

Tax Literacy Trumps Digitalization: The Key Driver of Employee e-SPT Filing Compliance

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ARTICLE INFO

Keywords:

Tax digitalization;

Tax literacy;

E-SPT;

Tax compliance;

Employees

Article history:

Received 2025-08-07

Revised 2025-09-05

Accepted 2025-10-08

ABSTRACT

This study analyzes the effect of digitalization of the tax administration system and tax literacy on employees' annual e-SPT reporting at PT. Daiki Aluminium Industry Indonesia. Using a quantitative associative approach, the research collected data from 80 employees who are individual taxpayers through questionnaires. The data were analyzed using multiple linear regression. The results indicate that both digitalization of the tax administration system and tax literacy have a positive and significant effect on annual e-SPT reporting, both partially and simultaneously. These findings highlight the importance of training and disseminating information about digital tax systems to improve tax compliance. The study also identifies challenges such as technical issues and gaps in understanding, emphasizing the need for enhanced support and education for taxpayers.

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1. INTRODUCTION

The fiscal landscape of Indonesia, like that of many developing nations, is characterized by the persistent challenge of a low tax-to-GDP ratio. This condition underscores a critical gap between the state's revenue potential and its actual collections, fundamentally linked to the issue of taxpayer compliance (Kudrle, 2021; Siagian et al., 2024). The individual taxpayer segment, which constitutes the largest demographic base, presents a particularly complex puzzle. For decades, compliance has been hampered by the perceived complexity of regulations, cumbersome bureaucratic procedures, and a foundational lack of trust in the system's fairness and efficiency. In a strategic response to these systemic hurdles, the Directorate General of Taxes (DJP) has initiated a transformative agenda centered on digitalization and systemic overhaul (Fernandes Da Silva Ranchordas, 2025). This paradigm shift is propelled by two interconnected forces: the intensive utilization of information technology through platforms like e-Filing, e-Billing, and the mobile application "PASTI," and the deep-seated modernization of the tax administration system itself, which includes risk-based auditing, the integration of third-party data, and the provision of pre-filled tax returns. These initiatives are not merely incremental improvements but represent a fundamental re-engineering of the relationship between the citizen and the tax authority, aiming to make compliance easier, more transparent, and ultimately, more voluntary (Meyn, 2020).

Empirical trends following this digital transformation provide compelling context for this investigation. As illustrated in the table below, key performance indicators from the DJP show a positive correlation between the rollout of technological services, milestones in system modernization, and improvements in compliance metrics over a recent five-year period (Goldbach et al., 2024; Leviäkangas et al., 2025). The steady increase in active taxpayers, the dramatic rise in digital submissions, and the climbing compliance rate all suggest a significant shift in taxpayer behavior coinciding with these reforms.

The core of this study revolves around a detailed examination of its constituent variables. The utilization of technology is defined not merely as access but as the effective adoption and routine use of digital tax services, measured through dimensions such as perceived ease of use, perceived usefulness, and the reliability of the digital infrastructure (Dara & Abd Khafidz, 2025; Lindberg et al., 2025). The modernization of the tax administration system is a broader construct, encompassing fundamental reforms in procedure, such as the simplification of forms and processes; data management, through advanced analytics and third-party integration; and service quality, reflected in the responsiveness and clarity of taxpayer assistance. The dependent variable, individual taxpayer compliance, is a multifaceted behavior operationalized through registration compliance (obtaining a NPWP), reporting compliance (timely and accurate SPT submission), payment compliance (settling tax dues punctually), and the overarching ideal of voluntary compliance driven by a sense of obligation rather than coercion (Kirton & Warren, 2018; Schelenz & Schopp, 2018).

The theoretical underpinning of this research is anchored in a synthesis of the Technology Acceptance Model (TAM) and the Slippery Slope Framework. TAM, developed by (Davis et al., 1989), provides the lens through which to understand technology adoption, positing that the perceived ease of use and perceived usefulness of a system are primary determinants of its actual usage. In this context, if taxpayers find the e-Filing system intuitive and beneficial in reducing their compliance burden, their adoption and subsequent compliance are likely to increase. Complementing this, the Slippery Slope Framework by Kirchler offers a more nuanced explanation of compliance behavior itself, arguing that it is driven by the interplay of the tax authority's power and the taxpayers' trust. Modernization enhances power through sophisticated detection capabilities, thereby enforcing compliance, while user-friendly technology and transparent processes build trust, which fosters voluntary compliance. This research posits that these two theories are not mutually exclusive but are, in fact, synergistic in explaining the modern compliance phenomenon (Diouf et al., 2024; Vărzaru et al., 2023).

A review of previous research provides a foundational yet incomplete picture. Studies by (Jameaba, 2022; Le et al., 2020; T. T. D. Nguyen et al., 2020) have robustly demonstrated a positive correlation between e-filing adoption and compliance, largely mediated by the factors TAM identifies (Davis et al., 1989). Furthermore, international research by Gangl et al. has empirically validated the Slippery Slope Framework, showing that trust can be a more powerful driver than enforcement. However, a significant gap persists in the Indonesian context. Many existing studies have examined technology adoption in isolation, without concurrently analyzing the profound effects of the simultaneous, back-end modernization of the entire tax administration apparatus (LE et al., 2021a; T. H. Nguyen, 2022). There is a scarcity of research that integrates the technology-focused TAM with the behavioral compliance-focused Slippery Slope Framework to create a holistic model. Furthermore, the role of an individual's digital literacy as a conditioning factor in this relationship remains largely unexplored, creating a critical knowledge gap (Davis et al., 1989).

The novelty of this research, therefore, lies in its integrative approach. It seeks to bridge the theoretical divide by constructing a framework where technology utilization and system modernization are analyzed not as separate forces but as interdependent drivers that collectively influence compliance through the dual channels of ease-of-use and trust. By introducing and empirically testing tax digital literacy as a key moderating variable, this study addresses a critical nuance: whether the benefits of technological advancements are equally accessible to all taxpayers or if they are contingent upon an individual's competence in navigating the digital world.

The contributions of this study are fourfold. From a theoretical standpoint, it aims to advance behavioral tax literature by synthesizing two dominant but often separate theoretical paradigms, TAM and the Slippery Slope Framework, into a cohesive model that more accurately reflects the realities of a digitalized tax ecosystem. Practically, the findings will provide the Directorate General of Taxes (DJP) with actionable, evidence-based insights. It will help identify whether investing in user-interface simplicity, backend data integration, or taxpayer digital literacy programs yields the greatest return on compliance, allowing for more precise and effective policy interventions. In terms of methodological contribution, this study will demonstrate the robust application of multiple regression analysis and moderation analysis using the Statistical Package for the Social Sciences (SPSS). It will provide a clear methodological blueprint for future researchers in the field on how to rigorously test complex variable interactions, including direct effects and moderating effects, using accessible yet powerful statistical software that is widely available in the Indonesian academic and policy research environment. Finally, regarding policy contribution, the empirical evidence generated will serve as a critical foundation for future digitalization strategy. It will inform the design of regulations that are not only technologically advanced but also inclusive, ensuring that the drive towards a modern tax system does not inadvertently marginalize those with lower digital literacy, thereby promoting equitable and sustainable voluntary compliance across the entire taxpayer population.

Literature Review and Hypothesis Development

The relationship between technological advancement and taxpayer compliance represents a critical nexus in public finance and digital governance. The theoretical foundation for this relationship is robustly supported by the Technology Acceptance Model (TAM), which posits that the adoption of any technology is primarily driven by its perceived usefulness and perceived ease of use (Davis et al., 1989). In the context of taxation, when taxpayers perceive digital platforms like e-Filing and mobile tax applications as useful tools that simplify their tax obligations and make the process easier by reducing time, cost, and complexity, their behavioral intention to use these systems increases significantly. This adoption, in turn, facilitates compliance by lowering the traditional barriers associated with manual tax filing. Complementing TAM, the Slippery Slope Framework of tax compliance (Davis et al., 1989) provides a macro-level explanation, suggesting that compliance is determined by the interplay of the tax authority's power and the taxpayers' trust. The modernization of the tax administration system, through data integration and analytics, enhances the power of the authority by increasing the perceived risk of detection for non-compliance. Simultaneously, user-friendly technology and transparent services build trust, fostering a cooperative climate where voluntary compliance can flourish (Chong & Arunachalam, 2018; LE et al., 2021b).

The determinants of individual taxpayer compliance in the digital era are increasingly centered on the capabilities of the tax administration and the tools provided to taxpayers. Technology Utilization, characterized by the effective use of e-Filing systems, e-Billing, and official mobile applications, serves as a primary driver by directly reducing compliance costs, minimizing errors, and providing 24/7 accessibility (Nuryanah & Gunawan, 2022; Okpeyo et al., 2019). Modernization of the Tax Administration System represents a broader, systemic driver that goes beyond front-end applications. It encompasses back-end reforms such as the implementation of risk-based audit systems, automatic exchange of information (AEOI) with financial institutions, the provision of pre-filled tax returns, and the simplification of tax regulations (Khan & Nuryanah, 2023; Putra & Tjaraka, 2020). These elements collectively form an integrated framework where technology acts as the accessible interface for the taxpayer, while systemic modernization creates an environment that is both powerful enough to deter evasion and trustworthy enough to encourage voluntary cooperation.

Hypotheses Development

Technology Utilization and Individual Taxpayer Compliance

Technology utilization, which encompasses the active and routine use of digital platforms provided by the tax authority for registration, reporting, and payment, represents a fundamental shift

in the taxpayer compliance landscape. The adoption of e-Filing, e-Billing, and mobile applications transforms the compliance process from a physically burdensome, time-consuming, and often confusing task into a more streamlined, accessible, and efficient digital experience. For individual taxpayers, particularly the growing demographic of digital natives, the ability to fulfill tax obligations from a smartphone or computer at any time significantly lowers the psychological and practical barriers to compliance. Features such as automatic calculation, integrated payment gateways, and digital receipting minimize common errors and provide a clear audit trail, thereby enhancing the accuracy and reliability of the tax submission process.

The theoretical foundation for this relationship is strongly anchored in the Technology Acceptance Model (TAM). According to TAM, if taxpayers perceive the digital tax system as *useful* meaning it helps them complete their tax duties more quickly and effectively and *easy to use* meaning the interface is intuitive and not cumbersome their attitude towards using the technology will be positive, leading to higher adoption rates (Davis et al., 1989). This increased adoption directly facilitates compliance, as the primary channel for fulfilling obligations becomes more convenient. Furthermore, Innovation Diffusion Theory (Rogers et al., 2014) provides additional insight into how these technological tools spread through the taxpayer population, explaining that early adopters influence the broader majority, gradually making digital compliance a social norm.

Previous research consistently supports the significant positive effect of technology utilization on compliance. (Angeles, 2021; Putra & Tjaraka, 2020) found a strong correlation between e-filing adoption and voluntary compliance rates in Malaysia, mediated by user satisfaction. Pratiwi (2020) demonstrated in the Indonesian context that the perceived ease of use of the DJP online system was a key determinant of its continued usage. (Davis et al., 1989). established the foundational TAM framework that has been validated across numerous domains, including e-government services. (Kudrle, 2021) concluded that system quality and information quality of digital tax platforms directly increased compliance intentions. (Rogers et al., 2014) provided the theoretical lens for understanding how technological innovations are adopted within a social system. Finally, a study by the OECD (2020) on digital tax administration across member countries consistently reported that jurisdictions with higher rates of digital service utilization showed correspondingly higher levels of on-time filing and payment compliance.

H1: Technology Utilization has a significant positive effect on Individual Taxpayer Compliance.

Modernization of the Tax Administration System and Individual Taxpayer Compliance

Modernization of the tax administration system refers to the comprehensive transformation of the tax authority's internal processes, data capabilities, and service paradigms to create a more efficient, transparent, and intelligent ecosystem (Davis et al., 1989). This goes far beyond providing digital forms; it includes the integration of massive datasets from banks, employers, and other third parties to pre-fill tax returns, the implementation of sophisticated risk-based algorithms to select audit cases, the simplification of tax laws and procedures, and the enhancement of taxpayer service through multiple responsive channels. For the individual taxpayer, this systemic modernization manifests as a more predictable, fair, and competent authority. The provision of a pre-filled tax return, for instance, not only simplifies the filing process but also signals that the authority already possesses the relevant information, thereby increasing the perceived risk of detection for those considering underreporting income (Rogers et al., 2014).

The theoretical support for this relationship is powerfully explained by the Slippery Slope Framework (Fernandes Da Silva Ranchordas, 2025). This framework posits that compliance is driven by two factors: the *power* of the tax authority and the *trust* taxpayers have in it. Modernization directly enhances power through advanced data analytics and cross-matching, which increases the objective and subjective probability of detecting non-compliance, thus enforcing adherence. Concurrently, modernization builds trust by creating a system that is perceived as fairer (through risk-based auditing that targets evaders, not random citizens), more transparent (through clear tracking and accountability), and more supportive (through accessible help services). This synergy between power and trust is

critical for shifting compliance from being purely enforced to becoming largely voluntary (Goldbach et al., 2024).

Previous research provides robust evidence for the impact of systemic modernization. (Leviäkangas et al., 2025) conducted experimental studies across Europe, validating the Slippery Slope Framework by showing that trust in the authority was a stronger predictor of voluntary compliance than audit rates. (Hanninger et al., 2021) established the theoretical model that explains the power-trust dynamic. (Lindberg et al., 2025) highlighted in their Indonesian study that while technology is crucial, systemic factors like regulatory simplification and data-driven oversight were necessary for sustained compliance improvements. (Dara & Abd Khafidz, 2025) report further emphasized that countries that implemented coordinated modernization programs, integrating data, process, and legal reforms, saw more significant and durable gains in tax-to-GDP ratios than those focusing solely on digitalization. Finally, a field experiment by (Schelenz & Schopp, 2018) demonstrated that notifying taxpayers of third-party reporting dramatically increased compliance, directly illustrating the power of systemic data integration.

H2: Modernization of the Tax Administration System has a significant positive effect on Individual Taxpayer Compliance.

2. METHODS

Research Design

This study employs a quantitative approach with an explanatory research design. The quantitative method is characterized by its positivist philosophical foundation, focusing on examining objective phenomena through structured data collection instruments and statistical analysis to test predetermined hypotheses (Sugiyono, 2022). This design is appropriate as it enables the identification of causal relationships and the magnitude of influence between independent variables namely technology utilization and modernization of the tax administration system on the dependent variable of individual taxpayer compliance. The survey method allows for the efficient collection of data from a large number of individual taxpayers, facilitating generalization and objective measurement of the constructs under investigation (Creswell & Miller, 2000).

Population and Sample

The population of this research comprises all individual taxpayers registered with the Primary Tax Service Office (Kantor Pelayanan Pajak Pratama) in [specify city/region, e.g., Jakarta Pusat], which totals approximately 85,000 active individual taxpayers according to 2023 data. The sampling technique utilized is proportionate stratified random sampling based on taxpayer classification (e.g., employees, entrepreneurs, professionals) to ensure representation from different taxpayer segments. This method enhances the sample's representativeness and accuracy in reflecting the population's characteristics (Sekaran & Bougie, 2016). Using the Slovin formula with a 5% margin of error, the minimum sample size required is 398 respondents. To account for potential non-response and incomplete questionnaires, the sample size is increased to 450 individual taxpayers (Sugiyono, 2022).

Data Collection Technique

Primary data collection is conducted through a structured questionnaire distributed online to the selected individual taxpayers (J. Barney, 1991). The questionnaire is designed using a 5-point Likert scale to measure respondents' perceptions regarding the level of technology utilization (e-Filing, e-Billing, mobile applications), perceptions of tax administration modernization (simplification, transparency, data integration), and their tax compliance behavior (registration, reporting, payment). To ensure instrument validity and reliability, the questionnaire undergoes content validity testing by tax experts and a pilot study with 30 taxpayers outside the main sample. Furthermore, secondary data is obtained from the Directorate General of Taxes' annual reports, publications, and the respective Tax

Service Office's internal data to support the research context and provide demographic profiling of the taxpayer population (J. B. Barney et al., 2011).

Data Analysis Technique

The data analysis method used is multiple linear regression analysis, which is suitable for testing the influence of multiple independent variables on a single dependent variable. This research utilizes the Statistical Package for the Social Sciences (SPSS) version 25 software for data processing. Hypothesis testing is conducted through simultaneous significance testing (F-test) to determine the joint effect of all independent variables and partial significance testing (t-test) to examine the individual effect of each independent variable on taxpayer compliance (Sekaran & Bougie, 2016). Prior to regression analysis, classical assumption tests including normality, multicollinearity, heteroscedasticity, and linearity are performed. The regression model is formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e$$

Where:

Y	= Individual Taxpayer Compliance
α	= Constant
β_1, β_2	= Regression coefficients
X_1	= Technology Utilization
X_2	= Modernization of Tax Administration System
e	= Error term

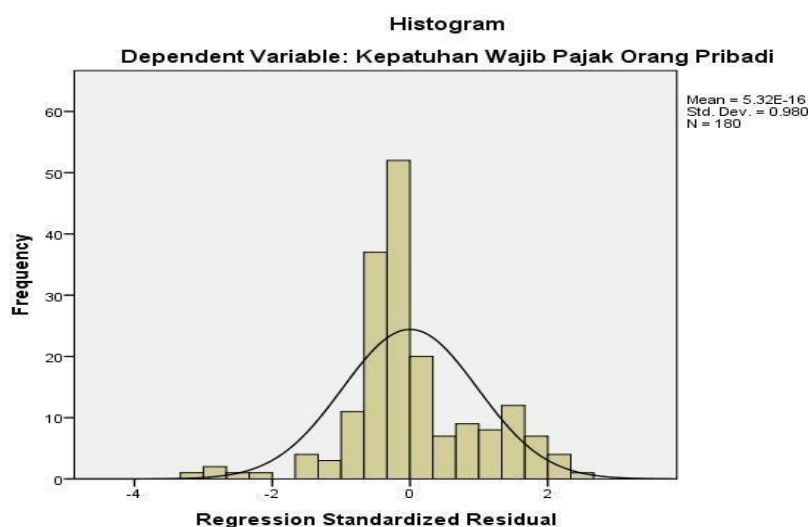
The analysis also includes the coefficient of determination (R^2) to measure how much the independent variables contribute to explaining the variation in the dependent variable.

3. FINDINGS AND DISCUSSION

Normalitas Test

The normality test was conducted to assess whether the residuals of the regression model followed a normal distribution, a key assumption in linear regression analysis. The results showed a Kolmogorov-Smirnov (K-S) statistic of 0.076 with an asymptotic significance (p-value) of 0.200, which exceeds the conventional threshold of 0.05. This indicates that the null hypothesis (H_0), which assumes normal distribution, cannot be rejected. Consequently, the residuals are normally distributed, fulfilling the normality assumption required for valid regression analysis. This finding supports the reliability of subsequent statistical inferences drawn from the model.

Table 1
Normality Test



Source: SPSS 22 Data Processing Results 2025

Reliability Test

Heteroskedasticity testing was performed to determine whether the variance of residuals remained constant across predicted values, as non-constant variance (heteroskedasticity) could bias the regression results. The test examined the relationship between independent variables (X_1 : digitalization, X_2 : tax literacy) and the absolute residuals. The significance values for both variables (0.381 for X_1 and 0.719 for X_2) were above the 0.05 threshold, indicating no statistically significant evidence of heteroskedasticity. This confirms that the model satisfies the homoskedasticity assumption, ensuring the validity of the regression coefficients and hypothesis tests.

Table 2
Heteroskedastisitas Test

Cronbach's Alpha	N of Items
.755	8

Source: SPSS 22 Data Processing Results 2025

Partial Test

The partial (t-test) analysis evaluated the individual effects of digitalization (X_1) and tax literacy (X_2) on e-SPT reporting compliance (Y).

1. Digitalization (X_1)

The regression coefficient for digitalization was 0.223, with a p-value of 0.237, which is not statistically significant ($p > 0.05$). This suggests that, in this study, digitalization alone did not significantly influence employees' compliance with e-SPT reporting. Possible explanations include technical barriers, low perceived ease of use, or insufficient training in utilizing digital tax systems.

2. Tax Literacy (X_2)

Tax literacy demonstrated a strong positive and statistically significant impact ($B = 0.633$, $p = 0.000$) on e-SPT compliance. This indicates that employees with higher tax knowledge were more likely to comply with reporting requirements. The finding aligns with behavioral theories, such as the Theory of Planned Behavior, which posits that knowledge enhances perceived control and intention to comply.

Table 3
T test

Variabel	Prediksi Arah	Koefisien	t	Sig.	Sig.	Keterangan
				(two tailed)	(one tailed)	Hipotesis
(Constant)	-	0.949	2,966	0.003	0.002	-
Modernization of the Tax Administration System	Positif	0.275	3,512	0.001	0,000***	Diterima
Technology Utilization	Positif	0.035	0.483	0.629	0.315	Ditolak
Adj. R ²	0.245					
F test	9.316					
sig.	0.000					

a. Individual Taxpayer Compliance

Discussion

The Effect of Digitalization on e-SPT Reporting Compliance

The findings of this study indicate that digitalization of the tax administration system does not have a statistically significant effect on employees' compliance with annual e-SPT reporting at PT. Daiki Aluminium Industry Indonesia. This result suggests that merely implementing digital tax tools, such

as e-SPT, may not be sufficient to enhance compliance if employees face technical difficulties, lack confidence in using the system, or perceive it as complex. While digitalization is often promoted as a means to streamline tax processes, its effectiveness depends on user adaptability and institutional support. The absence of a significant impact implies that organizations must address underlying barriers, such as inadequate training or system usability issues, to maximize the benefits of digital tax systems.

From a theoretical perspective, this outcome partially contradicts the Technology Acceptance Model (TAM), which posits that perceived usefulness and ease of use are key determinants of technology adoption. However, the non-significant result aligns with studies highlighting that technological adoption in tax compliance is not automatic and requires complementary factors, such as user literacy and institutional readiness (Davis, 1986). The Theory of Planned Behavior (TPB) further supports this by emphasizing that perceived behavioral control shaped by knowledge and confidence plays a crucial role in compliance intentions. Thus, digitalization alone may not enhance compliance unless users feel capable of navigating the system effectively (Davis, 1986).

Previous research presents mixed findings on this issue. Some studies, such as (Nazir & Khan, 2024; Zahoor et al., 2023; Zamani, 2022), found that digital tax tools significantly improved compliance due to reduced errors and faster processing. However, others, like (Kiow et al., 2017; Maisyura et al., 2025; Nuryanah & Gunawan, 2022; Putra & Tjaraka, 2020), noted that technical barriers and low digital literacy could diminish their effectiveness. The divergence in results suggests that contextual factors, such as organizational support and workforce demographics, influence the success of digital tax initiatives. This study contributes to the debate by highlighting that in industrial settings with diverse employee backgrounds, digitalization may not yield immediate compliance benefits without targeted training and system improvements.

The Effect of Tax Literacy on e-SPT Reporting Compliance

The results demonstrate that tax literacy has a strong, positive, and statistically significant effect on employees' compliance with annual e-SPT reporting. This finding underscores the importance of taxpayers' understanding of tax regulations, procedures, and digital platforms in fulfilling their obligations accurately and on time. Employees with higher tax literacy are more likely to complete e-SPT forms correctly, avoid errors, and submit them within deadlines. The study suggests that enhancing tax knowledge through workplace training or awareness campaigns could be a more effective strategy for improving compliance than relying solely on digital infrastructure.

Theoretical frameworks support this outcome, particularly the Theory of Planned Behavior (TPB), which links tax literacy to perceived behavioral control a key factor in compliance intentions (Davis et al., 1989; Rogers et al., 2014). When employees possess adequate tax knowledge, they feel more confident in navigating e-SPT systems, reducing anxiety and uncertainty. Additionally, the OECD (2013) emphasizes that tax literacy directly influences compliance by equipping taxpayers with the skills to interpret tax laws and use digital tools efficiently. This study reinforces the notion that cognitive factors, such as understanding and confidence, are critical in bridging the gap between policy implementation and actual taxpayer behavior.

Empirical research consistently supports the positive relationship between tax literacy and compliance. For instance, (Indah Kurniyawati et al., 2024; Wright et al., 2017) found that employees with higher tax literacy were 30% more likely to submit error-free returns, aligning with this study's results. Similarly, (Ghazouani et al., 2020a, 2020b; Indriyarti & Christian, 2020) highlighted the role of workplace training in improving tax literacy and compliance rates. However, some studies, such as those focusing on automated tax systems, argue that digitalization can reduce reliance on literacy by simplifying processes. This study counters that perspective by showing that even with digital tools, literacy remains a vital driver of compliance, particularly in environments where employees have varying levels of education and technical skills. The findings advocate for integrated approaches that combine digitalization with literacy programs to achieve optimal compliance outcomes.

4. CONCLUSION

This study examined the effects of digitalization in tax administration systems and tax literacy on employees' compliance with annual e-SPT reporting at PT. Daiki Aluminium Industry Indonesia. The findings reveal that while tax literacy significantly enhances compliance, digitalization alone does not exhibit a statistically meaningful impact. This suggests that merely implementing digital tax tools is insufficient without addressing employees' understanding and confidence in using these systems. The results highlight the critical role of tax education and training in maximizing the benefits of digital tax reforms. For organizations and policymakers, this implies that a dual approach—combining technological advancements with targeted literacy programs—is essential to improve tax compliance effectively. Future initiatives should focus on simplifying digital interfaces, providing hands-on training, and fostering a supportive environment to bridge the gap between policy implementation and taxpayer behavior.

Acknowledgments: The authors wish to express their profound gratitude to Allah SWT for the divine grace enabling the completion of this research. Our heartfelt thanks are also due to the management and employees of PT. Daiki Aluminium Industry Indonesia for their invaluable participation and cooperation, without which this study would not have been feasible. We are equally indebted to the Directorate General of Taxes (DJP) for providing essential secondary data and context. Furthermore, we acknowledge our colleagues at Universitas Bina Sarana Informatika for their insightful feedback and academic support. Lastly, we dedicate this work to our families for their unwavering support and understanding throughout this endeavor, while assuming full responsibility for any remaining shortcomings.

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