

From Values To Compliance How Cooperative Institutions Shape Digital Tax Adoption And MSME Tax Compliance Evidence From Cooperative-Linked MSME In An Emerging Economy

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HOW TO CITE:

Okny Syahputra, Aryani Sairun, Baginda Harahap, Irna Triannur Lubis (2026). From Values To Compliance How Cooperative Institutions Shape Digital Tax Adoption And MSME Tax Compliance Evidence From Cooperative-Linked MSME In An Emerging Economy International Journal of Special Education, 41(21s), 1344-1353

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ABSTRACT:

This study examines how collective values translate into tax-compliant behaviour in an increasingly digital taxation environment. It tests a From Values to Compliance model in which Cooperative Values & Institutional Framework (CIF) influences the Adoption of Digital Tax Systems (ADT), which subsequently strengthens MSME Tax Compliance (MTC). Using PLS-SEM with Smart-PLS, the study investigates cooperative-linked MSMEs in Medan, Indonesia, with three reflective constructs measured by 24 indicators. Although the broader project follows a sequential explanatory design, the available NVivo file contains a coding framework rather than completed transcripts; therefore, the qualitative component is presented as an explanatory framework. The results show that CIF significantly predicts ADT ($\beta = 0.613$, $t = 8.823$, $p < 0.001$), while ADT strongly predicts MTC ($\beta = 0.768$, $t = 15.806$, $p < 0.001$). The indirect effect of CIF on MTC through ADT is also significant ($\beta = 0.471$, $t = 6.282$, $p < 0.001$). The model explains 37.6% of the variance in ADT and 59.0% in MTC. The study contributes by shifting the digital-tax debate beyond a technology-only perspective and positioning cooperatives as meso-level intermediaries connecting collective values, technology adoption, and fiscal behaviour. However, the findings are cross-sectional and context-specific. Future research should employ longitudinal and comparative designs and examine factors such as trust, tax morale, and digital literacy. Practically, digital tax reform should involve cooperatives as trusted channels for tax education, reminders, peer learning, and hands-on assistance to make digital compliance easier, repeatable, and sustainable.

Keywords: Cooperative Values; Digital Tax Adoption; E-Filing; E-Billing; MSME Tax Compliance; Institutional Trust; Indonesia

1. Introduction

Digital transformation is reshaping the relationship between taxpayers and public institutions. Tax administrations increasingly use electronic filing, electronic billing, integrated digital accounts, data analytics, and automated

services to reduce administrative costs and make compliance more traceable. The policy logic is persuasive: when filing and payment become easier, faster, and more transparent, taxpayers should face fewer procedural barriers. Yet the empirical reality is more complicated. Digital

infrastructure can simplify a tax process without necessarily creating a stable willingness or habit to comply (Belahouaoui, 2024; Saptono et al., 2023).

The difficulty is especially visible among micro, small, and medium enterprises (MSMEs). For small businesses, tax compliance competes with immediate operational concerns such as cash flow, customers, inventory, labour, and business continuity. Digital tax systems can reduce paperwork, but they can also introduce new cognitive and administrative demands when users lack confidence, tax knowledge, or technical support. Research therefore increasingly distinguishes between the availability of an e-tax system and taxpayers' capacity and willingness to use it consistently (Kebede, 2025; Nastiti, 2025). This distinction matters in Indonesia, where digitalisation and MSME development are both central to economic policy. Recent Indonesian scholarship continues to place MSME performance within the wider problem of business sustainability (Lubis, 2026). In Medan specifically, accounting-related and intellectual dimensions have also been examined in relation to MSME sustainability (Lubis et al., 2025). These streams of research underline a broader point: sustainable MSME outcomes are shaped not only by access to technology, but also by the managerial, accounting, institutional, and behavioural capabilities surrounding its use.

Digital taxation research has made substantial progress in explaining system quality, perceived usefulness, ease of use, user satisfaction, and behavioural intention. Saptono et al. (2023), for example, show why e-tax system quality and user satisfaction matter for compliance intention, while Belahouaoui (2024) documents the broader movement toward Tax Administration 3.0. Recent work also highlights taxpayer-side implementation challenges and the need for institutional support in electronic tax environments (Kebede, 2025). Yet this literature still tends to place the individual taxpayer and the digital platform at the centre of the model, leaving the meso-level institution around the taxpayer comparatively underdeveloped.

That focus leaves an institutional question underdeveloped: who helps small-business taxpayers make sense of the digital system, trust the process, learn the routines, and normalise compliance? In many emerging-economy settings, taxpayers do not interact with the state in isolation. They are embedded in business associations, cooperatives, communities, professional networks, and peer groups. These institutions can reduce information asymmetry, transmit norms, provide trusted assistance, and turn a formal requirement into a shared organisational practice.

Cooperatives are particularly relevant because their organisational logic is built around membership, reciprocity, collective norms, and repeated interaction. Digital cooperative platforms have already been discussed as vehicles for strengthening MSME ecosystems and service access (Hendriyanto, 2023). Yet the potential role of cooperatives in digital tax compliance remains comparatively underexplored. The cooperative may function as an intermediary institution: it can translate tax information into language familiar to members, provide administrative support, create reminders, and make compliant behaviour socially visible and expected.

This gap motivates the present study. The question is not merely whether an e-tax platform works, but how small-business taxpayers come to trust it, learn it, and use it often enough for compliance to become routine. We therefore model Cooperative Values & Institutional Framework as a social-institutional antecedent, Adoption of Digital Tax Systems as the behavioural mechanism, and MSME Tax Compliance as the fiscal outcome. This sequence allows the paper to move from values to observable digital practice and, finally, to compliance.

The study contributes in three ways. First, it extends digital tax adoption research by introducing a meso-level institutional antecedent rather than relying exclusively on individual perceptions of technology. Second, it reframes the cooperative as a fiscal intermediary that can transform values and collective norms into repeated digital practices. Third, it provides

empirical evidence for a significant indirect pathway from cooperative values and institutional support to MSME tax compliance through digital tax adoption. This mechanism is described as 'From Values to Compliance'.

2. Methodology

2.1 Research design and context

The study was developed within a broader sequential explanatory mixed-method research programme focusing on MSME members of cooperatives in Medan, Indonesia. The quantitative phase tests the structural mechanism linking cooperative values and institutions, digital tax adoption, and tax compliance. The research protocol specifies purposive sampling of MSMEs operating in Medan, registered as cooperative members, exposed to e-filing and/or e-billing, and operating for at least two years.

The protocol planned a quantitative sample of 200 MSMEs. Because the supplied SmartPLS output does not display the final cleaned analytic sample size, the exact N should be verified against the underlying dataset before journal submission. The broader design also planned

four qualitative informants; however, the supplied NVivo file explicitly states that interview transcripts were not available and that its node maps are a coding framework rather than final empirical findings. Consequently, this article reports the validated quantitative mechanism and uses the qualitative framework only to inform interpretation, not as independent empirical evidence.

2.2 Measurement

All constructs were measured using five-point Likert-type items. Cooperative Values & Institutional Framework captures trust in the cooperative, collective norms, tax-education support, and the role of cooperative managers. Adoption of Digital Tax Systems captures e-filing use, e-billing use, perceived ease, and consistency of use. MSME Tax Compliance captures timely reporting, timely payment, consistency across periods, and voluntary compliance. Each construct was operationalised with eight indicators in the SmartPLS measurement model.

Table 1. Operationalisation of the constructs

Construct	Core dimensions	Items	Scale
Cooperative Values & Institutional Framework (CIF)	Trust in cooperative; collective norms; tax education; role of cooperative managers	8	Likert 1–5
Adoption of Digital Tax Systems (ADT)	e-filing; e-billing; ease of system; consistency of use	8	Likert 1–5
MSME Tax Compliance (MTC)	timely reporting; timely payment; consistency; voluntary compliance	8	Likert 1–5

2.3 PLS-SEM procedure

PLS-SEM was used because the study evaluates latent-variable relationships and an indirect mechanism in a prediction-oriented model. Following established PLS-SEM practice, the analysis proceeded from assessment of the measurement model to evaluation of the structural model (Hair et al., 2017; Sarstedt & Cheah, 2019).

Internal consistency was examined using Cronbach's alpha, rho_A, and composite reliability. Convergent validity was assessed through outer loadings and average variance extracted (AVE). Discriminant validity was

evaluated with the heterotrait–monotrait ratio (HTMT), following Henseler et al. (2015). Collinearity was inspected using variance inflation factors (VIF). Structural relationships and the specific indirect effect were assessed using bootstrapped path coefficients, t-statistics, and p-values.

3. Results

3.1 Measurement model

The measurement model showed consistently strong indicator reliability. All 24 outer loadings exceeded 0.77, ranging from 0.779 to 0.868. Internal consistency was also high across the

three constructs. Cronbach's alpha ranged from 0.927 to 0.932, composite reliability from 0.940 to 0.944, and AVE from 0.661 to 0.679. These

results exceed conventional thresholds for reliability and convergent validity (Hair et al., 2017).

Table 2. Convergent validity and construct reliability

Item	Loading	Cronbach α	rho_A	CR	AVE
ADT1	0.810	0.927	0.928	0.940	0.661
ADT2	0.839				
ADT3	0.803				
ADT4	0.804				
ADT5	0.823				
ADT6	0.796				
ADT7	0.779				
ADT8	0.846				
CIF1	0.813	0.932	0.937	0.944	0.679
CIF2	0.868				
CIF3	0.811				
CIF4	0.789				
CIF5	0.788				
CIF6	0.826				
CIF7	0.859				
CIF8	0.833				
MTC1	0.851	0.932	0.936	0.944	0.678
MTC2	0.816				
MTC3	0.792				
MTC4	0.818				
MTC5	0.843				
MTC6	0.798				
MTC7	0.841				
MTC8	0.828				

3.1.1 Discriminant validity

HTMT values were 0.648 between CIF and ADT, 0.817 between ADT and MTC, and 0.682 between CIF and MTC. All values were below 0.85, indicating satisfactory discriminant validity under the more conservative HTMT criterion (Henseler et al., 2015).

Table 3. HTMT discriminant validity assessment

Construct	ADT	CIF	MTC
ADT	—		
CIF	0.648	—	
MTC	0.817	0.682	—

3.1.2 Collinearity

Indicator VIF values ranged from 2.103 to 3.710. None exceeded 5.0, suggesting that problematic collinearity was not evident in the supplied

measurement output. The highest observed VIF was 3.710 for CIF7.

3.2 Structural model and hypothesis testing

The structural model provides strong support for the proposed sequential mechanism. Cooperative Values & Institutional Framework significantly predicted Adoption of Digital Tax Systems ($\beta = 0.613$, $t = 8.823$, $p < 0.001$). Digital tax adoption

then strongly predicted MSME Tax Compliance ($\beta = 0.768$, $t = 15.806$, $p < 0.001$). The R^2 value for digital tax adoption was 0.376, while the R^2 value for MSME tax compliance was 0.590, indicating meaningful explanatory power for both endogenous constructs.

Table 4. Structural path results

Hypothesis	Relationship	β	STDEV	t-value	p-value	Decision
H1	CIF $\rightarrow$ ADT	0.613	0.069	8.823	<0.001	Supported
H2	ADT $\rightarrow$ MTC	0.768	0.049	15.806	<0.001	Supported

3.3 Indirect effect: From Values to Compliance

The specific indirect effect from Cooperative Values & Institutional Framework to MSME Tax Compliance through Adoption of Digital Tax Systems was $\beta = 0.471$ ($t = 6.282$, $p < 0.001$). This coefficient is consistent with the product of the two sequential path coefficients ($0.613 \times 0.768 \approx 0.471$), providing direct empirical

support for the proposed From Values to Compliance mechanism. Because the supplied primary model does not report a simultaneous direct CIF $\rightarrow$ MTC path in the structural diagram, the analysis supports a significant indirect pathway but does not classify the mediation as partial or full.

Table 5. Specific indirect effect

Indirect relationship	β	STDEV	t-value	p-value	Decision
CIF $\rightarrow$ ADT $\rightarrow$ MTC	0.471	0.075	6.282	<0.001	Supported

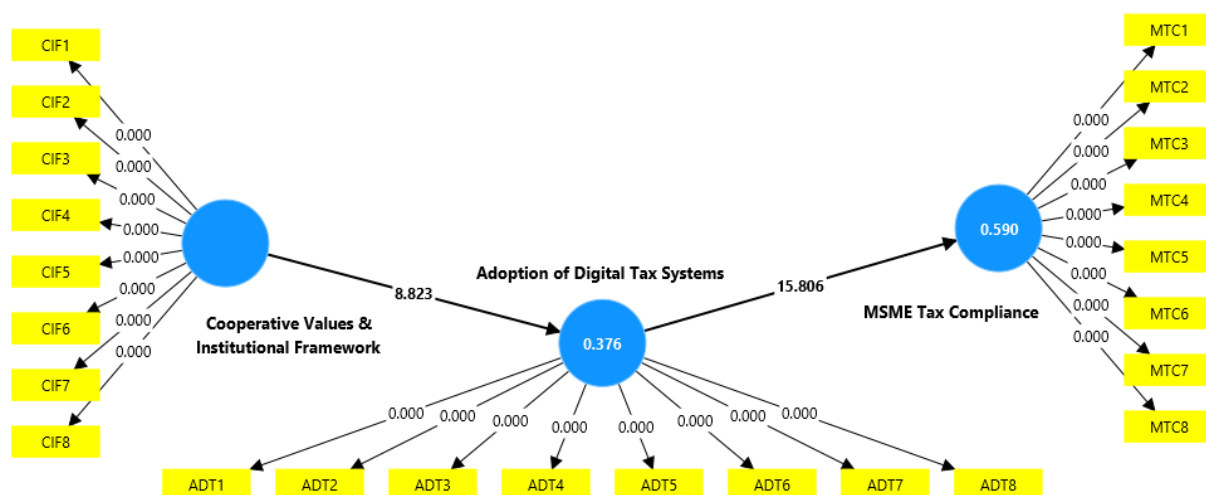


Figure 1. Structural model results

5.4 Explanatory qualitative architecture and mixed-method integration

The NVivo material supplied for this study contains a carefully specified coding architecture but not the completed transcripts of the four

planned informants. For that reason, the qualitative component is used here to clarify the explanatory logic of the model rather than to make unsupported claims about theme frequency or participant quotations. The coding framework

follows the same three-stage sequence as the structural model: cooperative values and institutional support, digital tax adoption, and tax-compliance outcomes.

At the institutional layer, the codebook focuses on trust in the cooperative, collective norms, tax-education support, and the role of cooperative managers. At the behavioural-technology layer, it focuses on e-filing, e-billing, perceived ease of use, and consistency of use. At the compliance

layer, the codes distinguish timely reporting, timely payment, consistency across periods, and voluntary compliance. This architecture is theoretically useful because it makes explicit what the PLS-SEM coefficients cannot show on their own: the plausible social and administrative steps through which cooperative support can make digital taxation easier to adopt and maintain.

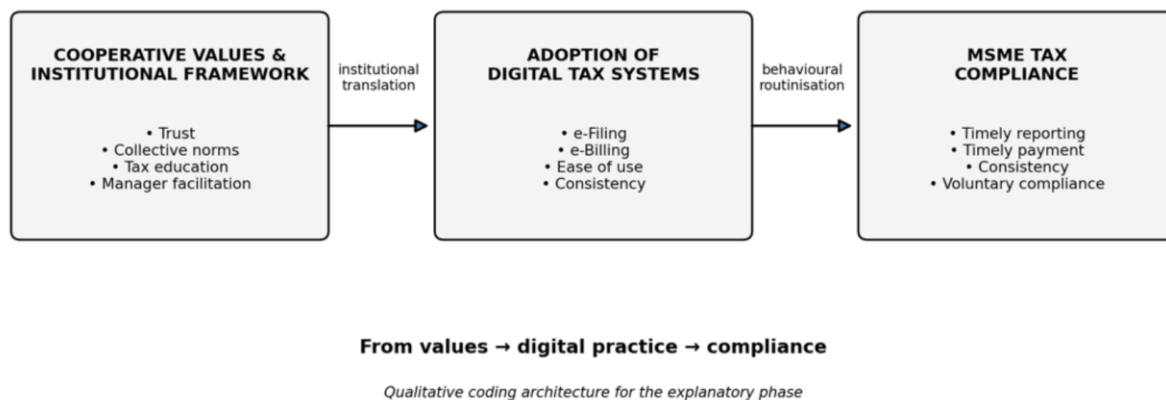


Figure 3. Qualitative coding architecture supporting the From Values to Compliance mechanism

3.4.1 Joint display of quantitative evidence and explanatory mechanisms

Table 6. Joint display linking structural evidence with the explanatory coding framework

Research question	PLS-SEM evidence	Explanatory qualitative mechanism	Meta-inference
RQ1: How do cooperative values shape adoption?	CIF → ADT: $\beta = 0.613$, $t = 8.823$, $p < 0.001$	Trust, collective norms, tax education, and manager facilitation reduce uncertainty and administrative friction.	Cooperative institutions operate as social-institutional antecedents of digital tax adoption.
RQ2: How does adoption shape compliance?	ADT → MTC: $\beta = 0.768$, $t = 15.806$, $p < 0.001$	Ease of use, repeat use, e-filing/e-billing routines, and digital traceability support timely reporting and payment.	Adoption matters when digital use becomes a stable administrative routine rather than a one-off event.
RQ3: How are values translated into compliance?	Specific indirect effect CIF → ADT → MTC: $\beta = 0.471$, $t = 6.282$, $p < 0.001$	Institutional support is translated into technology use, which is then translated into compliant behaviour.	The From Values to Compliance mechanism is empirically supported as a significant indirect pathway.

The joint display should be read as an integration of confirmed quantitative evidence with a source-grounded qualitative coding plan. It does not substitute for completed interview coding. Once the transcripts are available, the same table can be

strengthened with actual node counts, coverage, and representative quotations without changing the structural interpretation already supported by the PLS-SEM model.

4. Discussion

The results support the central premise that digital tax compliance among MSMEs cannot be understood as a technology problem alone. Cooperative values and institutional support exert a sizeable positive effect on digital tax adoption, and adoption in turn exerts an even stronger effect on tax compliance. The significant indirect effect connects these two relationships into a coherent behavioural mechanism: values become consequential for compliance when they are translated into repeated digital practices.

4.1 Cooperative institutions as antecedents of digital tax adoption

The first result shows that Cooperative Values & Institutional Framework significantly increases digital tax adoption ($\beta = 0.613$). This is theoretically important because most tax-technology studies emphasise individual-level beliefs such as usefulness, ease of use, satisfaction, or readiness. Those factors remain important, but the present result demonstrates that the organisational setting surrounding the taxpayer also matters.

A cooperative can reduce the uncertainty of digital tax adoption in several ways. Trust in the institution can make members more willing to accept information and assistance. Collective norms can create social expectations that filing and payment are normal responsibilities rather than isolated administrative burdens. Tax education can reduce information gaps, while managers can provide reminders and practical facilitation. These functions resemble social influence and facilitating conditions in technology-adoption theory (Venkatesh et al., 2003), but they are anchored in a real intermediary institution.

The finding also extends Hendriyanto's (2023) argument about cooperative digital platform synergy. The relevance of the cooperative is not confined to marketplace access or commercial digitalisation. It can also extend to public digital services. In that sense, cooperative institutions may become an underused channel for fiscal inclusion, especially among smaller firms that benefit from trusted, localised assistance.

4.2 Digital tax adoption as a behavioural mechanism of compliance

The second result is particularly strong: Adoption of Digital Tax Systems predicts MSME Tax Compliance with $\beta = 0.768$. The magnitude indicates that digital tax use is not a peripheral administrative variable in this model. It is the central behavioural mechanism connecting institutional support to compliance.

This finding is consistent with research showing that e-tax system quality, user satisfaction, and digital tax transformation can improve compliance related behaviour (Saptono et al., 2023; Belahouaoui, 2024; Nastiti, 2025). The present study adds an important nuance. Adoption is operationalised not simply as initial acceptance but also as consistency of use. That distinction matters because tax compliance is periodic. A taxpayer who can use e-filing once is not necessarily a compliant taxpayer; the behavioural benefit emerges when the system becomes part of a repeatable routine.

For MSMEs, digital traceability can also reduce administrative forgetting and error. Electronic records, billing codes, filing histories, and recurring digital procedures provide cues that may make obligations easier to monitor. Thus, the technology contributes not only through convenience, but through routinisation and traceability.

4.3 The From Values to Compliance mechanism

The most distinctive result is the significant indirect effect of CIF on MTC through ADT ($\beta = 0.471$, $p < 0.001$). This result operationalises the paper's title. Cooperative values do not remain abstract cultural attributes; they influence a concrete behaviour—digital tax adoption—which then shapes compliance.

The finding suggests a three-layer explanation. The first layer is social-institutional: trust, norms, education, and cooperative facilitation create an environment in which digital tax requirements are easier to accept. The second layer is behavioural-technological: e-filing and e-billing are used consistently and become routine. The third layer

is fiscal: reporting and payment become more timely and compliance more stable.

This mechanism also resonates with wider MSME sustainability scholarship. Lubis (2026) situates MSME performance determinants within the sustainability question, while Lubis et al. (2025) examine accounting and intellectual dimensions in MSME sustainability in Medan. The present study extends that broader sustainability conversation into fiscal behaviour by showing that institutional and digital capabilities can also support a more disciplined compliance environment. Tax compliance is therefore not merely a statutory endpoint; it can be interpreted as part of the organisational routines that support formalisation, accountability, and long-term business legitimacy.

4.4 Theoretical contributions

First, the study contributes to digital taxation research by adding a meso-level institutional antecedent. Technology-adoption models are often dominated by individual beliefs. The present model demonstrates that a cooperative institution can shape adoption through trust, norms, education, and facilitation.

Second, the study contributes to cooperative research by identifying a fiscal intermediation role. Cooperatives are commonly discussed in relation to finance, marketing, empowerment, and member services. This study shows that they may also facilitate interaction with digital government systems.

Third, the significant indirect pathway offers a mechanism rather than a simple association. Theoretically, it explains how institutional values are converted into compliance: not directly by moral exhortation, but through adoption and routinisation of a digital public service.

Fourth, the model connects MSME accounting, digitalisation, and sustainability conversations. The inclusion of Lubis (2026) and Lubis et al. (2025) helps position tax compliance within a broader Indonesian research agenda in which accounting-related capabilities and business sustainability are increasingly interconnected.

4.5 Managerial and policy implications

For tax authorities, the results imply that digital transformation should be accompanied by institution-based support. Training programmes delivered only through centralised channels may not reach all MSMEs effectively. Partnerships with cooperatives can provide trusted local touchpoints for tax education, filing assistance, billing guidance, and compliance reminders.

For cooperative managers, tax support can be integrated into existing member services. Simple interventions—scheduled tax clinics, peer demonstrations, digital filing assistance, reminder calendars, and referral links to tax officers may lower cognitive and administrative barriers. The key is to make compliant digital behaviour normal, visible, and repeatable.

For policymakers, the evidence supports a shift from technology deployment to adoption ecosystems. A functioning digital tax platform is necessary, but it is not sufficient. Compliance improves when taxpayers have institutions that help them understand, trust, and repeatedly use the system. This approach is consistent with the inclusive digital-governance ambitions associated with Indonesia's Asta Cita agenda, while keeping the mechanism empirically grounded in MSME behaviour.

4.6 Policy relevance: Asta Cita and inclusive digital public administration

The policy relevance of the findings extends beyond the mechanics of tax filing. Indonesia's Asta Cita agenda places digital transformation, MSME strengthening, and inclusive economic development within the same national policy conversation. The present results suggest that these objectives can be connected at the implementation level: digital public services are more likely to become meaningful when they are embedded in institutions that small businesses already know and trust.

For tax administration, this means that cooperatives can be treated as part of the adoption ecosystem rather than merely as business organisations outside the fiscal system. Cooperative-based tax clinics, peer mentoring, scheduled reminders, assisted e-filing, and clear

referral channels to tax officers can translate national digital reform into locally understandable routines. Such an approach is consistent with an inclusive model of digital government: the state supplies the platform, while trusted intermediary institutions help citizens and small firms use it with confidence and continuity.

4.7 Limitations and future research

Several limitations should be recognised. First, the study is cross-sectional, so the temporal ordering implied by the structural model should be tested with longitudinal data. Second, the research context is MSMEs linked to cooperatives in Medan; institutional effects may differ across regions, cooperative types, and tax regimes.

Third, the supplied output does not include the final cleaned respondent profile, common-method-bias diagnostics, Q^2 /PLSpredict results, or a simultaneous direct CIF $\rightarrow$ MTC path. These analyses would strengthen a final submission. Fourth, although the broader design is sequential explanatory, the supplied NVivo document explicitly states that interview transcripts were not yet available. Future finalisation should therefore code the four transcripts, report references and coverage by node, include representative verbatim quotations, and develop a formal joint display linking qualitative evidence to the PLS-SEM paths.

Finally, future studies could compare cooperative members with non-members, test perceived trust and tax morale as mediators or moderators, and examine whether the institutional pathway differs by firm age, size, digital literacy, or prior tax experience.

5. Conclusion

This paper develops and tests a From Values to Compliance model for digital taxation among cooperative-linked MSMEs. The results show a clear sequence: stronger cooperative values and institutional support are associated with higher adoption of digital tax systems, and digital tax adoption is strongly associated with tax compliance. The significant indirect pathway ($\beta = 0.471$, $p < 0.001$) is the central empirical contribution because it shows how a social institution can matter for a digital fiscal outcome. The findings shift attention from a narrow question—whether an e-tax platform is available—to a more practical one: what helps small businesses use the platform repeatedly and with confidence? In this model, the cooperative provides that bridge. Trust, shared norms, tax education, and managerial facilitation make digital requirements easier to interpret, while repeated e-filing and e-billing turn compliance into an administrative routine rather than an occasional response to deadlines.

The practical message is straightforward. Digital tax reform cannot rely on software alone. Where MSMEs are embedded in cooperatives or similar collective organisations, those institutions can become part of the tax-administration ecosystem. Technology makes compliance possible; trusted institutions can make it understandable, repeatable, and sustainable.

Funding

This research was supported by the Directorate General of Research and Development, Ministry of Higher Education, Science, and Technology of the Republic of Indonesia, through the DIPA funding for Fiscal Year 2026 (Grant/Contract No. 280/C3/DT.05.00/PL-BARU/2026).

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