Published by University of Muhammadiyah Makassar

DOI: 10.26618

e-ISSN 2714-6294 | p-ISSN 2714-6308

Amnesty: Jurnal Riset Perpajakan

journal homepage: https://journal.unismuh.ac.id/index.php/ar-ribh

Efficiency Effectiveness of PPh 21 Reporting via Taxation Digitalization in State Institutions Using Value for Money

Adinda Mutiara Gladis Dhihantoro[1], Khasanah Sahara[2], Agus Athori[3]
Faculty Of Economics, Universitas Islam Kadiri
Email: adinda.mgd@student.uniska-kediri.ac.id; khasanahsahara.01@gmail.com; agusathori@uniska-kediri.ac.id

ARTICLE INFO

Keywords:
Digital Tax Administration; Income Tax Article 21; Value for Money; Public Educational Institutions; Reporting Effectiveness; Administrative Efficiency.

Journal Story – Manuscript Review Process
March 1, 2026 – Manuscript submitted.
March 4, 2026 – Initial revision requested.
May 20, 2026 – Pre-review notes provided.
May 31, 2026 – Revised manuscript submitted.

ABSTRACT

The digitalization of tax administration has emerged as a strategic reform to strengthen public-sector governance by improving the efficiency, effectiveness, and transparency of tax administration. However, empirical evidence regarding its impact on organizational tax reporting performance in public educational institutions remains limited. This study evaluates the effectiveness and efficiency of Income Tax Article 21 (PPh 21) reporting following the implementation of digital tax administration using the Value for Money (VfM) framework. Unlike previous studies that primarily examine taxpayer compliance, technology adoption, or private-sector organizations, this research assesses public educational institutions as corporate taxpayers by integrating reporting effectiveness, time efficiency, and administrative cost efficiency into a comprehensive performance evaluation. A quantitative descriptive evaluative approach was employed using 240 secondary administrative documents, consisting of 120 reporting records before and 120 after the implementation of digital taxation. Data were analyzed using effectiveness and efficiency ratios and interpreted within the Value for Money framework. The findings indicate that reporting effectiveness increased from 85.00% to 96.67%, reflecting a substantial reduction in tax calculation errors and improved reporting accuracy. Furthermore, the average reporting time decreased from 6.5 hours to 2.1 hours per reporting cycle, resulting in a 32.31% time efficiency ratio, while administrative costs declined by 35.38%. These findings demonstrate that digital tax administration significantly enhances reporting quality while optimizing institutional resource utilization. The study extends the application of the Value for Money framework to digital tax administration in public educational institutions and provides practical evidence for policymakers to optimize digital taxation reforms and strengthen accountable, efficient, and sustainable public financial governance.

1. Introduction

Taxation constitutes the primary source of government revenue and represents a fundamental instrument for achieving sustainable economic growth, fiscal stability, and high-quality public service delivery. In recent years, governments worldwide have faced increasing pressure to improve the efficiency, transparency, and accountability of tax administration while simultaneously reducing compliance costs for taxpayers. The rapid development of digital technologies has transformed public financial management by enabling governments to redesign tax administration processes through integrated digital platforms, automated reporting systems, and real-time data exchange. Consequently, digital taxation has become one of the most significant components of public sector modernization and electronic government (e-

DOI: 10.26618

government), particularly in countries seeking to strengthen fiscal capacity and institutional governance (OECD, 2023).

Digital transformation in tax administration extends beyond the simple conversion of manual procedures into electronic services. Instead, it involves the integration of information technology, digital identity, automated validation, artificial intelligence, cloud computing, and interoperable databases to improve the quality of tax administration. The Organisation for Economic Co-operation and Development (OECD) explains that modern tax administrations are evolving toward "Tax Administration 3.0," where taxation becomes embedded within taxpayers' natural digital systems, allowing tax obligations to be calculated, reported, and verified with minimal administrative burden. This transformation is expected to reduce reporting errors, improve voluntary compliance, enhance transparency, and optimize institutional performance through data-driven decision-making (OECD, 2022; OECD, 2023).

The adoption of digital taxation has accelerated globally because traditional tax administration systems are increasingly unable to accommodate the growing complexity of modern economic transactions. Manual tax reporting frequently results in duplicated records, calculation errors, delayed submissions, fragmented databases, and excessive administrative costs. These weaknesses not only reduce operational efficiency but also undermine taxpayer confidence and institutional accountability. Recent studies indicate that digital tax systems significantly improve reporting quality by automating calculations, strengthening internal controls, facilitating electronic document verification, and enabling real-time monitoring of tax compliance. Moreover, digital transformation creates substantial public value by improving service quality while reducing the administrative burden imposed on both governments and taxpayers (OECD, 2023).

Within the public sector, tax administration performance has become increasingly important because government institutions function not only as regulators but also as taxpayers responsible for fulfilling various tax obligations. Public institutions are expected to demonstrate exemplary compliance with tax regulations while maintaining high standards of accountability in managing public resources. Consequently, improving tax administration performance contributes directly to strengthening good governance, fiscal discipline, and public trust. Digital taxation therefore represents a strategic policy instrument for enhancing both administrative effectiveness and organizational efficiency within government institutions (World Bank, 2022; OECD, 2023).

Indonesia has actively pursued tax administration reform through comprehensive digital transformation initiatives implemented by the Directorate General of Taxes (DGT). The introduction of electronic services—including e-Registration, e-Billing, e-Filing, e-SPT, e-Bupot, and, more recently, the Core Tax Administration System (Coretax)—illustrates the government's commitment to building an integrated digital taxation ecosystem. Coretax represents one of the most comprehensive tax modernization programs undertaken in Indonesia, integrating taxpayer registration, payment, reporting, auditing, and compliance monitoring into a single digital platform. The implementation of this integrated system is expected to simplify administrative procedures, improve data accuracy, reduce compliance costs, and strengthen tax governance through more efficient information management.

The implementation of digital taxation is particularly relevant for the administration of Income Tax Article 21 (PPh Pasal 21), which regulates the withholding, payment, and reporting of employee income taxes. Unlike individual taxpayers who independently fulfill their tax obligations, public institutions act as withholding agents responsible for calculating, deducting, depositing, and reporting taxes on behalf of their employees. This responsibility

DOI: 10.26618

requires institutions to maintain highly accurate administrative systems because calculation errors may generate reporting inconsistencies, financial penalties, delayed submissions, and reputational risks. Public educational institutions face additional challenges because they manage diverse employment categories—including permanent lecturers, contract employees, honorary staff, and temporary personnel—with varying remuneration structures and taxation treatments.

Before the implementation of digital taxation, many public educational institutions relied heavily on manual administrative procedures involving spreadsheet-based calculations, paper documentation, and repetitive verification processes. Such practices often increased administrative workloads, prolonged reporting completion times, and heightened the likelihood of computational errors. Recent evidence suggests that digital tax administration substantially improves operational performance by automating payroll calculations, validating tax data electronically, and integrating reporting procedures into centralized information systems. These technological improvements allow institutions to allocate fewer resources to routine administrative activities while improving reporting quality and regulatory compliance.

From the perspective of public financial management, the successful implementation of digital taxation should not be evaluated solely through technological adoption or taxpayer satisfaction. Instead, digital transformation should be assessed based on its ability to improve organizational performance by increasing reporting effectiveness while simultaneously reducing the resources required to complete administrative processes. This perspective aligns with contemporary public management theory, which emphasizes that technological innovation should generate measurable public value through enhanced efficiency, effectiveness, transparency, and accountability. Therefore, empirical evaluation of digital taxation requires a comprehensive performance measurement framework capable of assessing both the quality of tax reporting outcomes and the efficiency of resource utilization. Such an evaluation is particularly relevant in public educational institutions, where tax administration performance directly influences institutional accountability and the credibility of public financial governance.

Although the implementation of digital taxation has attracted increasing scholarly attention, existing empirical evidence remains fragmented. Most previous studies have primarily examined the influence of digital tax services on taxpayer compliance, technology acceptance, tax morale, and tax revenue performance. While these studies consistently report positive impacts of electronic tax systems on compliance and service quality, relatively few investigate how digitalization affects the internal administrative performance of public institutions responsible for tax reporting. Consequently, organizational outcomes such as reporting effectiveness, processing efficiency, administrative cost reduction, and institutional performance remain insufficiently explored.

Another limitation of previous literature concerns the research context. Existing studies predominantly focus on individual taxpayers, small and medium-sized enterprises (SMEs), or private corporations, whereas public educational institutions have received considerably less attention. As public-sector organizations, educational institutions operate under stricter accountability standards because they manage public funds while simultaneously acting as withholding agents responsible for calculating, depositing, and reporting Income Tax Article 21 (PPh 21). Their performance therefore reflects not only regulatory compliance but also the quality of public financial governance. Despite this strategic role, empirical evidence regarding digital tax administration within public educational institutions remains scarce, particularly in developing countries.

The recent implementation of the Core Tax Administration System (Coretax) further

DOI: 10.26618

increases the relevance of evaluating organizational tax performance. Coretax represents Indonesia's most comprehensive digital tax reform, integrating taxpayer registration, reporting, payment, auditing, and compliance monitoring into a unified digital ecosystem. The implementation of this integrated platform is expected to simplify administrative procedures, improve data quality, strengthen transparency, and reduce operational inefficiencies. Nevertheless, recent studies also identify several implementation challenges, including technological adaptation, human resource readiness, system reliability, and organizational resistance to change. Therefore, empirical evidence is required to determine whether digital transformation genuinely produces measurable improvements in organizational performance rather than merely replacing manual procedures with electronic systems.

From a public management perspective, evaluating digital transformation requires a broader performance measurement framework than conventional compliance indicators. Public organizations are increasingly expected to demonstrate that technological innovation creates measurable public value by improving effectiveness while simultaneously reducing resource consumption. Digital transformation should therefore be assessed not only according to technological adoption but also according to its contribution to organizational productivity, service quality, transparency, and accountability. Recent public administration literature emphasizes that digital transformation generates sustainable public value only when technological innovation is accompanied by measurable improvements in institutional performance and resource utilization.

The Value for Money (VfM) framework provides a comprehensive theoretical perspective for evaluating such performance improvements. Originating from public sector performance management, Value for Money integrates the principles of economy, efficiency, and effectiveness to assess whether public organizations achieve optimal outcomes using the minimum necessary resources. Rather than focusing exclusively on compliance or financial outputs, the framework evaluates the relationship between organizational objectives and resource utilization. Within tax administration, Value for Money enables researchers to assess whether digital taxation simultaneously improves reporting accuracy, reduces reporting time, minimizes administrative costs, and strengthens institutional accountability. Consequently, this framework offers a more comprehensive evaluation of digital taxation performance than studies relying solely on taxpayer compliance or technology acceptance models.

Despite its relevance, the application of the Value for Money framework in digital tax administration remains limited. Existing studies generally examine either effectiveness indicators, such as reporting accuracy and compliance, or efficiency indicators, such as processing time and administrative costs, without integrating these dimensions into a unified performance evaluation model. This fragmented approach restricts understanding of whether digital taxation actually generates additional organizational value. The present study addresses this limitation by simultaneously evaluating effectiveness and efficiency within a single Value for Money framework, thereby providing a more holistic assessment of tax administration performance in public educational institutions.

This study also contributes to the literature by extending the application of public sector performance evaluation to the field of tax administration. Previous studies have generally employed Value for Money to assess government expenditure, procurement, budgeting, and public service delivery. Comparatively little attention has been devoted to applying this framework to tax reporting activities, particularly those involving payroll tax obligations administered by public institutions. Accordingly, this research broadens the theoretical application of Value for Money by demonstrating its relevance in

DOI: 10.26618

evaluating digital taxation reforms within government organizations.

The novelty of this study lies in three principal aspects. First, unlike previous research focusing primarily on taxpayer compliance, this study evaluates organizational performance in PPh 21 reporting within public educational institutions acting as public-sector corporate taxpayers. Second, this research integrates reporting effectiveness, reporting time efficiency, and administrative cost efficiency into a single Value for Money evaluation framework, thereby providing a more comprehensive measurement of tax administration performance. Third, the study provides empirical evidence regarding the effectiveness of Indonesia's digital tax transformation, particularly the implementation of integrated digital reporting systems, in improving institutional governance through enhanced reporting quality and optimized resource utilization.

Based on these considerations, this study aims to evaluate the effectiveness and efficiency of Income Tax Article 21 reporting before and after the implementation of tax administration digitalization in public educational institutions using the Value for Money approach. Specifically, the research examines changes in reporting accuracy, reporting completion time, and administrative costs to determine whether digital taxation creates measurable added value for public organizations. The findings are expected to contribute theoretically by enriching the literature on digital public sector taxation and public performance management, while also providing practical implications for policymakers and tax authorities in optimizing future digital taxation policies. Ultimately, the study supports the broader objective of strengthening accountable, transparent, and efficient public financial governance through evidence-based digital transformation.

2. Literature Review

2.1 Taxation and Tax Administration

Taxation constitutes the primary source of government revenue and serves as a fundamental instrument for financing public expenditure, promoting economic stability, and supporting sustainable national development. Beyond its fiscal function, taxation has become an essential component of public governance because an effective tax system enhances transparency, accountability, institutional credibility, and public trust in government institutions (OECD, 2023). Contemporary tax administration is therefore no longer viewed merely as a mechanism for collecting taxes but as an integrated governance system that facilitates taxpayer compliance while ensuring the efficient allocation of administrative resources. Recent international evidence indicates that modern tax administrations increasingly prioritize service-oriented approaches supported by digital technologies to reduce compliance costs, improve data quality, strengthen institutional resilience, and enhance fiscal sustainability (OECD, 2024; Hesami et al., 2024).

Tax administration encompasses a comprehensive set of activities, including taxpayer registration, tax assessment, withholding, payment, reporting, auditing, enforcement, and dispute resolution. The effectiveness of these activities determines not only the level of tax compliance but also the credibility of fiscal institutions. According to OECD (2024), successful tax administrations are characterized by integrated information systems, real-time data exchange, automated validation mechanisms, artificial intelligence, and risk-based compliance management. These characteristics enable tax authorities to reduce administrative burdens while improving reporting accuracy, operational efficiency, and taxpayer satisfaction (Hesami et al., 2024; OECD, 2023).

Within the public sector, tax administration performs a dual function. Government institutions are responsible not only for regulating taxation but also for fulfilling their own tax obligations as withholding agents. Consequently, effective tax administration reflects institutional accountability in managing public resources. Weak administrative systems

DOI: 10.26618

frequently generate reporting errors, delayed submissions, duplicated documentation, and higher operational costs, all of which may reduce public confidence in government financial management (Nuryanah et al., 2023). Conversely, integrated digital tax administration enhances transparency, strengthens internal control systems, and improves organizational performance through standardized administrative procedures (OECD, 2024).

Recent developments indicate that tax administration has evolved toward the concept of Tax Administration 3.0, in which taxation processes are embedded directly into taxpayers' natural digital systems rather than relying on separate administrative procedures. This paradigm allows tax calculations, reporting, and verification to occur automatically through integrated digital platforms, thereby minimizing manual intervention and reducing opportunities for human error. Such transformation reflects a shift from reactive tax administration toward proactive digital governance capable of supporting sustainable fiscal management (OECD, 2022; Hesami et al., 2024).

2.2 Income Tax Article 21

Income Tax Article 21 (PPh Article 21) represents one of Indonesia's principal withholding taxes imposed on income received by individuals from employment, services, honoraria, salaries, wages, allowances, bonuses, and other employment-related compensation. Under Indonesian tax regulations, employers—including government agencies and public educational institutions—act as withholding agents responsible for calculating, deducting, depositing, and reporting employees' tax liabilities. Consequently, the quality of PPh Article 21 administration depends largely on institutional capability rather than individual taxpayer compliance.

The administration of PPh Article 21 has become increasingly complex because payroll systems involve diverse employment arrangements, including permanent employees, contract personnel, honorary staff, lecturers, consultants, and temporary workers. Each category may receive different compensation structures, taxable allowances, deductions, and applicable tax treatments. These complexities increase the risk of computational errors when reporting processes rely heavily on manual calculations or fragmented administrative systems. Therefore, institutions require standardized and technology-based reporting mechanisms capable of ensuring calculation consistency, regulatory compliance, and reliable payroll governance (Hesami et al., 2024).

Recent studies demonstrate that payroll tax administration is particularly vulnerable to operational inefficiencies because payroll processing involves repetitive calculations, multiple verification stages, and extensive documentation requirements. Digital tax administration substantially improves payroll reporting through automated tax calculations, electronic validation, centralized databases, and integrated reporting systems. These technological innovations reduce administrative workloads while simultaneously improving reporting quality, minimizing compliance risks, and strengthening institutional performance (Hai et al., 2024).

For public educational institutions, the management of PPh Article 21 extends beyond routine tax compliance because these organizations manage public funds that must be administered according to principles of accountability, transparency, efficiency, and good governance. The implementation of digital taxation therefore provides opportunities to strengthen institutional governance by reducing reporting errors, accelerating reporting completion, and enhancing the reliability of financial information. OECD (2024) reports that many jurisdictions have increasingly integrated payroll taxation directly into employers' digital payroll systems, enabling tax obligations to be processed automatically with significantly lower compliance costs while improving compliance quality.

DOI: 10.26618

The recent implementation of Indonesia's Core Tax Administration System (Coretax) further reinforces this transformation by integrating taxpayer registration, tax payment, reporting, auditing, and compliance monitoring within a unified digital platform. Such integration enables withholding institutions to perform tax administration more efficiently while improving the quality of tax data exchanged between taxpayers and tax authorities. Early empirical evidence suggests that integrated digital taxation has considerable potential to enhance reporting accuracy, reduce compliance costs, strengthen taxpayer trust, and improve institutional governance. However, successful implementation also depends on organizational readiness, system quality, digital competencies, and user acceptance.

2.3 Digitalization of Tax Administration

Digitalization has fundamentally transformed tax administration by shifting tax compliance processes from conventional paper-based procedures to integrated digital platforms. This transformation extends beyond the adoption of electronic filing systems and encompasses the integration of artificial intelligence (AI), big data analytics, cloud computing, machine learning, blockchain technology, and real-time information exchange into tax administration systems. Consequently, digital tax administration has become a strategic instrument for improving tax compliance, reducing administrative costs, increasing transparency, and strengthening public sector governance (OECD, 2024; Hesami et al., 2024).

The OECD introduced the concept of Tax Administration 3.0, emphasizing that taxation should no longer operate as an isolated administrative process but rather be embedded within taxpayers' natural digital ecosystems. Under this paradigm, payroll systems, accounting software, banking platforms, and enterprise resource planning (ERP) systems communicate automatically with tax authorities, allowing tax calculations, withholding, payment, and reporting to occur in real time. Such integration substantially reduces manual intervention while increasing reporting accuracy and compliance efficiency (OECD, 2022, 2024).

Recent empirical studies consistently demonstrate the positive impacts of digital tax administration on institutional performance. Hesami et al. (2024), through a systematic literature review, conclude that technologies such as e-invoicing, pre-filled tax returns, AI-based verification, and automated reporting significantly reduce compliance costs while improving reporting quality and taxpayer satisfaction. Argue that digital transformation should be viewed not merely as technological modernization but as an organizational reform capable of improving governance quality, accountability, and administrative efficiency.

The implementation of digital tax administration also enhances institutional decision-making through data-driven governance. Digital platforms enable tax authorities to analyze taxpayer behavior using predictive analytics and risk-based compliance models, thereby allocating supervisory resources more efficiently. Rather than conducting random audits, tax authorities can prioritize high-risk taxpayers based on integrated digital information, resulting in more effective compliance management (OECD, 2023).

Another important contribution of digitalization is the reduction of administrative errors. Conventional tax reporting frequently suffers from data duplication, manual calculation mistakes, delayed reporting, and incomplete documentation. Automated validation systems substantially reduce these risks by verifying taxpayer data before submission, improving the consistency of tax calculations and increasing reporting reliability (Hai et al., 2024).

Recent evidence from China's Golden Tax System illustrates the significant economic effects of digital tax administration. Cheng and Wei (2024) report that digital tax collection not only improves reporting accuracy but also

DOI: 10.26618

stimulates corporate productivity and employment by lowering compliance uncertainty. Similarly, Xu et al. (2025) find that digital tax administration encourages enterprise innovation because firms devote fewer resources to administrative compliance and more resources to productive investment.

Digital transformation also strengthens fiscal transparency by improving data integration among government agencies. Tax authorities can synchronize taxpayer information with customs, banking institutions, social security agencies, and payroll systems, thereby reducing opportunities for tax avoidance and fraudulent reporting. Furthermore, Pang and Hua (2024) demonstrate that digital tax administration reduces earnings manipulation because automated monitoring systems increase the probability of detecting financial reporting irregularities.

Within the Indonesian context, the Directorate General of Taxes has introduced the Core Tax Administration System (Coretax) to integrate taxpayer registration, payment, reporting, audit, and compliance monitoring into a single digital platform. Coretax represents one of the largest tax administration reforms in Indonesia, replacing fragmented legacy systems with a centralized digital infrastructure. Early evaluations indicate that Coretax improves information quality, reduces compliance costs, and enhances user satisfaction, although organizational readiness and digital literacy remain important determinants of successful implementation (Saptono et al., 2025).

For public educational institutions, digital tax administration is particularly relevant because these institutions routinely manage payroll taxes for large numbers of employees. Automated payroll-tax integration minimizes repetitive administrative work, accelerates reporting completion, strengthens internal control systems, and improves accountability in public financial management. Consequently, digital tax administration supports not only tax compliance but also broader public sector governance reforms that emphasize transparency, efficiency, and evidence-based decision-making (OECD, 2024).

2.4 Efficiency in Tax Administration

Efficiency refers to an organization's capability to achieve predetermined outputs using minimum available resources. Within public sector management, efficiency emphasizes the optimal utilization of financial resources, labor, information technology, and administrative processes without compromising service quality. Modern public administration increasingly considers efficiency as one of the principal indicators of institutional performance because governments are expected to deliver higher-quality public services while operating under limited fiscal resources (Fischer et al., 2021).

In tax administration, efficiency reflects the ability of tax authorities and withholding institutions to process tax obligations accurately while minimizing reporting time, administrative costs, human resource utilization, and operational complexity. Efficient tax administration therefore reduces compliance costs for taxpayers while simultaneously lowering administrative expenditures for government institutions (OECD, 2023).

Digital transformation has become one of the primary drivers of administrative efficiency. Automated reporting systems reduce repetitive manual activities, eliminate redundant documentation, accelerate verification procedures, and improve information sharing across institutions. Consequently, digital tax systems significantly shorten reporting cycles while reducing operational costs and administrative burdens (Hesami et al., 2024; OECD, 2024).

Empirical evidence consistently supports this relationship. Research on digital tax reforms demonstrates that electronic reporting systems substantially improve operational efficiency by reducing processing time, minimizing human error, and lowering administrative expenditure compared with conventional manual systems (Ibilibor & Deshi,

DOI: 10.26618

2025). Similar findings are reported in systematic reviews of digital taxation, which conclude that technologies such as AI, blockchain, e-filing, and integrated databases significantly improve administrative efficiency while strengthening transparency and accountability.

Within public educational institutions, efficiency gains are particularly important because payroll tax reporting is conducted repeatedly throughout the fiscal year. Automated tax calculations reduce employee workloads, minimize overtime requirements, and improve reporting consistency. Consequently, institutions can allocate financial and human resources toward more strategic educational activities rather than repetitive administrative work.

From the Value for Money perspective, efficiency is assessed by comparing resources consumed with outputs generated. Therefore, improvements in reporting time, reductions in administrative costs, and optimization of labor utilization become measurable indicators of successful tax administration digitalization. When institutions achieve higher reporting quality while consuming fewer resources, digital transformation can be considered to have generated substantial public value through improved administrative efficiency.

2.5 Effectiveness in Tax Reporting

Effectiveness refers to the extent to which organizational objectives are successfully achieved through the implementation of planned activities. Within public sector organizations, effectiveness is measured by the degree to which public services and administrative processes accomplish predetermined targets while complying with applicable regulations. In tax administration, effectiveness primarily reflects the ability of tax authorities and withholding institutions to ensure accurate tax calculations, timely reporting, regulatory compliance, and reliable taxpayer information. Consequently, an effective tax administration system contributes not only to higher tax compliance but also to improved institutional accountability and fiscal governance (OECD, 2024).

The digital transformation of tax administration has substantially expanded the concept of effectiveness. Traditionally, tax reporting effectiveness was evaluated through reporting completion rates and submission timeliness. Contemporary digital tax systems, however, assess effectiveness through broader dimensions including reporting accuracy, automated validation, data consistency, interoperability among government agencies, and taxpayer service quality. Modern tax administrations increasingly utilize artificial intelligence, predictive analytics, and integrated databases to improve both operational effectiveness and taxpayer compliance while reducing administrative complexity (OECD, 2024).

Recent empirical studies demonstrate that digital tax administration significantly enhances reporting effectiveness. Automated tax calculation systems minimize computational errors, while electronic validation mechanisms improve data consistency before submission. Digital platforms also facilitate real-time verification of taxpayer information, reducing discrepancies between payroll records and tax reports. Consequently, organizations experience fewer reporting corrections, lower audit risks, and improved compliance performance (Hesami et al., 2024; Cheng & Wei, 2024).

For public educational institutions, reporting effectiveness is particularly important because these institutions act as withholding agents responsible for collecting and reporting employees' Income Tax Article 21. Since payroll data involve multiple employee categories, allowances, deductions, and tax rates, manual reporting procedures often increase the likelihood of calculation errors and reporting delays. Digital payroll integration substantially improves reporting quality by automating tax computations and ensuring compliance with frequently changing tax regulations (Saptono et al., 2025).

DOI: 10.26618

Moreover, digital effectiveness extends beyond internal administrative improvements. Integrated tax reporting systems strengthen institutional transparency by enabling tax authorities to monitor reporting activities in real time. Such transparency enhances public accountability and supports evidence-based fiscal decision-making. OECD (2024) emphasizes that tax administrations adopting integrated digital reporting systems consistently demonstrate higher effectiveness in taxpayer services, compliance management, and institutional governance compared with conventional administrative systems.

Accordingly, in this study, reporting effectiveness is operationalized as the degree of accuracy achieved in Income Tax Article 21 reporting before and after the implementation of digital tax administration. Higher reporting accuracy indicates greater effectiveness because institutional reporting objectives are achieved with fewer calculation errors and improved regulatory compliance.

2.6 Value for Money Theory

Value for Money (VfM) has become one of the most widely adopted performance evaluation frameworks in public sector management because it integrates efficiency, effectiveness, and economy into a comprehensive assessment of organizational performance. Rather than focusing exclusively on outputs, the Value for Money approach evaluates whether public resources are utilized economically, managed efficiently, and capable of producing effective outcomes that maximize public value.

Within public administration, Value for Money reflects the principle that government organizations should deliver the highest possible quality of public services while consuming the minimum necessary resources. Consequently, performance evaluation no longer depends solely on budget absorption or administrative compliance but also considers whether organizational objectives are achieved through optimal resource utilization.

The digital transformation of public administration has strengthened the relevance of the Value for Money framework because digital technologies enable governments to simultaneously improve service quality while reducing operational costs. Digital government initiatives reduce repetitive administrative activities, automate routine decision-making, improve information quality, and enhance institutional transparency. These improvements create measurable public value by increasing effectiveness without proportionally increasing administrative expenditure (OECD, 2024).

Within tax administration, Value for Money provides a comprehensive framework for evaluating digital taxation reforms. Digital tax systems are expected not only to increase tax compliance but also to minimize reporting time, administrative expenditure, and human resource utilization. Therefore, successful digital transformation should produce simultaneous improvements in reporting accuracy, operational efficiency, taxpayer satisfaction, and institutional accountability.

Several recent studies demonstrate that digital taxation reforms generate substantial Value for Money for public organizations. Digital reporting systems reduce compliance costs, improve reporting quality, accelerate tax processing, and strengthen internal control systems. These improvements create additional public value because institutions achieve superior administrative performance without increasing financial or human resource inputs (Bassey et al., 2022; Hesami et al., 2024).

In the context of Income Tax Article 21 reporting, the Value for Money approach is particularly appropriate because withholding institutions repeatedly perform identical administrative activities throughout each fiscal year. Digital payroll integration reduces repetitive work, minimizes reporting errors, shortens reporting duration, and lowers administrative costs simultaneously. Therefore, improvements in effectiveness accompanied by reductions in time and operational costs

DOI: 10.26618

indicate that digital taxation has successfully generated Value for Money.

Accordingly, this study adopts the Value for Money framework to evaluate the overall performance of digital tax administration within public educational institutions. The framework integrates three measurable dimensions: (1) reporting effectiveness, represented by tax calculation accuracy; (2) time efficiency, represented by reporting duration; and (3) cost efficiency, represented by administrative expenditure. The simultaneous improvement of these three dimensions indicates that digital tax administration contributes to better public sector governance through enhanced accountability, transparency, and sustainable resource management.

The integration of Value for Money with digital tax administration also represents the primary theoretical contribution of this research. Previous studies generally examine taxpayer compliance or digital taxation separately, whereas this study evaluates digital tax administration using an integrated public-sector performance framework. Consequently, the study extends the application of Value for Money theory within taxation research and provides empirical evidence regarding the performance implications of tax digitalization in public educational institutions.

2.7 Previous Research

Research on digital tax administration has expanded considerably during the last five years, reflecting governments' efforts to modernize tax systems through digital transformation. Most previous studies have investigated the influence of digital taxation on taxpayer compliance, technology acceptance, institutional efficiency, or corporate behavior. However, limited studies have examined digital tax administration from the perspective of public-sector performance evaluation, particularly by integrating the Value for Money (VfM) framework within the administration of Income Tax Article 21 in public educational institutions.

Bassey et al. (2022) developed one of the earliest comprehensive conceptual frameworks for digital tax administration through a systematic literature review involving 96 publications. Their study identified four major dimensions determining successful digital taxation: contextual factors, stakeholders, technological infrastructure, and organizational outcomes. The authors emphasized that future studies should move beyond technology adoption models and examine the broader governance implications of digital tax administration. Examined how e-government initiatives improve tax compliance across multiple countries. Their findings indicate that information and communication technology (ICT) significantly strengthens tax compliance by improving service quality, institutional transparency, and taxpayer trust. Nevertheless, their study primarily focused on taxpayer behavior rather than organizational performance.

Cheng and Wei (2024) investigated China's Golden Tax System III and found that digital tax administration substantially improved reporting accuracy while stimulating employment growth through reduced compliance uncertainty. Their findings demonstrate that digital taxation generates benefits extending beyond tax administration into broader economic performance.

Hai et al. (2024) analyzed the relationship between digital tax administration and corporate environmental, social, and governance (ESG) performance. Their results indicate that digital taxation strengthens corporate governance by improving transparency and reducing information asymmetry between taxpayers and tax authorities.

Pang and Hua (2024) reported that digital tax administration significantly reduces earnings management because automated monitoring systems improve tax transparency and increase the probability of detecting financial manipulation. Xu et al. (2025) demonstrated that digital tax reforms encourage enterprise innovation by reducing

DOI: 10.26618

administrative burdens and reallocating organizational resources toward productive investment.

Darmayasa and Hardika (2024) extended the Slippery Slope Framework to Indonesia's Core Tax Administration System (Coretax), showing that trust in digital taxation and institutional authority jointly influence tax compliance. Their findings highlight the strategic importance of system quality and taxpayer confidence in achieving successful digital tax transformation.

Saptono et al. (2026) provided one of the earliest empirical evaluations of Indonesia's Coretax system. Using the DeLone and McLean Information Systems Success Model integrated with the Technology Acceptance Model, they found that successful system implementation reduces perceived compliance costs while strengthening taxpayers' compliance intentions.

Nuryanah et al. (2025) investigated taxpayers' perceptions toward Indonesia's new digital tax return feature. Their mixed-method study found that perceived usefulness, ease of use, and system quality significantly influence user acceptance of digital taxation. Recent systematic literature reviews also conclude that digital taxation consistently improves efficiency, reporting quality, transparency, and taxpayer compliance while reducing compliance costs through automation, artificial intelligence, blockchain, and real-time data integration (Hesami et al., 2024; Fauziah et al., 2025).

Despite these significant contributions, several research gaps remain. First, most previous studies evaluate individual taxpayer compliance, whereas relatively few examine government institutions acting as withholding agents. Second, existing research generally emphasizes technology adoption or taxpayer perceptions, while comprehensive evaluations of administrative performance remain limited. Third, studies frequently measure compliance or system acceptance independently without integrating effectiveness and efficiency within a unified Value for Money framework. Finally, empirical evidence concerning Income Tax Article 21 reporting in public educational institutions remains scarce.

These gaps provide strong justification for the present study, which evaluates the effectiveness and efficiency of PPh Article 21 reporting following tax administration digitalization using the Value for Money framework.

Table 1. Research Gap Analysis

Author	Focus	Method	Main Findings	Research Gap
Uyar et al. (2021)	E-government & compliance	Cross-country analysis	ICT improves compliance	No public-sector performance evaluation
Bassey et al. (2022)	Digital tax administration	Systematic Review	Developed conceptual framework	No empirical testing
OECD (2023)	Tax Administration	Comparative report	Digitalization improves efficiency	No institutional case study
Cheng & Wei (2024)	Golden Tax System	Econometric	Improves employment & compliance	Not public institutions
Hai et al. (2024)	ESG	Panel data	Improves governance	No payroll tax analysis
Pang & Hua (2024)	Earnings management	Machine learning	Reduces manipulation	No Value for Money approach

DOI: 10.26618

Darmayasa & Hardika (2024)	Coretax	Behavioral model	Trust influences compliance	No efficiency evaluation
Nuryanah et al. (2025)	Digital tax return	Mixed methods	User acceptance important	Not withholding institutions
Saptono et al. (2026)	Coretax Indonesia	SEM	Compliance cost decreases	No PPh Article 21 reporting
Hesami et al. (2024)	Digital taxation	SLR	Digitalization improves quality	Conceptual only

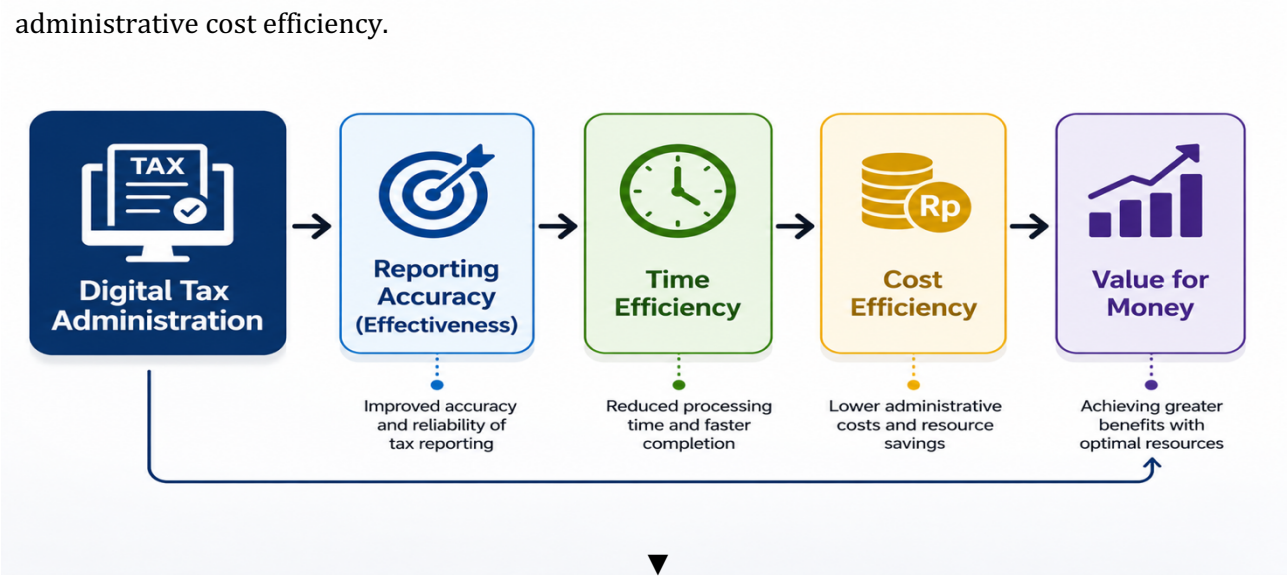
Table 2. Novelty Statement

Previous Studies	This Research
Focus on taxpayer compliance	Focus on institutional reporting performance
Analyze technology acceptance	Evaluate effectiveness and efficiency simultaneously
Private-sector orientation	Public educational institutions
Compliance indicators	Value for Money performance indicators
Behavioral perspective	Public-sector governance perspective
Digital taxation generally	Specifically PPh Article 21 reporting

The principal novelty of this study lies in integrating digital tax administration, Income Tax Article 21 reporting, and the Value for Money framework within the context of public educational institutions. Unlike previous studies that primarily emphasize taxpayer behavior or technology acceptance, this research evaluates organizational performance by simultaneously measuring reporting effectiveness, reporting time efficiency, and administrative cost efficiency.

2.8 Conceptual Framework

The conceptual framework proposes that the implementation of digital tax administration positively influences the performance of Income Tax Article 21 reporting through improvements in reporting effectiveness and administrative efficiency. The resulting improvements collectively generate Value for Money in public-sector tax administration.



Improved Public-Sector Tax Administration Performance The framework assumes that digitalization reduces manual administrative activities, improves reporting accuracy, minimizes reporting time, lowers operational costs, and ultimately strengthens accountability, transparency, and governance within public educational institutions.

DOI: 10.26618

3. Research Methods

3.1 Research Type and Approach

This study employs a descriptive approach with an evaluative quantitative analysis within the public sector. The descriptive approach is used to delineate the reporting performance of Income Tax (PPh) Article 21 in public educational institutions both before and after the implementation of tax administration digitalization. The quantitative analysis is conducted by calculating effectiveness and efficiency ratios based on the institutions' administrative data.

This research focuses specifically on evaluating the performance of PPh Article 21 reporting; thus, it is not directed toward testing relationships between variables or conducting inferential statistical testing. The analysis is performed by comparing reporting performance before and after digitalization and assessing the results using the Value for Money approach as a performance evaluation tool for the public sector.

3.2 Types and Sources of Data

The type of data utilized in this study is secondary data. Data were obtained from the administrative documents of public educational institutions related to the reporting of Income Tax (PPh) Article 21, as well as administrative data recorded within the Coretax system. Additionally, supporting data were gathered from the institutions' internal reports concerning labor time allocation and operational costs involved in the tax reporting process. The characteristics of the data in this study consist of comprehensive administrative data (total population data) rather than sample data. Consequently, the analyzed data reflect the actual conditions of PPh Article 21 reporting implementation within public educational institutions throughout the research period.

3.3 Research Variables

The research variables in this study consist of four evaluative variables, as follows:

1. Effectiveness of Income Tax Article 21 Reporting: The degree of accuracy in tax calculations within the reporting documents.
2. Time Efficiency of Income Tax Article 21 Reporting: A comparison of the time consumed in the reporting process before and after the implementation of digitalization.
3. Administrative Cost Efficiency of Income Tax Article 21 Reporting: A comparison of the administrative costs incurred by the institution before and after the implementation of digitalization.
4. Tax Administration Digitalization: The implementation of an information technology-based tax reporting system, used as the comparative condition for assessing changes before and after the system transition.

3.4 Operational Definition of Variables

Effectiveness of Income Tax Article 21 Reporting: Defined as the degree of calculation accuracy, measured by the ratio of the number of correct reporting documents to the total number of reporting documents analyzed. Time Efficiency of Income Tax Article 21 Reporting: Defined as the institution's ability to minimize the allocation of labor time within the tax reporting process, measured by comparing the reporting time before and after the implementation of digitalization.

Administrative Cost Efficiency of Income Tax Article 21 Reporting: Defined as the institution's ability to reduce the expenses incurred during the tax reporting process, measured by comparing administrative costs before and after the implementation of digitalization. Tax Administration Digitalization: Defined as the transition of the tax reporting system from manual methods to information technology-based methods that influence the process and performance of PPh Article 21 reporting.

3.5 Data Collection Techniques

Data collection in this study is conducted through documentation techniques and limited observation. The documentation technique is

DOI: 10.26618

employed to gather quantitative data related to Income Tax (PPh) Article 21 reporting, including the total number of reporting documents, calculation error rates, reporting completion times, and administrative costs incurred by the institution.

Limited observation is conducted in a non-participatory manner to obtain a general overview of the PPh Article 21 reporting workflow following the implementation of tax administration digitalization. This observation aims to understand the differences in work mechanisms before and after digitalization—specifically concerning time allocation and administrative process efficiency—without intervening in the ongoing work processes.

3.6 Data Analysis Techniques

The Value for Money analysis in this study is employed to assess the performance of Income Tax (PPh) Article 21 reporting within public educational institutions as Corporate Taxpayers, with a specific focus on the relationship between effectiveness and the efficiency of public resource utilization. The measurement of Value for Money refers to the conceptual framework proposed by Mardiasmo, as well as the quantitative index development introduced by Eliyana.

3.6.1 Effectiveness Measurement

Effectiveness describes the level of success an institution achieves in meeting its Income Tax (PPh) Article 21 reporting objectives, particularly in producing tax calculations that are accurate and compliant with prevailing tax regulations. Effectiveness is measured by comparing the actual output with the target output. In this study, actual output is defined as the number of PPh Article 21 reporting documents prepared and reported correctly, while target output is defined as the total number of PPh Article 21 reporting documents that should have been reported during the research period. Mathematically, the effectiveness ratio is formulated as follows:

$$Effectiveness\ Ratio = \frac{Actual\ Output\ (number\ of\ accurate\ reporting\ documents)}{Target\ Output\ (the\ aggregate\ of\ reporting\ documents)}\ x\ 100\ \%$$

An effectiveness value approaching or exceeding 100 percent indicates that PPh Article 21 reporting has been implemented effectively.

3.6.2 Efficiency Measurement

Efficiency demonstrates the relationship between the inputs utilized and the outputs produced within the Income Tax (PPh) Article 21 reporting process. The smaller the input used to generate a specific output, the more efficient the tax administration performance becomes. The efficiency ratio is formulated as follows:

$$Efficiency = \frac{Input}{Output}\ x\ 100\ \%$$

In this study, efficiency is measured through two primary aspects: reporting time efficiency and administrative cost efficiency.

3.6.3 Time Efficiency Measurement

Time efficiency is measured by comparing the reporting time after the implementation of digitalization with the reporting time before digitalization. Mathematically, this can be expressed as:

$$Time\ Efficiency = \frac{Reporting\ Time\ After\ Digitalization}{Reporting\ Time\ Before\ Digitalization\ input}\ x\ 100\ \%$$

3.6.4 Cost Efficiency Measurement

Administrative cost efficiency is measured by comparing the total reporting costs after digitalization with the total reporting costs before digitalization.

In the context of this study, the ratio can be formulated as follows:

$$Cost\ Efficiency = \frac{Total\ Reporting\ Cost\ After\ Digitalization}{Total\ Reporting\ Cost\ Before\ Digitalization}\ x\ 100\ \%$$

DOI: 10.26618

3.6.5 Analisis Value for Money

In this study, the Value for Money analysis is employed as a public sector performance evaluation tool to assess the interconnection between the effectiveness and efficiency of Income Tax (PPh) Article 21 reporting. This approach is not measured through a single independent formula; rather, it is derived from the interpretation of the effectiveness, time efficiency, and cost efficiency results analyzed in the previous stages. The results of these effectiveness and efficiency measurements are subsequently used to evaluate whether PPh Article 21 reporting, following the implementation of digitalization, has fulfilled the Value for Money principles—namely, the optimal achievement of reporting objectives through the efficient use of resources.

4. Result and Discussion

4.1 General Overview of Research Data

Penelitian This study utilizes Income Tax (PPh) Article 21 reporting data managed by public educational institutions as Corporate Taxpayers. The data were obtained from tax administration documents, including PPh Article 21 E-SPT archives, evidence of reporting through E-Filing, and supporting data from the Coretax system and the institutions' internal administrative reports. Observations were conducted over two periods: the period prior to the implementation of tax administration digitalization and the period following its implementation.

A total of 240 PPh Article 21 reporting documents were analyzed in this study, consisting of 120 documents from the pre-digitalization period and 120 documents from the post-digitalization period. Each document represents one tax period (month) of PPh Article 21 reporting on employee income. The variables analyzed include tax calculation error rates, the time required for the reporting process, and the administrative costs incurred by the institution.

4.2 Analysis of Income Tax Article 21 Reporting Effectiveness

4.2.1 Basis of Effectiveness Data Preparation

The effectiveness of PPh Article 21 reporting is measured based on the accuracy level of tax calculations. A reporting document is categorized as "correct" if all tax calculation elements—including taxable income, tax rates, and allowable deductions—comply with the prevailing tax regulations. Based on the document review results, during the pre-digitalization period, 18 documents were found to contain calculation errors out of a total of 120 reporting documents. Consequently, the number of correct reporting documents in the pre-digitalization period amounted to 102 documents. In the post-digitalization period, the number of documents with calculation errors decreased to 4, resulting in an increase in the number of correct reporting documents to 116.

4.2.2 Calculation of Effectiveness Levels

The measurement of effectiveness in this study is conducted by comparing the number of Income Tax (PPh) Article 21 reporting documents prepared correctly against the total number of reporting documents analyzed.

$$Efffectiveness = \frac{Actual\ Output\ (Correct\ Documents)}{Target\ Output\ (Total\ Documents)}\ x\ 100\ \%$$

The calculation of effectiveness for the period before digitalization is as follows:

$$Effectiveness\ Ratio\ Before = \frac{102}{120}\ x\ 100\ \%$$
$$= 85{,}00\ \%$$

The calculation of effectiveness for the period after digitalization is as follows:

$$Effectiveness\ Ratio\ After = \frac{116}{120}\ x\ 100\ \%$$
$$= 96{,}67\ \%$$

4.2.3 Discussion of Reporting Effectiveness

The calculation results indicate that the effectiveness level of PPh Article 21 reporting experienced an increase following the

DOI: 10.26618

implementation of tax administration digitalization. The effectiveness value rose from 85.00 percent in the pre-digitalization period to 96.67 percent in the post-digitalization period. Referring to the concept of effectiveness in public sector performance measurement according to Mahmudi (2019), effectiveness reflects the extent to which outputs achieve the predefined objectives. An effectiveness value approaching 100 percent demonstrates that the institution has been able to fulfill its tax reporting obligations accurately and in compliance with prevailing regulations. Therefore, the observed increase in effectiveness indicates that the digitalization of tax administration plays a significant role in improving the quality of PPh Article 21 reporting within public educational institutions.

4.3 Analysis of Reporting Time Efficiency

4.3.1 Time Efficiency Calculation

Time efficiency is calculated by comparing the reporting time after digitalization with the reporting time before digitalization.

$$Time\ Efficiency\ Ratio = \frac{Reporting\ Time\ After\ Digitalization}{Reporting\ Time\ Before\ Digitalization}\ x\ 100\ \%$$

$$Time\ Efficiency\ Ratio = \frac{2{,}1}{6{,}5}\ x\ 100\ \% = 32{,}31\ \%$$

4.3.2 Discussion of Time Efficiency

A time efficiency value of 32.31 percent indicates that the time utilized in the PPh Article 21 reporting process after the implementation of digitalization is significantly lower than before digitalization. This reduction in duration demonstrates a simplification of work processes and a decrease in manual administrative stages. According to Mardiasmo (2019), efficiency in the public sector is achieved when an organization is able to produce the same output using fewer inputs. Thus, based on the results of the time efficiency calculation, PPh Article 21 reporting after the implementation of digitalization can be categorized as efficient in terms of working time utilization.

4.4 Analysis of Administrative Cost Efficiency

4.4.1 Preparation of Administrative Cost Data

Administrative cost data were obtained from the institution's internal financial reports, which record all expenditures directly related to the PPh Article 21 reporting process. These costs include document printing expenses, office stationery (ATK), and overtime pay for employees involved in the tax reporting process. Based on the collected data, the total administrative cost for PPh Article 21 reporting before digitalization amounted to IDR 3,250,000. Following the implementation of tax administration digitalization, the total administrative cost decreased to IDR 1,150,000.

4.4.2 Calculation of Administrative Cost Efficiency

Cost efficiency is calculated by comparing the administrative costs after digitalization with the administrative costs before digitalization. The administrative cost efficiency ratio is calculated as follows:

$$Cost\ Efficiency\ Ratio = \frac{Administrative\ Cost\ After\ Digitalization}{Administrative\ Cost\ Before\ Digitalization}\ x\ 100\ \%$$

$$Cost\ Efficiency\ Ratio = \frac{1.150.0000}{3.250.0000}\ x\ 100\ \% = 35{,}38\ \%$$

4.4.3 Discussion of Administrative Cost Efficiency

A cost efficiency value of 35.38 percent indicates that the implementation of tax administration digitalization has significantly reduced the utilization of financial resources. This cost reduction is primarily driven by the decreased need for physical document printing and a reduction in employee overtime burdens. Referring to the concept of public resource efficiency by Mardiasmo (2019), this condition demonstrates that PPh Article 21 reporting has been managed efficiently in terms of administrative costs.

DOI: 10.26618

4.5 Analysis of PPh Article 21 Reporting Performance Based on the Value for Money Approach

The Value for Money approach is utilized in this study as a public sector performance evaluation tool to assess the interconnection between the effectiveness and efficiency levels of Income Tax (PPh) Article 21 reporting. This approach emphasizes the optimal achievement of tax reporting objectives through the efficient use of resources.

The analysis results show that the effectiveness level of PPh Article 21 reporting after the implementation of digitalization reached 96.67 percent, indicating a very high level of reporting accuracy. Simultaneously, digitalization has also enhanced reporting efficiency, as reflected by a time efficiency of 32.31 percent and an administrative cost efficiency of 35.38 percent.

The high level of effectiveness, accompanied by improvements in time and cost efficiency, demonstrates that PPh Article 21 reporting following the implementation of digitalization has fulfilled the Value for Money principles. This indicates that the public educational institution is able to achieve tax reporting objectives optimally without an increase in resource utilization; thus, the PPh Article 21 reporting performance can be assessed as good from a public sector perspective.

4.6 Discussion

The implementation of tax administration digitalization in public educational institutions has demonstrated a significant shift in performance regarding Income Tax (PPh) Article 21 reporting. These changes can be comprehensively analyzed through the improvement of reporting effectiveness and the efficiency of time and administrative cost utilization. This discussion integrates the results of effectiveness, time efficiency, and cost efficiency calculations analyzed in the previous sub-sections, providing a complete overview of PPh Article 21 reporting performance from a public sector perspective.

In terms of effectiveness, the research results indicate an increase in the accuracy level of PPh Article 21 reporting following digitalization. Prior to digitalization, the reporting effectiveness rate stood at 85.00 percent, derived from 102 correct reporting documents out of a total of 120. This figure suggests that tax calculation errors still occurred in the reporting process, generally caused by manual calculations and the staff's limited working time. After the implementation of tax administration digitalization, the effectiveness rate increased to 96.67 percent, derived from 116 correct documents out of 120. This 11.67 percent increase demonstrates that digitalization iscapable of minimizing calculation errors and enhancing tax reporting accuracy.

This improvement in effectiveness indicates that the digital system assists the institution in applying tax regulations more consistently and in a standardized manner. Referring to the concept of public sector performance effectiveness according to Mahmudi (2019), effectiveness reflects the degree to which predefined objectives are achieved. Therefore, the enhanced effectiveness of PPh Article 21 reporting after digitalization shows that tax reporting objectives can be achieved with higher quality.

Beyond improving effectiveness, tax administration digitalization also had a significant impact on time efficiency. The results show that before digitalization, the average time required to complete PPh Article 21 reporting was 6.5 hours per reporting period. Following the implementation of digitalization, the average reporting time decreased to 2.1 hours per period. This reduction of 4.4 hours signifies a simplification of work processes and a reduction in manual administrative stages. Based on the time efficiency calculation, an efficiency value of 32.31 percent was obtained, indicating that working time utilization after digitalization is far more efficient than before.

Efficiency is also evident from the administrative cost perspective. Prior to digitalization, the total administrative cost

DOI: 10.26618

incurred by the institution for PPh Article 21 reporting was IDR 3,250,000. These costs primarily originated from paper usage, document printing, office stationery, and employee overtime pay. After digitalization, the total administrative cost decreased to IDR 1,150,000, resulting in a cost reduction of IDR 2,100,000. The cost efficiency calculation yielded a value of 35.38 percent, reflecting that digitalization is able to significantly reduce the utilization of financial resources.

When the results of effectiveness and efficiency are reviewed together, the performance of PPh Article 21 reporting after digitalization can be assessed using the Value for Money approach. The increase in effectiveness from 85.00 percent to 96.67 percent, accompanied by a time efficiency of 32.31 percent and a cost efficiency of 35.38 percent, demonstrates that the improvement in reporting quality was not achieved by adding resources, but rather through the optimization of work processes. Consequently, tax administration digitalization has created added value for public educational institutions as corporate taxpayers, as it is able to improve reporting performance while simultaneously reducing administrative time and costs.

5. Conclusion

5.1 Summary of Key Findings

This study aims to evaluate the performance of Income Tax (PPh) Article 21 reporting in public educational institutions before and after the implementation of tax administration digitalization, utilizing a public sector performance evaluation approach. Based on the analysis and discussion, it can be concluded that the digitalization of tax administration has had a positive impact on the performance of PPh Article 21 reporting.

The research results indicate that the effectiveness level of PPh Article 21 reporting increased from 85.00 percent before digitalization to 96.67 percent after digitalization. This improvement reflects a reduction in tax calculation errors and enhanced reporting accuracy. In terms of time efficiency, the average reporting time decreased from 6.5 hours to 2.1 hours per reporting period, with a time efficiency rate of 32.31 percent. This decline demonstrates that digitalization is capable of accelerating the reporting process and simplifying administrative stages.

Furthermore, digitalization has impacted administrative cost efficiency. The total cost of PPh Article 21 reporting decreased from IDR 3,250,000 before digitalization to IDR 1,150,000 after digitalization, yielding a cost efficiency rate of 35.38 percent. This reduction indicates that the institution is able to manage financial resources more optimally.

When reviewed comprehensively using the Value for Money approach, the improvement in reporting effectiveness—accompanied by time and administrative cost efficiency—demonstrates that the implementation of tax administration digitalization has created better PPh Article 21 reporting performance. Consequently, digitalization can be viewed as a policy that supports the principles of accountability, efficiency, and effectiveness in financial management within public educational institutions as part of the public sector.

5.2 Practical and Policy Implications

The results of this study have both theoretical and practical implications. Theoretically, this research strengthens the application of the Value for Money concept within the context of public sector tax administration. The findings demonstrate that combining measurements of effectiveness and efficiency serves as a relevant evaluative approach to assess the impact of tax digitalization policies.

Penuru Practically, the results of this study provide significant implications for public educational institutions and the government in optimizing the implementation of digital tax systems. Digitalization is proven to enhance the quality of tax reporting while saving time and administrative costs; therefore, it requires continuous support through the improvement

DOI: 10.26618

of information technology systems and the enhancement of human resource competencies in the field of taxation.

5.3 Limitations of the Study

This study has several limitations that should be taken into consideration. First, the object of the research is focused solely on a single public educational institution; therefore, the findings cannot yet be generalized broadly to all government agencies. Second, the observation period used is relatively limited, which may not fully reflect the long-term impact of tax administration digitalization. Third, the utilization of data from the Coretax system in this study remains limited to the available administrative data.

5.4 Directions for Future Research

Based on the research findings, it is recommended that public educational institutions continue to optimize the utilization of digital-based tax administration systems to maintain the improvement of effectiveness and efficiency in PPh Article 21 reporting. Continuous enhancement of human resource competencies through digital taxation training is necessary to ensure that the use of E-SPT, E-Filing, and the Coretax system operates optimally. For future research, it is suggested to expand the research object to include other government agencies and extend the observation period to obtain more comprehensive results. Furthermore, future studies could utilize Coretax data more deeply to examine aspects of tax compliance and supervision.

6. References

Abdixhiku, L., & Krasniqi, B. A. (2023). Digital transformation and tax administration efficiency in developing economies. *Journal of Public Budgeting, Accounting & Financial Management, 35*(4), 512–531.

Alm, J., & Malézieux, A. (2021). Forty years of tax compliance research: A review and assessment. *Public Finance Review, 49*(5), 635–670.

Bastian, I. (2021). *Akuntansi sektor publik*. Erlangga.

Bird, R. M., & Zolt, E. M. (2021). *Technology and tax administration in developing countries*. ICTD Working Paper Series.

Bassey, B. E., Umoren, A. O., & Edet, J. E. (2022). Digital tax administration: A systematic literature review. Journal of Tax Administration, 8(2), 45–68.

Bovens, M., Goodin, R. E., & Schillemans, T. (2023). *The Oxford handbook of public accountability* (2nd ed.). Oxford University Press.

Cheng, Y., & Wei, X. (2024). Digital tax administration, tax compliance, and employment: Evidence from China's Golden Tax System III. Economic Analysis and Policy, 81, 450–466.

Darmayasa, I. N., & Hardika, N. S. (2024). Extending the Slippery Slope Framework in Indonesia's Core Tax Administration System: The roles of trust and power in taxpayer compliance. Journal of Accounting and Taxation, 16(1), 1–15.

Direktorat Jenderal Pajak. (2016). *Peraturan Direktur Jenderal Pajak Nomor PER-16/PJ/2016 tentang Tata Cara Pemotongan, Penyetoran, dan Pelaporan Pajak Penghasilan Pasal 21*. Direktorat Jenderal Pajak.

Direktorat Jenderal Pajak. (2022). *Modernisasi sistem administrasi perpajakan*. Kementerian Keuangan Republik Indonesia.

Direktorat Jenderal Pajak. (2024). *Core Tax Administration System (Coretax)*. Kementerian Keuangan Republik Indonesia.

Direktorat Jenderal Pajak. (2024). *Modernisasi administrasi perpajakan*. Kementerian Keuangan Republik Indonesia.

Fischer, R., Peters, B. G., & Pierre, J. (2021). Public administration and public

DOI: 10.26618

management: Contexts and practices. Routledge.

Fauziah, N., Putri, A., & Rahman, M. (2025). Digital taxation and public governance: A systematic literature review. Journal of Public Administration Research, 12(1), 1–20.

Ghozali, I. (2018). *Aplikasi analisis multivariate dengan program IBM SPSS*. Badan Penerbit Universitas Diponegoro.

Hai, D. T., Nguyen, T. H., & Tran, P. H. (2024). Digital transformation and public sector performance: Evidence from tax administration. *Government Information Quarterly, 41*(2), 101932.

Halim, A., & Kusufi, M. S. (2014). *Akuntansi sektor publik*. Salemba Empat.

Hesami, S., Mardani, A., Streimikiene, D., & Zavadskas, E. K. (2024). Digital government transformation and public sector performance: A systematic literature review. *Government Information Quarterly, 41*(1), 101889.

Ibilibor, E., & Deshi, A. (2025). Digital tax reporting systems and administrative efficiency: Evidence from public institutions. International Journal of Public Administration.

Kementerian Keuangan Republik Indonesia. (2007). *Undang-Undang Nomor 28 Tahun 2007 tentang Ketentuan Umum dan Tata Cara Perpajakan*.

Kementerian Keuangan Republik Indonesia. (2023). *Laporan kinerja Direktorat Jenderal Pajak Tahun 2023*.

Lestari, N., & Dewi, P. (2022). Digitalisasi layanan perpajakan dan kepatuhan wajib pajak. *Jurnal Riset Akuntansi*.

Mahmudi. (2019). *Manajemen kinerja sektor publik* (3rd ed.). UPP STIM YKPN.

Mardiasmo. (2019). *Perpajakan*. Andi.

Nugraha, T. (2023). Digitalisasi pajak dan efisiensi administrasi sektor publik. *Jurnal Perpajakan Indonesia*.

Nurhayati, E., & Hidayat, A. (2020). Pengaruh penerapan sistem administrasi perpajakan modern terhadap kepatuhan wajib pajak. *Jurnal Akuntansi dan Keuangan Publik, 7*(2), 85–96.

Nuryanah, S., Siregar, S. V., & Harahap, S. N. (2023). Public financial accountability and digital governance in Indonesia. *Journal of Asian Public Policy, 16*(3), 401–420.

OECD. (2021). *Supporting the digitalisation of developing country tax administrations*. OECD Publishing.

OECD. (2023). *Digital transformation in tax administration*. OECD Publishing.

OECD. (2024). *Tax administration digitalisation and digital transformation initiatives*. OECD Publishing.

Pratama, Y. (2024). Implementasi Coretax dalam administrasi perpajakan Indonesia. *Jurnal Perpajakan Modern, 5*(1), 21–38.

Putri, R. A., & Pratama, A. (2021). Efektivitas dan efisiensi pelaporan pajak berbasis elektronik pada sektor publik. *Jurnal Akuntansi Pemerintahan, 5*(1), 45–58.

Pang, X., & Hua, Y. (2024). Digital tax administration and earnings management: Evidence from machine learning analysis. Journal of Corporate Finance, 85, 102563.

Rahmawati, L. (2022). Analisis efisiensi administrasi perpajakan berbasis digital. *Jurnal Administrasi Negara, 28*(2), 189–205.

Republik Indonesia. (2008). *Undang-Undang Nomor 36 Tahun 2008 tentang Pajak Penghasilan*.

Resmi, S. (2023). *Perpajakan: Teori dan kasus* (13th ed.). Salemba Empat.

DOI: 10.26618

Saptono, P. B., Nugroho, A., & Sari, D. (2026). Evaluating Indonesia's Coretax implementation using the DeLone and McLean information systems success model. Information Systems Frontiers.

Siregar, B. (2017). *Akuntansi sektor publik*. UPP STIM YKPN.

Sugiyono. (2019). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Uyar, A., Kuzey, C., & Karaman, A. S. (2021). E-government and tax compliance: International evidence from developing and developed countries. Government Information Quarterly, 38(4), 101620.

United Nations. (2022). *E-Government Survey 2022: The future of digital government*. United Nations.

Waluyo. (2022). *Perpajakan Indonesia* (14th ed.). Salemba Empat.

World Bank. (2022). *Digital government and tax reform*. World Bank.

World Bank. (2023). *GovTech Maturity Index 2023: Digital transformation in public administration*. World Bank.

Xu, Y., Wang, L., & Chen, Z. (2025). Digital tax reforms and enterprise innovation: Evidence from China's tax modernization. Technological Forecasting and Social Change.

Zhang, Y., Chen, X., & Li, J. (2023). Digital governance and public sector performance: Evidence from emerging economies. *Public Administration Review, 83*(5), 1124–1140.