

ANALYSIS OF THE IMPLEMENTATION OF GOODS AND SERVICES PROCUREMENT THROUGH E-CATALOG VERSION 6 IN SUPPORTING PERFORMANCE-BASED BUDGET EFFICIENCY AT THE NORTH SULAWESI PROVINCIAL HEALTH OFFICE

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Article history: received 01 July 2026; revised 16 July 2026; accepted 24 July 2026

DOI: <https://doi.org/10.33751/jhss.v10i02.264>

Abstract. This study aims to analyze the implementation of goods and services procurement through E-Catalog Version 6 in supporting performance-based budget efficiency at the North Sulawesi Provincial Health Office. This study employed a qualitative approach with a case study design. Data were collected through in-depth interviews, observations, and document analysis involving parties responsible for planning, procurement, financial management, pharmaceutical services, and asset management. Informants were selected purposively and expanded through snowball sampling until data saturation was reached. Data were analyzed using an interactive model consisting of data reduction, data presentation, conclusion drawing, and verification. Data validity was ensured through source and technique triangulation. The findings indicate that the medicine procurement process has been implemented systematically through the collection of needs from regencies and cities, preparation of the Medicine Needs Plan, budget adjustment through the Regional Government Information System, verification using the Expenditure Standard Analysis, and transactions through the E-Catalog. The use of E-Catalog Version 6 improved access to information, price and specification comparisons, transaction transparency, and process traceability through digital negotiation and payment features. Procurement outcomes were reflected in timely delivery, relatively stable medicine availability, orderly inventory recording, and budget realization rates ranging from 96.78% to 99.59%. However, system utilization has not been fully optimized because not all types of medicine are available in the catalog. This study concludes that E-Catalog Version 6 supports performance-based budget efficiency by strengthening procurement processes, transparency, accountability, and orientation toward health service outcomes.

Keywords: E-Catalog Version 6, medicine procurement, budget efficiency, performance-based budgeting, New Public Management.

I. INTRODUCTION

Government procurement of goods and services holds a strategic position in public financial management. This activity is not merely concerned with fulfilling administrative needs, but also determines the quality of public services, program effectiveness, and the achievement of development targets. An appropriate procurement process enables the government to obtain goods and services in accordance with planned needs, quality standards, timelines, and costs. Conversely, an inefficient process may increase transaction costs, delay program implementation, and reduce the benefits of public spending for society. Therefore, public procurement must be conducted in accordance with the principles of efficiency, effectiveness, transparency, fair competition, equity, and accountability (Arrowsmith, 2022; Organisation for Economic Co-operation and Development [OECD], 2022).

The Indonesian government has continuously reformed public procurement through the use of information technology. This policy was strengthened through Presidential Regulation of the Republic of Indonesia Number 12 of 2021 concerning the Amendment to Presidential Regulation Number 16 of 2018

on Government Procurement of Goods and Services. The regulation positions electronic procurement as an important instrument for creating a faster, more transparent, efficient, and accountable procurement process. One form of its implementation is the use of the Electronic Catalog or E-Catalog, which is further regulated through Regulation of the National Public Procurement Agency Number 9 of 2021 concerning Online Stores and Electronic Catalogs (National Public Procurement Agency [LKPP], 2021; Republic of Indonesia, 2021).

The development of the E-Catalog has progressed to Version 6 as part of the strengthening of digital transformation in government procurement. This system is designed to simplify transaction processes, strengthen electronic documentation, improve transaction security, and support integration between procurement processes and financial management. Through this system, government agencies can compare products, specifications, prices, and suppliers more openly. All transaction processes can also be recorded electronically, thereby supporting supervision and auditing. The use of technology in public procurement has been shown to improve transparency, process efficiency, access to

information, and transaction accountability (Hochstetter et al., 2023; Mandala et al., 2024; Setiawan et al., 2025).

Nevertheless, the use of digital systems does not automatically guarantee successful procurement. Policy implementation is influenced by the organization's ability to translate regulations into consistent work procedures. Human resource competence, clarity of communication, technological support, implementers' attitudes, and bureaucratic structure also determine the success of policy implementation (Edward III, 1980). In the context of electronic procurement, limited user understanding, changes in transaction mechanisms, technical problems, the unavailability of required products in the catalog, and weak coordination among organizational units may reduce the benefits of the system. Therefore, the success of the E-Catalog must be assessed based on the quality of implementation, the level of system utilization, and the procurement outcomes achieved.

The implementation of electronic procurement is also closely related to performance-based budgeting. This approach links budget allocations to measurable output and outcome targets. Budget utilization cannot be assessed solely on the basis of a high absorption rate. The government must evaluate the relationship between the resources used, the goods or services produced, and the benefits of the program for society. Budget efficiency is achieved when an organization can produce outputs that meet actual needs through the optimal use of resources without reducing service quality (Mahmudi, 2021; Mardiasmo, 2018). Within this framework, electronic procurement should not only accelerate transactions, but also generate cost savings, ensure the appropriate quantity and quality of goods, provide certainty of delivery time, and support the achievement of program targets.

Several studies have shown that electronic procurement can improve time and cost efficiency while strengthening procurement transparency. Fithri et al. (2018) identified differences in effectiveness and efficiency between electronic procurement and conventional procurement processes. Haryadi and Setyowati (2024) also demonstrated that the implementation of the E-Catalog can support local government budget absorption performance. In the health sector, Irawati et al. (2025) found that the E-Catalog can improve the effectiveness of goods procurement, although its results still depend on user readiness, product availability, and system reliability. These findings indicate that procurement efficiency should be analyzed comprehensively rather than solely on the basis of transaction speed or budget absorption rates.

The transition to E-Catalog Version 6 creates a need for more specific evaluation. Zahra et al. (2025) examined the transition from E-Catalog Version 5 to Version 6 and emphasized the importance of organizational readiness in responding to system changes. At primary healthcare facilities, Sikki et al. (2026) found that digital transformation through E-Catalog Version 6 offers opportunities to improve effectiveness but also creates implementation challenges. These challenges relate to users' technical competence, procedural adjustment, product availability, system stability, and coordination among the parties involved in procurement.

Such evaluation is particularly important in medicine procurement. Medicines are directly associated with the

continuity of healthcare services. Their procurement requires accuracy in terms of type, quantity, quality, price, and delivery time. Planning errors may result in shortages or excessive inventory. Transaction delays may disrupt the implementation of health programs. Meanwhile, the selection of products that do not meet actual needs may lead to budget waste. Therefore, medicine procurement efficiency is not determined solely by lower prices, but also by the alignment among program needs, procurement implementation, and the outcomes received.

At the North Sulawesi Provincial Health Office, the implementation of E-Catalog Version 6 needs to be examined in relation to medicine procurement and performance-based budget efficiency. This analysis is important because procurement involves several interrelated stages, including needs identification, planning, product and supplier selection, transaction execution, and receipt of procurement outcomes. Efficiency may be disrupted when needs planning is inaccurate, required products are unavailable, users have not fully mastered the system, or transaction processes are not integrated with budget management.

Previous literature has discussed the effectiveness of electronic procurement, budget absorption, transparency, and the challenges of system transition. However, studies integrating the procurement process, system utilization, and procurement outcomes in assessing performance-based budget efficiency at the provincial health agency level remain limited. Some studies have focused more on the benefits of technology or budget absorption performance, while the relationship among system implementation, the quality of procurement outcomes, and program performance achievement has not been comprehensively analyzed (Haryadi & Setyowati, 2024; Irawati et al., 2025; Sikki et al., 2026; Zahra et al., 2025).

Based on this research gap, this study aims to analyze the implementation of goods and services procurement through E-Catalog Version 6 in supporting performance-based budget efficiency at the North Sulawesi Provincial Health Office. The analysis focuses on medicine procurement by examining three main aspects: the procurement process, system utilization, and procurement outcomes. This study is expected to identify the conditions of implementation, the obstacles encountered, and the relationship between system utilization and budget efficiency. Academically, the study strengthens the public sector accounting literature on electronic procurement and performance-based budgeting. Practically, the findings may serve as a basis for evaluation by the North Sulawesi Provincial Health Office in improving medicine procurement planning, system utilization, and procurement outcomes.

Implementation of Goods and Services Procurement through E-Catalog Version 6

Implementation is the process of translating policies, programs, or systems into planned actions to achieve predetermined objectives. Implementation does not merely indicate that a policy or system has formally been introduced. It also encompasses the readiness of implementers, consistency in applying procedures, availability and utilization of resources, coordination among organizational units, and achievement of the intended results (Agustino, 2020; Usman, 2002). Therefore, the implementation of electronic procurement must be assessed

comprehensively, from needs planning and transaction execution to the achievement of procurement outcomes.

Government procurement of goods and services comprises a series of activities undertaken to obtain goods, services, or works required by public organizations. These activities include needs identification, procurement planning, supplier selection, transaction execution, goods receipt, and evaluation of procurement outcomes. Public procurement must generate goods and services that correspond to organizational needs, meet the required quality standards, are available within the specified time, and are obtained at accountable costs. Consequently, procurement functions not only as an administrative activity but also as an instrument for achieving budget efficiency and improving the quality of public services (Arrowsmith, 2022; OECD, 2022).

The digitalization of government procurement has been implemented through the development of an electronic catalog system, commonly referred to as the E-Catalog. The system provides information on product types, specifications, prices, and suppliers through an electronic platform. The use of the E-Catalog enables government agencies to conduct purchases more rapidly and in a standardized manner without undergoing conventional tender procedures for products already listed in the catalog. This policy is consistent with Regulation of the National Public Procurement Agency Number 9 of 2021 concerning Online Stores and Electronic Catalogs and Presidential Regulation Number 12 of 2021 concerning the Amendment to Presidential Regulation Number 16 of 2018 on Government Procurement of Goods and Services (LKPP, 2021; Republic of Indonesia, 2021).

E-Catalog Version 6 represents a further development of the electronic procurement system. It emphasizes simplified procurement governance, enhanced transaction security, improved monitoring, electronic documentation, and integration between procurement transactions and government financial management. These developments are intended to accelerate transactions, strengthen price and specification transparency, reduce administrative errors, improve transaction traceability, and support procurement accountability.

Nevertheless, the availability of an electronic system does not automatically guarantee successful procurement implementation. Successful implementation is also influenced by the clarity of information communicated to implementers, the availability of competent human resources, technological and organizational support, the attitudes and commitment of implementers, the clarity of procedures, and coordination among the organizational units involved. In addition, product availability in the catalog and the consistency of procurement planning may influence the extent to which the system can be used to meet organizational needs. Therefore, the implementation of E-Catalog Version 6 should be evaluated by considering both the organizational factors that influence implementation and the procurement results generated through the system.

George C. Edward III's Policy Implementation Theory

This study employs the policy implementation theory developed by George C. Edward III to analyze the factors that support or constrain the implementation of E-Catalog Version

6. Edward III (1980) explains that the success of policy implementation is influenced by four interrelated factors: communication, resources, disposition, and bureaucratic structure. These factors determine whether policy objectives and procedures can be translated into consistent operational actions.

Communication concerns the transmission, clarity, and consistency of policy information delivered to implementers. Policy objectives, technical instructions, procedural changes, and the distribution of responsibilities must be communicated clearly so that implementers possess a common understanding of the policy. Unclear or inconsistent communication may result in different interpretations, procedural errors, delayed decision-making, and weak coordination.

In the implementation of E-Catalog Version 6, communication includes the delivery of information regarding system changes, procurement stages, product selection, digital negotiation, ordering, payment, and goods receipt. Communication is also required among planning units, procurement officials, financial management officials, pharmaceutical service units, asset management personnel, and suppliers. Effective communication can reduce differences in interpretation and ensure that procurement activities are implemented according to applicable provisions.

Resources refer to the factors required to implement a policy effectively. These include human resources, information, authority, technological infrastructure, facilities, time, and financial support. Adequate resources enable implementers to understand and carry out their responsibilities. Conversely, limited resources may prevent policy implementation even when the objectives and procedures have been clearly communicated.

In the context of E-Catalog Version 6, human resources must possess knowledge of procurement regulations, technical competence in operating the system, and the ability to evaluate product specifications, prices, and suppliers. Technological resources include reliable internet access, appropriate devices, and system support. Information resources include accurate data on medicine needs, budget availability, inventory conditions, prices, and product availability. The authority of each implementer must also be clearly established to prevent delays in verification, approval, ordering, and payment.

Disposition refers to the attitudes, commitment, understanding, and willingness of implementers to carry out a policy. Successful implementation requires implementers who accept the objectives of the policy and are committed to consistently applying its procedures. Implementers' attitudes toward organizational change and digital transformation may influence the extent to which a new system is used effectively.

In the implementation of E-Catalog Version 6, disposition is reflected in users' willingness to adapt to new transaction mechanisms, learn system features, comply with procurement procedures, resolve transaction problems, and coordinate with other parties. A positive disposition can encourage consistent system utilization and strengthen procurement accountability. Conversely, resistance to change, lack of commitment, or a tendency to retain manual work practices may reduce the benefits of the system.

Bureaucratic structure concerns the distribution of authority, standard operating procedures, coordination mechanisms, and organizational arrangements supporting implementation. A clear bureaucratic structure helps implementers understand their responsibilities and facilitates coordination across different stages of implementation. Edward III (1980) identifies standard operating procedures and fragmentation of authority as important aspects of bureaucratic structure.

In medicine procurement, several parties are involved in needs planning, budget verification, procurement transactions, goods receipt, financial administration, inventory recording, and distribution preparation. Therefore, clear procedures and division of authority are required to ensure that these activities are conducted systematically. Excessive fragmentation without effective coordination may increase transaction time, create duplicated work, and produce inconsistencies in procurement documentation.

The four factors proposed by Edward III are interrelated. Clear communication will not ensure successful implementation when implementers lack competence or technological support. Adequate resources may also be ineffective when implementers are unwilling to use the system consistently. Similarly, competent and committed personnel may continue to encounter difficulties when procedures and authority are unclear. Therefore, this study uses communication, resources, disposition, and bureaucratic structure as an analytical lens for explaining the conditions that support or hinder the implementation of E-Catalog Version 6 at the North Sulawesi Provincial Health Office.

New Public Management Theory

This study also employs New Public Management as a theoretical foundation for analyzing the contribution of E-Catalog Version 6 to performance-based budget efficiency. Hood (1991) developed New Public Management as a public sector management paradigm emphasizing efficiency, cost control, professional management, performance measurement, accountability, and results orientation. This paradigm emerged as a criticism of traditional public administration, which was considered excessively focused on procedures and administrative compliance without adequately considering organizational performance and service outcomes.

New Public Management directs public organizations to establish clear objectives, use measurable performance indicators, manage resources efficiently, and account for the results achieved. Government performance should not be assessed solely on the basis of activity implementation or budget absorption. Evaluation must also consider the relationship between the resources used, the outputs produced, and the outcomes or benefits generated for society.

The utilization of E-Catalog Version 6 is consistent with New Public Management because the system uses technology and modern management practices to simplify procurement processes, improve access to information, strengthen competition and transparency, reduce administrative stages, and provide electronic transaction documentation. The system is expected to support decision-making based on product specifications, prices, supplier information, and organizational

needs. Therefore, electronic procurement can be understood as a public management instrument intended to improve efficiency, accountability, and organizational performance.

The concept of value for money constitutes an important component of the New Public Management perspective. Value for money emphasizes three interrelated elements: economy, efficiency, and effectiveness. Economy refers to the ability to obtain inputs at appropriate prices while maintaining the quality and specifications required. Efficiency concerns the relationship between the resources used and the outputs produced. Effectiveness refers to the extent to which activities and outputs contribute to the achievement of predetermined objectives and outcomes (Mardiasmo, 2018).

In medicine procurement, economy is reflected in the ability to obtain medicines at accountable and reasonable prices without reducing the required quality. Efficiency is reflected in the ability to use budget, time, personnel, and administrative resources to produce procurement outputs corresponding to actual needs. Effectiveness is reflected in the extent to which the medicines procured support medicine availability, health service continuity, and the achievement of health program targets.

In this study, New Public Management is applied to evaluate the implementation of E-Catalog Version 6 through three empirical dimensions: the procurement process, system utilization, and procurement outcomes. These dimensions demonstrate that the implementation of electronic procurement cannot be assessed merely on the basis of system availability or transaction completion. Evaluation must also consider the quality of procurement procedures, users' ability to utilize the system, and the results generated through procurement activities.

The New Public Management perspective complements Edward III's implementation theory. Edward III's theory is used to explain the organizational factors influencing implementation, including communication, resources, disposition, and bureaucratic structure. New Public Management is used to assess whether the implementation contributes to efficiency, accountability, measurable performance, and value for money. The integration of these two theories enables this study to analyze both the implementation conditions and the performance implications of E-Catalog Version 6.

Procurement Process

The procurement process dimension describes how procurement activities are carried out from needs identification and planning to transaction execution and receipt of medicines. Within the analytical framework of this study, this dimension includes procurement planning, preparation of the Medicine Needs Plan, and compliance with applicable procurement regulations and procedures.

Planning is a crucial stage because it determines the types, quantities, timing, quality specifications, and budget of the medicines to be procured. Planning that is not based on actual needs may result in excessive inventory, medicine shortages, procurement delays, or budget waste. Therefore, medicine procurement planning should consider needs data, usage

patterns, health program targets, current inventory conditions, and the estimated time required to complete procurement.

The preparation of the Medicine Needs Plan serves as the basis for medicine procurement. The plan must accurately and measurably represent medicine requirements collected from relevant health service units or regencies and cities. Inaccurate needs planning may create a mismatch between the medicines purchased and actual service requirements. From a performance-based budgeting perspective, the Medicine Needs Plan should connect budget allocations with the expected health service outputs.

Compliance refers to the conformity of procurement implementation with laws, operational standards, institutional authority, budget documents, and applicable procedures. Compliance is required to ensure the legality, transparency, and accountability of procurement transactions. However, compliance should not be understood merely as the completion of administrative documents. It should facilitate an orderly and efficient process and support the procurement of medicines that meet actual needs.

From the perspective of Edward III, the quality of the procurement process is influenced particularly by communication and bureaucratic structure. Clear communication is needed to transmit needs data, budget information, technical specifications, and procurement instructions. A clear bureaucratic structure is also required to regulate authority, verification, approval, transaction execution, goods receipt, and inventory recording.

From the perspective of New Public Management, a sound procurement process consists of stages that are clear, standardized, accountable, simplified, and oriented toward results. Process simplification does not mean eliminating control mechanisms. Rather, it involves reducing activities that do not add value, clarifying responsibilities, preventing duplicated work, and accelerating decision-making. Therefore, the procurement process dimension provides a basis for assessing whether E-Catalog Version 6 reduces administrative burdens, minimizes procurement errors, and supports the efficient use of public resources.

System Utilization

System utilization refers to the extent to which E-Catalog Version 6 is used to support procurement implementation. This dimension includes the utilization of system features, understanding of procurement workflows, and user competence.

Feature utilization refers to implementers' ability to use the functions available in E-Catalog Version 6. These functions may include searching for products, comparing specifications and prices, identifying suppliers, conducting digital negotiations, creating orders, monitoring transaction progress, supporting payment processes, and documenting procurement activities. Optimal feature utilization can reduce manual work, improve access to information, and accelerate decision-making.

Understanding of procurement workflows relates to users' ability to correctly follow each stage of an electronic procurement transaction. Users must understand the relationship among needs planning, budget availability, product selection, supplier selection, negotiation, order

creation, approval, payment, goods receipt, and transaction documentation. Limited understanding may result in input errors, duplicated work, transaction delays, or inconsistencies between procurement and financial documents.

User competence includes knowledge of procurement regulations, technical ability to operate the system, ability to evaluate product specifications and prices, and capacity to resolve problems arising during transactions. Competence is important because the benefits of technology depend substantially on the capacity of those operating it. A system with comprehensive features will not produce optimal results when users lack the knowledge and skills required to utilize those features.

From Edward III's perspective, system utilization is closely related to communication, resources, and disposition. Communication supports users' understanding of system procedures and changes. Resources determine whether competent personnel, adequate information, technological infrastructure, and technical support are available. Disposition influences users' willingness to adapt to the system, consistently utilize its features, and comply with electronic procurement procedures.

From the New Public Management perspective, effective system utilization reflects the application of modern management tools to improve public sector performance. The system should provide more accurate information, reduce transaction time, strengthen transparency, improve transaction traceability, and reduce administrative errors. Therefore, the system utilization dimension is used to assess whether E-Catalog Version 6 is utilized beyond formal compliance and whether it produces meaningful organizational benefits.

Procurement Outcomes

Procurement outcomes refer to the outputs and immediate outcomes generated after the procurement process has been completed. Within the conceptual framework of this study, procurement outcomes are assessed based on timeliness, medicine stock availability, distribution readiness, and target achievement.

Timeliness refers to the organization's ability to complete procurement according to the planned schedule. Timeliness is important because delays in medicine procurement may disrupt health programs and service delivery. Its assessment should consider the period required for needs planning, product identification, negotiation, ordering, approval, payment processing, delivery, and medicine receipt.

Medicine stock availability reflects the extent to which procurement outcomes meet identified medicine requirements. Efficient procurement should prevent both stockouts and excessive inventory. Stock availability should be analyzed based on the suitability of medicine types, quantities, specifications, and receipt times in relation to program and service needs.

Distribution readiness refers to the condition in which medicines received through the procurement process have been verified, recorded, stored, and prepared for distribution to the intended units. In this study, the distribution indicator is limited to the readiness of procurement outcomes to be distributed after receipt. It does not extend to evaluating medicine utilization by

patients or health service facilities. This limitation maintains the focus of the analysis on the direct outcomes of procurement.

Target achievement refers to the alignment between procurement outcomes and predetermined program objectives. Procurement cannot be considered successful merely because a transaction has been completed or the budget has been realized. It must produce the quantities and types of medicines required to support health service outputs and program performance targets.

From Edward III's perspective, procurement outcomes constitute the results of the interaction among communication, resources, disposition, and bureaucratic structure. Weaknesses in one or more of these factors may result in delayed delivery, incomplete procurement, inappropriate products, or documentation problems. From the perspective of New Public Management, procurement outcomes represent an orientation toward measurable outputs and outcomes. Timely, needs-based, and accountable results indicate that procurement has created value for the organization and supported public service delivery.

Performance-Based Budget Efficiency

Efficiency refers to the relationship between the resources used and the results obtained. An organization is considered efficient when it can produce optimal outputs using proportional resources without reducing quality. In the public sector, efficiency does not merely mean reducing expenditure. It also concerns the government's ability to use budgetary resources to produce goods, services, and benefits corresponding to public needs (Ammons, 2020; Mahmudi, 2021).

Performance-based budgeting links budget allocations to measurable outputs and outcomes. This approach differs from traditional budgeting, which focuses primarily on inputs and administrative compliance. Performance-based budgeting requires clear objectives, performance indicators, performance measurement, and evaluation of the benefits generated by budget utilization. Therefore, the budget absorption rate cannot be used as the sole indicator of organizational success.

Performance-based budget efficiency is closely related to the value for money principle of economy, efficiency, and effectiveness. Economy concerns the acquisition of inputs at appropriate prices and quality. Efficiency measures the relationship between inputs and outputs. Effectiveness assesses the extent to which the outputs produced contribute to program objectives and outcomes (Mardiasmo, 2018). These elements must be considered together to ensure that cost savings do not reduce the quantity, quality, or benefits of medicines procured.

Based on the conceptual framework, performance-based budget efficiency is assessed through three indicators. The first is budget savings, referring to cost reductions or price advantages achieved without decreasing the quantity, quality, and specifications of medicines. The second is budget optimization, referring to the organization's ability to use budget allocations according to actual needs, priorities, and program targets. The third is output or performance achievement, referring to the ability of procurement activities to provide the medicines required to support predetermined health program objectives.

Budget efficiency should not be inferred solely from the existence of an unspent budget balance. Such a balance may indicate savings, but it may also result from unimplemented activities, transaction delays, unavailable products, or unachieved procurement targets. Efficiency can only be demonstrated when savings or resource optimization are accompanied by the fulfillment of medicine needs, adequate procurement quality, timely delivery, and achievement of performance targets.

Relationship between E-Catalog Version 6 Implementation and Performance-Based Budget Efficiency

The relationship between the implementation of E-Catalog Version 6 and performance-based budget efficiency can be explained by integrating George C. Edward III's implementation theory and New Public Management. Edward III's theory explains the factors that determine the quality of implementation, whereas New Public Management explains the expected contribution of implementation to efficiency, accountability, performance, and value for money.

Clear and consistent communication can improve coordination among planning, procurement, financial, pharmaceutical, and asset management units. It can also reduce differences in interpreting procurement procedures and system mechanisms. Adequate resources, including competent personnel, reliable information, technological infrastructure, and clear authority, can support accurate planning and smooth transaction execution. Positive implementer dispositions can encourage adaptation to system changes and consistent use of electronic procurement procedures. A clear bureaucratic structure can strengthen the division of responsibilities, standardize work procedures, and improve procurement accountability.

When these implementation factors function effectively, they can strengthen the procurement process, improve system utilization, and support the achievement of procurement outcomes. A well-planned process can reduce errors, unnecessary purchases, and budget waste. Optimal system utilization can improve access to product and price information, accelerate transactions, strengthen transparency, and provide traceable documentation. Timely and needs-based procurement outcomes can maintain medicine availability and support the achievement of health program targets.

The procurement process, system utilization, and procurement outcomes do not operate independently. Accurate planning will not produce optimal results when users lack competence or system support. Competent users may also encounter implementation difficulties when procedures, authority, and coordination are unclear. Likewise, successful system transactions cannot be regarded as efficient when the medicines delivered are late, do not meet needs, or fail to support program targets.

From the New Public Management perspective, E-Catalog Version 6 is positioned as a public management instrument for achieving value for money. Its contribution to economy is reflected in access to price and product information and the ability to compare available alternatives. Its contribution to efficiency is reflected in simplified processes, reduced administrative burdens, and the optimal relationship between

budget inputs and procurement outputs. Its contribution to effectiveness is reflected in the ability of procurement outcomes to support medicine availability and health service targets.

Therefore, this study evaluates not only whether E-Catalog Version 6 has been used, but also how it has been implemented, what organizational factors influence its implementation, and how its utilization contributes to budget savings, budget optimization, and performance achievement.

Previous Studies and Research Gap

Previous studies indicate that electronic procurement has the potential to improve transparency, efficiency, and accountability. Fachruddin and Fanani (2024) examined procurement through electronic catalogs and highlighted the importance of alignment among procurement procedures, implementers, and information systems. Haryadi and Setyowati (2024) found that the implementation of the E-Catalog can support local government budget absorption performance.

In the health sector, Irawati et al. (2025) demonstrated that the effectiveness of E-Catalog utilization is influenced by user readiness, product availability, and the smooth operation of procurement processes. Sikki et al. (2026) also showed that the implementation of E-Catalog Version 6 in health facilities provides opportunities to improve procurement effectiveness but continues to face challenges related to user competence, system adaptation, and procedural implementation.

Zahra et al. (2025) found that the transition from E-Catalog Version 5 to Version 6 had not been fully optimized because of technical constraints, limited human resources, weak coordination, and inadequate socialization. These findings are consistent with Edward III's implementation theory, particularly the importance of communication, resources, disposition, and bureaucratic structure in supporting policy implementation. In addition, Ulimpa et al. (2024) showed that human resource competence and budget implementation are significantly related to local government budget absorption rates.

Although previous studies have discussed the benefits and constraints of electronic procurement, studies integrating organizational implementation factors, procurement processes, system utilization, procurement outcomes, and performance-based budget efficiency remain limited. Previous studies have generally focused on system effectiveness, technical constraints, transparency, or budget absorption. The relationship between implementation conditions and value for money in medicine procurement has not been comprehensively examined.

Specific research on medicine procurement through E-Catalog Version 6 at the provincial health office level is also limited. This study addresses this gap by integrating George C. Edward III's policy implementation theory and New Public Management. Edward III's theory is used to analyze the factors that support or constrain implementation, while New Public Management is used to evaluate the contribution of implementation to efficiency, accountability, performance achievement, and value for money.

Research Conceptual Framework

The conceptual framework positions the implementation of goods and services procurement through E-Catalog Version 6

as the main object of analysis. The study uses two complementary theoretical foundations: George C. Edward III's policy implementation theory and New Public Management.

Edward III's theory is used to analyze the implementation conditions through four factors: communication, resources, disposition, and bureaucratic structure. Communication concerns the clarity and consistency of information regarding procurement policies, procedures, and system changes. Resources include human resource competence, information availability, technological infrastructure, authority, and other forms of implementation support. Disposition concerns implementers' commitment, acceptance, and willingness to apply electronic procurement procedures. Bureaucratic structure concerns standard operating procedures, distribution of authority, and coordination among the units involved.

New Public Management is used to analyze the performance implications of implementation through the principles of efficiency, accountability, performance measurement, results orientation, and value for money. Value for money is reflected in economy, efficiency, and effectiveness. Economy concerns obtaining medicines at appropriate prices and quality. Efficiency concerns the relationship between budget resources and procurement outputs. Effectiveness concerns the contribution of procurement outcomes to health program objectives.

Empirically, the implementation of E-Catalog Version 6 is evaluated through three dimensions. The procurement process dimension consists of planning, preparation of the Medicine Needs Plan, and compliance with procurement regulations and procedures. The system utilization dimension consists of feature utilization, understanding of procurement workflows, and user competence. The procurement outcome dimension consists of timeliness, medicine stock availability, distribution readiness, and target achievement.

The three dimensions are used to assess performance-based budget efficiency, as reflected in budget savings, budget optimization, and the achievement of outputs or performance. The framework assumes that communication, resources, disposition, and bureaucratic structure influence the quality of the procurement process and system utilization. The quality of these dimensions subsequently influences procurement outcomes and the extent to which procurement supports value for money and performance-based budget efficiency.

The conceptual framework is not intended to statistically test causal relationships. Instead, it serves as an analytical guide for understanding how implementation factors, procurement activities, system utilization, and procurement outcomes interact in supporting the quality of budget utilization at the North Sulawesi Provincial Health Office.

II. RESEARCH METHODS

This study employed a qualitative approach with a case study design. The qualitative approach was selected to obtain an in-depth understanding of the implementation of medicine procurement through E-Catalog Version 6 in supporting performance-based budget efficiency. The study focused on the

procurement process, system utilization, procurement outcomes, and the organizational context affecting implementation.

A case study design was used because the research examined a clearly bounded case, namely the implementation of E-Catalog Version 6 at the North Sulawesi Provincial Health Office. A case study enables researchers to investigate contemporary phenomena within real-life contexts, particularly when the boundaries between the phenomenon and its organizational context are not clearly distinguishable (Yin, 2018). This approach also supports an intensive analysis of the characteristics, actors, processes, and complexities of a bounded system (Merriam, 2009; Stake, 1995). The selected design was therefore consistent with the objective of examining the processes, actors, and dynamics of E-Catalog implementation within its specific context.

Research Location and Period

The study was conducted at the North Sulawesi Provincial Health Office in Manado City. This location was selected because the institution implements medicine procurement through E-Catalog Version 6 and is responsible for planning, budgeting, procurement, management, and the fulfillment of medicine requirements to support provincial-level health services.

Data collection was conducted from April to May 2026. This period covered field preparation, interviews, observations, document collection, information verification, and further data exploration.

Research Informants

Informants were selected using a combination of purposive sampling and snowball sampling. Initial informants were purposively selected based on their authority, knowledge, and involvement in medicine procurement, the operation of E-Catalog Version 6, and budget management. Additional informants were identified through recommendations from the initial participants to locate other individuals with information relevant to the research focus.

Snowball sampling enabled the researcher to identify key informants through the networks of participants involved in the phenomenon under investigation (Creswell, 2014; Sugiyono, 2019). Informant recruitment continued until data saturation was reached, meaning that the information obtained had become repetitive and additional interviews no longer produced substantively new themes.

Based on the positions represented, the study involved nine informants, as presented in the following table.

Table 1. Research Informants

Group Code	Informant Position	Number
I-1	Head of the Health Office or Budget User Authority	1
I-2	Commitment-Making Official	1
I-3	Procurement Official or representative of the Goods and Services Procurement Unit	1
I-4	Finance Official or Treasurer	1
I-5	Planning or Pharmaceutical Official	3
I-6	Technical Activity Implementation Official or Program Officer	1
I-7	Asset Management Official	1
Total		9

The personal identities of the informants were not disclosed in the research report. Informant codes were used to maintain confidentiality and facilitate the identification of data sources.

Research Focus

The research focus was developed based on New Public Management theory and the concept of performance-based budget efficiency. The analysis of E-Catalog Version 6 implementation covered four main areas.

Table 2. Research Focus and Indicators

Research Focus	Indicators
Procurement process	Procurement planning, preparation of the Medicine Needs Plan, and compliance with procedures
System utilization	Use of system features, understanding of the procurement workflow, and user competence
Procurement outcomes	Timeliness, medicine stock availability, timely handover or readiness for medicine delivery, and target achievement
Performance-based budget efficiency	Budget savings, optimization of budget utilization, and achievement of outputs or performance targets

These areas guided the preparation of interview questions, observations, document selection, data coding, and theme development. The interview guide was designed to explore the procurement process, system utilization, procurement outcomes, program achievement, and budget efficiency.

Data Collection Techniques

Research data were collected through in-depth interviews, observations, and document analysis. The use of multiple techniques was intended to obtain comprehensive information and enable cross-checking among data sources.

In-Depth Interviews

Semi-structured interviews were conducted using an interview guide. This technique allowed the researcher to ask follow-up questions based on the informants' responses. The interviews explored the following matters:

1. planning and preparation of medicine requirements;
2. procurement stages through E-Catalog Version 6;
3. utilization of features and transaction workflows;
4. user competence;
5. compliance with procurement regulations;
6. technical and organizational constraints;
7. timeliness and conformity of procurement outcomes;
8. budget savings and optimization; and
9. the contribution of procurement to performance target achievement.

With the informants' consent, the interviews were recorded and subsequently transcribed for analysis. Field notes were used to record contextual information, emphasis in responses, and relevant details that were not fully captured in the recordings.

Observation

Direct observations were conducted on activities related to medicine procurement. The observations covered workflows, the use of E-Catalog Version 6, coordination among

organizational units, document management, approval mechanisms, transaction monitoring, and the receipt of procured goods. Observation enabled the researcher to compare information provided by informants with actual practices in the field.

Document Analysis

Document analysis was used to obtain administrative evidence and supporting data. The documents reviewed included the Medicine Needs Plan, General Procurement Plan, Budget Implementation Documents, E-Catalog transaction or order documents, contracts, budget realization reports, stock cards, performance reports, goods receipt documents, and other relevant records.

The documents were used to examine the consistency among planning, implementation, budget utilization, and procurement outcomes.

Research Instruments

The researcher served as the primary instrument or *human instrument*. The researcher determined the research focus, selected informants, collected data, assessed the adequacy of information, analyzed the data, and formulated conclusions. This role enabled the researcher to adjust the data collection process according to the dynamics encountered in the field (Sugiyono, 2022).

Supporting instruments included a semi-structured interview guide, observation sheets, document checklists, an audio recorder, a camera, a laptop, and field notebooks. The interview guide was developed based on the procurement process, system utilization, procurement outcomes, and performance-based budget efficiency.

Research Procedures

The study was conducted through six stages. First, the researcher established the case focus, prepared the interview guide, identified the required documents, and selected the initial informants. Second, the researcher conducted interviews, observations, and document collection. Third, interview data were transcribed, organized, and screened to identify relevant information.

Fourth, the researcher coded the data and developed categories based on the research focus. Fifth, the validity of the findings was examined through source and technique triangulation. Sixth, the researcher formulated interpretations, conclusions, implications, and recommendations. These procedures systematically connected research preparation, data collection, data reduction, analysis, triangulation, and reporting.

Data Analysis Techniques

The data were analyzed using the interactive analysis model developed by Miles and Huberman (1994), which consists of data reduction, data presentation, conclusion drawing, and verification. Data analysis began during the data collection process and continued until the available information was considered sufficient.

Data Reduction and Condensation

The researcher selected, focused, simplified, and organized the data obtained from interviews, observations, and

documents. Interview transcripts were read repeatedly and coded according to meaningful units. The codes were then grouped into categories covering the procurement process, system utilization, procurement outcomes, implementation barriers, and budget efficiency.

Data Presentation

The data were presented in the form of analytical narratives, thematic matrices, comparative tables, and informant quotations. Data presentation assisted the researcher in comparing responses among informants, matching interview findings with documentary evidence, and identifying the relationship between the use of E-Catalog Version 6 and performance-based budget efficiency.

Conclusion Drawing and Verification

The researcher identified patterns, relationships, similarities, differences, and explanations emerging from the data. Conclusions were developed gradually and re-examined against interview transcripts, observation notes, and documents. Verification was conducted to ensure that the interpretations were supported by adequate evidence.

Data Trustworthiness

Data trustworthiness was maintained through source triangulation, technique triangulation, and consistency checking. Source triangulation was conducted by comparing information obtained from procurement officials, financial managers, planning personnel, pharmaceutical personnel, technical implementers, and asset managers. Technique triangulation was conducted by comparing interview, observation, and documentation findings.

The researcher also rechecked inconsistent information and requested clarification from the relevant informants. Conclusions were drawn only when the information was supported by more than one source or data collection technique. These measures were intended to strengthen the credibility, dependability, and traceability of the research process.

III. RESULTS AND DISCUSSION

The findings were organized into three main areas: the procurement process, system utilization, and procurement outcomes. These areas were used to analyze the implementation of medicine procurement through E-Catalog Version 6 and its contribution to performance-based budget efficiency at the North Sulawesi Provincial Health Office. Data were collected through interviews, observations, and document reviews, and were validated through source and technique triangulation.

Medicine Procurement Process

The medicine procurement process begins with activity and budget planning by the planning and finance units. At this stage, health program needs, service targets, inventory conditions, and budget capacity are used as the basis for determining the types and quantities of medicines to be procured.

The planning or pharmaceutical unit collects medicine requirements proposed by 15 regencies and cities in North Sulawesi Province. The data are then used to prepare the

Medicine Needs Plan (*Rencana Kebutuhan Obat*, RKO). The RKO is documented in Forms F1 and F2 and submitted to the Head of the Health Office as the Budget User. After approval, the documents are forwarded to the procurement unit.

Informant I-5 explained that medicine needs planning had been integrated with the regional budgeting system:

“We collect medicine requirements from 15 regencies and cities, and the data are then used to prepare the Medicine Needs Plan. Once the plan has been completed, it is reported through SIPD and adjusted to the available budget” (AR 39, interview, 2026).

This statement indicates that procurement planning applies a needs-based approach. Proposals from regencies and cities serve as the basis for preparing the RKO, which is subsequently adjusted to the budget allocation through the Regional Government Information System (*Sistem Informasi Pemerintahan Daerah*, SIPD). This process enables the organization to align service needs with available fiscal capacity.

After the RKO is approved, the procurement unit prepares the Terms of Reference, the Owner's Estimate (*Harga Perkiraan Sendiri*, HPS), and the technical specifications of the medicines. The specifications consider dosage forms, dosage strengths, program requirements, and applicable technical provisions. The HPS is prepared using market surveys and price information available in the government procurement system.

Before transactions are conducted through the E-Catalog, procurement officials verify price conformity with the Expenditure Standards Analysis (*Analisis Standar Belanja*, ASB). This verification functions as a control mechanism to ensure that selected prices remain reasonable and comply with regional government expenditure standards. Informant I-3 stated:

“Before carrying out the click-and-order process in the E-Catalog, we are required to verify the applicable ASB. The ASB prevents us from wasting the budget, even though the E-Catalog offers many different price options” (KW 57, interview, 2026).

In addition to price control, E-Catalog Version 6 provides a clearer administrative basis because product, price, and supplier information is recorded in the system. Informant I-2 explained that prices in the E-Catalog had undergone verification, making the selection of products and suppliers more objective. The main findings regarding the procurement process are presented in Table 3.

The document review showed that medicine procurement forms part of the Pharmaceutical Supplies, Medical Devices, and Medical Consumables Management Program. This program is intended to ensure the availability of medicines required to support public health services.

Medicine procurement and delivery support child health, maternal health, nutrition programs, provincial buffer stock provision, and routine medicine requirements at health service facilities. Funding comes from the General Allocation Fund and the Non-Physical Special Allocation Fund for BOKKB-BOK. The General Allocation Fund is primarily used to provide provincial buffer stock and settle previous procurement obligations, while BOK funding supports medicine requirements for specific health programs.

Table 3. Interview Findings on the Procurement Process

Informant	Position	Interview Findings	Interpretation of Findings
I-5	Planning/Pharmaceutical Official	Medicine requirements are planned by collecting proposals from 15 regencies and cities. The data are compiled into the RKO and adjusted to the available budget through SIPD.	Medicine planning has integrated regional needs with the budgeting system, thereby supporting alignment between actual needs and available budget allocations.
I-3	Procurement Official	Procurement must comply with the price standards stipulated in the ASB before the click-and-order process is conducted.	The ASB functions as a cost-control instrument and prevents budget waste.
I-2	Commitment-Making Official	Prices in the E-Catalog have been verified, thereby strengthening administrative certainty and facilitating supervision.	The system improves accountability and objectivity in selecting products and suppliers.

Source: Processed by the researcher, 2026.

The types of medicines identified in the procurement documents are presented in Table 4.

Table 4. Types of Medicines Procured

Type of Medicine	Specification
Furosemide injection	10 mg/ml
Diazepam	5 mg
Ampicillin injection	1,000 mg/vial
Phenobarbital injection	50 mg/ml
Phytomenadione or Vitamin K1 injection	2 mg/ml
Gentamicin injection	40 mg/ml
Oxytetracycline eye ointment	1%
Oxytocin injection	10 IU/ml
Iron supplement tablets	Tablets
Other medicines, including New Diatabs	Tablets

Source: Procurement documents of the North Sulawesi Provincial Health Office, processed by the researcher, 2026.

Discussion of the Procurement Process

The findings indicate that medicine procurement planning has been implemented through structured stages. The process begins with collecting proposed requirements, preparing the RKO, adjusting the budget through SIPD, preparing

procurement documents, verifying price standards, and conducting transactions through the E-Catalog.

From the perspective of New Public Management, this process demonstrates an orientation toward results and financial control. Pollitt and Bouckaert (2021) argue that public sector management should connect planning, budgeting, and performance indicators. The RKO serves as a quantitative measure of medicine requirements, while SIPD links these requirements to the regional government's budget capacity.

Price verification using the ASB also reflects the principle of *tight financial control*. Prices listed in the E-Catalog are not immediately accepted without examination. Procurement officials continue to compare them with the applicable expenditure standards. This mechanism is important because the availability of numerous products and price alternatives may create the risk of uneconomical selection when internal controls are weak.

These findings can also be explained using Edwards III's (1980) policy implementation model. Communication is reflected in coordination among the planning, pharmaceutical, finance, and procurement units. Resources are represented by the use of SIPD, ASB, E-Catalog, and competent personnel. Disposition is reflected in the commitment of implementers to verify prices and comply with regulations. Bureaucratic structure is reflected in a clear division of authority and standardized work stages.

The findings support Sikki et al. (2026), who found that procurement digitalization through E-Catalog Version 6 can make procurement processes more systematic and standardized. However, planning effectiveness remains dependent on the accuracy of needs data submitted by regencies and cities. Errors or delays in data submission may affect the accuracy of the RKO and the appropriateness of procurement.

Utilization of E-Catalog Version 6

After the procurement documents have been completed, procurement officials access E-Catalog Version 6 using an official user account. Users search for the required medicine through the search field, after which the system displays available products, specifications, prices, and suppliers.

Product selection considers specification conformity, price, availability, and the supplier's ability to meet delivery deadlines. After selecting a product, the user and supplier negotiate the price, order date, delivery schedule, and delivery location. Once an agreement is reached, the supplier ships the medicines according to the approved order.

Upon arrival, the goods are inspected based on their type, quantity, physical condition, and supporting documents. Payment is made only after the goods are confirmed to be consistent with the order and the receipt documents have been verified.

The interview findings indicate that E-Catalog Version 6 improves access to product and supplier information. Informant I-3 stated:

"We can compare medicine specifications and prices in real time without having to make physical contact with vendors. The digital trail, from product searches and click-and-order transactions to delivery confirmation, is automatically recorded" (KW 57, interview, 2026).

Digital recording creates a *digital audit trail* that enables every stage of the transaction to be traced. This condition strengthens internal supervision and reduces the possibility of negotiations or transactions that are not recorded in the system.

E-Catalog Version 6 also provides payment and digital negotiation features. These features enable interaction and transaction completion within a single platform. Users are not required to use separate communication or recording mechanisms that are difficult to supervise.

Human resource competence is an important factor in system utilization. Procurement officials must possess competency certification in accordance with the requirements established by LKPP. These requirements demonstrate that procurement digitalization still requires users who understand regulations, procedures, and the system's technical features.

Nevertheless, not all required medicines are available in the electronic catalog. For certain medicines, the Health Office must use other procurement methods in accordance with applicable regulations. Therefore, the E-Catalog has not completely replaced all procurement mechanisms. It continues to function as a complementary system, particularly when the required product, specification, or supplier is unavailable.

Table 5. Interview Findings on System Utilization

Informant	Position	Interview Findings	Interpretation of Findings
I-3	Procurement Official	The system facilitates access to supplier data and real-time comparison of prices and specifications. All transactions are digitally recorded.	The E-Catalog increases transparency and transaction traceability and reduces the risk of negotiations outside the system.
I-3	Procurement Official	E-Catalog Version 6 provides payment and negotiation features that enable direct interaction between users and suppliers.	The additional features improve system functionality and support transaction effectiveness.
I-3	Procurement Official	Human resource readiness is reflected in increasingly specific competency certification requirements for procurement officials.	Formal competence supports accurate system utilization, process efficiency, and procurement accountability.

Source: Processed by the researcher, 2026.

Discussion of System Utilization

The utilization of E-Catalog Version 6 reflects a transformation in procurement governance from separate and largely manual processes toward a more integrated digital process. The system enables product searches, price comparisons, negotiations, ordering, delivery monitoring, and payments to be conducted through one platform.

These findings are consistent with New Public Management, which emphasizes the use of technology and modern management practices to improve public sector

efficiency (Hood, 1991). Digital systems reduce the need for physical communication with suppliers, accelerate access to information, and improve process traceability.

The digital trail also strengthens accountability. Every action taken by users and suppliers is recorded in the system. These data can be used for supervision, inspection, and auditing. Transparency is therefore not limited to price disclosure but also includes the organization's ability to trace the decision-making process.

The payment and negotiation features expand the function of the E-Catalog from an information catalog into a more comprehensive transaction platform. Negotiations remain possible, but both the process and results are documented. This reduces the risk of informal decisions that cannot be properly accounted for.

However, limited medicine availability indicates that digitalization has not resolved all procurement challenges. The system will provide maximum benefits only when products, suppliers, specifications, and stock information are adequately available. When medicines are unavailable, the institution must use alternative procurement methods, which limits the efficiency gains offered by the E-Catalog.

These findings are consistent with Irawati et al. (2025), who found that the E-Catalog improves procurement efficiency and transparency in health institutions but continues to face constraints related to limited product availability. Therefore, system development should be accompanied by an expansion of product coverage, regular updating of supplier information, and improvement of user competence.

Procurement Outcomes

The findings show that medicine procurement through E-Catalog Version 6 resulted in timely delivery, relatively stable stock availability, orderly administrative recording, and support for achieving health service targets.

Informant I-3 stated that medicine deliveries by suppliers were generally completed according to schedule. In several transactions, the medicines were even received earlier than the agreed deadline. This indicates that the system helps clarify delivery schedules and supplier responsibilities.

Informant I-1 emphasized that efficiency is not limited to the amount of budget savings but also includes the speed with which the budget is converted into services:

"The efficiency we pursue is not merely about figures on paper, but about how quickly the funds can be transformed into tangible services for the public. With the E-Catalog, medicines and vaccines can be delivered more quickly to 198 community health centers" (RL 51, interview, 2026).

This statement shows that procurement speed forms part of organizational performance. Delays in procurement may disrupt services, while timely procurement enables health facilities to meet their needs according to schedule.

After the medicines are received, the pharmaceutical installation stores them in the warehouse. The asset management unit subsequently records the receipt based on documents provided by the pharmaceutical unit. This recording ensures that all purchased medicines are registered as regional assets or inventories.

Inventory management in the warehouse also uses stock cards. Every medicine entering or leaving the warehouse is recorded by date and quantity. Stock cards are used to monitor inventory, reconcile administrative records with physical stock, and prevent shortages or excessive inventory.

Medicine availability is maintained through buffer stock. Any stockouts are generally temporary and caused by external factors, such as the unavailability of raw materials or medicine components at the manufacturing level. In such situations, the Health Office follows guidance from the ministry regarding substitute medicines.

Table 6. Interview Findings on Procurement Outcomes

Informant	Position	Interview Findings	Interpretation of Findings
I-3	Procurement Official	Medicine deliveries were completed on time and, in several cases, earlier than the agreed schedule.	The procurement process demonstrates efficiency in terms of delivery time.
I-1	Acting Head of the Health Office	The E-Catalog accelerated the delivery of medicines and vaccines to 198 community health centers.	E-Catalog implementation supports performance targets and continuity of health services.
I-7	Asset Management Official	Medicines are received and stored by the pharmaceutical installation and then recorded by the asset unit based on receipt documents.	Coordination among units supports administrative order, supervision, and medicine inventory control.
I-5	Planning/Pharmaceutical Official	Medicine stocks are relatively stable due to buffer stock. Temporary stockouts may occur because of raw material constraints at the producer level.	Inventory management is relatively effective but remains affected by production conditions and external supply-chain factors.
I-5	Pharmaceutical Warehouse Officer	Medicines entering and leaving the warehouse are recorded on stock cards according to quantity and date.	Stock cards help control inventory, prevent shortages or excess stock, and reconcile administrative records with physical stock.

Source: Processed by the researcher, 2026.

In this study, medicine delivery is positioned as a direct procurement outcome that indicates the timeliness of product availability. The study does not separately or comprehensively examine medicine distribution management at each health service facility.

Medicine Procurement Budget Realization

The Budget Implementation Documents and Budget Realization Reports indicate that medicine procurement achieved high realization rates in 2024 and 2025. In 2024, the budget allocation for medicine expenditure amounted to IDR 3,682,304,700, with realization of IDR 3,658,132,930, or 99.34%. The allocation for other medicine expenditure amounted to IDR 457,593,544, with realization of IDR 452,853,582, or 98.96%.

In 2025, the medicine expenditure budget amounted to IDR 378,087,430, with realization of IDR 365,906,027, or 96.78%. Other medicine expenditure had a budget allocation of IDR 1,116,167,355, with realization of IDR 1,111,563,944, or 99.59%.

Table 7. Comparison of Budget and Realization for 2024-2025

Description	Year	Budget	Realization	Absorption Rate
Medicine expenditure	2024	IDR 3,682,304,700	IDR 3,658,132,930	99.34%
Other medicine expenditure	2024	IDR 457,593,544	IDR 452,853,582	98.96%
Medicine expenditure	2025	IDR 378,087,430	IDR 365,906,027	96.78%
Other medicine expenditure	2025	IDR 1,116,167,355	IDR 1,111,563,944	99.59%

Source: Budget Implementation Documents and Budget

Realization Reports of the North Sulawesi Provincial Health Office for Fiscal Years 2024 and 2025.

In aggregate, the total budget for the two expenditure categories in 2024 amounted to IDR 4,139,898,244, with realization of IDR 4,110,986,512. The aggregate absorption rate was approximately 99.30%. In 2025, the total budget amounted to IDR 1,494,254,785, with realization of IDR 1,477,469,971, or approximately 98.88%.

The high absorption rates indicate that most planned procurement activities were successfully implemented. However, budget absorption cannot be used as the sole indicator of efficiency. High absorption may indicate effective implementation, but it does not automatically prove that prices, delivery times, quantities, and quality were optimal.

Therefore, the interpretation of efficiency in this study also considers price conformity with the ASB, delivery timeliness, stock availability, administrative order, and support for service targets. This approach is more consistent with performance-based budgeting because it connects the use of inputs with outputs and outcomes.

Changes in budget amounts between 2024 and 2025 also cannot be directly interpreted as savings. The composition of expenditure categories and the scope of needs may differ between the two years. Efficiency assessment should consider

changes in program targets, types of medicines, quantities required, funding sources, and outputs produced.

Data Triangulation

The researcher applied source and technique triangulation by comparing interview, observation, and documentation findings. The triangulation results indicate consistency across the procurement process, system utilization, and procurement outcomes.

Table 8. Data Triangulation

No	Research Focus	Interview Findings	Observation Findings	Documentation Findings	Conclusion
1	Procurement process	Planning is conducted based on needs and available budget.	Planning workflows and coordination among work units were observed.	RKO and Budget Implementation Documents.	The data indicate that the planning process has been systematic and connected to budgeting.
2	System utilization	E-Catalog Version 6 provides payment and digital negotiation features.	Payment and negotiation features were available and used in the system.	E-Catalog Version 6 interface and transaction documents.	Payment and negotiation features support time efficiency, traceability, and procurement flexibility.
3	Procurement outcomes	The E-Catalog accelerates the availability of medicines and vaccines for 198 community health centers.	Medicine delivery proceeded smoothly and stock remained relatively available.	Budget Realization Reports, stock cards, and receipt documents.	The E-Catalog supports procurement performance as reflected in budget realization, medicine availability, and continuity of services.

Source: Processed by the researcher, 2026.

Triangulation strengthens the credibility of the findings because interview statements were supported by observations and documents. The RKO and Budget Implementation Documents support statements regarding needs-based planning. The system interface and transaction records support information regarding E-Catalog features. Budget Realization Reports and stock cards support findings on budget realization and inventory control.

Integrative Discussion of Procurement Outcomes and Budget Efficiency

The findings demonstrate that the implementation of E-Catalog Version 6 has contributed to the efficiency of medicine procurement at three levels.

First, process efficiency is reflected in more structured procurement stages. Needs planning is linked to the RKO and SIPD, while product selection is conducted through the E-Catalog. This process reduces information fragmentation among planning, budgeting, and procurement functions.

Second, transaction efficiency is reflected in users' ability to compare prices and specifications directly, conduct negotiations within the system, and monitor transactions digitally. The system also creates documentation that can be used for supervision and auditing.

Third, outcome efficiency is reflected in timely deliveries, buffer stock availability, asset recording, the use of stock cards, and support for the needs of 198 community health centers. Efficiency is therefore not indicated solely by the remaining budget but also by the organization's ability to convert budget allocations into medicines and services in a timely manner.

These findings are consistent with public sector performance theory, which positions outputs and outcomes as essential elements of organizational evaluation. Heinrich (2021) explains that public sector performance should connect resource utilization with outcomes experienced by society. High budget absorption becomes meaningful when accompanied by medicine availability, timeliness, and continuity of services.

The findings also reflect the concept of *value for money*, which consists of economy, efficiency, and effectiveness (Mardiasmo, 2018). Economy is reflected in price verification using the ASB and the selection of products based on verified prices. Efficiency is demonstrated by simplified procedures and shorter transaction times. Effectiveness is reflected in medicine availability and support for health service targets.

However, the findings also reveal several limitations. Not all medicines are available in the E-Catalog. Stock availability may still be affected by raw material disruptions at the producer level. In addition, system utilization depends on the competence and certification of procurement officials. These conditions demonstrate that technology is not the sole determinant of success. Optimal outcomes require accurate planning, competent human resources, coordination among organizational units, and a stable supply chain.

Therefore, the implementation of E-Catalog Version 6 at the North Sulawesi Provincial Health Office has supported performance-based budget efficiency through integrated planning, transaction transparency, price control, timely procurement outcomes, and support for health services. However, efficiency has not yet been fully optimized because of limited product availability, dependence on medicine production conditions, and the need to strengthen user competence. These findings are supported by interviews, documentation, and observations that demonstrate the relationship among process quality, system utilization, and procurement outcomes.

IV. CONCLUSIONS

The implementation of goods and services procurement through E-Catalog Version 6 at the North Sulawesi Provincial Health Office has improved procurement governance in terms of process, system utilization, and procurement outcomes. The procurement process has become more systematic through budget planning, preparation of the Medicine Needs Plan, and procurement documentation. The use of product search, price comparison, negotiation, payment, and transaction recording features within a single platform has also enhanced efficiency, transparency, and accountability. However, system utilization has not yet been fully optimized due to the limited variety of medicines available in the catalog. In terms of outcomes, procurement through the E-Catalog has supported timely delivery, faster fulfillment of health facility needs, orderly inventory recording, and maintained medicine availability. The high level of budget realization also indicates that most procurement plans were successfully implemented. Overall, the use of E-Catalog Version 6 has supported the principles of New Public Management and performance-based budgeting through a more efficient, transparent, accountable, and health service outcome-oriented procurement process.

The North Sulawesi Provincial Health Office should establish operational procedures that integrate data from SIPD, SiRUP, and the E-Catalog to reduce administrative duplication, recording errors, and delays in budget realization. The pharmacy team should also be formally involved in the product selection process to ensure that purchased medicines meet clinical needs, quality standards, and service priorities. The government and E-Catalog administrators should expand product variety, review pricing policies, and increase the attractiveness of the system to suppliers so that product availability can be maintained without compromising budget efficiency. Future research may further examine digital procurement from the perspective of the Government Internal Control System and compliance theory to assess fraud risk control, the accuracy of asset recording, and the system's support for government financial audits.

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