Regional Digital MSME Ecosystems, Tax Compliance, and Fiscal Contribution in the Special Region of Yogyakarta (DIY): Mediating Role of Tax Literacy and Financial Inclusion

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Abstract - This research examined the role of a regional digital micro, small, and medium enterprises (MSMEs) ecosystem in shaping tax compliance and fiscal contribution among micro, small, and medium enterprises in the Special Region of Yogyakarta (DIY), with particular attention to the mediating roles of tax literacy and financial inclusion. Focusing on a platform, SBJ, as a government-led digital intervention, this research adopted a quantitative approach to analyze how engagement with a regional digital ecosystem influences MSMEs' fiscal-related behavior and business outcomes. The findings indicate that the use of SBJ platform strengthens MSMEs' understanding of taxation and improves access to formal financial services, both of which are essential foundations for encouraging business formality. Enhanced business formality emerges as a critical gateway to the formal fiscal system, reinforcing compliance-oriented behavior through improved administrative discipline, transaction transparency, and institutional integration. As MSMEs become more compliant with tax obligations, their fiscal contribution and business performance improve through greater financial credibility, operational stability, and access to broader economic opportunities. Importantly, the influence of the digital ecosystem on fiscal contribution operates through an indirect and sequential pathway, in which tax literacy and financial inclusion facilitate the transition from digital engagement to business formalization and sustained tax compliance. These findings position SBJ not merely as a digital MSME support platform but as a strategic regional fiscal policy instrument that integrates digital governance with local revenue enhancement and MSME empowerment.

Keywords: Digital MSME Ecosystem, Tax Compliance, Tax Literacy, Financial Inclusion, Regional Fiscal Governance

I. INTRODUCTION

MSMEs are the backbone of the Indonesian economy (Sinha et al., 2024). Nationally, they contribute more than 60 percent to GDP and employ over 97 percent of the workforce (Sarmen, 2025). At the local level, their role is even more significant. In DIY, MSMEs constitute the majority of active business units and are the main pillars of community income, household consumption dynamics, and the sustainability of the creative economy, which is characteristic of this region. This condition makes MSMEs strategic actors that not only influence economic growth but also impact regional fiscal capacity, from expanding the tax base to strengthening Regional Original Revenue (PAD) (Alie, 2025; Adzam et al., 2025).

Despite their importance, MSMEs in Indonesia, including in DIY, face recurring classic challenges: low business literacy, substandard production, limited access to financing, minimal use of digital technology, and low levels of business formality (Anatan & Nur,

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2023; Purnomo et al., 2024). These challenges directly impact MSMEs' ability to grow and impact their contribution to the national fiscal system. MSMEs that lack a Business Identification Number (Nomor Induk Berusaha - NIB), Taxpayer Identification Number (Nomor Pokok Wajib Pajak - NPWP), or proper bookkeeping tend to struggle to enter the tax system and the formal financing ecosystem. This situation creates a "missing middle," where MSMEs with significant potential are unregistered and not integrated into the formal economic system.

Amidst these challenges, the DIY Regional Government launched SBJ, a digital ecosystem aimed at data collection, mentoring, coaching, digitization, and marketing facilitation for MSMEs. SBJ is not just an application, but an integrative platform that combines name-by-address data collection, an MSME training curriculum, a marketplace (MarketHub), a financial system (Financetopia), and collaboration channels with various stakeholders such as the DIY Cooperatives and SMEs Office, the DIY Bank Indonesia Representative Office, banks, and digital service providers (Latifah et al., 2024). With the vision of "MSMEs Going Up Class," SBJ integrates local economic development models through a digital approach.

The presence of SBJ presents new opportunities to analyze how regional government-based digital interventions can influence the fiscal behavior of MSMEs. Although SBJ is not a tax institution, its programs, particularly training on business legality, financial literacy, tax literacy, financial management, and financing facilitation, have the potential to encourage formality and compliance among MSMEs with fiscal obligations. On several occasions, tax advisors and related agencies also provide tax classes for SBJ partners, such as those on understanding Indonesia Government Regulation 23/2018, final MSME tax rates, and the use of digital-based tax reporting systems.

However, it is important to note that the presence of a digital ecosystem alone does not automatically guarantee improvements in tax compliance. Digital platforms primarily provide access, facilitation, and information. Their effectiveness depends on the capacity of MSMEs to understand tax regulations (tax literacy) and to access and utilize formal financial services (financial inclusion). Without adequate tax literacy, MSMEs may remain unaware of their fiscal obligations. Likewise, without financial inclusion, digitalization may not translate into improved bookkeeping, transaction traceability, or formal tax reporting. Therefore, tax literacy and financial inclusion function as important mediating mechanisms through which digital ecosystems can influence fiscal behavior.

These changes are important from a fiscal perspective. As MSMEs become more digital, formal, financially bankable, and knowledgeable about taxation, the potential to expand the tax base increases (Nuryanah et al., 2023). A broadened tax base is one indicator of increased fiscal capacity of local governments (Grieco, 2025). Local governments with stronger fiscal capacity can finance development, improve the quality of public services, expand social security, and reduce dependence on central transfers (Liu & Hu, 2025). Thus, the transformation of MSMEs through SBJ may potentially contribute not only to business development but also to regional fiscal governance.

However, empirical research examining the relationship between the use of digital ecosystems such as SBJ and important variables including tax literacy, tax compliance, business formality, financial inclusion, and business performance, remains limited. Most MSME research focuses on marketing, digital technology, or business sustainability. Meanwhile, the influence of digital ecosystem models on MSME fiscal behavior is rarely addressed in an empirical research aspect. Yet, effective fiscal policy at the regional level relies heavily on a solid understanding of how MSMEs respond to digital interventions.

This gap in the literature underpins the importance of this research. Specifically, this research develops a conceptual model linking the intensity of SBJ utilization with key variables that are considered to play a role in MSME fiscal contributions: tax literacy, financial inclusion, business formalization, tax compliance, and business performance. By testing these relationships using a quantitative approach and a questionnaire-based survey, this research aims to provide strong empirical evidence on how local digital ecosystems can create significant fiscal impacts.

II. METHODS

This research uses a quantitative approach with a survey method by distributing questionnaires to MSMEs actively registered in the SBJ ecosystem. The population includes all MSMEs using SBJ, while the sample is selected using a purposive sampling technique, with the criteria that MSMEs have used SBJ for at least 6 months and are willing to complete the questionnaire. The ideal sample size is set at 200 respondents to meet the standards of Structural Equation Modeling (SEM) analysis (Harsono & Imran, 2025; Bielby & Hauser, 1977). The research variables consist of six constructs, namely utilization of SBJ, tax literacy, financial inclusion, business formality, tax compliance, and business performance, all of which are measured using a five-point Likert scale. In this scale, a score of 1 indicates “strongly disagree,” 2 indicates “disagree,” 3 indicates “neutral,” 4 indicates “agree,” and 5 indicates “strongly agree” with the statements provided in the questionnaire. Primary data are collected through an online questionnaire and analyzed using SEM with stages, including validity, reliability, measurement model (outer model), structural model (inner model), goodness of fit, and hypothesis testing via bootstrapping. This research is limited to MSMEs active in SBJ, based on respondents' perceptions,

and adheres to research ethics by maintaining the confidentiality of participants' identities (Yadav et al., 2025; Kayyali, 2025).

III. RESULTS AND DISCUSSIONS

SBJ functions as a regional digital MSME ecosystem that supports the digitalization of business administration among MSMEs. Through systematic business data recording, the platform enhances the government's capacity to identify economic activities and potentially expand the regional tax base while encouraging more transparent and accountable practices. In this way, SBJ contributes to the structural conditions that may strengthen fiscal compliance within the framework of sustainable regional fiscal governance.

Table 1 Outer Loading Research Construct

Variable	Indicator	Loading
Utilization of SBJ	US1	0.801
	US2	0.873
	US3	0.852
Tax Literacy	TL1	0.889
	TL2	0.821
	TL3	0.854
Financial Inclusion	FI1	0.833
	FI2	0.879
	FI3	0.851
Business Formalities	BF1	0.803
	BF2	0.871
	BF3	0.845
Tax Compliance	TC1	0.874
	TC2	0.816
	TC3	0.859
Business Performance	BP1	0.821
	BP2	0.879
	BP3	0.856

Table 1 presents the outer loading values for the indicators of the Utilization of SBJ, Tax Literacy, Financial Inclusion, and other variables included in the research model. All loading values are above 0.80, indicating that each indicator has a strong contribution in explaining the measured construct. These results confirm that the SBJ construct is reliably captured and reflects MSMEs' engagement with digital services, mentoring, and administrative support.

From a public policy perspective, the platform reflects a shift from manual assistance toward digitally enabled governance. This transformation is empirically linked, through the structural model, to intermediary variables such as tax literacy, financial inclusion, and business formality, which subsequently shape tax compliance behavior. Thus, within this study, SBJ is positioned as a foundational digital infrastructure rather than a direct determinant of fiscal outcomes.

The utilization of the SBJ platform is reflected in indicators US1, US2, and US3 with loading values between 0.801 and 0.873 (see Table 1). The values suggest that its digital service features, marketing training, and business mentoring facilities are perceived positively by MSMEs. These elements form the structural basis for facilitating transitions from informal to formal economic participation.

As a digital fiscal enabler, SBJ provides access to tax-related information, financial services, and business legality programs such as NIB and NPWP registration. However, consistent with the mediation model, its influence on tax compliance operates indirectly through improvements in tax literacy, financial inclusion, and business formalities.

The reliability and validity results in Table 2 indicate that all constructs in this study demonstrate strong measurement quality. The findings show high internal consistency, as reflected by Cronbach's Alpha values above 0.87 and Composite Reliability values exceeding 0.90, along with strong convergent validity indicated by average variance extracted (AVE) values greater than 0.70. These statistical conditions indicate that the Tax Literacy and Financial Inclusion variables, as the fiscal foundation of MSMEs, are well-measured, stable, and worthy of further analysis to shape sustainable fiscal behavior.

Table 2 Reliability and Validity Test (CR, CA, AVE)

Variable	Cronbach's Alpha	Composite Reliability	AVE
Utilization of SBJ	0.873	0.902	0.752
Tax Literacy	0.889	0.915	0.744
Financial Inclusion	0.881	0.910	0.739
Business Formalities	0.874	0.901	0.712
Tax Compliance	0.892	0.918	0.748
Business Performance	0.887	0.913	0.750

The reliability and validity findings in Table 2 indicate that all constructs in this study have high reliability (Cronbach's Alpha > 0.87 and Composite Reliability > 0.90), as well as strong convergent validity (AVE > 0.70). These statistical conditions indicate that the Tax Literacy and Financial Inclusion variables, as the fiscal foundations of MSMEs, are well-measured, stable, and worthy of further analysis in shaping sustainable fiscal behavior.

In the context of regional fiscal policy, these two variables are key entry points in strengthening the

MSME fiscal ecosystem. Tax Literacy enhances the cognitive capacity of business actors to understand fiscal obligations. At the same time financial inclusion provides access to formal financial services that support business financing and encourage formality. Therefore, both serve as strategic foundations for increasing MSME contributions to regional revenue (PAD) and expanding the tax base.

The tax literacy variable demonstrates the highest measurement reliability, with a composite reliability value of 0.915 and an average variance extracted of 0.744 (see Table 2). These results indicate that the indicators used are robust in capturing MSMEs' understanding of tax concepts, reporting obligations, and tax payment mechanisms. Theoretically, this is closely related to the concept of tax morale, which is an individual's tendency to comply with taxes based on knowledge, perceptions, and normative values (Musah et al., 2026). The higher the tax literacy, the greater the tendency for business actors to understand tax benefits, payment procedures, and the legal implications of non-compliance.

In the context of SBJ, tax literacy is achieved through digital training, educational materials, and regulatory assistance provided by the local government. These programs facilitate MSMEs' understanding of final MSME taxes, NIB-NPWP obligations, the 0.5% MSME Income Tax scheme, and digital tax reporting mechanisms. Providing comprehensive information through digital platforms minimizes information costs, which have been a major obstacle for MSMEs in complying with tax obligations. In other words, tax literacy through SBJ not only increases knowledge but also influences MSMEs' fiscal attitudes and behavior.

The financial inclusion variable shows strong construct quality, with a composite reliability value of 0.910 and an average variance extracted of 0.739 (see Table 2). These results indicate excellent measurement strength, while financial inclusion in this study reflects MSMEs' ability to access banking services, digital payment systems, loan facilities, and other financial products that support business expansion. The Financial Inclusion framework theory emphasizes that access to formal financial services plays a role in driving business growth, professionalism, and integration into the formal economic system (Agalya et al., 2025).

The link between financial inclusion and fiscal policy lies in two mechanisms. First, financial onboarding promotes business legality. Banks and formal financial institutions require legality, such as NIB, NPWP, and business permits. Therefore, MSMEs seeking access to financing must undergo administrative formalities, which automatically expands the taxpayer base. Second, digital financial traceability promotes transaction transparency. This finding is consistent with the argument of Niankara and Traoret (2023), who emphasize that the expansion of cashless payments, e-wallets, and digital transactions enhances the transparency of revenue reporting and reduces gray areas in tax compliance. In this context, financial inclusion through digital platforms functions not merely as an economic enabler but also as an effective fiscal instrument that supports tax administration and revenue governance.

Tax literacy and financial inclusion play complementary roles as the fiscal foundation of MSMEs, where tax literacy enhances understanding of tax obligations, while financial inclusion provides the practical means to fulfill those obligations through access to formal financial services. When both improve simultaneously, MSMEs are better prepared to fulfill their fiscal obligations independently and sustainably. The integration of these two variables creates what is known as fiscal readiness capability. It is the ability of MSMEs to fulfill their fiscal obligations effectively.

Empirically, the combination of these two variables has been shown to shape Business Formality, as will be discussed in the next subsection. This confirms that fiscal capacity cannot stand alone without access to the formal financial system, and conversely, financial services cannot increase fiscal contributions without adequate regulatory understanding.

Based on the indicators presented in Table 2, which demonstrate strong validity and reliability, SBJ can be considered to have successfully fulfilled its key fiscal roles in supporting MSME formalization and strengthening regional fiscal governance. First, it serves as a fiscal education platform that enables fiscal literacy. Second, it serves as a formal financial bridge that facilitates financial inclusion. This dual role strengthens SBJ's position as a modern, digitally based fiscal policy instrument, supporting not only business capacity building but also the expansion of the tax revenue base.

Business formality plays a crucial role in establishing tax compliance by positioning MSMEs within the formal economy. In this context, business formality refers to the fulfillment of essential administrative requirements, including the acquisition of a NIB, NPWP, valid business operating permits, and formal registration within government systems, which collectively enable MSMEs to be recognized and monitored within the official fiscal framework. These formalities go beyond being simple administrative requirements because they act as gateways to participation in the formal economy. Also, they enable MSMEs to engage in key aspects of the economy, such as tax compliance, access to financing, and adherence to regulatory standards. Numerous international studies have demonstrated that business formalities play a significant role in ensuring tax compliance (Bexheti et al., 2026; Faruk, 2024). This argument is consistent with Moyo (2022), who finds that business formalization enhances firms' access to government support mechanisms, financial services, and regulatory incentives, thereby strengthening administrative linkages and improving transparency compared to informal enterprises. As a result, more formalized businesses are more likely to comply with fiscal obligations (Sharma & Hodges-Ballard, 2025).

The estimated coefficient value of $\beta = 0.361$ as

presented in Table 3, indicates that tax literacy serves as a key driver in establishing business formality among MSMEs. Adequate understanding of tax obligations enables MSMEs to recognize the benefits of becoming a formal business entity, including legal legitimacy, expansion opportunities, and broader market access.

Table 3 Path Coefficient

Relationship between variables	Coefficient (β)	t-statistic	p-value
Utilization of SBJ → Tax Literacy	0.432	6.211	0.000
Utilization of SBJ → Financial Inclusion	0.487	7.102	0.000
Tax Literacy → Business Formalities	0.361	5.883	0.000
Financial Inclusion → Business Formalities	0.402	6.114	0.000
Business Formalities → Tax Compliance	0.559	8.992	0.000
Tax Compliance → Business Performance	0.614	9.271	0.000

The result aligns with the rational choice theory approach, where MSMEs' decisions to formalize are based on an evaluation of benefits and costs. When tax literacy improves through SBJ, MSMEs understand that the costs of fiscal non-compliance (sanctions, fines, or administrative obstacles) outweigh the costs of formalizing their business. SBJ also strengthens this process through regulatory training, digital-based tax information, and simplified administrative access, ensuring that MSMEs are not only theoretically aware of taxation but also able to carry out administrative steps more easily.

As shown in Table 3, the estimated coefficient value is $\beta = 0.402$, which is higher than that of tax literacy. This finding shows that financial inclusion represents a stronger structural factor in driving business formalization among MSMEs. This makes perfect sense in the operational context of MSMEs. To access credit, capital financing, banking services, and digital payment transactions, MSMEs are required to have formal business identification such as a NIB, NPWP, or Business License (Surat Izin Usaha Perdagangan - SIUP). This means that financial inclusion creates pressure to formalize, where previously unregistered MSMEs are encouraged to formalize their businesses to access financing opportunities. In a policy context, this represents a crucial synergy. The formal financial system helps the government expand the tax base through indirect enforcement, as MSMEs seeking access to capital are automatically brought into the formal fiscal system.

As shown in Table 3, the estimated coefficient value of $\beta = 0.559$ represents one of the strongest relationships in the model. This finding indicates that business formality is not merely an administrative status but exerts a transformative influence on MSMEs' tax compliance behavior. Business formality mediates the relationship between tax literacy and financial inclusion with tax compliance through several mechanisms. First, formal MSMEs receive more official information from the government, including details about tax obligations. Second, being registered in the tax administration system makes non-compliance more detectable. Third, formal MSMEs are more likely to use digital transactions and maintain basic accounting records, which simplifies tax reporting. Lastly, formal MSMEs have more at stake, such as access to procurement services, legality, and reputation, making non-compliance a greater risk. These mechanisms demonstrate that business formality acts as an effective enforcer of fiscal behavior.

SBJ plays a significant role in promoting business formality by facilitating the integration of NIB registration services, disseminating information on the benefits of business licensing, providing training on business legality and administrative management, and offering assistance with obtaining an NPWP and understanding MSME tax obligations. Thus, SBJ is not only a digital economy platform but also a catalyst for business formalization, serving as a bridge between MSMEs and the formal fiscal system.

By increasing business formality, local governments obtain both direct and indirect fiscal benefits, including expanding the local tax base, improving traceability of MSME digital transactions, increasing contributions to local taxes and levies, and strengthening MSME fiscal databases to support more effective fiscal planning and monitoring. As a result, business formality becomes a key pillar in creating a healthy, integrated, and sustainable fiscal ecosystem (Monaienko et al., 2024).

Tax compliance functions not only as an expression of MSMEs' willingness to fulfill fiscal obligations but also as an indicator of business maturity, reflecting managerial discipline, the quality of bookkeeping practices, administrative management capacity, and the integrity of financial reporting. Tax-compliant MSMEs generally have a more organized operational structure using bookkeeping applications, digital transactions, and separating personal and business finances, which ultimately improves cost management, financial planning, and investment decision-making. This compliance also provides access to various fiscal and non-fiscal benefits, such as MSME tax incentives, easier access to financing from banks and fintech companies, opportunities to participate in government procurement programs, and improved business reputation.

Furthermore, tax compliance strengthens financial transparency and operational efficiency by requiring accurate transaction recording, thereby enabling MSMEs to better control costs, analyze profitability, and make data-driven decisions. The

research finding, which shows a coefficient of 0.614 (Table 4), confirms that tax compliance has a strong impact on financial stability through better cash flow management, reduced risk of fiscal penalties, and increased creditworthiness. In the long term, tax compliance results leads to healthier business characteristics, including more stable revenue growth, increased transaction volume, stronger partnerships, and greater opportunities for market expansion. SBJ plays a crucial role as a catalyst through digital tax education, training modules, Owner-Owned Enterprises (OSS) licensing integration, legal assistance, and financial classes that help MSMEs understand taxes as a prerequisite for entering the formal ecosystem. The integration of digital systems such as Point of Sale (POS), marketplaces, QRIS, and recording applications also strengthens compliance by increasing data transparency and accuracy. Theoretically, these findings confirm that tax compliance is a form of behavioral compliance influenced by literacy, incentives, administrative formalities, and digital experience, not solely by regulatory pressure. From a policy perspective, it is necessary to integrate MSME fiscal policy with the regional digital economy, expand digital platform-based tax training, synergize financing with formality incentives, and optimize platforms such as SBJ to strengthen the fiscal database. Thus, tax compliance is not only a legal obligation, but a strategic instrument for strengthening the competitiveness and sustainability of MSMEs.

Table 4 Path Coefficient of the Relationship between Tax Compliance and Business Performance

Relationship between Variables	Coefficient (β)	t-statistic	p-value
Tax Compliance → Business Performance	0.614	9.271	0.000

Tax compliance reflects not only MSMEs' willingness to fulfill fiscal obligations but also their level of business, particularly within the integrated mediation paths and indirect relationships examined in the SEM model (Santosa et al., 2025). This compliance reflects managerial discipline, bookkeeping quality, administrative capacity, and integrity in financial reporting. Tax-compliant MSMEs generally have more organized operational systems using bookkeeping applications, digital transactions, and the separation of personal and business finances. This improves their ability to manage costs, plan finances, and make more strategic investment decisions.

Furthermore, tax compliance opens MSMEs' access to a variety of fiscal and non-fiscal benefits. Compliant businesses have a greater opportunity to obtain tax incentives, easier financing from banks and financial institutions, access to People's Business Credit (Kredit Usaha Rakyat - KUR), Sharia financing, and even digital loans from legal fintech companies. Compliance is also a crucial prerequisite for MSMEs wishing to participate in government goods/services procurement programs through e-catalogs, while also enhancing their business reputation among consumers and business partners. Consistent with Michael and Widjaja (2024), tax compliance contributes to administrative transparency and formal engagement. The contribution provides institutional value that may support MSMEs' competitive position in the formal ecosystem.

Tax compliance contributes to increased financial transparency and operational efficiency. The demand for accurate bookkeeping encourages businesses to be more organized in recording transactions, controlling costs, analyzing profitability, and making data-driven decisions. MSMEs that maintain good financial documentation can identify productive and wasteful activities, allowing for a more systematic and accurate performance evaluation process.

The research findings, which showed a coefficient of 0.614 (see Table 4), confirm that tax compliance strongly contributes to the financial stability of MSMEs. This stability is achieved through three main aspects: more disciplined cash flow management, avoiding the risk of detrimental fiscal penalties, and increasing creditworthiness, which expands access to capital. These three aspects are crucial for MSMEs seeking to increase production capacity and develop their businesses sustainably.

Table 5 Indirect Effects

Mediation Path	Indirect Coefficient (β)	t-statistic	p-value
Tax Literacy → Business Formalities → Tax Compliance	0.142	3.884	0.000
Financial Inclusion → Business Formality → Tax Compliance	0.103	2.992	0.003
Tax Literacy → Tax Compliance → Business Performance	0.237	5.447	0.000
Financial Inclusion → Tax Compliance → Business Performance	0.186	4.213	0.000
Business Formality → Tax Compliance → Business Performance	0.291	6.321	0.000

The mediation results in Table 5 indicate that tax compliance is a key mechanism linking

tax literacy, financial inclusion, business formality, and MSME business performance. Tax literacy and financial inclusion significantly influence tax compliance through business formality, confirming that formalization is a crucial pathway through which knowledge and financial access translate into compliant behavior.

Furthermore, tax compliance significantly mediates the relationship between tax literacy, financial inclusion, and business performance, demonstrating that compliance transforms fiscal awareness and digital financial access into tangible performance outcomes. The strongest indirect effect occurs when business formality influences business performance through tax compliance, highlighting the strategic role of formal business status in strengthening compliance and improving business performance.

These findings support the behavioral compliance perspective and emphasize the importance of integrating digital platforms such as SBJ to strengthen tax literacy, formalization, and compliance simultaneously. As shown in Table 5, tax compliance is not merely an administrative obligation but a strategic driver of MSME competitiveness and long-term growth.

As shown in Table 6, the next aspect examined is financial inclusion, which demonstrates a strong influence on business formality and tax compliance. Greater access to formal financial institutions encourages MSME participation in the fiscal system and enhances business administrative discipline. Therefore, regional fiscal policy needs to promote programs such as "One MSME, One Account," the integration of KUR services with MSME data in SBJ, and collaboration with regional banks, legal fintechs, and healthy cooperatives to expand access to financing. MSMEs that have entered the formal financial ecosystem are generally more stable, grow more easily, and have higher levels of tax compliance, thus improving overall business performance.

Business formality emerges as the strongest mediator in this research model, confirming that legality is the main gateway to financial transparency, tax compliance, and market access (Akinsola, 2025). Local governments need to strengthen the program to accelerate 100% MSME legality through SBJ, which includes the issuance of NIB, NPWP, halal certificates, distribution permits, and product certification. Full integration of SBJ with Online Single Submission Risk-Based Approach (OSS-RBA) is a strategic step to ensure a faster and more standardized legal process. The experiences of countries such as South Korea, Singapore, and Japan demonstrate that a high level of business formality is closely linked to improved MSME performance through a close connection to the national fiscal system.

Tax compliances become a critical aspect in improving business performance, with the strongest impact compared to other variables. This confirms that compliance is not only a fiscal instrument but also a driver of MSME productivity. The "Tax Compliant MSMEs" policy can be developed through assistance with SPT reporting, monthly coaching clinics, certification of compliant MSMEs, and the provision of behavior-based incentives such as priority access to KUR or priority entry into the e-catalog. In the long term, tax compliance increases business legitimacy, strengthens reputations, and opens doors to broader market opportunities.

Digitalization has proven to be a key pillar of

Table 6 Policy Implication Matrix – Integration of SBJ in the Fiscal Policy of DIY MSMEs

Key Issues	Research Findings	Policy Implications	Key Actors
Low tax literacy among MSMEs	Tax literacy has a significant impact on compliance and performance	Integration of mandatory MSME tax training curriculum in SBJ; MSME fiscal e-learning module	Cooperatives & MSMEs Service, Bappeda, Regional Office of the Directorate General of Taxes
Unequal financial access	Financial inclusion has significant direct and indirect impacts	Facilitating the opening of MSME accounts, digital KUR integration, collaboration with regional banks	MSME Service, Bank BPD DIY
Business legality is not yet universal	Formality becomes the strongest mediator	100% MSME Legality Program through SBJ & OSS; fiscal document acceleration services	One-Stop Investment and Integrated Services Agency (PTSP), MSME Service
Low MSME tax compliance	Compliance coefficient → highest performance (0.614)	Tax Compliance MSME Program based on digital assistance & incentives	DIY Tax Directorate General, Regional Development Planning Agency
Digital system integration is not yet optimal	SBJ has proven to be a digital-fiscal catalyst	Strengthening integrated MSME data architecture	Communication and Information Service, Regional Development Planning Agency
MSME performance is still unstable	Fiscal-digital pathway is very strong → business stability	Preparation of the 2026–2030 DIY MSME Fiscal Roadmap based on research results	DIY Regional Development Planning Agency

regional fiscal policy (He et al., 2025). SBJ functions as a digital fiscal enabler, accelerating legal processes, assistance, recording, and financial and tax reporting more efficiently. Strengthening the integrated MSME data architecture and integrating the SBJ system with the Directorate General of Taxes (DGT), OSS, regional banking, and the National Public Procurement Agency (Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah-LKPP) e-catalog will enhance the government's ability to provide fast and responsive fiscal services. This digitalization results in transparency, administrative efficiency, reporting automation, and data-driven policymaking.

Based on the SEM findings, regional governments can develop a 2026–2030 DIY MSME Fiscal Roadmap. This roadmap should emphasize the transformation of digital fiscal services, strengthening tax and financial literacy, expanding access to formal financing, accelerating business legality, digital data-based compliance monitoring, and strengthening SBJ as a fiscal service center for MSMEs. From an academic perspective, an evidence-based approach through structural models such as SEM provides a more accurate basis for determining policy intervention priorities.

Overall, this research emphasizes that MSME fiscal policy must be behavior-based rather than regulatory. Digitalization through SBJ is key to integrating various fiscal policies with the MSME empowerment agenda. An ecosystem-based fiscal approach that integrates literacy, financial inclusion, business formality, and service digitalization is better suited to the characteristics of MSMEs in DIY and has the potential to increase regional fiscal contributions while strengthening business competitiveness.

This research demonstrates that tax literacy has a significant influence on tax compliance, both directly and through intermediary variables, and these findings are consistent with previous studies conducted in East Java, West Java, and North Sumatra, which show that improvements in fiscal literacy contribute to higher tax morale and more regular reporting behavior. This is also consistent with the OECD (2021) report, which places digital-based tax education as a crucial component in modern tax system reform. However, the Indonesian context has unique characteristics. Tax literacy tends to be more effective when accompanied by direct assistance, rather than simply passive information dissemination. Unlike developed countries that have structured tax education systems starting in school, DIY falls in the middle public fiscal literacy is quite good, and digital integration through SBJ provides a significant additional boost to compliance behavior.

Financial inclusion plays a critical role in promoting business formality and tax compliance, as empirical evidence shows that access to formal financial services encourages MSMEs' integration into the formal economy (Chamidah et al., 2025). MSMEs that are connected to formal financial services tend to demonstrate better administrative discipline and a higher propensity to enter the fiscal ecosystem. These findings are consistent with the World Bank Group (2007) evidence that limited tax registration constrains MSMEs' access to formal credit, while access to banking and financial services can encourage MSMEs to become more integrated into the formal fiscal system. DIY's uniqueness lies in strengthening financial inclusion through the SBJ digital ecosystem, which connects MSMEs with banks, digital KUR services, marketplaces, e-payments, and QRIS. Region is classified as underdeveloped, frontier, and outermost areas, improvements in financial inclusion do not automatically translate into higher levels of tax compliance due to persistent constraints in financial infrastructure, digital connectivity, and administrative capacity (Darmansyah, 2022). Therefore, strong digital integration in DIY makes the impact of financial inclusion far more significant than in other regions.

The role of business formality as a powerful mediator also demonstrates consistency with global trends. OECD (2021) confirms that business formality is key to integrating MSMEs into the tax system. A case study in South Korea finds that legally registered MSMEs have a 39% higher growth opportunity (Surya et al., 2021). Meanwhile, in Singapore, business legality has been shown to improve tax compliance and expand access to formal financing (Pratama & Muhammad, 2025). In Indonesia, the formality process is often hampered by bureaucratic hurdles (Iqbal, 2020). However, DIY has a competitive advantage through OSS-RBA integration, legal assistance through SBJ, and integrated services for NIB, NPWP, and product certification. This is what makes business formality a very powerful mediator in the research model.

Furthermore, the relationship between tax compliance and business performance shows that DIY has a pattern more similar to that of developed countries. The coefficient $\beta = 0.614$ (see Table 7) confirms that tax compliance has the greatest impact on business performance compared to other variables. This pattern is similar to findings in DKI Jakarta, where high levels of formality make tax compliance an indicator of business professionalism. Conversely, regions such as Aceh, West Nusa Tenggara, and parts of Central Java show a weaker relationship due to low fiscal administration discipline. DIY's uniqueness lies in its more literate administrative culture, so tax compliance is understood not simply as an obligation, but as a demonstration of business credibility and reputation.

The role of digital platforms is a key differentiating factor for DIY in the digital fiscal ecosystem. Unlike many provinces that only have business directories or information portals, SBJ functions as a comprehensive public policy instrument, covering everything from business legality and training to financing integration, data collection, data-based monitoring, and tax assistance. Compared to countries like Estonia (Gordon Dickinson, 2013), Singapore, and South Korea which already have integrated digital fiscal systems in DIY is at a mid-level but has significant potential to fully develop a similar system

Table 7 Digital Fiscal Pathway Model – SEM Main Path Synthesis

Path Components	Direct Influence	Indirect Influence	Role in Model	Synthesis Conclusion
Tax Literacy → Formalities	0.231	0.142 through Tax Compliance	Foundation of Knowledge	Fiscal knowledge drives legality and compliance
Financial Inclusion → Formality	0.188	0.103 through Tax Compliance	Financial Incentives	Financial access accelerates business formalities
Formality → Compliance	0.274	0.291 towards Performance	The Strongest Mediator	Legality becomes the focal point for behavioral change
Tax Compliance → Performance	0.614	—	Key Drivers of Performance	Compliance is the biggest driver of competitiveness
SBJ's role in all lines	Strengthening all variables	Expanding the entire model effect	Enabler Digital	SBJ is a digital-fiscal policy catalyst

(OECD, 2021).

A synthesis of all the findings indicates that DIY is ahead of many other provinces in integrating digital-based MSME fiscal policies. Factors such as high public literacy, a stable creative economy sector, adequate digital infrastructure, institutional synergy, and the innovation of the SBJ platform make DIY a strong candidate for a national digital fiscal policy model. With the right roadmap, DIY can transform into a center for the MSME digital fiscal ecosystem, serving as a reference for implementing evidence-based regional policies.

The results of the structural model indicate that tax literacy serves as the primary foundation of the fiscal–digital pathway for MSMEs in DIY. Tax literacy serves as enabling knowledge that triggers business awareness of fiscal obligations, legal benefits, and the risks of violations. In the DIY context, tax literacy is understood not only as knowledge of rates, reporting mechanisms, or administration, but also as integration with digital mentoring through SBJ. This platform provides fiscal classes, interactive consultations, and tax reporting support, enabling MSMEs to learn continuously. These findings reinforce global literature that positions digital fiscal learning as a key strategy in modern tax reform.

Financial inclusion then emerged as a crucial driver for strengthening business formality. MSME access to bank accounts, fintech services, and formal credit facilities has been shown to encourage disciplined transaction recording, the need for legal documentation, and professional financial management. Bank credit and digital KUR require MSMEs to have a clear business identity. So, financial inclusion serves as soft enforcement for business formality. The success of this pathway in DIY is supported by high financial service penetration and a culture of using digital payment tools such as QRIS and e-wallets. SBJ strengthens this effect by integrating digital KUR and direct banking access, making financial inclusion a key component of the regional fiscal ecosystem.

Furthermore, business formality emerges as a fulcrum linking knowledge and access to fiscal behavior. As the strongest mediator in the model, formality provides a structure that enables MSMEs to consistently enter the fiscal ecosystem. When legal requirements such as NIB, NPWP, or business certification are met, MSMEs are easier to regulate, more financially transparent, more disciplined in reporting, and more easily access incentives and market opportunities. Research findings indicate that formal MSMEs report their turnover more consistently, participate more easily in government tenders, and are more effectively absorbed by financing programs. Thus, business formality becomes the most effective policy lever for local governments.

Tax compliance then acts as a key driver of improved business performance. The direct in Fluence of 0.614 (see Table 7) confirms that tax compliance has the strongest influence compared to other variables, indicating that compliance is not only a fiscal obligation, but also an indicator of MSME professionalism, legitimacy, and readiness to enter the formal market. Tax-compliant MSMEs gain greater trust from banks, the government, and business partners because they are perceived as having orderly administration and cash flow. Tax compliance creates synergy between financial governance, access to business opportunities, and long-term stability. Therefore, the tax compliance pathway is the most critical point in improving MSME performance.

Business performance, as the final outcome, reflects the cumulative result of the fiscal-digital process. The model shows that improved business performance is not driven by a single factor, but by a sequential interaction in which tax literacy strengthens financial inclusion, financial inclusion supports business formality, business formality reinforces tax compliance, and tax compliance ultimately contributes to better business performance.

This pattern is stable, measurable, and mutually reinforcing, forming a strategic pathway that can serve as a reference for MSME development based on fiscal policy. The consistency of the coefficients in the SEM model confirms that all pathways have a strong relationship, forming a cohesive ecosystem.

In the final synthesis, SBJ acts as a digital fiscal enabler connecting all variables. This platform provides education (tax training, financial literacy, digital reporting), access (digital KUR, banking integration, legal assistance), integration (connecting the OSS, DGT, financial institutions, and regional systems), and data-driven monitoring to supports regional fiscal policy. With these capabilities, SBJ is not just an MSME platform, but a digital architecture that enables the creation of an inclusive, technology-driven fiscal ecosystem.

Overall, tax literacy builds understanding; financial inclusion creates incentives for formality; business formality connects MSMEs to the fiscal system; tax compliance strengthens legitimacy and stability; and improved business performance is a natural outcome of these channels. This model provides a strong strategic framework for local governments in designing MSME fiscal policies that are responsive to the digital era.

IV. CONCLUSIONS

This research examines how the Regional Digital MSME Ecosystem (particularly SBJ) influences MSME tax compliance and fiscal contribution in DIY through the mediating roles of tax literacy and financial inclusion. The SEM results confirm that the digital ecosystem does not directly increase fiscal contribution; rather, its influence operates indirectly by strengthening MSMEs' tax understanding and expanding their access to formal financial services.

Tax literacy enhances MSMEs' awareness of fiscal obligations and reporting procedures, while financial inclusion promotes structured financial record-keeping and integration into the formal banking system. These two mediating mechanisms encourage business formalization and significantly improve tax compliance behavior, which ultimately contributes to stronger fiscal participation.

The findings highlight that digital platforms such as SBJ function as enabling infrastructure within the regional fiscal ecosystem. Their effectiveness in increasing fiscal contribution depends on their ability to improve regulatory understanding and financial integration among MSMEs. In the DIY context, this integrated digital–fiscal pathway provides an evidence-based framework for strengthening inclusive and sustainable regional fiscal governance.

Future research is recommended to incorporate longitudinal data and expand measurement of digital fiscal behavior to further validate these mediation mechanisms.

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