the time of verification and proof of Personnel certificate at the Pre-award Meeting [21] |
|13 | Contractors must meet the requirements of SKN with a value of at least 50% (fifty percent) of the HPS value, which is attached with the company's financial statements. For classification of large business, the financial statements must be audited [30] |
|14 | Tender committee evaluates only the equipment that supports the main work (major items), while the main equipment that comes from conditional leases and purchase leases is sufficient with a lease agreement and proof of ownership of the equipment owner. Tender committee can evaluate the proper operation permit, while for the ownership of equipment, location, brand and year of manufacture no evaluation is needed [30] |
|15 | Contractors prepare the equipment in accordance with the requirements such as number, type, size, condition, availability [33] |
|16 | Contractors submits work implementation method that can provide a clear picture of the steps to be taken in completing a project [35] |
|17 | The contractor must already know the validity period of his documents before registering [21] |
|18 | Contractors prepare work safety plans: a. Determine what work needs to be done b. Identify the risks that might occur, can with the help of a checklist, brainstorming, or adapting project planning that has passed c. Establish ways to control these risks [36] |
|19 | Tender committee provides the bidders with clear details on occupational health and safety details needed to identify the risks and hazards associated with construction work [28] |

|   |   |
|---|---|
|   | Contractors make a bid guarantee for tender packages above 10 billion, with a bid guarantee value of 1 to 3% of the HPS value and immediately makes a total value that must be made as a bid security [21] |
Table 2. Cont.

|   |   |   |   |
|---|---|---|---|
| 20 | There are no bids that have passed the bid evaluation with the issue factor that the Bid letter not in accordance with the selection documents. | Bid document submission | Contractors prepare an bid letter indicating the date of making the bid letter, must include the nominal value of the bid in numbers and letters, the validity period of the bid as specified in the tender document [38] |
|   |   | Bid evaluation | Tender committee should not reject the bidder because the bid letter was not signed by the authorized person [21] |
| 21 | There was an error in the evaluation process with the issue factor that the tender process was not in accordance with the Presidential Regulation No. 16 Year 2018 | Determining procurement planning | UKPBJ assigns tender committee to take part in training courses to improve procurement competencies through official institutions such as LKPP, the Ministry of Public Works and other competent institutions [23] |
| 22 | Prospective Winners and potential reserve winners are not present in the clarification and verification of qualifications with the issue factor that they did not ready with proof of qualifications they have. | Tender announcement | Contractors re-examine the completeness and requirements of each activity tendered before registering [29] |
|   |   | Announcement of tender winners | Tender committee invited back the potential winners and potential reserve winners to attend the clarification and verification of qualifications [21] |

5. Conclusion

This study aims at defining the factors that caused electronic tender failure in construction projects. The analysis results suggest that the Provincial Government of Jakarta has 22 factors that cause tender failure in e-tendering for construction projects. The stages that cause most of the failed tender occur at the stage of the bid evaluation where there is a major issue, mainly insufficient human resources, both in number and competence. Enhancing the efficiency of human resource delivery and enhancing the environment of the contractors is very critical in the bidding process. The need to be given training to employees of construction service providers, especially in the area of bid administration. To reduce tender failures in e-tendering for construction services caused by errors in the procurement planning stage, the PA should appoint PPK who has the educational qualifications and experience that are in line with the demands of the construction work, and governor's regulation needs to be made about a PPK's requirement to have a goods and services procurement certificate since so far there are so many PPKs that do not have the certificate.

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