

Digital Innovation as a Driver of Change in the Government Procurement System in the 5.0 Era

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Abstract

Digital transformation in the era of the industrial revolution 4.0 and society 5.0 provides opportunities for the public sector, including in the procurement of government goods/services, to increase efficiency, transparency, and accountability. This study aims to analyze the implementation of digital transformation in the procurement of goods/services in Gorontalo Province through e-catalogues and online stores (e-purchasing). Research data was collected through in-depth interview methods, observations, and analysis of documents related to procurement transactions. The results of the study show that procurement digitalization has increased the involvement of local MSMEs and minimized the potential for misappropriation. However, there are a number of technical obstacles that affect the smooth implementation, such as the lack of readiness of human resources (HR) and the limitations of integration between digital platforms. To optimize the results of this transformation, more intensive human resource training and improvement of supporting technology infrastructure are needed. Thus, the digital transformation of procurement of goods/services in Gorontalo has the potential to become a more transparent and efficient procurement governance model in the future.

Keywords:

digital transformation; e-procurement; e-catalogue; procurement of goods/services

Introduction

Digital transformation is a fundamental change in the way organizations operate, leveraging technology to improve efficiency, adapting to market changes, and innovating business models. In the digital era and globalization, transformation often involves the use of information technology to improve efficiency and accessibility (Aneta et al., 2023). This transformation is not just about adopting new technologies; This transformation includes a comprehensive rethinking of business strategy, organizational structure, and cultural dynamics within the company (Azieva, 2021; Alasiri & AlKubaisy, 2022; Liu et al., 2011). The integration of digital technology into all aspects of an organization is critical to maintaining a competitive advantage in today's rapidly evolving digital landscape (Kutnjak, 2021; Imran et al., 2021).

An important aspect of digital transformation is the need for organizations to develop digital capabilities that align with their strategic goals. This involves not only the application of

advanced technology but also the development of new skills and roles in the workforce (Li et al., 2017; Mokhtar et al., 2020). For example, leadership plays a crucial role in steering an organization through the digital transition, ensuring that employees are equipped with the necessary competencies to thrive in a digital environment (Joshi, 2022; Mihardjo et al., 2019).

In addition, the COVID-19 pandemic has accelerated the urgency of digital transformation in various sectors, forcing organizations to adapt quickly to remote work and the provision of digital services (Hai et al., 2021; Kutnjak, 2021). The crisis has revealed a critical need for a robust digital strategy that includes not only technology adoption but also a holistic approach to organizational change (Abdallah et al., 2021; Dörner & Rundel, 2021).

The challenges associated with digital transformation are multifaceted, often involving resistance to change, resource limitations, and the need for cultural change within the organization (Heinze et al., 2018). Successful digital transformation initiatives require a clear understanding of the interactions between technology, organizational structure, and market dynamics (Veldhoven & Vanthienen, 2021; Wang et al., 2023). Organizations must develop an environment that supports innovation, where experimentation and learning are encouraged, thus enabling them to adapt to the complexities of the digital economy (Jöhnk et al., 2022; Nadeem et al., 2018).

The digital transformation of government procurement of goods and services is a multifaceted process that integrates advanced technology to improve efficiency, transparency, and accountability in public administration. This transformation is marked by the implementation of an electronic procurement system (e-procurement), which simplifies the procurement process and facilitates better management of public resources.

One of the main benefits of digital transformation in government procurement is increased transparency and accountability. The e-procurement system allows for real-time tracking of procurement activities, which helps to reduce corruption and increase public trust in government operations. For example, countries such as Kenya and Tanzania have implemented e-procurement to ensure that the procurement process is transparent and accountable, thus encouraging good governance (Owuor, 2023; Wicaksono et al., 2017). The use of online platforms for procurement allows for better oversight and reduces opportunities for corrupt practices by making procurement data accessible to stakeholders (Alryalat et al., 2023; Cunha et al., 2019).

Digital transformation in the government procurement process has emerged as an important area of focus in public administration, especially in the context of increasing efficiency, transparency, and accountability. This transformation is driven by the integration of advanced digital technologies such as artificial intelligence (AI), blockchain, and e-procurement systems,

which collectively aim to streamline procurement operations and improve service delivery to citizens.

One of the main motivations for digital transformation in public procurement is the need to increase efficiency and reduce bureaucratic delays. According to Nurfadilah, the application of digital technology in the public sector can result in a significant increase in service delivery, thereby increasing public satisfaction and response to contemporary demands (Nurfadilah, 2024). Similarly, the use of e-procurement systems has been shown to minimize transaction costs and increase competitiveness, as highlighted by Issabayeva et al. (Issabayeva et al., 2019). This system facilitates a more transparent bidding process, which is crucial for building trust among stakeholders and reducing the chances of corruption (Nwozor et al., 2022).

This shift is echoed in the findings of McBride et al., which emphasize the growing importance of understanding e-procurement systems in the context of digital government initiatives (McBride et al., 2021). In addition, the legal and regulatory framework around digital procurement continues to evolve to support these technological advancements. Sergacheva discussed how the digitalization process in Russia has had a significant impact on public procurement, thus requiring new legal regulations to effectively regulate these changes (Sergacheva, 2022). Similarly, the OECD has recognized the strategic role of public procurement in achieving national digital governance strategies, advocating for innovative and flexible procurement frameworks that utilize ICTs ("Full list of CPV codes used for the purposes of the Report", 2022). This is in line with the findings of Rytova et al., who highlighted the transition to data-based administration as a catalyst for technological breakthroughs in public governance (Rytova et al., 2020).

However, the transition to digital procurement is not without its challenges. Issues related to cybersecurity, regulatory compliance, and the need for digital leadership are critical factors that must be addressed to ensure a successful implementation. As Dudić notes, a comprehensive, risk-aware approach is essential to drive sustainability and collaboration in digital procurement (Dudić, 2024).

In addition, the shift to digital procurement is in line with the principle of agile practices in the provision of public services. Agile methodologies emphasize collaboration, flexibility, and responsiveness to change, which is essential for modernizing the public procurement process. This approach has been proven to improve service delivery by involving various stakeholders early in the procurement process, ensuring that public needs are met more effectively (Adeyinka, 2023). The integration of digital devices not only simplifies procurement workflows but also

encourages innovation in service delivery, as governments can leverage data analytics and other technologies to make informed decisions (Kumar, 2023; McBride et al., 2021).

Digital transformation is one of the important steps in the era of the industrial revolution 4.0 and society 5.0, which has brought significant changes to various sectors, including the public sector. Advances in information and communication technology offer great opportunities to increase efficiency and transparency in government services. Governments in various countries, including Indonesia, have begun to adopt digital technology to accelerate the procurement process of goods and services and improve the quality of public services. The use of this technology not only speeds up the implementation time, but also helps create a more open and accountable system in the procurement of government goods and services. However, this digitalization also brings its own challenges, especially in terms of adapting existing structures and processes in government.

Table 1.
Number of procurement defense transactions in 2021

It	Province	Number of Transactions (Rp)
1.	Jakarta	29.732.407.735
2.	East Java	14.190.778.019
3.	Bali	6.332.011.122
4.	West Java	4.525.746.715
5.	Gorontalo	4.389.379.650
6.	Central Java	4.148.435.292
7.	South Kalimantan	1.733.448.629

Source: LKPP Portal, January 2022

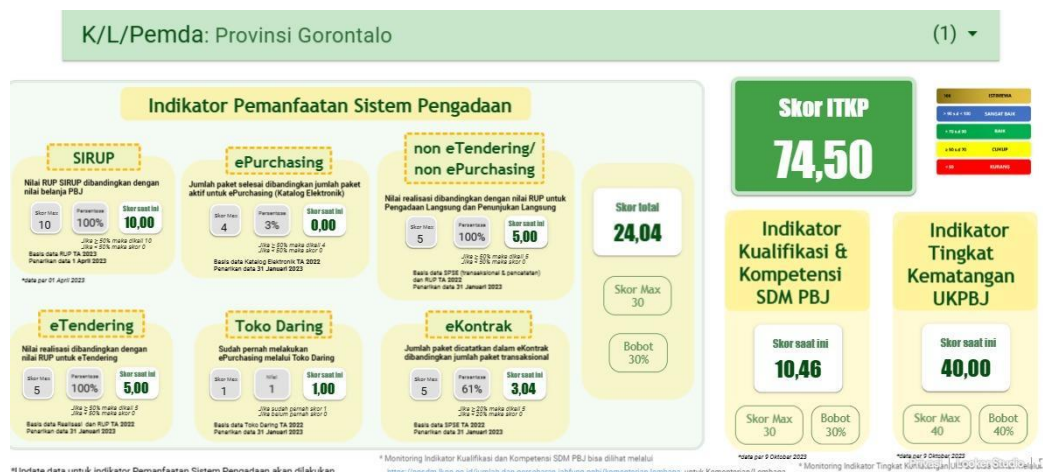
In Indonesia, digital transformation in the procurement of government goods/services has been specifically regulated through various national policies. One of the important policies is the implementation of e-procurement which changes conventional procurement methods to digital-based. E-procurement allows the procurement of goods and services to be carried out more efficiently, starting from the preparation of electronic catalogs (e-catalogue), to purchase transactions through online stores (e-purchasing). This initiative not only encourages operational efficiency but also expands opportunities for Micro, Small, and Medium Enterprises (MSMEs) to participate in government procurement. Programs such as e-catalogues and online stores help create a more inclusive and open market for small businesses in different regions.

In Gorontalo Province, digital transformation in the procurement of goods and services has been implemented through digital platforms since 2021. This province is one of the most serious regions in utilizing procurement digitalization through collaboration with various marketplace platforms such as MbizMarket and Grab. The Gorontalo Provincial Government has

also initiated the "Hulontalo Lipuu Online Market" (Potali) program, which facilitates more than 400 local MSME actors to join the digital procurement system. The use of this digital platform aims to increase the involvement of MSMEs in the procurement of government goods/services and encourage the use of local products. Since the launch of the Potali program, there has been a significant increase in the number of transactions through the digital platform.

Figure 1.

Gorontalo Province Procurement Governance Index 2023



However, there are still a number of challenges in the implementation of digital transformation in the procurement of goods/services in Gorontalo. One of the obstacles that is often encountered is the lack of readiness of human resources (HR) in operating a technology-based procurement system. Many procurement managers are not used to using digital systems, so there are often technical problems that slow down the procurement process. In addition, the integration system between various digital platforms used by the government and goods/service providers is also still not running optimally. This often leads to delays in the verification and payment process, which ultimately impacts procurement efficiency.

Based on some of these problems, digital transformation in the procurement of goods/services in Gorontalo requires improvements in terms of technical and regulatory aspects. The availability of better technological infrastructure, adequate human resource training, and improved regulations related to the use of digital platforms are very crucial. It is hoped that with these improvement steps, digital transformation can be more optimal in supporting the implementation of transparent, efficient, and accountable procurement of goods/services. In addition, the government needs to continue to encourage MSME participation in procurement through simplifying procedures and improving access and technology facilities, so that this program can provide maximum benefits for the regional economy.

However, the transition to digital procurement is not without its challenges. Issues such as inadequate digital literacy among government employees and the need for robust infrastructure can hinder the implementation of effective e-procurement systems. Various studies show that many government employees do not have the necessary skills to operate these systems efficiently, which can lead to resistance and suboptimal use of digital devices (Modrušan et al., 2021; Riauan et al., 2022). In addition, the fragmentation of digital infrastructure in various government agencies can result in compartmentalized operations, which further complicates the integration of procurement processes (Adeyinka, 2023; Mavidis & Folinas, 2022). To address these challenges, it is important for governments to invest in training and capacity building for their personnel, as well as build a cohesive digital strategy that covers all aspects of procurement. This includes adopting modular contracting methods and a recurring delivery approach that allows for continuous improvement and adaptation to changing needs (Bienhaus & Haddud, 2018). Furthermore, the use of new technologies, such as blockchain, can improve the security and integrity of procurement processes, providing a robust framework for combating fraud and ensuring compliance with regulatory requirements (Mackey & Cuomo, 2020; Mokeeva, 2023).

Methods

This study uses a qualitative method that aims to explore in depth the implementation of digital transformation in the procurement of goods/services in Gorontalo Province. Qualitative research is essentially interpretive, aiming to provide rich and contextual insights into the subject being researched (Cleland, 2017; John D. Hillebrand, 2000; Yanggratoke et al., 2017). This qualitative approach is used to understand phenomena in a more complex and in-depth context, such as the challenges and benefits faced by procurement actors and MSMEs in the digital transformation process. Using this approach, researchers can obtain rich and detailed data on the experience of research subjects related to digital procurement.

Research Location

This research was carried out in **Gorontalo Province**, which is one of the regions in Indonesia that has adopted a digital system in the procurement of government goods/services. This province was chosen because it has successfully implemented e-procurement platforms, such as e-catalogues and online stores, to facilitate the procurement of goods/services. Gorontalo is considered a representative location because it has policies and infrastructure that support digital transformation in the public sector. The main focus of this research is on government agencies and the Goods/Services Procurement Work Unit (UKPBJ), which is responsible for the implementation of digital procurement within the provincial government.

Research Subject and Informant

The subjects of this research are actors who are directly involved in the process of procurement of goods and services through digital platforms. They consist of Commitment Making Officials (PPK), procurement officials, and UKPBJ managers who are involved in the management and implementation of the digital procurement system. In addition, MSME actors involved in the procurement process through e-catalogues and online stores are also the subject of research. Informants are selected based on their involvement in the procurement process, especially those who are experienced in using digital platforms, so that they can provide insight into the benefits, challenges, and effectiveness of digital transformation in the goods/services procurement sector.

Data Collection Techniques

The subjects of this research are actors who are directly involved in the process of procurement of goods and services through digital platforms. They consist of Commitment Making Officials (PPK), procurement officials, and UKPBJ managers who are involved in the management and implementation of the digital procurement system. In addition, MSME actors involved in the procurement process through e-catalogues and online stores are also the subject of research. Informants are selected based on their involvement in the procurement process, especially those who are experienced in using digital platforms, so that they can provide insight into the benefits, challenges, and effectiveness of digital transformation in the goods/services procurement sector.

Data Analysis Techniques

The collected data was analyzed using **qualitative descriptive analysis** techniques. The first stage is **data reduction**, where researchers sort out relevant data from interviews, observations, and documents to match the focus of the research. Then the data that has been reduced is presented in the form of a descriptive narrative that describes the digital transformation process in the procurement of goods/services in Gorontalo Province. Furthermore, the researcher draws **conclusions** based on the patterns found from the analyzed data, such as the relationship between the use of digital platforms and the increase in efficiency and participation of MSMEs, as well as the technical challenges faced.

Validity and Reliability

To maintain the validity and reliability of the data, this study applies **the data triangulation method**. Triangulation is carried out by comparing the results of interviews, observations, and documents to ensure the suitability and consistency of the findings. In addition, the researcher also conducts **member-checking**, which is asking the informants to review the

results of the research findings, so that it can be ensured that the data obtained does not experience distortion. Reliability is maintained through the use of structured interview guidelines and consistency in data collection, so that the research results are reliable.

Research Limitations

This research has several limitations that need to be considered. One of the limitations is limited access to sensitive data, especially data related to transactions between goods/services providers and the government, which may be limited by internal regulations. In addition, since this study was conducted in Gorontalo Province, the results obtained may not be fully generalizable for other regions in Indonesia, considering that each region has different infrastructure and policy characteristics. Another limitation lies in the readiness of human resources involved in digital procurement, where the level of understanding of technology is still a significant obstacle.

Results

Digital transformation in the procurement of government goods and services in Gorontalo Province has brought significant changes in terms of efficiency and transparency. The implementation of e-procurement platforms, such as e-catalogues and online stores, allows the government to carry out the procurement process in a more open and measured manner. According to (Kutnjak, 2021), the use of digital technology in the public sector not only speeds up the procurement process, but also increases public trust by reducing the potential for misappropriation. This transformation is an important step in improving governance and promoting wider participation, especially MSMEs in the procurement of goods/services.

However, despite the increase in efficiency, this digital transformation is still faced with various challenges. One of the main problems that arise is the lack of readiness of human resources (HR) to fully utilize the new technologies available. (Wicaksono et al., 2017) stated that the success of the implementation of digitalization is highly dependent on the ability and readiness of the workforce to adapt to technological changes. This is in line with the finding that many procurement officials in Gorontalo still need intensive training in the use of e-procurement.

In addition to human resource limitations, delays in the integration of various digital platforms are also an obstacle in optimizing digital procurement. According to (McBride et al., 2021), an inadequate integration system can result in inhibitions in the verification and payment process, which ultimately has an impact on procurement efficiency. In Gorontalo, this problem can be seen in various procurement processes that have experienced delays and even denials

from goods/services providers due to the lack of synchronization between the digital procurement system and traditional administrative processes.

The e-procurement system also faces challenges in reaching local MSMEs. Although programs such as the "Hulontalo Lipuu Online Market" have expanded the involvement of MSMEs in government procurement, some providers still find it difficult to fully utilize these platforms. According to (Aziz, 2023), factors such as lack of digital literacy and limited access to technology are the main obstacles for MSMEs in utilizing e-procurement platforms.

Since the implementation of the digital system in 2021, the number of transactions made through digital platforms has continued to increase. The Gorontalo Provincial Government reported that the use of online stores and e-catalogues has helped significantly increase the number of procurement transactions. According to data from the LKPP portal, Gorontalo managed to achieve transactions of 439 billion rupiah through a digital platform in the first year of implementation. However, despite the increase in transaction volume, the issue of efficiency and speed of procurement completion is still a major concern.

The use of the e-catalogue system is also considered to speed up the procurement process and increase transparency (Wicaksono et al., 2017) stated that this system allows procurement to be carried out more openly by reducing manual intervention which is often a loophole for misappropriation. In Gorontalo Province, the implementation of e-catalogue has encouraged the government to make more use of local products, with 25 storefronts of local products already available on the platform.

Even so, resistance to change in the bureaucracy is still quite strong. Digital transformation requires a significant change in work culture in the public sector. According to (Wang et al., 2023), the success of digital transformation depends not only on the adoption of technology, but also on the willingness of organizations to overhaul their internal structures and processes. In Gorontalo, some procurement officials still tend to be more comfortable with traditional procurement methods, which hinders the full adoption of digital technology.

In addition, the e-procurement system is expected to reduce the risk of corruption in the procurement of goods/services. (Wicaksono et al., 2017) suggested that the use of digital platforms provides greater control in tracking transactions and reduces the space for corrupt practices. However, based on the 2022 BPK report, there are still indications of collusion between suppliers and procurement officials in several cases involving e-catalogues in Gorontalo.

To overcome this challenge, the Gorontalo government has taken strategic steps, including providing training and technical support for procurement officials and local MSMEs. According to (Abdallah et al., 2021) HR training and capacity building are key in accelerating

digital adaptation in the public sector. In addition, clearer regulations and better integration systems are needed to ensure the successful implementation of e-procurement.

The digitization of procurement of goods and services in Gorontalo through the e-procurement platform and the Hulontalo Lipuu Online Market has provided greater opportunities for MSMEs to participate in government procurement. Previously, MSMEs often had difficulty participating in procurement due to complicated processes and limited access to information. However, with this digital system, MSMEs can more easily register their products and compete more openly in government procurement. According to Aziz & Handoko (2021), procurement digitalization is able to open up wider market access for MSMEs, because the e-catalogue-based system allows small business actors to display their products directly to the government.

The success of the Potali program in Gorontalo is also supported by the technological infrastructure that is starting to develop, as well as support from the local government through regulations that require the use of digital platforms in procurement. With more than 3,456 MSME products aired on this platform, the Gorontalo Provincial government shows its commitment to encourage the use of local products in government procurement. Wicaksono (2023) emphasized that the involvement of MSMEs in the procurement of government goods/services not only has an impact on increasing MSME income, but also strengthens the local economy by utilizing the potential of domestic products.

However, despite MSME involvement increasing, challenges remain, especially related to MSMEs' ability to compete in the digital market. Many MSMEs still face obstacles in terms of digital literacy and access to adequate technology. According to (Mihardjo et al., 2019) The digital literacy gap among small business actors is an obstacle in maximizing the benefits of digital transformation. Therefore, training and technical assistance from the government are urgently needed to help MSMEs optimize the use of e-procurement platforms

In addition, the issue of system integration and digital platform stability is also a concern. As outlined in the BPK's findings in 2022, despite the increase in transaction volume, there are still complaints from MSMEs related to technical problems in the use of the platform, such as system instability and delays in the transaction verification process. This indicates that technological infrastructure must continue to be improved to support the growth of MSME participation in digital procurement.

With these various initiatives, the digitalization of procurement in Gorontalo is expected not only to increase the efficiency of government procurement, but also to encourage wider economic inclusion for MSME actors. The government needs to continue efforts to strengthen

technological infrastructure, regulations, and human resource capacity development so that MSMEs can more optimally participate in the procurement of government goods/services.

Overall, although digital transformation in the procurement of goods and services in Gorontalo Province has brought many benefits, improvements are still needed in various aspects to ensure its success. These improvements include human resource development, regulatory improvements, and technological infrastructure improvements. With these steps, digital transformation is expected to support the implementation of more efficient, transparent, and accountable procurement.

This transformation, while bringing a lot of progress, also presents significant challenges in terms of technology integration and organizational readiness. According to Mihardjo et al. (2019), digital transformation is not only about technology adoption, but also requires structural and cultural adjustments to the organization. In Gorontalo, the implementation of e-procurement and online stores faces resistance because this change requires a shift in work patterns that have not been fully accepted by all stakeholders.

In the process of digitalizing procurement, one of the big challenges is to ensure that system integration runs well. As pointed out by (Li et al., 2017), successful digital transformation requires an integrated and synchronous technology ecosystem. In Gorontalo, several government agencies are still having difficulty aligning the digital system with the manual processes that were previously used. This leads to inefficiencies in procurement workflows, especially when it comes to verification and payments which are often delayed due to technical constraints.

Another obstacle that is highlighted is the involvement of Micro, Small, and Medium Enterprises (MSMEs) in the digital procurement system. On the one hand, digital transformation has opened up greater opportunities for MSMEs to participate in government procurement. However, on the other hand, many MSMEs do not have sufficient technological capacity to adapt to digital platforms. Liu et al. (2011) emphasized that the success of digital transformation depends on the readiness of all stakeholders, including small business actors who need to be equipped with sufficient digital literacy.

In addition to digital literacy, MSMEs in Gorontalo also face the problem of access to adequate digital infrastructure. According to (Mokhtar et al., 2020), a strong infrastructure is the foundation of a successful digital transformation. In Gorontalo, although programs such as the Hulontalo Lipuu Online Market have helped more than 400 MSMEs join the digital system, there is still a technology access gap that needs to be addressed. Without sufficient infrastructure support, the potential of MSME digitalization cannot be maximized.

Furthermore, issues related to transparency and accountability are also an important part of the discussion of digital transformation in the procurement of goods/services. As mentioned by (Alryalat et al., 2023), the e-procurement system allows for tighter supervision of procurement transactions, which can ultimately reduce the chances of corruption. However, despite this potential, there are still indications of conspiracy in procurement through e-catalogues in Gorontalo, as reported in the BPK's findings in 2022. This shows that the application of technology alone is not enough without stricter supervision and clearer regulation.

The problems faced by Gorontalo also show that changing the work culture in the public sector is still a big challenge in the implementation of digital transformation. (Heinze et al., 2018) It suggests that resistance to change, especially in the bureaucratic environment, is the main obstacle in digital transformation. In Gorontalo, some procurement officials are still reluctant to switch from traditional procurement methods to digital systems, which shows that changing mindsets and work habits requires more serious time and effort.

In terms of regulations, although the government has issued various regulations to support digital transformation, such as Governor's Regulation Number 28 of 2021, the implementation of this regulation in the field still faces obstacles. Frequently changing regulations and lack of effective socialization cause confusion among procurement actors and MSMEs. This is in line with the view from Kutnjak (2021) which states that clear and consistent regulations are very important to support the effective implementation of digital transformation.

In addition to regulations, the government also needs to strengthen training and development of human resources. (Imran et al., 2021) emphasized that strong leadership and continuous training are key to ensuring that digital transformation goes as planned. In Gorontalo, training initiatives for procurement officials and MSMEs have begun, but the scope is still limited. To ensure success, the government needs to expand this program and ensure that all parties have sufficient understanding of the use of digital technology.

In the end, digital transformation in the procurement of goods/services in Gorontalo Province is a journey that still needs various improvements. While there have been significant advances in efficiency and transparency, challenges such as human resource readiness, infrastructure limitations, and resistance to change remain major obstacles. With a commitment to continue to improve the quality of regulations, human resource development, and technological infrastructure, digital transformation in Gorontalo is expected to achieve more optimal goals in supporting the procurement of goods/services that are efficient, transparent, and free from misappropriation.

Conclusion

Digital transformation in the procurement of goods and services in Gorontalo Province has brought significant changes, especially in terms of increasing efficiency, transparency, and accountability. The implementation of e-procurement through platforms such as e-catalogues and online stores has succeeded in expanding the participation of local MSMEs, with more than 400 MSMEs involved and more than 3,000 products on the Hulontalo Lipuu (Potali) Online Market platform. In addition, transactions generated through this platform show improvement, helping to support the local economy. This initiative also provides opportunities for MSMEs to compete more openly in the procurement of government goods and services, increasing access to a larger market.

However, the success of this digital transformation is still faced with a number of significant challenges. One of them is the low digital literacy among the human resources involved, especially in the bureaucratic environment. Lack of training and understanding of the use of digital platforms is an obstacle in optimizing existing systems. In addition, integrations between platforms that have not been fully implemented, as well as delays in the verification and payment process, have become recurring problems. To overcome this, continuous training and human resource capacity building must be a top priority so that the digital procurement system can run more effectively.

Overall, digital transformation in Gorontalo has great potential to become a more efficient, transparent, and accountable procurement governance model. However, its long-term success depends heavily on improvements in several key areas, such as strengthening the technology infrastructure and supporting regulations. With the right improvement measures, such as human resource capacity development and better platform integration, the e-procurement system in Gorontalo is expected to be more optimal in supporting inclusive and efficient procurement of goods and services, as well as supporting regional development in a more sustainable manner.

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