Factors that Influence the Selection of Reservoir Construction Providers using the E-Purchasing Method via Electronic Catalog

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ABSTRACT

The implementation of Electronic Catalog Purchasing in the Construction Sector for Reservoir Development carried out by the DKI Jakarta Provincial Water Resources Service is something new in Indonesia and includes the implementation/utilization of the Risk-Based Construction Sector Catalog, so catalog users need to have adequate technical understanding of the field and be able to mitigate risks. Apart from that, the product specifications and prices displayed by Business Actors are not yet final, therefore, at the purchasing stage a "Correction" process is required by the prospective Buyer (in this case the Commitment Making Officer (PPK)/Procurement Official (PP)) and the selection of the appropriate construction service provider. Using e-purchasing methods is influenced by many factors. So to get a service provider who is competent in carrying out construction contracts, it is hoped that the results of selecting a good provider. This makes budget users need what and dominant factors to influence the selection of construction service providers using the e-purchasing method. The research method used is the Quantitative Method by processing the research instrument data in the form of a Questionnaire, then data management is carried out using the Statistical Product and Service Solutions (SPSS) Method for the Questionnaire validity test, Questionnaire reliability test, correlation test, Factor Analysis test and RII (Relative Important Index). With the results of the sequence of sub-factors that influence service users in determining the selection of a reservoir construction provider using the E-purchasing method via an electronic catalog, namely: RII: 0.967), and Management of the business entity is not under criminal proceedings (RII: 0.963), 0.958), 0.949) and Variable X1 Administrative Qualification Criteria is the dominant factor variable.

Keywords: e-Purchasing; electronic catalog; reservoir; variables; dominant factor.

INTRODUCTION

Purchasing activities for the Construction Sector Catalog were previously available, namely Hotmix, Readymix (DKI Provincial Government 2014), Livable Houses (Aceh Provincial Government 2019), and ReadyMix (Bekasi Regency Government 2019). Meanwhile, water resources affairs activities that use E-Purchasing through Electronic Catalogs begin with the procurement of goods and installation of water channels in the DKI Jakarta area. However, the implementation of the construction of reservoirs/situ/bungs still uses a tender mechanism, which in recent years has continued to be criticized because it appears to be oriented towards the lowest price which affects the performance of providers in implementation in the field. In this regard, the Water Resources Service in the 2022 Fiscal Year is trying out several Reservoir Constructions using an E-Purchasing mechanism through the local Electronic Catalog of the DKI Jakarta Provincial Goods/Services Procurement Service Agency. The implementation of Electronic Catalog Purchasing in the Construction Sector for Reservoir Development carried out by the DKI Jakarta Provincial Water Resources Service is something new in Indonesia and includes the implementation/utilization of the Risk-Based Construction Sector Catalog, so catalog users need to have adequate technical understanding of the field and be able to appropriately mitigate risks. the complexity of organizing/implementing a construction project. The level of difficulty of the construction material handling process, mobilization of equipment and workers, and field situation (project management) need to be taken into consideration before placing an order. Apart from that, the product specifications and prices displayed by Business Actors are not yet final, therefore, at the purchasing

stage a "Correction" process is required by the prospective Buyer (in this case the Commitment Making Officer (PPK)/Procurement Official (PP).

Implementation of Electronic Catalog Purchasing for the Construction Sector for Reservoir Construction in the provider selection process uses methods from the existing Construction Sector, especially in terms of requirement factor criteria, while the construction work for Reservoir Construction in its implementation consists of many work items and is a single construction work, so factor criteria are needed additional and dominant in carrying out the provider selection process via E-Purchasing via Electronic Catalog.

RESEARCH METHODS

Materials

In conducting this research, the variables were based on previous research, the procurement process through to implementation, applicable regulations and the research process based on data analysis from the results of distributing research variable questionnaires. The results of the research variables continued for the questionnaire are seen in fihure 1 below:

No	Permasalahan	Problem	Variable Indicator
1. 2.	Factors that influence the selection of Reservoir Construction Work providers using the E-purchasing method via Electronic Catalog? Dominant Factor in influencing the selection of Reservoir Construction Work providers using the E-purchasing method via Electronic Catalog?	X1. Administrative Qualification Criteria	X1.1 Have a business permit according to the required field (Perka LKPP) X1.2 Have a Taxpayer Identification Number and Confirmation of Taxpayer Status (Perka LKPP) X1.3 Have a Deed of Company Establishment and its Amendments (Perka LKPP) X1.4 Not Being Subject to Black List Sanctions (Perka LKPP) X1.5 Not under court supervision, not bankrupt and its business activities are not currently being stopped (Perka LKPP, Khairul 2022) X1.6 Leaders and Management of Business Entities are not currently under criminal proceedings (Khairul, 2022) X1.7 Leaders and Management of Business Entities are not employees of Ministries/Institutions/Regional Apparatus (Khairul, 2022) X.1.8 Verifying Provider Qualification Data in the SIKAP application (Perka LKPP)
		X2. Technical Qualification Criteria	X.2.1 Fulfill all item components in the Electronic Catalog in accordance with the Bill of Quantity (Researcher) X.2.2 Have the required personnel, namely SDA experts, K3 experts, hydraulics/hydrology experts, geotechnical experts (researchers) X.2.3 Has the ability to provide the required equipment (Khairul, 2022) X.2.4 Have a Quality Management Certificate, Environmental Management Certificate and Occupational Safety and Health Certificate (Researcher) X.2.5 Delivering the Pre -Work Safety and Contract Health Form (Pre RK3K) (Researcher) X.2.6 Submit a Letter of Support or Cooperation Agreement from the Manufacturer/Agent/Distributor/Producer/Principal (Researcher) X.2.7 Fulfilling Remaining Capability Packages (SKP) (Researcher)
		X3. Experience Criteria	X3.1 Have experience of similar work by submitting proof of contract and BAST (Khairul, 2022) X3.2 Has K3 Equipment (Khairul, 2022) X3.3 Accuracy in the quality of work implementation (Khairul, 2022) X3.4 Timeliness of work implementation (Khairul, 2022) X3.5 Have carried out product mockups / introductions (Khairul, 2022) X3.6 Able to coordinate with all parties in the field (Khairul, 2022) X3.7 Able to re-check planning designs (Researcher) X3.8 Timeliness of work administration (Khairul, 2022)
		X4.Price	X.4.1 Reasonable Price with Best Quality (Researcher) X.4.2 Have a Price Forming Structure for each Product (Perka LKPP) X.4.3 Have proof of the last transaction for the product being negotiated (Perka LKPP) X.4.4 Able to provide prices including costs according to field conditions (etc. work access) (Researcher)
		X5. Other Commitments and Responsibilities	X.5.1 Responsible for carrying out repairs in the field during the maintenance period (Khairul, 2022) X.5.2 Commitment to accompany Service Users during inspections (Khairul, 2022) X.5.3 Compliance and responsibility for inspection results (Khairul, 2022) X.5.4 Commitment to respond well to Non-Governmental Organizations (Khairul, 2022) X.5.5. Commitment to the legal process (Police, Prosecutor's Office) (Khairul, 2022) X5.6 Commitment to supporting technical service work that supports work (Khairul, 2022)

Figure 1. Research Variables for this Questionnaire:

Next, a questionnaire was prepared using Google Form and the questionnaire was distributed to respondents regarding the E-Purchasing procurement process through an electronic catalog. The results of distributing questionnaires related to research variables to respondents were 43 respondents who responded.

Respondent Identity Data

In terms of the identity data of the respondents. Regarding Respondent Age Data, see fihure 1 below:

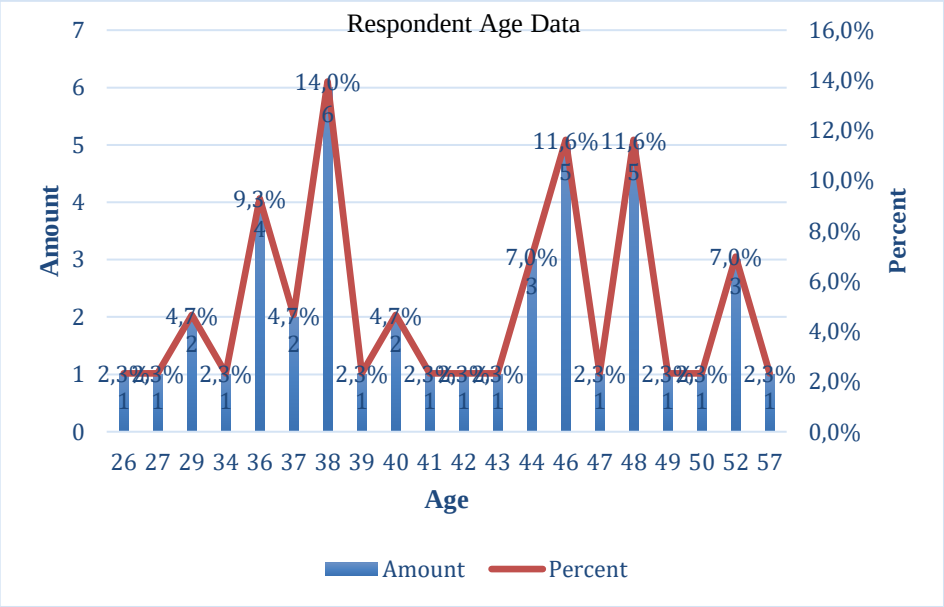

Figure 2. Respondent Age Data

Regarding Respondent Position Data, see figure 3 below:

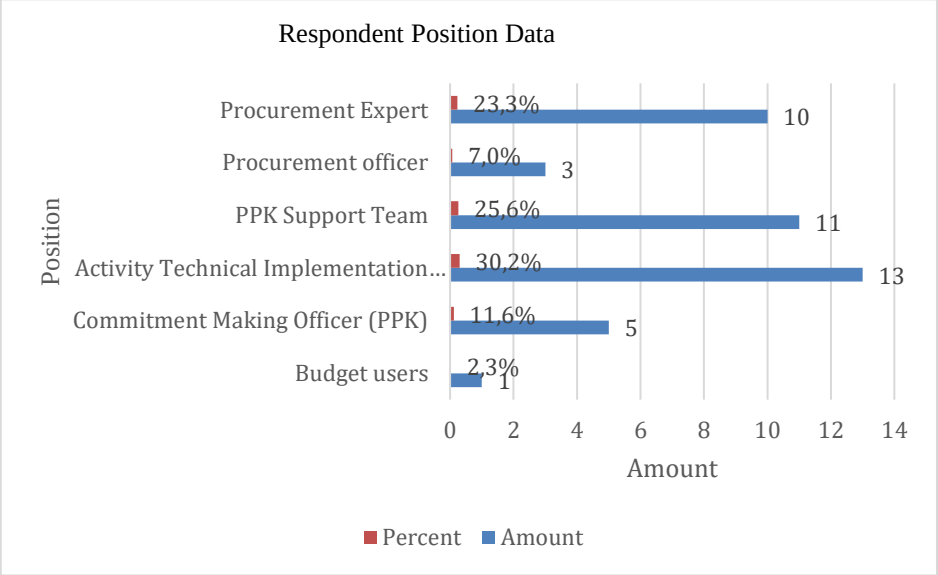

Figure 3. Respondent Position Data

Methods

The type of research used is the Quantitative Method with research instruments in the form of Questionnaires and interviews, followed by data management using the Statistical Product and Service Solutions (SPSS) Method for Questionnaire validity tests, Questionnaire reliability tests, correlation tests, Factor Analysis tests and RII (Relative Important Index). Where to look for the dominant factors that influence Commitment Making Officials/Budget Users in selecting reservoir/situ/reservoir construction work providers using the e-purchasing method via catalogue.

The research stages can be seen in figure 4 below.

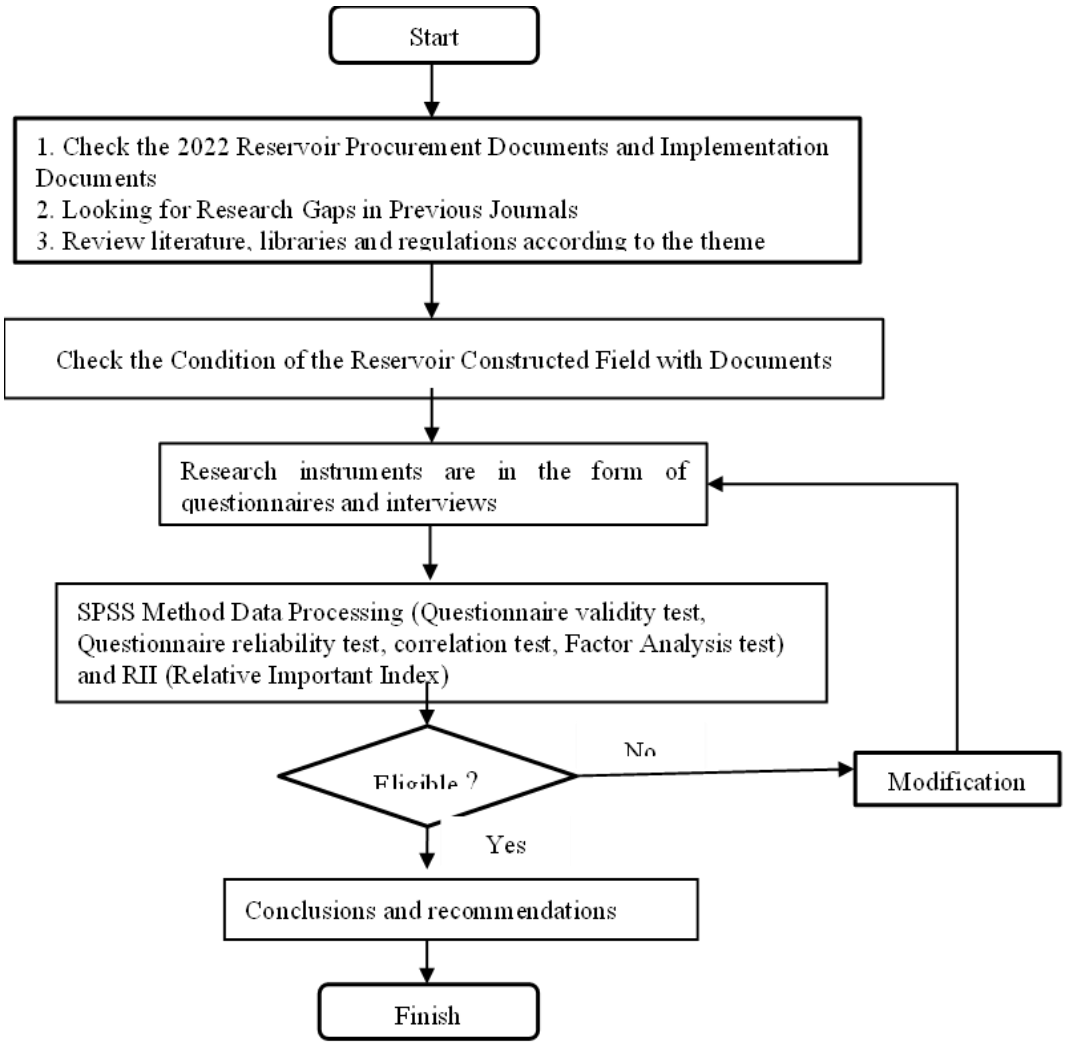

Figure 4. Quantitative methods

Data Analysis

Data processing using the SPSS 24.0 method which includes questionnaire validity testing, questionnaire reliability testing, correlation testing, factor analysis testing and analyzing data using the RII (Relative Important Index) method. With the following results:

Validity Test Results

Validity test is to determine the extent to which the measuring device actually measures what it is supposed to measure. Data is said to be valid if the calculated r value has a value greater than r table (calculated r > r table). The r table value for a sample size of 43 people is 0.294. The results of the validity test for variable X1 can be seen in Table 1 below:

Table 1. Validity test results for variable X1

Correlations										
		X11	X12	X13	X14	X15	X16	X17	X18	X1
X11	Pearson Correlation	1	.769**	.904**	.429**	.377*	.198	.291	.231	.725**
	Sig. (2-tailed)		.000	.000	.004	.013	.202	.058	.136	.000
	N	43	43	43	43	43	43	43	43	43

Correlations

		X11	X12	X13	X14	X15	X16	X17	X18	X1
X12	Pearson Correlation	.769**	1	.816**	.488**	.432**	.592**	.252	.451**	.821**
	Sig. (2-tailed)	.000		.000	.001	.004	.000	.104	.002	.000
	N	43	43	43	43	43	43	43	43	43
X13	Pearson Correlation	.904**	.816**	1	.632**	.569**	.330*	.452**	.400**	.854**
	Sig. (2-tailed)	.000	.000		.000	.000	.031	.002	.008	.000
	N	43	43	43	43	43	43	43	43	43
X14	Pearson Correlation	.429**	.488**	.632**	1	.913**	.586**	.586**	.687**	.828**
	Sig. (2-tailed)	.004	.001	.000		.000	.000	.000	.000	.000
	N	43	43	43	43	43	43	43	43	43
X15	Pearson Correlation	.377*	.432**	.569**	.913**	1	.524**	.524**	.608**	.764**
	Sig. (2-tailed)	.013	.004	.000	.000		.000	.000	.000	.000
	N	43	43	43	43	43	43	43	43	43
X16	Pearson Correlation	.198	.592**	.330*	.586**	.524**	1	.530**	.713**	.717**
	Sig. (2-tailed)	.202	.000	.031	.000	.000		.000	.000	.000
	N	43	43	43	43	43	43	43	43	43
X17	Pearson Correlation	.291	.252	.452**	.586**	.524**	.530**	1	.713**	.679**
	Sig. (2-tailed)	.058	.104	.002	.000	.000	.000		.000	.000
	N	43	43	43	43	43	43	43	43	43
X18	Pearson Correlation	.231	.451**	.400**	.687**	.608**	.713**	.713**	1	.755**
	Sig. (2-tailed)	.136	.002	.008	.000	.000	.000	.000		.000
	N	43	43	43	43	43	43	43	43	43
X1	Pearson Correlation	.725**	.821**	.854**	.828**	.764**	.717**	.679**	.755**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	
	N	43	43	43	43	43	43	43	43	43

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The results of validity testing show that the calculated r value is between 0.679 – 0.854 so it can be stated that the administrative qualification criteria variable (X1) has a calculated r value that is greater than the table r value. These results are also strengthened by the sig value of each statement having a sig value <0.05.

Reliability test results

The results of reliability testing show that all variables have a Cronbach's alpha value greater than 0.6. The Administrative Qualification Criteria variable (X1) has a Cronbach's alpha value of 0.892, the Technical Qualification Criteria variable (X2) has a Cronbach's alpha value of 0.833, the Experience Criteria variable (X3) has a Cronbach's alpha value of 0.859. The Price variable (X4) has a Cronbach's alpha value of 0.681 and the Commitment and Responsibility variable (X5) has a Cronbach's alpha value of 0.839. These results indicate that all research variables are reliable.

Correlation Analysis Results

a. The correlation between X1 and X2 is 0.514. The correlation coefficient value is quite strong in interpretation because it is in the range 0.400 – 0.599.
b. The correlation between X1 and X3 is 0.398. The correlation coefficient value falls into a weak interpretation because it is in the range 0.200 – 0.399.

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c. The correlation between X1 and X4 is 0.402. The correlation coefficient value is quite strong in interpretation because it is in the range 0.400 – 0.599.
d. The correlation between X1 and X5 is 0.616. The correlation coefficient value is a strong interpretation because it is in the range 0.600 – 0.799.
e. The correlation between X2 and X3 is 0.716. The correlation coefficient value is a strong interpretation because it is in the range 0.600 – 0.799.
f. The correlation between X2 and X4 is 0.585. The correlation coefficient value is quite strong in interpretation because it is in the range 0.400 – 0.599.
g. The correlation between X2 and X5 is 0.623. The correlation coefficient value is a strong interpretation because it is in the range 0.600 – 0.799.
h. The correlation between X3 and X4 is 0.657. The correlation coefficient value is a strong interpretation because it is in the range 0.600 – 0.799.
i. The correlation between X3 and X5 is 0.545. The correlation coefficient value is a strong interpretation because it is in the range 0.400 – 0.599.
j. The correlation between X4 and X5 is 0.571. The correlation coefficient value is a strong interpretation because it is in the range 0.400 – 0.599.

Factor Analysis Test Results

The results of the Factor Analysis test show that variables X1 to X5 are factors that influence the selection of construction supplies. This result is proven by the fact that the five X variables can be reduced to one variable.

Based on the results of the RII analysis, the order of the most dominant sub-factors in selecting providers of E-purchasing Reservoir Construction Methods via Electronic Catalog is the Administrative Qualification Criteria factor. Where it can be seen that ranks 1 to 10 are occupied by indicators originating from variable X1, namely Administrative Qualification Criteria. Meanwhile, the order of the main dominant factors is X1 Administrative Qualification Criteria followed by X5 Commitment and Responsibility, X3 Experience Criteria, X2 Technical Qualification Criteria and X4 Price.

The results of this research also support research (Imam et al., 2022) which concluded that Administrative Requirements for Construction Work Providers (RII: 0.890) is the most important factor in influencing the selection of e-purchasing Construction Work providers at the DKI Jakarta Province Highways Service. This factor is considered the most important because a service provider in its role following the goods/services procurement process needs to prepare administrative requirements that are complete and legally legal. If we look at the research indicators, it is found that indicators (i) not included in court supervision and (ii) not included in the blacklist order are the most important indicators in influencing the selection of e-purchasing construction work providers at the DKI Jakarta Provincial Highways Service. This means that service users in the process of selecting a service provider prioritize the legal status of the service provider so that it is hoped that the service user can anticipate the emergence of legal defects during the implementation of the construction work contract.

This supports the research of G. N. Pio, I. N. Sutarja, and I. W. Yansen [6] that service providers or companies that are not under court supervision and are not registered on the black list are one of the factors that influence the selection of construction service auction winners.

This study supports previous research (Purnomo, 2020), which states that the electronic procurement process for goods and services, if carried out in accordance with good procurement principles, will reduce errors, abuse and fraudulent practices at every step of the goods and services procurement process government, which in turn can harm state finances.

Meanwhile, to determine which variable is the most dominant in the sub factors, according to the RII results, it can be seen in figure 5 below.

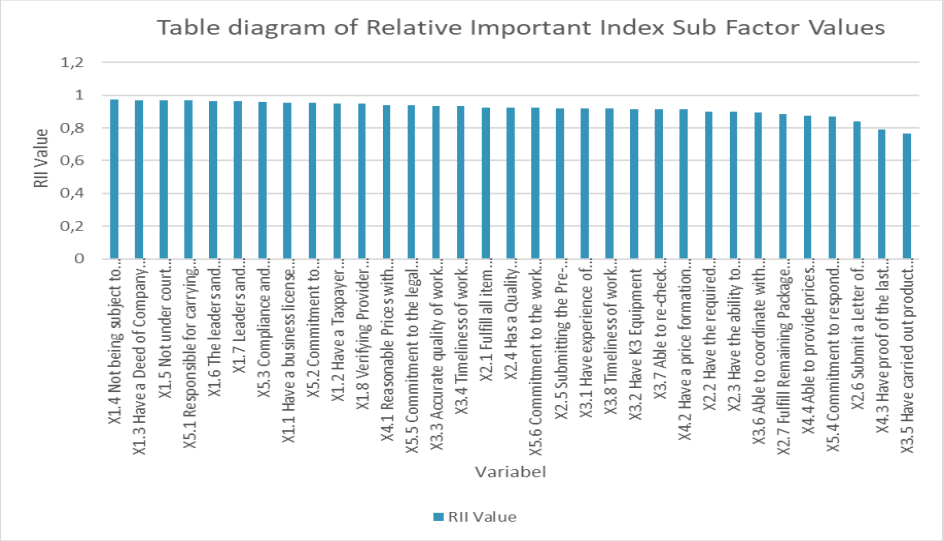

Figure 5. Diagram of Relative Important Index Sub Factor Values

Meanwhile, to determine which variable is the most dominant in the main factor, according to the RII results, it can be seen in figure 6 below. Figure 6 Diagram Value Relative Important Index Main Faktor

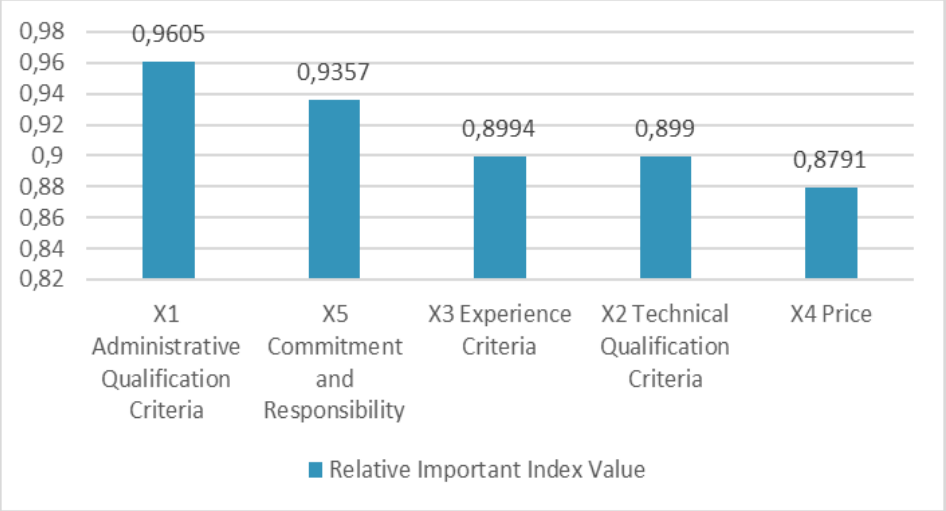

Figure 6. Diagram of Relative Important Index Value

CONCLUSION

Based on the results and discussion, it can be concluded about what factors influence the selection of Reservoir Construction Work providers using the E-purchasing method via the Electronic Catalog as follows: 1) the dominant main factor is X1 Administrative Qualification Criteria (RII:0.9605) followed by X5 Commitment and Responsibility (RII:0.9357), X3 Experience Criteria (RII:0.8994), X2 Technical Qualification Criteria (RII:0.8990) and X4 Price (RII:0.8791). The results of this ranking show that variable X1 Administrative Qualification Criteria is the dominant main factor variable in selecting construction supplies, 2) the sequence of sub-factors that influence Service Users in determining the selection of Reservoir Construction providers using the E-purchasing method via the Electronic Catalog, namely: 1) X1.4 Not Being Subject to Blacklist Sanctions (RII: 0.972), 2) X1.3 Have a Deed of Company Establishment and its Amendments (RII: 0.967), 3) X1.5 Not under court supervision, not bankrupt and its business activities are not being stopped (RII:

0.967), 4) X5.1 Responsible for carrying out repairs in the field during maintenance (RII: 0.967), 5) X1.6 Leaders and Management of Business Entities are not currently under criminal proceedings (RII: 0.963), 6) X1.7 Leaders and Management of Non -Employee Employees Ministries/Regional Institutions (RII: 0.963), 7) X5.3 Compliance and responsibility for inspection results (RII: 0.958), 8) X1.1 Have a business license according to the required field (RII: 0.953), 9) X5.2 Commitment to accompany Service Users during inspections (RII: 0.953), 10) X1.2 Have a Taxpayer Identification Number and Confirmation of Taxpayer Status (RII: 0.949), 3) variable X1 administrative qualification criteria (RII; 0.9605) is the most dominant factor variable in selecting reservoir construction work providers using the E-purchasing method with electronic catalog

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