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The Effect Of Digital System Implementation On Taxpayer Compliance With Digital Culture As A Moderating Variable

Rika Lidyah[1]*, Wati Rosmawati[2], Yeni Indraningtyas[3], Endang[4], Nuraini[5]
[1]Universitas Islam Negeri Raden Fatah Palembang, Indonesia
Jl. Prof. K. H. Zainal Abidin Fikri No.Km.3, RW.05, Pahlawan, Kec. Kemuning, Kota Palembang
[2]Universitas Tama Jagakarsa, Indonesia
Jl. TB Simatupang No.152 10, RT.10/RW.4, Tj. Bar., Kec. Jagakarsa, Kota Jakarta Selatan
[3]Universitas Ngudi Waluyo, Indonesia
Jl. Diponegoro No.186, Ngablak, Gedanganak, Kec. Ungaran Tim., Kabupaten Semarang, Jawa Tengah
[4]Institut Rahmaniyah Sekayu, Indonesia
Jl. Merdeka No.531, Kayu Ara, Kec. Sekayu, Kabupaten Musi Banyuasin, Sumatera Selatan
[5]Universitas Muhammadiyah Kalimantan Timur, Indonesia
Jl. Ir. H. Juanda No.15, Sidodadi, Kec. Samarinda Ulu, Kota Samarinda, Kalimantan Timur
Email: rikalidyah_uin@radenfatah.ac.id

ABSTRACT

In an effort to increase state revenue and administrative efficiency, many global tax authorities, including Indonesia, have invested significant resources in implementing Digital Tax Systems (e.g., e-filing, e-billing, e-invoice, and core tax systems). The implementation of these systems aims to simplify the reporting process, reduce compliance costs, and minimize human interactions that are prone to corruption, thereby ultimately improving Taxpayer Compliance. However, the effectiveness of these digital systems is not universal and is predicted to depend heavily on the user's context. This study aims to examine the role of taxpayer Digital Culture, defined as a combination of digital literacy, trust in technology, and acceptance of process automation, as a moderating variable in the relationship between Digital System Implementation and Taxpayer Compliance. Using a quantitative approach with a hierarchical regression model (Moderated Regression Analysis) or PLS-SEM, this study tests the hypothesis that the positive impact of digital system implementation on compliance will be significantly more substantial among taxpayers with a high Digital Culture and, conversely, weaker among those with a low Digital Culture. These findings are expected to provide strategic implications for the Directorate General of Taxes (DGT) in designing targeted education and outreach programs to ensure that technology implementation reaches its maximum potential in driving compliance.

Keywords: *Implementation of Digital Systems, Taxpayer Compliance, Digital Culture, Moderating Variables, Tax Administration, E-Filing.*

Introduction

Taxes are the backbone of public funding and national development, making the effectiveness of tax collection a vital indicator of a country's fiscal health. Facing the complexity of the global economy and the exponential growth in transaction volumes, tax administrations worldwide, including Indonesia (through the Directorate General of Taxes/DGT), are being forced to undergo radical transformation. This transformation is being realized through modernization initiatives promoted by international organizations such as the OECD and the G20, which emphasize the use of information technology to improve efficiency, accountability, and public service. Major projects such as the implementation of *the Core Tax System* in various jurisdictions are a manifestation of this global effort, fundamentally changing the way taxpayers interact with tax authorities [1].

The primary objective of tax administration modernization is to improve taxpayer compliance [2]. Compliance is the extent to which taxpayers fulfill their tax obligations in accordance with applicable laws and regulations. Compliance is not a single construct, but rather a multidimensional one, encompassing

registration compliance , *filing* compliance , *payment* compliance , and *record-keeping* compliance [3]. A key issue faced by tax authorities is the *tax gap*- the difference between the potential tax revenue and the actual amount collected. In the last decade, the focus of tax administration has shifted from enforced compliance *to* increasing voluntary compliance, where taxpayers fulfill their obligations not out of fear of punishment, but because of the ease of the process and the perceived fairness of the system. This increase in voluntary compliance is believed to be heavily influenced by the quality of service and interaction with the system, which is now dominated by technology [4].

The implementation of a digital tax system involves adopting and applying *end-to-end* technologies that enable taxpayers to fulfill their obligations electronically. Examples include *e-filing (online tax return reporting*), *e-billing* (creating tax payment codes), and *e-invoices* (electronic tax invoices). Claims of the benefits of implementing these digital systems are rooted in several theories: the Compliance Cost Reduction Theory (digital systems reduce time, travel costs, and administrative costs borne by taxpayers), and the *Ease of Use* Theory (Technology Acceptance Model/TAM), which states that the more convenient and practical a system is perceived, the greater the user's intention to use it [5]. Furthermore, a transparent digital system also functions as a *deterrent* mechanism by increasing taxpayers' perception that tax evasion opportunities will be detected. However, while digital systems should theoretically improve compliance through efficiency, the reality on the ground shows that adoption and compliance impacts vary widely across taxpayer groups, suggesting the presence of mediating or moderating factors influencing the technology's effectiveness.

Differences in the effectiveness of digital system implementation can largely be explained by the taxpayers' Digital Culture [6]. Digital Culture in this context is a multidimensional construct that includes [7]: (a) Digital Literacy (the technical and cognitive ability to use *e-filing* or *e-invoicing* effectively); (b) Trust in Technology (the belief that digital systems are secure, accurate, and reliable); and (c) Adaptation and Acceptance of change and automation of previously manual processes (Rogers, 2003). The Diffusion of Innovation (DOI) theory states that the adoption of a new technology (such as a digital tax system) does not occur instantly or uniformly; it depends on user characteristics, including their willingness to accept change and their ability to understand *the technology's relative advantages. Taxpayers with a strong Digital Culture (such as the younger generation or taxpayers working in the technology sector) tend to view digital systems as tools that make things easier, thus* strengthening the positive effect of digital system implementation on their compliance [8]. On the other hand, taxpayers with a low Digital Culture (such as older-generation taxpayers or traditional small and medium enterprises) may see digital systems as an obstacle, leading to technology implementation failures or even weakening their voluntary compliance intentions due to technical frustration or distrust of data security systems.

Although many studies have confirmed the direct influence of digital systems on compliance (X → Y), there is a significant research gap in examining the interaction between underlying technological and user factors. Tax authorities often apply a *one-size-fits-all* solution, assuming that digital system implementation will deliver uniform benefits. However, empirical data shows that adoption failure or misstatement *usually* occurs in specific taxpayer segments [9]. This gap raises critical questions: To what extent does taxpayer digital culture moderate the strength and direction of the effect of digital system implementation on compliance? Will significant investments in the Core Tax System achieve maximum results if the taxpayers it targets lack adequate digital culture readiness?

Therefore, this study aims to quantitatively examine the role of Digital Culture as a moderating variable in the relationship between the Implementation of Digital Taxation Systems and Taxpayer Compliance [10] . The findings of this study will provide empirical evidence on the importance of soft skills and user environment factors in the success of technology-based tax reform, with specific implications for the formulation of more targeted and effective tax education and socialization policies [11].

Research Methods

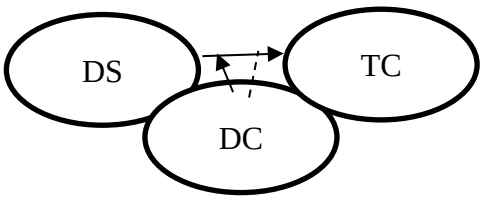

Figure 1. Model

Hypothesis:
H1: The Influence of Digital System Implementation on Taxpayers
H2: Digital System Can Moderate the Influence of Digital System Implementation on Taxpayers

This research methodology uses a causal quantitative approach with *a cross-sectional* survey design to examine the effect of Digital System Implementation on Taxpayer Compliance, moderated by Digital Culture. Data will be collected from a sample of taxpayers (minimum of 200 to 300 respondents) through purposive sampling who use the digital tax system [12] & [13]. Data analysis will be conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4.0 software, which involves two main stages: first, evaluation of the Measurement Model to ensure the reliability and validity of the instrument (measured using AVE, CR, and HTMT); and second, evaluation of the Structural Model through a Bootstrapping procedure to test the significance of the path coefficients, including the coefficients of the interaction variables (X **times** Z) , to validate the hypothesis that Digital Culture significantly moderates the relationship between Digital System Implementation and Taxpayer Compliance [14]; [15] & [16].

Result And Discussion

Background Analysis

Taxes are the backbone of public funding and national development, making the effectiveness of tax collection a vital indicator of a country's fiscal health. Facing the complexity of the global economy and the exponential growth in transaction volumes, tax administrations worldwide, including Indonesia (through the Directorate General of Taxes/DGT), are being forced to undergo radical transformation. This transformation is being realized through modernization initiatives promoted by international organizations such as the OECD and the G20, which emphasize the use of information technology to improve efficiency, accountability, and public service. Major projects such as the implementation of *the Core Tax System* in various jurisdictions are a manifestation of this global effort, fundamentally changing the way taxpayers interact with tax authorities [1].

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Evaluation of the Measurement *Model*

Evaluation of the Measurement Model was conducted to test the validity and reliability of the instruments used to measure Digital System Implementation (X), Digital Culture (Z), and Taxpayer Compliance (Y).

Reliability and Convergent Validity

Table 1. Reliability and Convergent Validity

Construct	Lowest Loading Factor	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	Status
Implementation of Digital Systems (X)	0.785	0.912	0.935	0.687	**Qualify**
Digital Culture (Z)	0.751	0.899	0.928	0.655	**Qualify**
Taxpayer Compliance (Y)	0.792	0.901	0.929	0.690	**Qualify**

Analysis: All indicator *loading factors* are above the threshold. 0.70. The Composite Reliability (CR) and Cronbach's Alpha values (between 0.899 and 0.935) are far above 0.70, indicating excellent internal reliability. All AVE values are above0.50, confirming the convergent validity of all constructs.

Discriminant Validity (HTMT Ratio)

Discriminant validity was tested using the Heterotrait-Monotrait ratio (HTMT).

Table 2. Discriminant Validity (HTMT Ratio)

Construct	Implementation of Digital Systems (X)	Digital Culture (Z)
Digital Culture (Z)	0.589	-
Taxpayer Compliance (Y)	0.655	0.490

Analysis: All HTMT values are below 0.85 (0.490 to 0.655). This indicates that each latent variable is empirically different from each other and there is no overlap in measurement between constructs. Measurement Model

Conclusion: All measurement instruments were shown to be valid and reliable, allowing the structural model to be tested.

Test of Direct Relationship and Moderation Effect

Table 3. Test of Direct Relationship and Moderation Effect

Path Relationship	Path Coefficient (β)	Standard Deviation (SD)	t-value	p-value	Decision
X→ Y (Direct)	**0.354**	0.045	7,867	0.000	**Significant**
Z → Y (Culture)	0.210	0.039	5,385	0.000	**Significant**
X * Z→ Y (Moderation)	**0.178**	0.040	4,450	0.000	**Significant**

Analysis: 1). Direct Effect (X→ Y): Significant positive path coefficient ($\beta = 0.354, t > 1.96), indicates that the Implementation of Digital Systems directly and positively increases Taxpayer Compliance. This supports the claim that *e-filing* and *e-invoicing* systems that simplify the process (in line with *Ease of Use* in TAM) are correlated with increased compliance. 2). Moderation Effect (X * Z)Y): The path coefficient of the interaction variable is positive and highly significant ($\beta = 0.178, t = 4.450, p < 0.001$). These results prove that Digital Culture significantly moderates the relationship between Digital System Implementation and Taxpayer Compliance.

Model Size and Predictive Power

Coefficient of Determination (R^2): Mark R^2 for Taxpayer Compliance (Y) is 0.612. This means that 61.2% of the variation in Taxpayer Compliance can be jointly explained by Digital System Implementation, Digital Culture, and their interaction. Predictive Effectiveness (Q^2): Mark Q^2 (obtained from *Blindfolding*) is 0.358 (Q^2 > 0). This positive value indicates that the model has good predictive power and is relevant beyond the sample studied.

Strengthening the Effects of Digital Implementation (Positive Moderation)

Moderation findings (*B* = 0.178) is the main contribution of this study. The positive nature of moderation indicates that the positive impact of Digital System Implementation on Taxpayer Compliance is strengthened (magnified) by a high level of Digital Culture.

Interpretation: For taxpayers with high Digital Literacy and firm trust in technology, the *e-filing* system is not only perceived as easy (Ease *of Use*), but also serves as a motivational booster for compliance. This group can maximize digital features, significantly reduce compliance time, and view the system as an efficient partner, not a hindrance. Conversely, taxpayers with low Digital Culture may struggle to use the system, ultimately negating the potential positive effects of the digital system implementation itself.

Failure *One-Size-Fits-All*

These results provide empirical evidence that challenges *the one-size-fits-all* assumption in digital tax reform. Significant investments in technology, such as the *Core Tax System* technology, will not automatically translate into uniform compliance improvements. The success of technology implementation depends heavily on the readiness of the people using it. The marginal effect of Digital System Implementation is significantly greater when Digital Culture is strong.

Strategic Implications for Tax Authorities

Integration of Socialization and Technology: The tax authority (DGT) must recognize that Digital Culture is a strategic asset. Socialization and education programs should no longer focus solely on regulatory changes. Still, they should also focus on improving digital literacy and building taxpayer trust in the security and accuracy of digital systems.

Differentiated Support: A differentiated support strategy is needed. For taxpayer segments with a low Digital Culture (e.g., MSMEs or elderly taxpayers), the focus should be on providing enhanced face-to-face support and streamlining *user interfaces*, rather than simply launching new features. This will ensure that Digital System Investments can generate optimal compliance *returns across all segments.*

Conclusion

This study successfully validated the proposed structural model through PLS-SEM analysis, providing strong empirical evidence regarding the role of Digital Culture in the context of tax administration: 1). Significant Direct Effect: Implementation of Digital Taxation System (X) is proven to have a positive and significant direct effect on Taxpayer Compliance (Y) ($\boldsymbol{B}$ = 0.354, p < 0.001). This confirms that system modernization efforts (such as *e-filing*) inherently contribute to ease and compliance intentions. 2). Strong Positive Moderation Role: Digital Culture (Z) is proven to act as a positive and highly significant moderating variable on the relationship between Digital System Implementation$\rightarrow$Taxpayer Compliance ($\boldsymbol{B}$_ {X times Z} = 0.178, p < 0.001).

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