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A Review of Factors Causing Contractor Failure in the Tender Process on Government Construction Projects

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Abstract

The implementation of e-tenders in the construction industry in the era of globalization faces several challenges in many countries, including Indonesia. Maluku Island, one of Indonesia's main islands, is experiencing growth in the construction sector. However, it faces challenges, especially in improving the quality of contractor companies in implementing tenders. This research attempts to examine the issue of tender failure more comprehensively. This study aims to identify and analyze the dominant factors that can affect contractor failure in the tender process. The research methodology includes a literature study developed through relative importance index analysis to determine the dominant factors. The results showed that 36 factors affected contractor failure in the tender process for government construction projects in Maluku province. Factors affecting contractor failure in tendering for government projects are divided into four main categories: administrative document evaluation with an RII value of 0.65, qualification with an RII value of 0.71, technical with an RII value of 0.73, and price with an RII value of 0.73. Technical and price evaluation are the most crucial factors. This research is expected to help contractors prepare better strategies in the tender process, especially in terms of technical and price documents.

Keywords: Bidding document, Contractor company, Contractor failure, Government project, Tender.

1. Introduction

Construction is one of the industries that plays an essential role in a country's structural development, especially for developing countries still under development, such as Indonesia [1], [2]. In the age of globalization and industrial revolution 4.0, the government is challenged to focus on massive infrastructure development [3]. At present, the government is concentrating on growth both inside and outside Java Island, including in Maluku Province, with the aim of equitable distribution of infrastructure throughout Indonesia [4]. According to McNamara and Sepasgozar [5], to support the development of infrastructure, it is necessary to support various parties, including the construction service industry. The construction service industry is responsible for procuring and maintaining the country's physical assets to achieve social and economic goals [6], [7]. This demand is increasingly essential in government projects subsidized by taxation and fiscal estimates [8].

Based on Fig. 1, the distribution of construction companies in Maluku Province as of 2023 is visible.

The qualifications of construction business entities are categorized into three groups: small, medium, and large. This categorization is regulated by Law Number 2 of 2017 concerning Construction Services, which was amended by Law Number 11 of 2020 concerning Job Creation Article 20 paragraph (1). The number of construction companies in Maluku Province contained in the sampling frame of the 2023 construction company survey is 1,631. This number increased by around 17.00 percent from 2022, reaching 1923 companies/businesses.

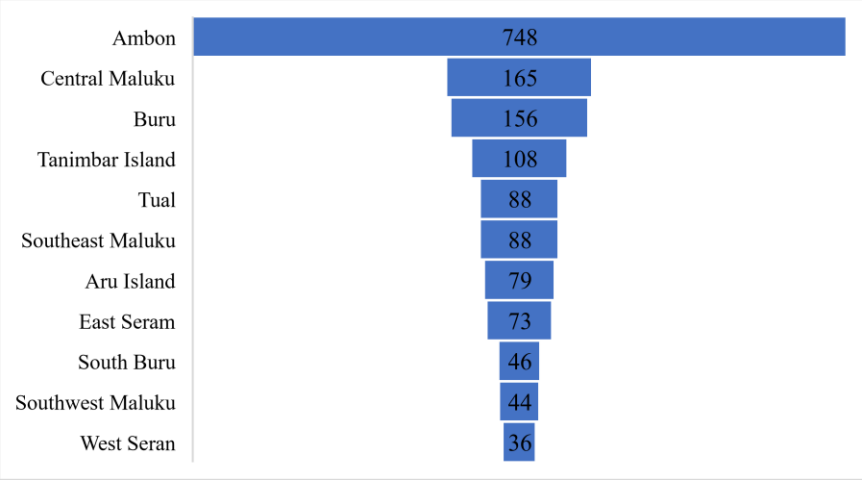

Figure 1. Construction companies' distribution in Maluku Province 2023

According to Presidential Regulation No. 16/2018 on Government Procurement of Goods/Services, the procurement of construction financed by the State is carried out through an E-procurement electronic tender process [9], [10]. A tender or auction is a process of bidding to determine and select the most suitable and feasible contractor or company to complete a work package [11]. Tender qualifications and requirements must fulfill various chapters, including the administrative, qualification, technical, and price evaluation stages. These stages were last amended by Presidential Regulation Number 12 of 2021 concerning Guidelines for Procurement Through Providers [12]. The stages of the selection process in the prequalification assessment of providers are carried out before the offer is submitted [13], [14]. At the same time, post-qualification is carried out together with the offer evaluation process. In principle, the qualification assessment of public auction participants' competence and business capability is carried out by post-qualification [15]. Complex work can be done by prequalification, especially [16].

There must be fair and equal competition between equal service providers. It is a series of activities that provide goods/services during the selection process [17], [18]. The core of the selection activity is bidding, where the participant who submits the best bid, fulfills the requirements, and can be accounted for, will be selected to work on the project [19]. According to applicable regulations, the procurement service unit working group selects the procurement tender winner by examining and evaluating the tender and qualification documents submitted by the bidders [20]. Errors in assessing bidding documents and company qualifications can lead to incorrect determinations of the auction's winner, resulting in poor quality goods/services produced [21]. Failure can be caused by various factors from related parties (stakeholders), from the government procurement service unit, budget users, and partners participating in the government procurement process [22]. The risk of failure experienced by contractors in the tender process must be responded to accurately, precisely, and efficiently [23]. Risks arising from the tender activity process, from the formation of the tender team to determining the potential winner, are sometimes unknown, or the contractor's response is not appropriate. This results in tender failure and can reduce the value and quality of tender handling [24].

Based on the facts described above, despite the increase in infrastructure development, the number of construction service providers has also increased significantly beyond the availability of existing projects. It results in fierce competition among construction service providers in tenders, with both winners and failures. Therefore, it is essential to research the factors that cause contractors to fail when participating in construction project tenders. By knowing the factors that cause failure and the probability of occurrence, contractors will become more vigilant and better prepared for all requirements. Thus, the contractor is expected to minimize the possibility of failing the Tender.

2. Methodology

2.1 Research Strategy

The research strategy begins with preparing the research questions. Several formulations describe how research questions are developed, which then become the basis for determining the research methods to be used, as stated in Table 1.

2.2 Data Collection

2.2.1 Data types

Primary data were obtained from the outcomes of questionnaires distributed to contractors who participated in government construction project tenders in Maluku Province. Questionnaires were distributed via Google Forms to obtain research data. Secondary data in this study include information from relevant journals, previous studies, and activity reports, such as literature reviews and statistical data for Maluku Province 2023.

2.2.2 Population and sample

The population element is the subject to be measured, the unit under study. This study's target population is contractor companies with small and medium qualifications based in Maluku Province. The number of contractor companies in

Maluku Province with minor qualifications is 1365, and the median number is 257. This study's samples were taken from 30 small and medium-sized qualification contractor companies located in Maluku Province. They participated in the tender process for government construction projects in Maluku Province.

Table 1. Research strategy

Question	Strategy	Expected Outcomes
What factors cause contractor failure in the tender process for construction projects in Maluku Province?	Data collection: • Literature study and previous research mapping • Survey questionnaire Data Analysis: • Using IBM SPSS Statistics 27 statistical application Validity test and reliability test	Factors causing contractor failure in the tender process for construction projects in Maluku Province
To what extent are the dominant factors causing contractor failure in the tender process for construction projects in Maluku Province?	Data Collection: • Question 1 outcomes Data Analysis: Advanced factor analysis using Relative Index Importance (RII)	Dominant factors causing contractor failure in the tender process for construction projects in Maluku Province

The sample size was taken as 30 because the Maluku province region consists of many islands. If you consider all areas, it will require a lot of time and money. Therefore, the research objectives can be achieved by selecting a representative sample of the region's characteristics in Maluku province, eliminating the need to take samples from all islands.

The requirements for selecting a sample are based on experience in participating in the tender process for at least 2 years in a position as a director, manager, HSE (Health, Safety, and Environment) specialist, or Site Engineer in a contractor company.

2.2.3 Literature study

In the first stage, a literature study and secondary data collection were conducted from relevant journals, previous studies, and activity reports related to the research. This literature study is carried out to discover the factors that cause contractor failure in the construction project tender process.

2.2.4 Respondent opinion

At this stage, opinions will be collected from respondents related to the factors causing contractor failure in the tender process for construction projects in Maluku Province. The questionnaire is prepared using a value measurement scale with a Likert scale of 1 to 5, with 1 (Very Rarely Fails), 2 (Rarely Fails), 3 (Neutral), 4 (Frequently Fails), 5 (Very Often Fails). This questionnaire will be distributed to contractors based on the minimum amount of data required for processing using the SPSS application. Furthermore, the results of the questionnaire data collection will be processed to identify the dominant factors causing contractor failure in the tender process for government construction projects in Maluku Province.

2.3 Data Analysis

2.3.1 Validity test

The validity test helps establish the suitability of the questionnaire used by the observer to measure and obtain research data from respondents. IBM SPSS Statistics 27 software assisted in conducting the validity test, which involved collecting data from 30 respondents, resulting in an r-table value of 0.361. The basis for taking the Pearson validity test is to contrast the r-count and r-table values.

- If the value of r-count > r-table = valid data
- If the value of r-count < r-table = invalid data

2.3.2 Reliability test

The reliability test aims to determine if the questionnaire is consistent when measurements are made repeatedly. The basis for taking the reliability test is that the questionnaire is considered reliable if the Cronbach Alpha value is greater than 0.6. In SPSS, there is no need to use a manual formula to calculate Cronbach's Alpha reliability because SPSS automatically performs this calculation based on the data entered.

2.3.3 Relative importance index

Data analysis was carried out using the Relative Importance Index (RII). The Relative Importance Index (RII) method is often used because of its simplicity and ease of application. RII allows quick processing of survey or assessment data, especially in rankings or ratings of essential factors. This method provides clear and measurable results with an index between 0 and 1, making it easy to interpret and helping decision-makers determine priorities. RII is also very flexible; it can be applied to various criteria and measurement scales. The RII in this study aims to rank each factor that affects the failure of contractors in the tender process. RII analysis is

particularly suitable for ordinal data, such as survey results or questionnaires that use Likert scales. Since we often work with ordinal data, RII provides a way to combine preferences of different levels of importance. The result is a number between 0 and 1, which is easy to interpret. The higher the RII, the more important the factor is. The formula for determining the ranking with the RII method can be seen in (1).

$$RII = \frac{5(n5) + 4(n4) + 3(n3) + 2(n2) + n1}{Wx(n5 + n4 + n3 + n2 + n1)} \quad (1)$$

Description:

RII = Relative Importance Index of each factor

n5 = Respondents who filled in scale 5

n4 = Respondents who filled out scale 4

n3 = Respondents who filled out scale 3

n2 = Respondents who filled out scale 2

n1 = Respondents who filled out scale 1

W = The most enormous Likert scale used.

3. Result and Discussion

3.1 Identification of Contractor Failure Factors

This section will discuss the outcomes of the research, beginning with the identification of variables related to the research data. It will also cover validity and reliability tests to determine the accuracy of an instrument in measurement and ensure that a measuring tool is used reliably and remains consistent if the measurement is repeated. The relative importance index test analyzes the dominant variables influencing contractor failure in the tender process.

The results of the literature study show that four variables and 36 sub-variables cause contractor failure in the tender process for government construction projects in Maluku Province. Based on Table 2, the variables for (X1) Administrative Bid Document Evaluation consist of 6 variables, (X2) Qualification Bid Document Evaluation consists of 13 variables, (X3) Technical Bid Document Evaluation consists of 12 variables, and (X4) Price Bid Document Evaluation consists of 5 variables. The above variables are then included in a research questionnaire distributed to respondents, specifically the construction service provider company.

3.2 Validity Test

The validity test helps assess the questionnaire used by researchers to collect data from respondents. In carrying out the validity test, IBM SPSS Statistics 27 software assisted with analyzing the data from 30 respondents. The basis for taking the Pearson validity test is to compare the r-count and r-table values. Based on the data in Table 3 of the Validity test above, it is known that all factors are declared valid because the r-count > r-table value and the significance value < 0.05.

Table 2. Factors causing contractor failure in the tender process for government construction projects in Maluku Province

Code	Variables/Sub-variables of Factors Causing Contractor Failure in the Tender Process	References
X1	EVALUATION OF ADMINISTRATIVE BIDDING DOCUMENTS	
X1.1	The implementation period offered exceeds the period stipulated in the election document.	[25]
X1.2	There is no date on the bid letter.	[26], [27]
X1.3	It does not provide bid price details (quantity and price list).	[28], [29], [30]
X1.4	The bid guarantee letter is not issued by a commercial bank, guarantee company, or insurance company that has a suretyship program as determined by the Minister of Finance.	[25], [29], [31], [32]
X1.5	The participant's name differs from the name stated in the bid guarantee letter.	[32], [33], [34], [35]
X1.6	The amount of the bid guarantee is less than the guarantee value stipulated in the selection document.	[29], [35], [36]
X2	EVALUATION OF QUALIFICATION BIDDING DOCUMENTS	
X2.1	It does not have a business identification number.	[37]
X2.2	It does not have/expire a business entity certificate.	[38], [39], [40]
X2.3	It does not have/attach the original taxpayer identification number.	[39], [40]
X2.4	It does not attach an identity card.	[41]
X2.5	There is no proof of the VAT report.	[29], [41]
X2.6	It does not attach/fulfill the deed of establishment.	[41], [42], [43]
X2.7	It does not attach/fulfill the deed of amendment (if there is a change).	[44]
X2.8	There is no statement about achieving good performance or excluding partners from the blocklist.	[45], [46], [47]
X2.9	There is no statement that the company is not under court supervision, not bankrupt, not having its activities terminated, or not undergoing criminal sanctions.	[31], [34], [48], [49], [50]
X2.10	It does not attach an integrity pact.	[28]
X2.11	There has been no construction work experience for at least the last four years, both in the government and private sectors, including subcontracting experience.	[32], [41], [45], [46], [51]
X2.12	It does not attach the remaining package capability.	[52]
X2.13	It does not attach the basic capability form.	[39], [40], [53]
X3	EVALUATION OF TECHNICAL BIDDING DOCUMENTS	

X3.1	It does not fulfill the proof of ownership for equipment with self-owned status or the evidence of lease purchase payment for equipment with lease purchase status, nor does it provide the proof of ownership/control of equipment from the hirer.	[38], [42], [46]
X3.2	They need to fulfill the history list and a list of work experience or work references from service users.	[49], [50], [51]
X3.3	It does not attach a construction safety plan.	[52]
X3.4	It does not attach the implementation method.	[36], [53]
X3.5	The schedule does not match the work method and implementation schedule.	[37], [39]
X3.6	Technical specifications are not included in the provisions of the selection document.	[41], [42], [46]
X3.7	The procurement documents do not include the type, capacity, composition, or number of equipment.	[51], [53]
X3.8	The personnel letter of intent is not attached and is not appropriate.	[54]
X3.9	There is no reference letter/contract supporting work experience.	[55], [56]
X3.10	Personnel requirements do not match the education level requirements.	[55], [56]
X3.11	The original personnel diplomas cannot be shown.	[43]
X3.12	There is no certificate of competence attached/fulfilled.	[57]
X4	EVALUATION OF PRICE BID DOCUMENTS	
X4.1	The bid price is not reasonable.	[46], [47]
X4.2	The bid price lacks competitiveness compared to other participants.	[44], [58]
X4.3	The total corrected bid price exceeds the total value and ceiling value.	[59]
X4.4	The unit price analysis does not show the unit requirements for labor, materials, and equipment.	[51], [56], [59]
X4.5	The unit price analysis does not show the unit requirements for labor, materials, and equipment.	[60]

Table 3. Validity test result

Code	R-count	R-table	Significance	Status
X1.1	0.728	0.361	0.01	Valid
X1.2	0.523	0.361	0.003	Valid
X1.3	0.566	0.361	0.01	Valid
X1.4	0.535	0.361	0.002	Valid
X1.5	0.678	0.361	0.001	Valid
X1.6	0.717	0.361	0.001	Valid
X2.1	0.887	0.361	0.001	Valid
X2.2	0.692	0.361	0.001	Valid
X2.3	0.854	0.361	0.001	Valid
X2.4	0.846	0.361	0.001	Valid
X2.5	0.887	0.361	0.001	Valid
X2.6	0.797	0.361	0.001	Valid
X2.7	0.892	0.361	0.001	Valid
X2.8	0.87	0.361	0.001	Valid
X2.9	0.813	0.361	0.001	Valid
X2.10	0.853	0.361	0.001	Valid
X2.11	0.843	0.361	0.001	Valid
X2.12	0.833	0.361	0.001	Valid
X2.13	0.891	0.361	0.001	Valid
X3.1	0.859	0.361	0.001	Valid
X3.2	0.856	0.361	0.001	Valid
X3.3	0.779	0.361	0.001	Valid
X3.4	0.796	0.361	0.001	Valid
X3.5	0.719	0.361	0.001	Valid
X3.6	0.762	0.361	0.001	Valid
X3.7	0.725	0.361	0.001	Valid
X3.8	0.492	0.361	0.006	Valid
X3.9	0.774	0.361	0.001	Valid
X3.10	0.86	0.361	0.001	Valid
X3.11	0.88	0.361	0.001	Valid
X3.12	0.843	0.361	0.001	Valid
X4.1	0.657	0.361	0.001	Valid
X4.2	0.545	0.361	0.002	Valid
X4.3	0.802	0.361	0.001	Valid
X4.4	0.778	0.361	0.001	Valid
X4.5	0.710	0.361	0.001	Valid

3.3 Reliability Test

The reliability test aims to determine if the questionnaire is consistent when measurements are made repeatedly. The questionnaire is considered reliable if the Cronbach's Alpha value is greater than 0.6. Based on the data in Table 4, it can be seen that all variables have a Cronbach alpha value of 0.979-0.980, indicating that these variables are reliable in this study because the value is greater than 0.6.

Table 4. Reliability test result

Code	Cronbach Alpha
X1.1	0.979
X1.2	0.980
X1.3	0.980
X1.4	0.980
X1.5	0.980
X1.6	0.979
X2.1	0.979
X2.2	0.979
X2.3	0.979
X2.4	0.979
X2.5	0.979
X2.6	0.979
X2.7	0.979
X2.8	0.979
X2.9	0.979
X2.10	0.979
X2.11	0.979
X2.12	0.979
X2.13	0.979
X3.1	0.979
X3.2	0.979
X3.3	0.979
X3.4	0.979
X3.5	0.979
X3.6	0.979

X3.7	0.979
X3.8	0.980
X3.9	0.979
X3.10	0.979
X3.11	0.979
X3.12	0.979
X4.1	0.980
X4.2	0.980
X4.3	0.979
X4.4	0.979
X4.5	0.979

3.4 Relative Importance Index Analysis

RII is a relatively simple method in which calculations are made based on the responses or preferences of a group of respondents to a particular factor. The result is a number between 0 and 1, which is easy to interpret. The higher the RII, the more important the factor is. RII analysis is very suitable for ordinal data, such as survey results or Likert scale questionnaires. Since we often work with ordinal data, RII provides a way to combine preferences of different levels of importance. In this study, one example of calculating the RII value is based on the results of the questionnaire on variable (X1.1). The period of implementation offered exceeds the period stipulated in the election document, as shown in (2).

$$RII = \frac{5(n5) + 4(n4) + 3(n3) + 2(n2) + n1}{Wx(n5 + n4 + n3 + n2 + n1)} \quad (2)$$

$$RII = \frac{5(1) + 4(8) + 3(6) + 2(8) + 7}{5x(1 + 8 + 6 + 8 + 7)}$$

$$RII = 0.52$$

This research is based on four main factors, with the RII analysis presented in Table 5.

Table 5. Relative importance index analysis

Code	Rank	RII
Price bid document evaluation	1	0.73
Technical bid document evaluation	1	0.73
Qualification bid document evaluation	2	0.71
Administrative bid document evaluation	3	0.65

Explicitly, the results of the analysis can be seen in Table 6 below.

Table 6. Relative importance index analysis

Code	Rank	RII
X3.1	1	0.73
X4.2	1	0.73
X3.7	2	0.72
X2.1	3	0.71
X3.10	3	0.71
X2.3	4	0.7
X2.5	4	0.7
X3.12	4	0.7
X3.2	5	0.69
X3.8	5	0.69
X3.9	5	0.69
X2.6	6	0.67
X3.11	6	0.67
X2.11	7	0.66
X1.5	8	0.65
X2.8	8	0.65
X3.3	8	0.65
X3.6	8	0.65
X4.3	8	0.65
X2.10	9	0.64
X2.13	9	0.64
X4.1	9	0.64
X2.4	10	0.63
X2.12	10	0.63
X3.4	10	0.63
X2.7	11	0.62
X2.9	12	0.61
X3.5	12	0.61
X1.3	13	0.59
X1.4	13	0.59
X4.4	13	0.59
X4.5	13	0.59
X1.6	14	0.58
X2.2	14	0.58
X1.1	15	0.52
X1.2	16	0.49

Based on the results of Table 5, it is evident that the most dominant factor causing contractor failure in the tender process for government construction projects in Maluku Province is factors (X3.1) and (X4.2), which rank first and have the highest Relative Importance Index (RII) value of 0.73. The second rank is occupied by factor (X3.7) with an RII value of 0.72, while factors occupy the third rank (X2.1) and (X3.10), each of which has an RII value of 0.71. In the fourth rank, there are factors (X2.3), (X2.5), and (X3.12) with an RII value of 0.70. The fifth rank is filled by factors (X3.2), (X3.8), and (X3.9) with an RII value of 0.69. The sixth rank is occupied by factors (X2.6) and (X3.11) with an RII value of 0.67, while the seventh rank is filled by a factor (X2.11) with an RII value of 0.66.

The eighth rank includes factors (X1.5), (X2.8), (X3.3), (X3.6), and (X4.3), which have an RII value of 0.65. In ninth place are factors (X2.10), (X2.13), and (X4.1), with an RII value of 0.64. Factors (X2.12) and (X3.4) are ranked tenth with an RII value of 0.63, and factor (X2.7) is ranked eleventh with the same RII value of 0.63. The twelfth factors are (X2.9) and (X3.5), with an RII value of 0.61. The thirteenth rank is occupied by factors (X1.3), (X1.4), (X4.4), and (X4.5), with an RII value of 0.59. In the fourteenth rank, there are factors (X1.6) and (X2.2) with an RII value of 0.58. Finally, the fifteenth rank is filled by a factor (X1.1) with an RII value of 0.52, and the sixteenth rank is occupied by a factor (X1.2) with an RII value of 0.49.

4. Conclusions

Based on the results of processing the validity and reliability test data, 36 factors influencing contractors' failures in the tender process of government construction projects in Maluku

province are identified. These factors are divided into four main categories: administrative, qualification, technical, and price bid document evaluation.

Based on the results of the Relative Importance Index (RII) analysis, it is known that the most dominant factor influencing contractor failure in the tender process for government construction projects in Maluku province with the highest Relative Importance Index (RII) value is: Factor (X3.1) Not fulfilling proof of equipment ownership for equipment with self-owned status or proof of lease purchase payment for equipment with lease purchase status along with proof of ownership/control of equipment from the hirer with a RII value of 0.73 and Factor (X4.2) Bid Price is less competitive with other participants with a RII value of 0.73.

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Conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

Author Contribution Statement

Rusdi Usman Latief, Ismira Justy Ohorella, and Rosmariani Arifuddin proposed the research problem.

All authors developed the theory and performed the computations.

Ismira Justy Ohorella and Muh Rifan Fadlillah verified the analytical methods and supervised the investigation of the findings of this work.

All authors discussed the results and contributed to the final manuscript.

References

[1] M. Andersson, T. Axelsson, and A. Palacio, "Resilience to economic shrinking in an emerging economy: the role of social capabilities in Indonesia, 1950–2015," *Journal of Institutional Economics*, vol. 17, no. 3, pp. 509-526, 2021. https://doi.org/10.1017/S1744137420000624

[2] A. T. Nugraha, G. Prayitno, M. E. Situmorang, and A. Nasution, "The Role of Infrastructure in Economic Growth and Income Inequality in Indonesia," *Economics & Sociology*, vol. 13, no. 1, pp. 102-115, 2020. https://doi.org/10.14254/2071-789X.2020/13-1/7

[3] W. S. Alaloul, M. S. Liew, N. A. W. A. Zawawi, and I. B. Kennedy, "Industrial Revolution 4.0 in the construction industry: Challenges and opportunities for stakeholders," *Ain Shams Engineering Journal*, vol. 11, no. 1, pp. 225-230, 2020. https://doi.org/10.1016/j.asej.2019.08.010

[4] M. Li, J. Liu, Y. Chen, and Z. Yang, "Can sustainable development strategy reduce income inequality in resource-based regions? A natural resource dependence perspective," *Resources Policy*, vol. 81, 2023. https://doi.org/10.1016/j.resourpol.2023.103330

[5] A. J. McNamara and S. M. Sepasgozar, "Intelligent contract adoption in the construction industry: Concept development," *Automation in Construction*, vol. 122, 2021. https://doi.org/10.1016/j.autcon.2020.103452

[6] R. Assaad and I. H. El-Adaway, "Enhancing the knowledge of construction business failure: A social network analysis approach," *Journal of Construction Engineering and Management*, vol. 146, no. 6, 2020. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001831

[7] K. M. Eja and M. Ramegowda, "Government project failure in developing countries: a review with particular reference to Nigeria," *Global Journal of Social Sciences*, vol. 19, pp. 35-47, 2020. https://doi.org/10.4314/gjss.v19i1.4

[8] B. A. Albassam, "A model for assessing the efficiency of government expenditure," *Cogent Economics & Finance*, vol. 8, no. 1, 2020. https://doi.org/10.1080/23322039.2020.1823065

[9] B. De-Cazalet and I. Zapatrina, "E-Procurement for PPPs and Concessions: Current Trends and Opportunities," *Eur. Procurement & Pub. Private Partnership L. Rev.*, vol. 16, 2021. https://doi.org/10.21552/epppl/2021/2/7

[10] E. O. Ibem, E. B. Aduwo, A. O. Afolabi, A. O. Oluwunmi, P. F. Tunji-Olayeni, E. A. Ayo-Vaughan, and U. O. Uwakonye, "Electronic (e-) procurement adoption and users' experience in the Nigerian construction sector," *International Journal of Construction Education and Research*, vol. 17, no. 3, pp. 258-276, 2021. https://doi.org/10.1080/15578771.2020.1730527

[11] S. Ramalingam, "Subcontractor selection process through vendor bids: a case of an outsourcing service in construction," *IIM Kozhikode Society & Management Review*, vol. 9, no. 2, pp. 129-142, 2020. https://doi.org/10.1177/2277975220942078

[12] I. Ahmaddien, "Juridicial Review of Government Procurement of Goods and Services Based on Presidential Regulation 12 2021 In Conjunction with Presidential Regulation 16 2018," Review of Multidisciplinary Education, Culture and Pedagogy, vol. 1, no. 1, pp. 11-22, 2021. https://doi.org/10.55047/romeo.v1i1.41

[13] A. Olanrewaju, M. Z. X. Bong, and C. Preece, "Establishment of prequalification criteria for the selection of subcontractors by the prime constructors for building projects," *Journal of Building Engineering*, vol. 45, 2022. https://doi.org/10.1016/j.jobe.2021.103644

[14] E. C. Chinedu, N. E. Ifeanyichukwu, O. Godson, and A. M. Suleiman, "Contractors Prequalification Guideline Used in Contractor Selection for Public Building Project in Southeast Nigeria: A Case Study of Imo State, Nigeria," *International Journal of Innovative Research and Development*, vol. 10, no. 8, 2021. https://doi.org/10.24940/ijird/2021/v10/i8/AUG21009

[15] K. D. E. Gabiana, M. A. N. Polinar, and G. C. H. Baquero, "The Bidding Process of The Cebu Provincial Government: A Case Study," International *Journal of Multidisciplinary: Applied Business and Education Research*, vol. 4, no. 5, pp. 1456-1466, 2023. https://doi.org/10.11594/ijmaber.04.05.07

[16] A. S. Almohassen, M. Alfozan, O. S. Alshamrani, and M. E. Shaawat, "Evaluating construction contractors in the pre-tendering stage through an integrated-based model," *Alexandria Engineering Journal*, vol. 82, pp. 437-445, 2023. https://doi.org/10.1016/j.aej.2023.09.069

[17] S. U. W. Prakasa, A. Hariri, H. S. Haq, A. R. Arafah, and M. M. Sahid, "Public Procurement Nexus Social for Mitigate the Corruption: Lesson from Indonesia," *Lex Scientia Law Review*, vol. 7, no. 2, pp. 413-448, 2023. https://doi.org/10.15294/lesrev.v7i2.72630

[18] M. S. Mufidi and S. Sukaris, "Analysis of Service Quality in Supporting the Effectiveness of Goods and Services Procurement," *Journal Universitas Muhammadiyah Gresik Engineering, Social Science, and Health International Conference*, vol. 2, no. 1, pp. 25-31, 2023. http://dx.doi.org/10.30587/umgeshic.v2i1.5139

[19] A. Faraji, M. Rashidi, N. A. Eftekhari, S. Perera, and S. Mani, "A bid/mark-up decision support model in contractor's tender strategy development phase based on project complexity measurement in the downstream sector of petroleum industry," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 1, 2022. https://doi.org/10.3390/joitmc8010033

[20]K. R. Awalludin and I. N. D. P. Putra, "Analysis of Factors in Tenders for Procurement of Construction Goods/Services Using the E-Catalogue System," *Journal of Civil Engineering and Planning (JCEP)*, vol. 5, no. 1, pp. 57-70, 2024. https://doi.org/10.37253/jcep.v5i1.9286

[21]M. Gunasegaran, R. Basiruddin, and A. M. Rizal, "Detecting and Preventing Fraud in e-procurement of Public Sector: A Review, Synthesis and Opportunities for Future Research," *International Journal of Academic Research in Business and Social Sciences*, vol. 13, no. 1, pp. 1444-1463, 2023. http://dx.doi.org/10.6007/IJARBSS/v13-i1/15970

[22]S. Manyathi, A. P. Burger, N. L. Moritmer, "Public sector procurement: A private sector procurement perspective for improved service delivery," *Africa's Public Service Delivery & Performance Review*, vol. 9, no. 1, 2021. https://doi.org/10.4102/apsdpr.v9i1.521

[23]J. B. H. Yap, B. L. Lim, M. Skitmore, and J. Gray, "Criticality of project knowledge and experience in the delivery of construction projects," *Journal of Engineering, Design and Technology*, vol. 20, no. 3, pp. 800-822, 2022. https://doi.org/10.1108/JEDT-10-2020-0413

[24]F. Rahmani, M. Khalfan, and T. Maqsood, "A conceptual model for selecting early contractor involvement (ECI) for a project," *Buildings*, vol. 12, no. 6, 2022. https://doi.org/10.3390/buildings12060786

[25]C. E. Obodo, Z. Xie, B. B. Cobbinah, and K. D. Y. Yari, "Evaluating the factors affecting contractors tender for project construction: an empirical study of small scale indigenous contractors in Awka, Nigeria," *Open Journal of Social Sciences*, vol. 9, no. 7, pp. 381-397, 2021. https://doi.org/10.4236/jss.2021.97028

[26]L. Simon, M. Jefferies, P. Davis, and M. T. Newaz, "Developing a theoretical success factor framework for the tendering phase of social infrastructure PPPs," *International Journal of Construction Management*, vol. 20, no. 6, pp. 613-627, 2020. https://doi.org/10.1080/15623599.2020.1720343

[27]Y. K. Tsang, S. Abdelmageed, and T. Zayed, "Development of a contractor failure prediction model using analytic network process," *Journal of Architectural Engineering*, vol. 27, no. 2, 2021. https://doi.org/10.1061/(ASCE)AE.1943-5568.0000462

[28]A. O. Muhammed, A. A. Muhammed, H. A. Yakubu, A. Suleiman, and A. Adam, "Assessment of factors affecting contractors tendering success for construction projects in North-Central Nigeria," *International Journal of Real Estate Studies*, vol. 16, no. 1, pp. 87-99, 2022. https://doi.org/10.11113/intrest.v16n1.155

[29]N. Alahmadi and M. Alghaseb, "Challenging tendering-phase factors in public construction projects—a Delphi study in Saudi Arabia," *Buildings*, vol. 12, no. 7, 2022. https://doi.org/10.3390/buildings12070924

[30]J. Ellis, D. J. Edwards, W. D. Thwala, O. Ejohwomu, E. E. Ameyaw, and M. Shelbourn, "A case study of a negotiated tender within a small-to-medium construction contractor: modelling project cost variance," *Buildings*, vol. 11, no. 6, 2021. https://doi.org/10.3390/buildings11060260

[31]C. Riveros, A. L. Ruiz, H. A. Mesa, and J. A. Guevara, "Critical Factors Influencing Early Contract Termination in Public Design–Build Projects in Developing and Emerging Economies," *Buildings*, vol. 12, no. 5, 2022. https://doi.org/10.3390/buildings12050614

[32]A. Farrell and R. Y. Sunindijo, "Overcoming challenges of early contractor involvement in local government projects," *International Journal of Construction Management*, vol. 22, no. 10, pp. 1902-1909, 2022. https://doi.org/10.1080/15623599.2020.1744216

[33]B. Gadisa and H. Zhou, "Exploring influential factors leading to the poor performance of public construction project in Ethiopia using structural equation modelling," *Engineering, Construction and Architectural Management*, vol. 28, no. 6, pp. 1683-1712, 2021. https://doi.org/10.1108/ECAM-12-2019-0689

[34]A. M. El-Kholy and A. Y. Akal, "Determining the stationary financial cause of contracting firms failure," *International Journal of Construction Management*, vol. 21, no. 8, pp. 818-833, 2021. https://doi.org/10.1080/15623599.2019.1584836

[35]Y. Gamil and I. Abdul-Rahman "Assessment of critical factors contributing to construction failure in Yemen," *International Journal of Construction Management*, vol. 20, no. 5, pp. 429-436, 2020. http://dx.doi.org/10.1080/15623599.2018.1484866

[36]R. J. Hamad, B. A. Tayeh, and H. A. Al Aisri, "Critical factors affecting the success of construction projects in Oman," *Journal of Sustainable Architecture and Civil Engineering*, vol. 29, no. 2, pp. 121-138, 2021. https://doi.org/10.5755/j01.sace.29.2.29269

[37]M. O. Ahmed and I. H. El-adaway, "Data-driven analysis of construction bidding stage–related causes of disputes," *Journal of Management in Engineering*, vol. 39, no. 5, 2023. https://doi.org/10.1061/JMENEA.MEENG-5426

[38]R. de Faria Silva, A. Souza, F. Kaczam, L. L. Dalazen, W. V. da Silva, and C. P. da Veiga, "Public-private partnerships and value for money," *Public Works Management & Policy*, vol. 27, no. 4, pp. 347-370, 2022. https://doi.org/10.1177/1087724X221108149

[39]V. T. Nguyen, S. T. Do, N. M. Vo, T. A. Nguyen, and S. V. Pham, "An Analysis of Construction Failure Factors to Stakeholder Coordinating Performance in the Finishing Phase of High-Rise Building Projects," *Advances in Civil Engineering*, vol. 2020, no. 1, 2020. https://doi.org/10.1155/2020/6633958

[40]O. S. D. Alshamrani, M. Saleem, I. K. AlYousif, and A. Alluqmani, "Development of a prequalification and selection framework for construction projects' contractors in Saudi Arabia," *Journal of Asian Architecture and Building Engineering*, vol. 22, no. 3, pp. 1545-1563, 2023. https://doi.org/10.1080/13467581.2022.2087657

[41]A. Vilkonis, J. Antucheviciene, and V. Kutut, "Construction contracts quality assessment from the point of view of contractor and customer," *Buildings*, vol. 13, no. 5, 2023. https://doi.org/10.3390/buildings13051154

[42]I. S. Zaqout, M. S. Islam, L. A. Hadidi, and M. Skitmore, "Modeling bidding decisions and bid markup size for construction projects: A fuzzy approach," *Engineering Applications of Artificial Intelligence*, vol. 113, 2022. https://doi.org/10.1016/j.engappai.2022.104982

[43]Y. Zhang, B. L. Oo, and B. T. H. Lim, "Factors affecting contractors' bid or no-bid and mark-up decisions: A case of the Jilin province, China," *Construction Innovation*, vol. 23, no. 5, pp. 1232-1254, 2023. https://doi.org/10.1108/CI-10-2021-0188

[44]M. Okifitriana and Y. Latief, "Development of Quality Management System for Construction Services Procurement to Improve the Quality of Contractor Performance in Universitas Indonesia," Journal of Physics: Conference Series, vol. 1858, no. 1, 2021. https://doi.org/10.1088/1742-6596/1858/1/012083

[45]T. K. I. Adham, "Investigating the Causes of Contractor-Related Delays in Construction Projects and Mitigation Proposal," *International Journal of Progressive Sciences and Technology*, vol. 37, pp. 646-670, 2023. http://dx.doi.org/10.52155/ijpsat.v37.1.5104

[46]S. M. Mohamad-Azmi and S. Ismail, "Weaknesses of Malaysian public procurement: a review of auditor general's reports," *Journal of Financial Reporting and Accounting*, vol. 21, no. 5, pp. 999-1020, 2023. https://doi.org/10.1108/JFRA-05-2021-0132

[47]S. Urquhart and A. Whyte, "Implications of governance obligations being embedded within construction contractors' tendering procedures," *Australian Journal of Civil Engineering*, vol. 18, no. 1, pp. 93-105, 2020. https://doi.org/10.1080/14488353.2020.1735026

[48]S. A. Hamza, S. Rasheed, and A. Hussein, "Procurement challenges analysis of Iraqi construction projects, *Journal of the Mechanical Behavior of Materials*, vol. 31, no. 1, pp. 112-117, 2022. https://doi.org/10.1515/jmbm-2022-0012

[49]N. Chileshe, N. Kavishe, and D. J. Edwards, "Critical factors influencing the bid or no-bid decision of the indigenous small building contractors in Tanzania," *Construction Innovation*, vol. 21, no. 2, pp. 182-202, 2021. https://doi.org/10.1108/CI-09-2019-0098

[50]V. K. Acheamfour, E. Kissi, T. Adjei-Kumi, and E. Adinyira, "Review of empirical arguments on contractor prequalification criteria," *Journal*

of Engineering, Design and Technology, vol. 18, no. 1, 70-83, 2020. https://doi.org/10.1108/JEDT-03-2019-0067

[51]K. Mukilan, C. Rameshbabu, and P. Velumani, "A modified particle swarm optimization for risk assessment and claim management in engineering procurement construction projects," *Materials Today: Proceedings*, vol. 42, pp. 786-794, 2021. https://doi.org/10.1016/j.matpr.2020.11.315

[52]A. R. Khoso, M. A. Yusof, M. A. Leghari, F. Siddiqui, and S. Sohu, "Public tendering practices, issues and directions-A case of Pakistan construction sector," *Pertanika Journal of Science and Technology*, vol. 29, no. 1, pp. 123-147, 2021. http://dx.doi.org/10.47836/pjst.29.1.07

[53]G. Li, G. Zhang, C. Chen, and I. Martek, "Empirical bid or no bid decision process in international construction projects: Structural equation modeling framework," *Journal of Construction Engineering and Management*, vol. 146, no. 6, 2020. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001830

[54]B. Liu and M. A. Lim, "Provincial government and institution level strategy setting: the case of building Chinese 'world-class universities'," *Policy Reviews in Higher Education*, vol. 8, no. 1, pp. 29-55, 2024. https://doi.org/10.1080/23322969.2024.2335613

[55]M. A. Rehman and M. S. B. Ishak, "Moderation role of government policies, laws, and Acts between cultural factors and risk management among Saudi Arabian contractors," *FWU Journal of Social Sciences*, vol. 16, no. 1, 2022. http://doi.org/10.51709/19951272/Spring2022/5

[56]T. O. Malvik, P. Wondimu, B. T. Kalsaas, and A. Johansen, "Various approaches to early contractor involvement in relational contracts," *Procedia computer science*, vol. 181, pp. 1162-1170, 2021. https://doi.org/10.1016/j.procs.2021.01.313

[57]C. Langston, "The empirical relationship between contractor success and project innovation," *Engineering, Construction and Architectural Management*, vol. 30, no. 6, pp. 2231-2254, 2023. https://doi.org/10.1108/ECAM-05-2021-0460

[58]C. B. Casady, O. H. Petersen, and L. Brogaard, "Public procurement failure: The role of transaction costs and government capacity in procurement cancellations," *Public Management Review*, pp. 1-28, 2023. https://doi.org/10.1080/14719037.2023.2231945

[59]K. K. Naji, M. Gunduz, and M. H. Falamarzi, "Assessment of construction project contractor selection success factors considering their interconnections," *KSCE Journal of Civil Engineering*, vol. 26, no. 9, pp. 3677-3690, 2022. https://doi.org/10.1007/s12205-022-1377-6

[60]S. Alkilani and M. Loosemore, "An investigation of how stakeholders influence construction project performance: a small and medium sized contractor's perspective in the Jordanian construction industry," *Engineering, Construction and Architectural Management*, vol. 31, no. 3, pp. 1272-1297, 2024. https://doi.org/10.1108/ECAM-06-2022-0539