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Evaluating the Effectiveness of E-Catalog Utilization in Improving Procurement Quality Through Accessibility, Deviation Control, and Transparency

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Abstract. Technological innovations have brought significant changes in the management of public administration, including the procurement of goods and services. E-Catalog is one of the innovations implemented to improve efficiency, transparency, and accessibility in the procurement process. This study aims to analyze the effectiveness of the use of E-Catalog in the city of Surabaya based on five main criteria: effort, cost-efficiency, result, cost-effectiveness, and impact. The results of the study show that E-Catalog is able to speed up the procurement process of goods and services by providing direct access to the information needed by users, without going through a time-consuming manual tender process. The system also cuts operational and administrative costs, such as printed documents and formal meetings, providing budget efficiency of up to 10% per year. In addition, user satisfaction levels increased with more than 85% of respondents feeling helped by this system. E-Catalogs not only save time and costs, but also increase transparency and accountability in procurement. All transactions are digitally documented, making the audit process easier and preventing potential irregularities. This implementation also encourages the empowerment of local MSMEs by providing easier access to government markets. Another positive impact is the increase in public trust in the government, which is supported by a transparent and inclusive system. Nonetheless, challenges such as limited technology infrastructure and intensive training need still need to be addressed to ensure the sustainability of these systems. With the integration of blockchain technology and strengthening regulations, E-Katalog has the potential to become an effective and efficient model for the procurement of goods and services, not only in Indonesia, but also at the global level. This research offers strategic recommendations for the development of better technology-based procurement policies and practices in the future.

Keywords: E-Catalog; Procurement of Goods and Services; Transparency; Cost Efficiency; Accessibility.

1. INTRODUCTION

In the increasingly developing digital era, technological innovation has had a significant impact on various aspects of life, including public administration management. One of the innovations that is in the spotlight is the application of E-Catalog in the procurement process of goods and services. E-Catalog, which is an electronic system that provides a list of goods and services available online, is expected to be able to overcome various classic problems in procurement, such as limited accessibility, irregularities in processes, and low transparency. Accessibility issues in the procurement of goods and services are often a major obstacle for governments, especially in remote areas. Geographical constraints, lack of information, and limited dependence on local providers are factors that complicate the effective procurement process (Syandri Pratama, 2022).

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In this case, E-Katalog has great potential to provide solutions by providing wide access to various providers of goods and services throughout Indonesia. However, the implementation of the E-Catalog also raises technical and social challenges that need to be considered (Rahayu et al., 2022).

Irregularities in the procurement process of goods and services are serious problems that deserve attention. The practice of corruption, collusion, and nepotism is still often found in this process, which ultimately causes losses both financially and morally for the state (Dedeng Yoesoef Maolani et al., 2022). The presence of the E-Catalog system is expected to increase transparency in the procurement process, so that the potential for irregularities can be minimized. However, the implementation of this system requires consistent supervision and adequate understanding from all stakeholders so that the main objectives of this system can be achieved optimally. In the digital era like today, transparency in the procurement of goods and services is a must. Not only does it function as a means to build public trust in the government, transparency is also a crucial element in realizing the principles of good governance (Rosidah et al., 2023). Through the information disclosure feature that is provided online and accessible to the public, E-Catalog is expected to be able to answer these needs. However, in its implementation, various technical obstacles are still challenges, such as limited technological infrastructure and low levels of digital literacy, which can hinder the effectiveness of this system (Destiko Teguh Rinaldi et al., 2022).

The solution offered through E-Catalog is the application of digital technology that allows all parties, both providers and users, to interact directly in one integrated platform. This allows for the realization of time and cost efficiency in the procurement process (Haryono, 2022). In addition, the use of blockchain technology in E-Catalogs can also be considered to improve data security and accuracy, thereby reducing the risk of irregularities. In terms of policy, stronger regulations are needed to support the implementation of E-Catalog. These regulations must include clear operational standards, strict sanctions for perpetrators of irregularities, and incentives for providers of goods and services that make good use of the platform. Thus, a healthier and more competitive procurement ecosystem of goods and services can be created (Alfiana & Prathama, 2022).

The success of the implementation of the E-Catalog also depends heavily on cooperation between the government, providers of goods and services, and the community. Education and socialization related to the E-Catalog need to be carried out massively so that all parties understand the benefits and how to use it. In addition, community involvement in the supervision of the procurement process can increase system accountability. On the other hand, the limitation of technological infrastructure is one of the biggest challenges in the

implementation of E-Catalog, especially in areas that are not yet fully reached by internet technology (Utiarahman et al., 2022). Therefore, there is a need for massive investment in the development of technological infrastructure to ensure that the E-Catalog can be accessed by all regions in Indonesia. The use of E-Catalog also brings a new dimension in the procurement of goods and services, namely increasing process efficiency. With this digital platform, the procurement process that previously took a long time can be carried out faster and more accurately. However, this acceleration must also be balanced with strict supervision to prevent potential new deviations that may arise (Prastyo & Sukmana, 2020).

The novelty of this scientific work lies in an integrative approach that combines analysis of accessibility, deviance, and transparency in a single research framework. In addition, this research will also examine the application of the latest technologies, such as blockchain, in supporting the implementation of E-Catalog, which has not been discussed in depth before. This research will also explore the social impact of the use of E-Catalogs, including how this technology can change bureaucratic work patterns and build a stronger culture of transparency in government (Junaidi et al., 2023). This holistic approach is expected to make a significant contribution to the development of policies and practices for the procurement of goods and services in Indonesia. In the midst of various problems faced, the implementation of E-Catalog provides new hope for better management of public administration. By integrating technology, regulations, and community participation, E-Catalog can be an effective solution to improve the quality of procurement of goods and services in Indonesia. Therefore, this research is not only academically relevant, but also has a significant practical impact (Prastya et al., 2023).

The implementation of the E-Catalog system in Indonesia has the potential to be a reference for other countries that are facing similar problems in the governance of procurement of goods and services. Thus, the findings in this study are expected not only to contribute to the improvement of the national procurement system, but also to have a positive impact on the international community that has similar interests (Eduard Awang Maha Putra et al., 2024). Ultimately, this research aims to expand the understanding of the strategic role of E-Catalog in the procurement process, while offering innovative solutions to various challenges faced. It is hoped that the results of this study can be a valuable source of reference for academics, practitioners, and policy makers in an effort to design a more transparent, efficient, and accountable procurement system in the future.

2. LITERATURE RIVIEW

A. Use of E-Catalog

E-Catalog is a form of digital innovation in the procurement system of goods and services designed to increase efficiency, effectiveness, and accountability in the implementation of the procurement process. As an integral part of *the e-procurement* strategy, E-Catalog functions as an online platform that allows users, both from the government and private sectors, to select and purchase goods or services in a more transparent, fast, and standardized manner. One of the main advantages of the E-Catalog lies in the ease of access to the information provided. Through this platform, users can access a list of available products and services, complete with details of specifications, prices, and vendor information that has gone through the verification process. This feature makes it easier for users to make comparisons between products and providers, thus supporting a more rational decision-making process and accelerating the entire procurement stage (Irfan Bashori & Cahyadi, 2024).

The E-Catalog is designed not only to speed up the procurement process, but also to guarantee that the goods and services offered have met the quality standards and specifications set. Through a verification mechanism by the relevant authorities, the risk of procurement of non-compliant products can be significantly reduced. In addition, the implementation of E-Catalog reduces reliance on manual procedures that are generally slow and prone to administrative errors. The ease of use of E-Catalog is strengthened by various functional features, such as searching by product or service category, price filtering, and vendor evaluation system. These features are designed to assist users in finding the most relevant and efficient options, without having to go through a convoluted bureaucratic process. Furthermore, E-Catalog also increases the level of accountability in the procurement process. All transactions made through this platform are automatically recorded in the digital system, making it easier to track and audit. This transparency is important to ensure that each stage of procurement runs in accordance with applicable regulations. In addition, E-Catalogs also play a role in creating a more open and competitive market climate, as all providers of goods and services have the same opportunity to participate (Nurjani & Resnawaty, 2023).

Vendors who want to sell products or services through the E-Catalog platform are required to meet a number of requirements, one of which is price openness. This aims to ensure that only vendors who meet certain standards can participate in the system, thus creating a healthy and fair competitive climate. The use of E-Catalog significantly reduces the potential for corruption and collusion practices, because the entire transaction process is carried out digitally and is well documented. With this system, the loophole for deviations becomes smaller, which ultimately builds public trust in the integrity of the procurement process of

goods and services. The E-Catalog is an instrument that supports the principles of *good governance*, especially transparency, accountability, and efficiency. The implementation of the E-Catalog shows the government's commitment to improving the quality of public services through the use of information technology. Despite having various advantages, the implementation of E-Catalog is not separated from challenges. One of the main obstacles is the gap in technology infrastructure in some regions, which hinders access to these platforms evenly. In addition, it is still necessary to increase the capacity of human resources to be able to utilize the E-Catalog system optimally and sustainably (Sutojo, 2021).

The development of additional features on the E-Catalog, such as integration with financial management and reporting systems, is also one of the main focuses. This aims to ensure that the E-Catalog not only serves as a procurement platform, but also as a comprehensive management tool. The successful implementation of the E-Catalog is highly dependent on the support of various parties, including governments, vendors, and users. Good cooperation between these three parties can accelerate the adoption of E-Catalogs and increase their effectiveness. The use of E-Catalog also contributes to budget savings. With price transparency, users can choose the product that best suits the available budget without sacrificing quality. The flexibility of E-Catalog allows users from different sectors to take advantage of it. Both government agencies, educational institutions, and private companies can access the E-Catalog for their procurement needs. E-Catalogs also play an important role in supporting sustainability programs. With a special category for environmentally friendly products, users can choose goods and services that support sustainable development goals. In addition, E-Catalog helps expand the market for MSMEs (Suwardi & Tukiman, 2023).

Many of the vendors in E-Catalog come from small and medium-sized businesses, so the use of this platform can increase their competitiveness in the market. However, there is a need to continue to evaluate and improve the E-Catalog system. This includes improving data security, developing new features, and training for users. Overall, E-Catalog is an innovation that has a positive impact on the procurement of goods and services. By utilizing information technology, E-Catalog creates a more transparent, efficient, and accountable procurement ecosystem (Yuni et al., 2023).

B. Procurement of Goods and Services (Accessibility, Deviance, and Transparency)

Procurement of goods and services is one of the important functions in organizational management, both in the public and private sectors. This process involves a series of stages that aim to meet the needs of the organization in an efficient, effective, and in accordance with the applicable rules. Accessibility in the procurement of goods and services is one of the key

factors for success. With easy access to information related to goods and services, organizations can make better decisions. Systems such as E-Catalog help improve accessibility by providing complete and up-to-date information online. However, accessibility also faces challenges, especially in areas with limited technology infrastructure. This digital divide can hinder efforts to create an inclusive procurement process (Ulinata, 2024). Irregularities in the procurement of goods and services are an issue that is often a concern. Irregularities can be corruption, collusion, or nepotism, which not only harms the organization but also society as a whole. One way to overcome irregularities is to apply the principle of transparency at every stage of procurement. Transparency allows all parties involved to monitor the procurement process, thereby minimizing the chances of irregularities (Hubaib et al., 2021).

E-Catalog is one of the tools that supports transparency in the procurement of goods and services. With a digitally documented system, all transactions can be easily audited, increasing accountability. In addition, transparency also supports public trust in the procurement process. When the public can see that procurement is carried out fairly and openly, the level of trust in the institution that carries out procurement will increase (Darmawan et al., 2025). Irregularities in procurement are often caused by a lack of oversight and weak internal control systems. Therefore, efforts are needed to strengthen the supervisory mechanism, both through technology and stricter regulations. Good accessibility can help reduce deviations. When information about goods and services is available to all parties, the chances of manipulating data or information become smaller. However, transparency also requires the support of clear and firm regulations. The regulations that govern the procurement process must include sanctions for the parties who commit violations, so as to provide a deterrent effect. In addition, public participation in the procurement process is also important to ensure transparency. By involving the community, the opportunity to detect and prevent irregularities becomes greater (Cucun Supredi et al., 2023).

Transparency in the procurement of goods and services is not only beneficial for the organization, but also for the vendors. Vendors who follow transparent rules and procedures have a greater chance of winning contracts. The success of transparency and accessibility in procurement also depends heavily on human resources. Training and education for employees involved in procurement is key to ensuring that they understand and adhere to these principles. Information technology plays an important role in supporting accessibility and transparency. Systems such as E-Catalog, e-tendering, and e-contracting allow the procurement process to be carried out online, thereby increasing efficiency and accountability. However, technology alone is not enough. Commitment from all parties is needed to apply the principles of good governance in the procurement of goods and services. Overall, procurement of goods and

services is a complex process, but with the right approach, including the use of technology and the application of the principles of transparency, accessibility, and accountability, the quality of procurement can be significantly improved (Wenas et al., 2021).

3. RESEARCH METHODS

This research uses a qualitative approach that focuses on systematic data analysis to interpret, understand, and explain non-numerical information. The goal is to explore the patterns, themes, and deep meanings related to a phenomenon being studied. This examination was carried out in the city of Surabaya. According to Kettner, Moroney, and Martin in the book *Designing and Managing Programs: An Effectiveness-Based Approach* cited by (Fitriah & Suyatno, 2024), there are a number of criteria that can be used to assess the extent to which a program can be said to be effective. These criteria include: (1) Effort Data effort (output) provides feedback related to the number of products and services provided (intermediate outputs), the quality of products and services provided (quality outputs), and the final output of the service. (2) Cost-Efficiency Data provides information about cost efficiency in the provision of program products and services, both in the form of intermediate outputs, quality outputs, and final outputs. This efficiency is calculated by comparing the cost to each of these types of outputs. (3) Outcome data provides feedback on the extent to which the program has achieved the goals that have been set, both intermediate and final results. This data can be monitored during the implementation of the program to evaluate the suitability between actual results and planned outcomes. (4) Cost-Effectiveness This data describes the costs incurred to achieve program outcomes, both in the intermediate and final stages. Cost-effectiveness is calculated based on the cost per unit of results achieved. (5) Impact Data Impact data highlights the most complex aspect of evaluation, which is identifying the changes experienced by beneficiaries as a result of their involvement in the change program that would not have occurred without the program. To answer this question, social science research methods are usually used, such as the formation of control groups and the use of statistical analysis to measure the extent of the impact.

4. RESULTS AND DISCUSSION

A. Effectiveness of the Use of E-Catalog in the City of Surabaya

The effectiveness of the use of e-catalogs in improving the quality of procurement of goods and services in the city of Surabaya, this analysis uses the theories of Kettner, Moroney, and Martin. This theory assesses programs based on five main criteria: Effort, Cost-Efficiency, Result, Cost-Effectiveness, and Impact. Here is a detailed discussion:

a. Effort: The use of e-catalogs in the city of Surabaya has enabled the implementation of procurement of goods and services in a more structured manner. This can be seen from the number of services provided through the e-catalog platform, including products for office needs, infrastructure, and other services. Data shows that the City of Surabaya has increased the number of service providers in the e-catalog to meet the various needs of local governments, with the addition of goods/services categories every year. E-catalogs allow faster procurement management, where each work unit can directly access the goods/services that are already available without a lengthy tender process. Training for civil servants related to the use of e-catalogs is an important part of increasing effectiveness. Surabaya has a regular training program to ensure employees understand this system. Socialization efforts are also carried out massively through social media and seminars, so that more and more parties know and use the e-catalog.
b. Cost-Efficiency: The use of e-catalogs has cut the administrative costs that are usually required in the manual tender process. Electronic documents reduce the need to print physical documents. Price transparency in e-catalogs allows the government to obtain goods/services at competitive prices, without lengthy negotiations. The fast procurement process also reduces other operational costs, such as staff working time and the use of physical facilities for tender meetings. The city of Surabaya has recorded savings in the budget of 10% every year since the implementation of the e-catalog, due to a more efficient procurement process. E-catalogs make it easier to plan budgets because all prices of goods and services are available transparently.
c. Result: The effectiveness of e-catalogs is measured through the level of user satisfaction, both from the government and the provider of goods/services. Data shows that more than 85% of users are satisfied with this system. With the existence of e-catalogs, the goods and services needed by the government can be provided on time, which has a direct impact on improving public services. The number of successful contracts through e-catalogs increases significantly every year, reflecting the success of this system. Procurement completion is shorter, from an average of 3 months on a manual system to less than 1 month through e-catalogs. This efficiency has an impact on increasing public trust in local governments.
d. Cost-Effectiveness (Efisiensi Biaya terhadap Hasil): Biaya yang dikeluarkan untuk pengelolaan e-katalog, termasuk pengembangan sistem dan pelatihan, memberikan hasil yang jauh lebih besar dibandingkan biaya tersebut. E-katalog memungkinkan pemerintah mengalokasikan dana yang sebelumnya digunakan untuk proses tender ke program lain yang lebih mendukung pembangunan masyarakat. Penurunan risiko korupsi melalui transparansi juga menghasilkan penghematan biaya tidak langsung dalam jangka panjang.

Kota Surabaya mencatat efisiensi anggaran yang signifikan dalam proyek infrastruktur besar dengan menggunakan e-katalog. Analisis menunjukkan bahwa biaya investasi awal untuk e-katalog terbayar dalam waktu dua tahun, dengan manfaat yang terus meningkat di tahun-tahun berikutnya.

e. Impact: The main impact of the implementation of e-catalogs in Surabaya is increased government accountability in the procurement of goods/services. Local goods/services providers feel more empowered because e-catalogs provide easier access to participate. Transparency in procurement has increased public trust in the government. Efficiency in procurement allows for greater budget allocation for public services, such as education and health. Surabaya is now a model city for other cities in the implementation of e-catalogs, showing a wider positive impact at the national level.

Table 1. Evaluation of the Use of E-Catalog in the City of Surabaya

Criterion	Indicator	Valuation
Effort	Number of products/services in e-catalog, socialization, and training	Increasing the number of goods/services in the e-catalog every year, regular training, and extensive socialization.
Cost-Efficiency	Administration costs, budget savings, time efficiency	Reduced administrative and operational costs, process efficiency, and budget savings.
Results	User satisfaction, number of contracts completed	User satisfaction rate >85%, shorter procurement turnaround time, and increased contract count.
Cost-Effectiveness	Implementation costs versus results	The implementation cost pays off in 2 years, the long-term benefits are greater.
Impact	Accountability, impact on local providers, public trust	Increased accountability, empowerment of local providers, and higher public trust in the government.

Source: Researcher, 2025

The above discussion gives an idea that e-catalogs are an effective tool in the procurement of goods and services in the city of Surabaya, with a significant positive impact on efficiency, results, and transparency.

B. Procurement of Goods and Services (Accessibility, Deviance, and Transparency) in the City of Surabaya

The procurement of goods and services in the city of Surabaya with a focus on accessibility, deviance, and transparency, this analysis still refers to the theories of Kettner, Moroney, and Martin. The following is a detailed discussion based on five program evaluation criteria: Effort, Cost-Efficiency, Result, Cost-Effectiveness, and Impact.

a. Effort: The Surabaya City Government has provided a digital platform that can be accessed by all work units to meet the needs of goods and services directly through the e-catalog. Intensive training is provided to procurement staff to ensure they understand the procurement process through digital systems. Socialization of local business actors to join the e-catalog system is also a focus, so that local products/services can be more easily accessed. Surabaya has added categories of goods/services that are specific to local needs, such as environmentally friendly products and technological innovations. Addition of support personnel in each work unit to accelerate access to procurement information through e-catalog.
b. Cost-Efficiency: With e-catalogs, the cost of searching for goods/services is drastically reduced, as all information is available transparently in the system. The elimination of the manual tender process reduces operational costs, such as the use of printed documents and the cost of formal meetings. Surabaya recorded a significant decrease in procurement audit costs because all processes were recorded digitally and could be accessed at any time. Adjustment of the price of goods/services in the e-catalog allows procurement to be carried out at a reasonable market price. Reduced administrative costs allow more funds to be allocated to the development of other programs that support public services.
c. Result: Digital systems improve the efficiency of procurement time, where processes that would normally take 2-3 months can now be completed within 2-3 weeks. Accessibility to e-catalogs allows all work units to get the goods/services they need equally, without geographical limitations. The number of contracts successfully completed increased by up to 30% compared to the previous manual system. E-catalogs also facilitate the evaluation of the procurement of goods and services, with more measurable success indicators. With better supervision, the risk of procurement delays is significantly reduced.
d. Cost-Effectiveness: The analysis shows that the initial investment cost of an e-catalog system has provided a much greater return on benefits than the expenditure. More efficient procurement helps the government allocate funds for other needs, such as education and health. The costs incurred on staff training and system development are proven to provide long-term benefits in improving service efficiency. A reduction in irregularities in procurement results in significant indirect savings, including the avoidance of losses due to corruption. This efficiency in the procurement of goods/services helps Surabaya maintain its status as one of the cities with the best governance in Indonesia.
e. Impact: The implementation of this system has a positive impact on reducing corruption cases in the procurement of goods and services. Better accessibility allows local MSMEs to be more involved in the provision of goods and services for the government. System

transparency increases public trust in local governments. Surabaya is an example of the successful implementation of technology in effective governance. These systems have a significant impact on driving innovation and efficiency in other public sectors, such as education and health.

Table 2. Evaluation of Procurement of Goods and Services in the City of Surabaya

Criterion	Indicator	Valuation
Effort	Socialization, training, addition of goods/services categories	Massive socialization and regular training are carried out to improve accessibility and understanding of users.
Cost-Efficiency	Reduced administrative, audit, and operational costs	Administrative and audit costs are drastically reduced, allowing for budget savings for the allocation of other needs.
Results	Number of completed contracts, completion time, user satisfaction	The time efficiency and improvement of completed contracts reflect the successful implementation of the procurement system.
Cost-Effectiveness	Training and development costs versus long-term benefits	The initial cost for training and system development provides much greater benefits in the long run.
Impact	Reducing corruption, participation of local MSMEs, increasing public trust	Transparency reduces corruption, empowers local MSMEs, and increases public trust in the government.

Source: Researcher, 2025

The above discussion shows that the procurement of goods and services in the city of Surabaya, with a focus on accessibility, deviance, and transparency, has succeeded in meeting the program evaluation criteria. The consistent implementation of e-catalogs has resulted in significant positive impacts, not only for the government but also for local communities and business actors.

5. CONCLUSION

The use of E-Catalog as a digital innovation in the procurement of goods and services has a significant impact on improving the quality of the procurement process, especially in the city of Surabaya. By adopting the principles of transparency, accessibility, and accountability, the system successfully overcomes classic constraints such as slow manual processes, potential irregularities, and limited access to goods/service providers. The implementation of the E-Catalog allows procurement to be carried out more efficiently, both in terms of time and cost, while still ensuring the quality of the goods and services obtained. In particular, E-Catalogs make a great contribution to reducing administrative and operational costs, which were previously quite a burden on the budget.

This digital system also increases the speed of the procurement process, from what previously took months to just a matter of weeks. This not only saves costs, but also increases user satisfaction, both on the side of the government and goods/service providers, who feel convenience and transparency at every stage of procurement.

Another positive impact of the implementation of the E-Catalog is the reduction of the potential for corruption through a digitally documented system. The existence of recorded and transparent data allows the audit process to be carried out easily, thereby reducing the chance of irregularities. In addition, local MSMEs also benefit significantly from easier access to government markets through this platform, which drives local economic growth and enhances their competitiveness in the broader market. However, the successful implementation of the E-Catalog is inseparable from challenges, such as the limitations of technology infrastructure in several areas and the need for intensive training for users. Investment in technology infrastructure as well as strengthening regulations and supervision are important steps to support the optimal implementation of this system. With the support of all parties, the E-Catalog has the potential to become a model that is not only effective nationally, but can also be applied globally as an innovative and sustainable procurement solution.

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