

THE INFLUENCE OF E-CATALOG SYSTEM QUALITY, HUMAN RESOURCE COMPETENCE, AND FACILITIES ON IMPROVING THE QUALITY OF GOODS AND SERVICES PROCUREMENT IN THE BATAM CITY GOVERNMENT

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Abstract

The implementation of e-procurement through the e-Catalog system is expected to improve transparency and efficiency in government procurement services; however, inconsistencies in previous findings indicate that system quality alone may not fully determine procurement service performance. This study aims to analyze the influence of e-Catalog system quality, human resource competence, and supporting facilities on the quality of procurement services in the Batam City Government. A quantitative explanatory approach was employed using a cross-sectional survey design. Data were collected through structured questionnaires distributed to 93 respondents selected through purposive sampling, consisting of procurement officials, suppliers, treasurers, and system operators with experience in using the e-Catalog system. The data were analyzed using multiple linear regression supported by validity, reliability, and classical assumption tests. The findings reveal that e-Catalog system quality has a positive but insignificant effect on procurement service quality, while human resource competence shows a negative and insignificant effect. In contrast, supporting facilities have a positive and significant influence and become the dominant factor affecting procurement service quality. Simultaneously, all independent variables significantly influence procurement service quality with a coefficient of determination of 62.3%. These findings imply that infrastructure readiness is essential for optimizing digital procurement implementation in local government.

Keywords: e-catalog system quality; facilities; human resource competence; procurement service quality

INTRODUCTION

Government procurement of goods and services is an important part of national and regional financial management since it takes up a large portion of the budget and immediately impacts the quality of public services. This procedure is essential for attaining financial efficiency, accountability, and transparency in addition to helping the government achieve its operational needs. As required by national procurement legislation, the Indonesian government is implementing an electronic procurement (e-procurement) system to promote digital transformation in accordance with technology developments and the objectives of good governance.

One of the key innovations in e-procurement is the e-Catalog system, developed to provide electronic information on goods and services, including technical specifications, prices, and supplier identities. This system is designed to accelerate the procurement process through

e-purchasing mechanisms, reduce direct interaction between suppliers and budget users, and minimize the potential for corruption, collusion, and nepotism. Thus, the e-Catalog is expected to improve both the efficiency and quality of government goods and services procurement.

However, the success of e-Catalog implementation is highly dependent on the quality of the system itself. System quality includes aspects such as ease of use, reliability, speed of access, data security, and completeness of information. A system that is not optimal such as one that frequently experiences disruptions or lacks user-friendly features can reduce service effectiveness and lead to user dissatisfaction. This issue has become increasingly relevant with the transition to the latest e-Catalog system (INAPROC), which aims to improve system integration and performance.

Despite the progress in the administrative implementation of the e-Catalog, various technical and non-technical challenges still persist, particularly during the transition period. Problems such as system access difficulties, payment synchronization issues, and limited user readiness indicate that system performance has not yet fully supported effective procurement services. These circumstances imply that additional supporting variables, in addition to technology systems, influence the effectiveness of digital procurement.

In addition to system quality, human resource competence plays a crucial role in the procurement process. Procurement personnel are required to possess adequate knowledge of regulations, technical skills, and professional integrity. A mismatch between competence and job demands may lead to errors in procurement processes, delays, and potential disputes. Therefore, improving human resource competence is essential to support the quality of procurement services.

On the other hand, supporting facilities are equally important in ensuring the effectiveness of procurement activities. These facilities include information technology infrastructure such as internet connectivity, computer systems, servers, and other supporting tools. Inadequate facilities can hinder system accessibility and reduce operational efficiency, ultimately affecting service quality perceptions.

Although numerous studies have examined the implementation of e-procurement systems, most of them primarily focus on system quality and human resource competence as the key determinants of service performance. However, previous findings remain inconsistent, particularly regarding the extent to which these factors contribute to service quality improvement. For instance, Lucca (2016) found that both e-procurement implementation and employee competencies positively influence procurement service performance, suggesting that human resource factors play a significant role. In contrast, Kholby et al. (2022) found that while e-procurement and human resource competencies contribute to fraud prevention, their direct effect on overall service quality is less conclusive. Similarly, Ramadhani (2019) noted that HR quality and facilities support LPSE effectiveness, yet technical constraints such as server disruptions limited the contribution of system quality alone. Irawati et al. (2023) further indicated that system quality, human resources, and facilities collectively influence e-Catalog effectiveness; however, the relative weight of each factor varied depending on the institutional context. These inconsistencies suggest that no single factor consistently dominates, and that contextual conditions such as the level of digital infrastructure readiness and organizational

capacity may moderate the relationship between these variables and service quality outcomes. Furthermore, the importance of infrastructure preparation has received less attention, particularly when it comes to the digital transformation of municipal governments in underdeveloped nations. This disparity suggests that the availability of sufficient supporting infrastructure may be just as important to the efficacy of digital procurement systems as human or technological prowess. Thus, by analyzing the respective contributions of system quality, human resource competency, and facilities in determining procurement service quality in the Batam City Government, this study aims to close this gap.

METHODS

This study employed a quantitative approach with an explanatory research design to analyze the influence of e-Catalog system quality, human resource competence, and supporting facilities on procurement service quality in the Batam City Government. The research was conducted at the Procurement Unit of the Batam City Government from October 2025 to February 2026. The study population consisted of parties directly involved in the procurement process, including suppliers, commitment-making officers (PPK), procurement officials, treasurers, and e-Catalog system operators. A purposive sampling technique was applied to select respondents who had at least one year of experience using the e-Catalog system in procurement activities. Based on these criteria, a total of 93 respondents were selected as research samples.

The conceptual framework of this study was developed based on the assumption that procurement service quality is influenced by the quality of the e-Catalog system, human resource competence, and procurement support facilities. The e-Catalog system quality variable reflects users' perceptions regarding system reliability, accessibility, security, speed, and completeness of information. Human resource competence represents the ability of procurement personnel in terms of knowledge, technical skills, integrity, and problem-solving capability. Meanwhile, procurement support facilities include information technology infrastructure, internet connectivity, supporting equipment, and service accessibility. These three independent variables were hypothesized to influence procurement service quality both partially and simultaneously.

The study used both primary and secondary data sources. Primary data were collected through structured questionnaires distributed directly to respondents using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Secondary data were obtained from government regulations, institutional reports, scientific journals, and other relevant literature related to public procurement and e-procurement systems. Before conducting hypothesis testing, the research instrument was tested for validity and reliability to ensure the accuracy and consistency of the measurement items.

Data analysis was carried out using descriptive and inferential statistical methods with the assistance of SPSS software. Classical assumption tests consisting of normality, multicollinearity, and heteroscedasticity tests were conducted to ensure the suitability of the regression model. Furthermore, multiple linear regression analysis was employed to examine the effect of e-Catalog system quality, human resource competence, and facilities on

procurement service quality. Hypothesis testing was conducted through partial tests (t-test), simultaneous tests (F-test), and coefficient of determination analysis (R^2) to determine the contribution of the independent variables in explaining procurement service quality.

RESEARCH RESULTS AND DISCUSSION

Validity Test

To ascertain if each statement item in the questionnaire can reliably measure the intended study variables, validity testing was carried out. Validity ensures that the data gathered are suitable for analysis by reflecting the degree to which an instrument measures what it is intended to measure. “Measurement theory states that an item is deemed legitimate if the correlation value (r-table) between the item score and the overall score is greater than the critical value” (Ghozali, 2018).

Table 1. Validity Test Results

Variable	Statement	Calculated r	Table r	Result
Catalog System (X1)	X1.1	0.195	0.172	“Valid”
	X1.2	0.597	0.172	“Valid”
	X1.3	0.659	0.172	“Valid”
	X1.4	0.671	0.172	“Valid”
	X1.5	0.711	0.172	“Valid”
Human Resource Competency (X2)	X2.1	0.298	0.172	“Valid”
	X2.2	0.502	0.172	“Valid”
	X2.3	0.664	0.172	“Valid”
	X2.4	0.626	0.172	“Valid”
	X2.5	0.689	0.172	“Valid”
Facilities (X3)	X3.1	0.419	0.172	“Valid”
	X3.2	0.780	0.172	“Valid”
	X3.3	0.695	0.172	“Valid”
	X3.4	0.777	0.172	“Valid”
	X3.5	0.658	0.172	“Valid”
Service Quality (Y)	Y1	0.471	0.172	“Valid”
	Y2	0.733	0.172	“Valid”
	Y3	0.716	0.172	“Valid”
	Y4	0.738	0.172	“Valid”
	Y5	0.671	0.172	“Valid”

Source: SPSS data analysis results, 2026

Table 1 shows that all of the questionnaire questions for the variables of procurement service quality (Y), facilities (X3), human resource competency (X2), and e-Catalog system quality (X1) have correlation values (r-count) higher than the r-table value of 0.172. This shows that every measuring indication is reliable and appropriate for more research. These results guarantee the accuracy of the data utilized in this study by confirming that each item is able to reflect its corresponding construct.

This outcome is in line with other research that claims that reliable instruments are necessary to guarantee the validity of study findings, especially in quantitative studies that use perception-based assessments (Sugiyono, 2019). Consequently, the validity of the instrument enhances the overall quality of the study and supports the dependability of the ensuing statistical

analysis.

Reliability Test

The measuring tool's consistency in collecting the research variables was evaluated through reliability testing. When utilized in comparable circumstances, a dependable instrument yields solid and consistent findings. Internal consistency is frequently assessed using Cronbach's Alpha, with a threshold value of 0.70 denoting satisfactory dependability. (Hair et al., 2019).

Table 2. Reliability Test Results

No.	Variable	Cronbach's Alpha	Results
1.	Catalog System (X1)	0.912	"Reliable"
2.	Human Resource Competence (X2)	0.908	"Reliable"
3.	Facilities (X3)	0.915	"Reliable"
4.	Service Quality (Y)	0.910	"Reliable"

Source: SPSS data analysis results, 2026

According to Table 2, every variable has CA values between 0.908 and 0.915, which are much higher than the 0.70 minimal criteria. This shows that every study variable is regarded as dependable and has a high degree of internal consistency. These findings imply that the measuring tool utilized in this investigation is reliable and able to yield consistent outcomes across many observations.

Additionally, the high reliability ratings show that each variable's indications are consistent and steady while measuring the desired components. This result is consistent with earlier studies that highlight how trustworthy tools improve statistical analysis accuracy and lower measurement error (Sekaran & Bougie, 2016). As a result, the instrument's dependability bolsters the validity of the study's conclusions and encourages more inferential analysis.

Classical Assumptions Test

Normality Test

The normality test was used to determine if the residual data in the regression model are regularly distributed. Because it guarantees the validity of statistical inference, a normal distribution of residuals is a fundamental assumption in regression analysis. "When the points in the Normal P-P Plot are near the diagonal line and the residuals are symmetrically distributed and follow a bell-shaped curve, the model is said to satisfy the normalcy assumption". (Ghozali, 2018).

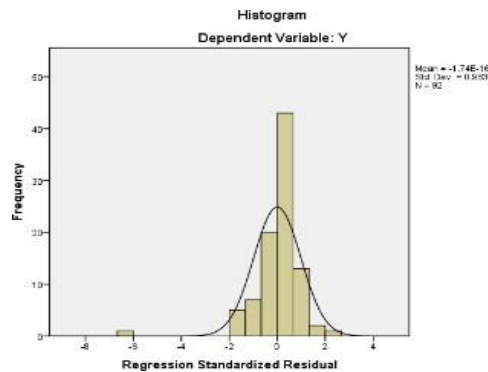


Figure 1. Normality Histogram

Source: SPSS data analysis results, 2026

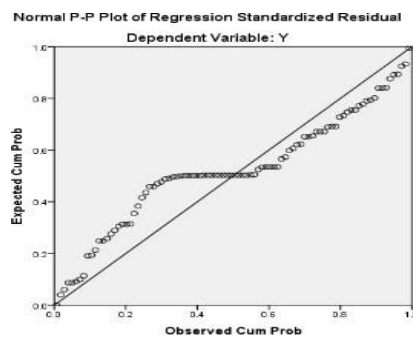


Figure 2. P-Plot for Normality

Source: SPSS data analysis results, 2026

The residual data seem to be regularly distributed based on the histogram and Normal P-P Plot. The P-P Plot's dots are dispersed roughly along the diagonal line, but the histogram displays a bell-shaped pattern. This suggests that the regression model is suitable for more investigation as the normality assumption is met. These findings support earlier research showing that regularly distributed residuals improve regression estimates' precision and dependability. (Hair et al., 2019).

Multicollinearity Test

The multicollinearity test was performed to ascertain whether there is a significant connection between the independent variables in the regression model. “Regression coefficient estimates can be distorted by multicollinearity, which lowers the model's dependability. If the tolerance value is more than 0.10 and the VIF is less than 10, multicollinearity is not present according to statistical standards”. (Ghozali, 2018).

Table 3. Results of the Multicollinearity Test

Coefficients ^a			
Model	Collinearity Statistics		
	Tolerance	VIF	
1	X1	.697	1.436
	X2	.776	1,289
	X3	.685	1,461

a. Dependent Variable: Y

Source: SPSS data processing results, 2026

Table 3 shows that all independent variables have VIF values less than 10 and tolerance values greater than 0.10. This suggests that the independent variables do not exhibit multicollinearity. Consequently, without substantial interference from other predictors, each variable may independently explain the variance in the dependent variable. “This result validates the regression model's resilience and is consistent with other research emphasizing the significance of removing multicollinearity to guarantee precise parameter estimates.” (Hair et al., 2019).

Heteroscedasticity Test

To ascertain if the variance of the residuals is consistent across all levels of the independent variables, the heteroscedasticity test was used. Heteroscedasticity, or the residuals' random distribution without any discernible pattern, is a sign of a poor regression model. To visually evaluate this condition, the scatterplot approach is frequently utilized. (Ghozali, 2018).

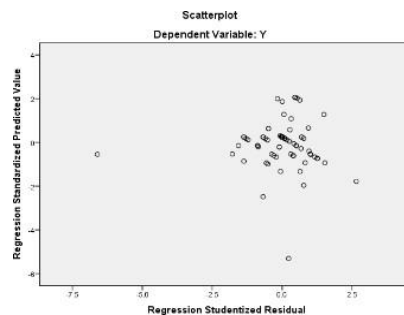


Figure 3. Heteroscedasticity Test Results

Source: SPSS data processing results, 2026

The scatterplot shows that the data points are dispersed randomly and do not exhibit any discernible or consistent patterns. This shows that the model meets the homoscedasticity assumption and is not affected by heteroscedasticity. As a result, the regression model might be regarded as trustworthy for more research. This conclusion is in line with earlier studies that indicate the validity of regression results is improved when heteroscedasticity is absent. (Sekaran & Bougie, 2016).

Multiple Linear Regression Results

The impact of facilities, human resource proficiency, and e-Catalog system quality on procurement service quality was investigated using multiple linear regression analysis. “The purpose of this study is to ascertain the most important element affecting procurement service performance as well as the direction and strength of the link between the independent variables and the dependent variable”. (Ghozali, 2018).

Table 4. Regression Test Results

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	3.345	1.625		2.058	.043
	X1	.119	.076	.123	1,566	.121
	X2	-.005	.068	-.005	-.073	.942
	X3	.727	.080	.722	9,135	.000

a. Dependent Variable: Y

Source: SPSS data processing results, 2026

E-Catalog system quality (X1) has a positive coefficient ($\beta = 0.119$), indicating a positive link with procurement service quality, according to Table 4's regression results. Nevertheless, this impact is not statistically significant (Sig. = 0.121 > 0.05). Similar to this, human resource competence (X2) has a negative coefficient ($\beta = -0.005$) and is statistically insignificant (Sig. = 0.942 > 0.05), suggesting that it has no discernible impact on service quality.

In contrast, facilities (X3) exhibit a strong positive coefficient ($\beta = 0.727$) and a statistically significant effect (Sig. = 0.000 < 0.05). This result indicates that facilities have the most substantial influence on procurement service quality and act as the dominant variable in the model. These findings highlight that infrastructure readiness plays a critical role in supporting effective digital procurement services, particularly in the context of local government.

This result aligns with previous studies which emphasize the importance of infrastructure and tangible resources in enhancing service quality and operational efficiency (Hair et al., 2019; Sekaran & Bougie, 2016). It also suggests that without adequate facilities, the effectiveness of digital systems and human resource capabilities may not be fully realized.

Hypothesis Testing

Partial Test

To ascertain each independent variable's unique impact on the quality of procurement services, the t-test was used. If a variable's significance value is less than 0.05, it is deemed to have a significant influence. (Ghozali, 2018).

Table 5. Results of the Partial Test

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	3.345	1.625		2.058	.043
	X1	.119	.076	.123	1,566	.121
	X2	-.005	.068	-.005	-.073	.942
	X3	.727	.080	.722	9,135	.000

a. Dependent Variable: Y

Source: SPSS data analysis results, 2026

Based on Table 5, the results show that only facilities (X3) have a significant effect on procurement service quality. Meanwhile, e-Catalog system quality (X1) and human resource competence (X2) do not show statistically significant effects. This indicates that, individually, infrastructure is the only factor that significantly contributes to improving procurement service performance.

Simultaneous Test

To ascertain if all independent factors concurrently affect the quality of procurement services, the F-test was used. This test assesses the regression model's overall significance.

Table 6. Results of the Simultaneous Test

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	310,977	3	103,659	48,560	.000b
	Residual	187,849	89	2,135		
	Total	498,826	92			

a. Dependent Variable: Y

b. Predictors: (Constant), X3, X2, X1

Source: SPSS data analysis results, 2026

Table 6 indicates that the significance value is less than 0.05, at 0.000. This suggests that procurement service quality is significantly impacted by e-Catalog system quality, human resource competency, and facilities all at the same time. Consequently, the regression model is regarded as legitimate and appropriate for elucidating the correlation between the variables..

Coefficient of Determination Test

R² was used to calculate the proportion of variance in procurement service quality that can be explained by the independent variables in the model.

Table 7. Coefficient of Determination Results

Model Summary^b				
Model	R	R-Square	Adjusted R-Square	Standard Error of the Estimate
1	.790 ^a	.623	.611	1.46104
a. Predictors: (Constant), X3, X2, X1				
b. Dependent Variable: Y				

Source: SPSS data processing results, 2026

According to Table 7, the R2 value is 0.623, meaning that e-Catalog system quality, human resource competency, and facilities account for 62.3% of the variation in procurement service quality. Other factors not covered in this study have an impact on the remaining 37.7%.

This finding implies that the model has a high degree of explanatory power and can offer significant insights into the variables affecting the quality of procurement services. But it also shows that further variables that might help explain the remaining variation need to be investigated in future studies.

DISCUSSION

The results of this study offer significant new information about the factors affecting the quality of procurement services in the context of digital public procurement. The findings show that procurement service quality is positively but statistically insignificantly impacted by the quality of the e-Catalog system. This implies that although while the system is intended to increase accessibility, efficiency, and transparency, its mere existence is insufficient to greatly improve service performance. Numerous variables, including difficulties with user adaption, problems with system transitions, or technological constraints that prevent the best possible use of the platform, may have an impact on this situation. According to the DeLone and McLean Information Systems Success Model, system quality by itself cannot provide better results unless it is accompanied by efficient utilization and organizational preparedness.

Furthermore, human resource competence shows a negative and statistically insignificant relationship with procurement service quality. This finding indicates that the existing competencies of procurement personnel have not yet translated into improved service performance. The discrepancy between theoretical understanding and its actual application in operational settings is one cause. Additionally, the efficacy of individual competencies may be diminished by organizational restrictions including coordination mechanisms, procedural complexity, and institutional limits. From the perspective of Human Capital Theory, competence is expected to contribute positively to performance; however, its impact largely depends on how well it is aligned with system utilization and organizational processes.

Facilities, on the other hand, have a positive and statistically significant impact on the quality of procurement services, making them the most relevant element. This emphasizes how crucial infrastructure preparedness including IT systems, internet access, and auxiliary equipment is to guaranteeing the success of digital procurement. Sufficient facilities reduce operating interruptions, provide easier system access, and boost service effectiveness. The service quality hypothesis, which highlights the significance of concrete elements in influencing service

performance and user perceptions, is supported by this research.

The quality of procurement services is significantly impacted by all three independent factors at the same time, suggesting that system quality, human resource competency, and infrastructure support interact to affect service performance. The coefficient of determination (62.3%) confirms that the model accounts for a considerable portion of the variance in service quality; however, additional external factors not covered in this study may also have an impact on service performance.

The study's findings support and build upon previous research on e-procurement platforms. Although a number of research have highlighted human resource competency and system quality as the main factors influencing service performance, this study offers an alternative viewpoint. The dominance of facilities as the most significant factor indicates that infrastructure readiness plays a more critical role in ensuring effective procurement services, particularly in the context of local government digital transformation. This finding contrasts with studies that prioritize technological systems as the main driver of performance, suggesting that without adequate infrastructure, the benefits of digital systems and competent personnel cannot be fully realized. Thus, by emphasizing the necessity of reevaluating the relative significance of infrastructure in digital governance frameworks, this study adds to the body of current literature.

Beyond the technical dimensions of procurement performance, the findings of this study also carry important implications for smart governance. Smart governance refers to the use of digital technologies and data-driven approaches to enhance the efficiency, transparency, and responsiveness of government services (Mellouli et al., 2014). The e-Catalog system, as part of the broader e-procurement infrastructure, represents a key instrument in the transition toward smart governance at the local government level. By digitalizing the procurement process, the Batam City Government has taken a significant step toward reducing bureaucratic inefficiencies and improving the speed and accuracy of public service delivery. However, the findings suggest that smart governance cannot be achieved through technology alone; it requires an integrated approach that combines robust digital infrastructure, competent human resources, and adequate supporting facilities.

In the context of transparency and accountability, e-procurement systems such as the e-Catalog play a vital role in making government spending more visible and traceable to the public. Transparency in procurement is achieved when all stages of the procurement process from product selection to price determination are documented and accessible in a standardized digital format (LKPP, 2025). This reduces information asymmetry between government agencies and suppliers, minimizes opportunities for manipulation, and strengthens public trust in government institutions. The findings of this study reinforce this view, as the availability of adequate facilities was found to be the most significant factor in supporting procurement service quality, which in turn underpins the transparency and accountability of the entire procurement system. Without sufficient infrastructure, even well-designed digital systems and competent personnel may fail to deliver transparent and accountable procurement outcomes.

Furthermore, the role of e-procurement in corruption prevention deserves particular attention. Corruption in public procurement has long been recognized as a major challenge in

developing countries, often manifesting in the form of bid rigging, price manipulation, and favoritism toward certain suppliers (Kholby et al., 2022). The e-Catalog system addresses these risks by standardizing product specifications and prices, reducing direct interactions between procurement officers and suppliers, and creating an auditable digital trail of all transactions. These features collectively minimize the discretionary power of individual procurement officers, thereby reducing opportunities for corrupt practices. Consistent with the findings of Kholby et al. (2022), this study affirms that e-procurement implementation contributes to fraud prevention and promotes a more integrity-based procurement environment. However, the effectiveness of these anti-corruption mechanisms is contingent upon the quality of the supporting infrastructure, as system disruptions or inadequate facilities can create loopholes that undermine the integrity of the procurement process.

Overall, improving procurement service quality requires a comprehensive and integrated approach. It is not sufficient to rely solely on system development or human resource enhancement; rather, equal attention must be given to the availability and quality of supporting facilities. Moreover, the broader goals of smart governance, transparency, accountability, and corruption prevention must be embedded as core objectives in the design and implementation of digital procurement systems. For digital procurement systems to be successfully implemented in local government contexts, this integrated viewpoint is crucial. Policymakers and procurement managers should therefore prioritize infrastructure development while simultaneously strengthening system quality and human resource competencies to achieve sustainable improvements in procurement service performance.

CONCLUSION

This study demonstrates that system quality, human resource competency, and supporting facilities all affect the quality of procurement services offered by the Batam City Government, albeit to varying degrees. The results show that e-Catalog system quality has a favorable but statistically negligible effect, indicating that without proper use and user adaptability, the system's mere existence is insufficient to enhance service performance. Similarly, there is a weak and negative correlation between procurement operations and human resource competence, indicating that the current level of competence has not been effectively translated into real performance. Facilities, on the other hand, have a favorable and noteworthy impact and become the most important element affecting the quality of procurement services, underscoring the vital role that infrastructure preparedness plays in assisting digital procurement procedures. With a coefficient of determination of 62.3%, all variables have a simultaneous significant impact on procurement service quality, meaning that the model accounts for a considerable amount of the variance in service quality. These results imply that the effectiveness of digital procurement is mostly dependent on the sufficiency of supporting facilities rather than just system complexity or human skill.

Based on these findings, it is recommended that local governments prioritize the improvement of infrastructure, particularly in terms of information technology facilities, network stability, and system accessibility, as these aspects have the most direct impact on service quality. In addition, continuous development of the e-Catalog system is necessary to

enhance usability, reliability, and integration. Efforts to improve human resource competence should not only focus on training but also on ensuring the effective application of skills in operational practices through better coordination, clear standard operating procedures, and performance evaluation. In order to provide a more thorough understanding of procurement service quality, future research is advised to include additional variables like organizational culture, leadership, policy implementation, and user satisfaction. Additionally, the research scope should be expanded across various regions or institutions to enhance the findings' generalizability.

The findings of this study carry significant implications for the broader agenda of public service digitalization in Indonesia. As local governments increasingly adopt digital platforms to deliver public services, the experience of the Batam City Government with the e-Catalog system offers valuable lessons for policymakers and practitioners. First, digitalization of public services must be accompanied by adequate physical and technological infrastructure, as the dominance of facilities in this study confirms that digital systems can only perform optimally when supported by reliable IT equipment, stable internet connectivity, and accessible service environments. Second, the transition to digital procurement platforms must be managed carefully to ensure that human resources are not only trained in system operation but are also empowered to utilize digital tools effectively in their day-to-day work. Third, the digitalization of procurement services contributes directly to the broader goals of smart governance by enhancing transparency, reducing bureaucratic inefficiencies, and creating auditable digital records that strengthen accountability and public trust. Fourth, e-procurement systems such as the e-Catalog serve as important instruments for corruption prevention, as they standardize pricing, minimize direct interactions between procurement officers and suppliers, and reduce opportunities for fraudulent practices. Therefore, investing in public service digitalization is not merely a technological endeavor but a strategic governance reform that requires simultaneous attention to infrastructure, human capital, and institutional capacity. Policymakers at both the national and local levels should embed these considerations into their digital transformation roadmaps to ensure that the benefits of e-procurement systems are fully realized and sustainably maintained.

REFERENCES

- A Anggraena, A. M. W., Sari, R. D., & Nugraheni, M. (2025). Analisis kualitas website e-katalog terhadap kepuasan pengguna menggunakan metode *WebQual* 4.0. *Jurnal Pinter*, 9(1), 101-109.
- Adjei-Bamfo, P., Maloreh-Nyamekye, T., & Ahenkan, A. (2019). The role of e-government in public procurement in developing countries. *Resources, Conservation and Recycling*, 142, 189–197.
- Ameyaw, C., Mensah, S., & Osei-Tutu, E. (2012). Public procurement in Ghana. *Journal of Public Procurement*, 12(4), 484–507.
- Anna Maulidita Widy Anggraena, Ressay Dwitias Sari, & Murien Nugraheni. (2025). Analisis Kualitas Website Xyz Terhadap Kepuasan Pengguna Dengan Menggunakan Metode

- Webqual 4.0. *PINTER : Jurnal Pendidikan Teknik Informatika Dan Komputer*, 9(1), 101–109.
<https://doi.org/10.21009/pinter.9.1.14>
- Armstrong, M. (2006). *A handbook of human resource management practice* (10th ed.). Kogan Page.
- Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. John Wiley & Sons.
- Croom, S., & Brandon-Jones, A. (2007). Impact of e-procurement: Experiences from implementation. *Journal of Purchasing and Supply Management*, 13(4), 294–303.
- Dani Ariza. (2024). E-Katalog: Langkah Strategis Pemerintah dalam Memerangi Fraud Pengadaan Barang dan Jasa. *AKADEMIK: Jurnal Mahasiswa Ekonomi & Bisnis*, 4(1), 1–10.
- DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, 3(1), 60–95.
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30.
- Ghozali, I. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS*. Semarang: Badan Penerbit UNDIP.
- Gronroos, C. (2007). *Service management and marketing: Customer management in service competition* (3rd ed.). John Wiley & Sons.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning.
- Irawati, N., Jumaidi, & Paulina, S. (2022). Efektivitas penggunaan e-Katalog dalam pengadaan barang dan jasa pemerintah. *Jurnal Pengelolaan Pemerintahan*, 5(2), 212224. <https://ejournal.stiaamuntai.ac.id/index.php/JPP/article/download/1059/845>
- Jahangiri, M., Hoboubi, N., Rostamabadi, A., Keshavarzi, S., & Hosseini, A. A. (2016). Human Error Analysis in a Permit to Work System: A Case Study in a Chemical Plant. *Safety and Health at Work*, 7(1), 6–11. <https://doi.org/10.1016/j.shaw.2015.06.002>
- Khairunnisya, H. (2018). *E-Procurement Dalam Pengadaan Barang dan Jasa Pada Unit Layanan Pengadaan Secara Elektronik (LPSE) Sebagai Upaya Terwujudnya Good Governance*.
[http://repository.ub.ac.id/165908/1/Hedinar Khairunnisya.pdf](http://repository.ub.ac.id/165908/1/Hedinar%20Khairunnisya.pdf)
- Kholby, A. S., Mulyandani, V. C., & Surya, R. T. (2022). Pengaruh penerapan *e-procurement* dan kompetensi pegawai terhadap pencegahan kecurangan pengadaan barang dan jasa. *Indonesian Accounting Research Journal*, 3(1), 70-83
- Laily, Y. M., & Utami, D. A. (2022). Kualitas pelayanan publik bidang layanan informasi di Kantor Bersama Samsat Kabupaten Sidoarjo. *Jurnal Administrasi Negara*, 28(1), 65.
https://journal.stialanmakassar.ac.id/index.php/jurnal_administrasi_negara/article/download/1667/103
- Layanan, B., Daerah, U., Pelaksana, U., Batam, K., Pelalawan, P. K., Rokan, K., Hilir, K. R., Siak, K., Karimun, K., Natuna, K., Hulu, K. R., Rokan, K., Siak, H. K., Karimun, K., Lembaran, T., Republik, N., & Negara, T. L. (2021). Peraturan walikota batam.
- Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah. (2025, 5 Januari). Era baru pengadaan barang/jasa pemerintah dengan katalog elektronik V6.

- <https://www.lkpp.go.id/read/bu/era-baru-pengadaan-barang-jasa-pemerintah-dengan-katalog-elektronik-v6>
- Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah. (2021). Peraturan LKPP Nomor 10 Tahun 2021 tentang Fungsi Layanan Pengadaan Secara Elektronik (LPSE).
- LKPP. (2025). Syarat dan Ketentuan Katalog Elektronik Versi 6 (Versi 1.4). <https://bantuan.inaproc.id/hc/id-id/articles/10157833668111-Syarat-dan-Ketentuan-Katalog-Elektronik-Versi-6-Versi-1-4>.
- Lucca, A. P. (2016). Pengaruh penerapan *e-procurement* dan kompetensi pegawai terhadap kinerja pegawai (Studi pada Layanan Pengadaan Secara Elektronik (LPSE) dan Unit Layanan Pengadaan (ULP) Pemerintah Kota Surabaya) [Skripsi, Universitas Brawijaya].
- Mansyur, M. N., Subagja, I. K., & Hakim, A. (2025). Pengaruh pemanfaatan teknologi informasi terhadap kualitas layanan serta kepuasan masyarakat dalam pelayanan publik. *Jurnal Ekonomi Manajemen Sistem Informasi (JEMSI)*, 6(5), 3112-3120. <https://dinastirev.org/JEMSI/article/download/5090/2597/20444>
- Mathis, R. L., & Jackson, J. H. (2011). *Human resource management* (13th ed.). South-Western Cengage Learning.
- Mellouli, S., Luna-Reyes, L. F., & Zhang, J. (2014). Smart government, citizen participation and open data. *Information Polity*, 19(1–2), 1–4.
- Moenir, H. A. S. (2010). *Manajemen pelayanan umum di Indonesia*. Bumi Aksara.
- Maulidiah, E. P., Survival, & Budiantono, B. (2023). Pengaruh fasilitas terhadap kualitas pelayanan serta implikasinya pada kepuasan pelanggan. *Economina: Jurnal Ekonomi dan Bisnis*, 2(3), 727-737.
- Muharram, M., Hariyati, D., & Rosintan Simanjuntak, L. (2025). Efisiensi dan Efektivitas Pengadaan Barang/Jasa (E-Procurement) Pada LPSE dan E-Katalog di Dinas Lingkungan Hidup Provinsi DKI Jakarta. *Journal of Accounting and Finance Management*, 6(3), 1547–1559. <https://doi.org/10.38035/jafm.v6i3.2277>
- Neef, D. (2001). *E-procurement: From strategy to implementation*. Prentice Hall.
- Panayiotou, N. A., Gayialis, S. P., & Tatsiopoulos, I. P. (2004). An e-procurement system for governmental purchasing. *International Journal of Production Economics*, 90(1), 79–102.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Pelealu, R. R., Nayoan, H., & Sampe, S. (2022). Pengaruh sarana dan prasarana terhadap efektivitas kerja pegawai pada Badan Kesatuan Bangsa dan Politik Daerah Provinsi Sulawesi Utara. *Jurnal Governance*, 2(2), 1-8.
- Pemerintah Kota Batam. (2023). Peraturan Walikota Batam Nomor 25 Tahun 2023 tentang Tugas Pokok, Fungsi, Uraian Tugas, dan Sistem Kerja di Lingkungan Sekretariat Daerah (No. 25). <https://peraturan.bpk.go.id/Details/275683/perwali-kota-batam-no-25-tahun-2023>.
- Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995). Service quality: A measure of information systems effectiveness. *MIS Quarterly*, 19(2), 173–187.

- Putra, E. A. (2024). Analisis kepuasan pengguna e-katalog dan kemudahan penggunaan terhadap efektivitas belanja barang di lingkungan TNI AL. *ROUTER: Jurnal Terapan Operasi Laut*, 2(1), 1-7.
- Ramadhani, T. (2019). Evaluasi kinerja e-procurement pada Layanan Pengadaan Secara Elektronik (LPSE) Kota Batam tahun 2017-2018. Universitas Muhammadiyah Yogyakarta.
- Sari, A. P., Miladan, N., & Pujantyo, B. S. (2025). Aksesibilitas ruang publik bagi penyandang disabilitas di kawasan Alun-Alun Demak. *Desa-Kota: Jurnal Perencanaan Wilayah, Kota, dan Permukiman*, 7(1), 136-148. <https://doi.org/10.20961/desa-kota.v7i1.84978>
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach* (7th ed.). Wiley.
- Sihaloho, S. W. (2022). Efektivitas e-Katalog pada kegiatan pengadaan barang dan jasa dalam upaya pemerintah mencegah fraud. *Scientific Journal of Reflection*, 5(2), 1–12. <https://ojspustek.org/index.php/SJR/article/view/798>
- Sihombing, A. A., Situmeang, D. A., Simbolon, M. T. D. E. B., & Khoirunnisa, N. (2025). Pengaruh fasilitas pelayanan publik terhadap kepuasan masyarakat di Kantor Camat Medan Area. *JUDIKA: Jurnal Administrasi Perkantoran*, 14(1), 37-46.
- Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. John Wiley & Sons.
- Suardi, I., Rossieta, H., Djakman, C., & Diyanty, V. (2024). *Procurement governance in reducing corruption in the Indonesian public sector: a mixed method approach*. *Cogent Business and Management*, 11(1).
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Thai, K. V. (2001). Public procurement re-examined. *Journal of Public Procurement*, 1(1), 9–50.
- Wisastra, A., Baharudin, & Satria, I. D. (2019). Pelaksanaan pengadaan barang/jasa pemerintah ditinjau dari Peraturan Presiden Nomor 16 Tahun 2018. *Jurnal Pranata Hukum*, 4(2), 125–137. <https://doi.org/10.29303/pranatahukum.v4i2.81>
- Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2006). *Services marketing: Integrating customer focus across the firm* (4th ed.). McGraw-Hill.