

The Effectiveness of Using Electronic Tax Notification Letters in Increasing Local Revenue in Nganjuk Regency, Indonesia

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ABSTRACT

Background: The increasing need for local governments to optimize Regional Original Revenue (PAD) has driven various innovations, one of which is the digitalization of the taxation system. A form of this digitalization is the use of the electronic Tax Due Notification Letter (e-SPPT) in managing the Rural and Urban Land and Building Tax (PBB-P2). However, PBB-P2 payments by taxpayers are still often delayed due to the suboptimal distribution of SPPT. **Purpose:** This study aims to determine the effectiveness of e-SPPT usage in increasing PAD in Nganjuk Regency. **Method:** The research uses a descriptive qualitative approach. Data collection was conducted through semi-structured interviews and documentation. Data analysis techniques included data reduction, data presentation, and drawing conclusions. The theory used is the Effectiveness Theory by Delone and McLean, which includes the dimensions of System Quality, Information Quality, Service Quality, Use, User Satisfaction, and Net Benefits. **Result:** The results show the positive responses from both employees and the community. The e-SPPT system has proven effective in facilitating access to and delivery of tax services. However, the low revenue from PBB-P2 is due to poor taxpayer compliance and limited outreach to taxpayers, so its contribution to PAD is still not optimal. Factors affecting the effectiveness of e-SPPT usage include the community's level of digital literacy, availability of technological infrastructure, outreach by Bapenda, and the level of taxpayer compliance. Nganjuk Regency has made various efforts, such as increasing e-SPPT outreach to villages, providing training for village officials, and expanding access to digital tax services to encourage public participation and compliance in paying local taxes. **Conclusion:** This study concludes that the implementation of electronic tax notification letters (e-SPPT) has been effective in increasing local revenue in Nganjuk Regency.



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I. INTRODUCTION

1.1 Background

Each region in Indonesia holds both the authority and responsibility to regulate and manage its own governance as part of an economic development strategy rooted in self-reliance. The available resources are then allocated to the regions through taxation and revenue-sharing schemes. This aligns with the principle of fiscal decentralization, which grants local governments the authority to manage their finances, particularly through Locally Generated Revenue (PAD), sourced primarily from regional taxes and levies. Law No. 28 of 2009 on Regional Taxes and Levies serves as a concrete implementation of regional autonomy. Regional taxes represent one of the primary sources of local government financing, with revenues fully managed by the local government itself (Safitri et al., 2022).

Regional revenue includes all funds deposited into the regional treasury, representing the rights of the local government within a fiscal year, without any obligation to repay. Therefore, revenues recorded in the Regional Budget (APBD) are based on reasonable estimates of the realistic potential of each income source (Riswati, 2022). Locally Generated Revenue (PAD) consists of income from regional taxes, regional levies, returns on separated regional assets, and other legitimate sources (Sinurat, 2018). According to Law No. 1 of 2022 on Financial Relations between the Central and Regional Governments, PAD is used to support governance and development aligned with local community needs. Increasing PAD aims to reduce dependency on transfers from the central government (Ester et al., 2022). Regional taxes and levies are vital parts of PAD, collected by local governments according to existing regulations (Nasir, 2019).

Regional tax is defined as a mandatory financial obligation payable by individuals or entities to the local government, as regulated in Government Regulation No. 35 of 2023 concerning General Provisions of Regional Taxes and Levies. Law No. 1 of 2022 further states that regional taxes are compulsory contributions allocated entirely for public welfare. One form of regional tax is the Rural and Urban Land and Building Tax (PBB-P2), which is imposed on individuals or entities for ownership or control of land and/or buildings. In this context, "land" refers to both the surface and the subsurface area, while "buildings" denote permanent structures erected on land or water (Mardiasmo, 2019).

Digital transformation through the adoption of electronic systems such as e-SPPT (Electronic Tax Notification Letter) represents a practical application of structural capital in the public sector. This system not only accelerates tax administration processes but also improves data accuracy, transparency, and taxpayer accessibility. Nazneen's (2025) study indicates that structural capital efficiency (SCE) positively contributes to organizational performance, particularly in revenue enhancement. Moreover, human capital efficiency (HCE), reflected in the competence and skills of system administrators, is also a decisive factor in successful technology implementation. Thus, optimizing e-SPPT with the support of competent human resources is believed to strengthen efforts in enhancing Locally Generated Revenue (PAD), including in Nganjuk Regency. Financial digitization initiatives, such as robo-advisors, have proven effective in improving financial literacy through easy and rapid access to information. Applying a similar approach to e-SPPT could foster taxpayer awareness and compliance, ultimately increasing PAD (Kamarudin et al., 2025). Furthermore, the adoption of artificial intelligence (AI) can improve system efficiency by optimizing data management and predictive decision-making. In public services like e-SPPT, this approach can accelerate tax service delivery and boost taxpayer compliance, thereby positively impacting PAD revenue (Taghizadehhesary, 2025).

The Nganjuk Regency Government strives to improve the efficiency of PBB-P2 tax collection through the implementation of e-SPPT, which enables taxpayers to access information, make payments, and obtain payment receipts online. This system is expected to encourage tax compliance while simplifying administrative

procedures. However, its effectiveness remains low, as many taxpayers are still unaware of its existence. This has contributed to the underachievement of SPPT realization and PBB-P2 revenue targets between 2021 and 2023. Although e-SPPT has been introduced since 2021, data from 2023 indicates a decline in both the number of SPPTs and principal tax realization, which is believed to be influenced by tax incentive policies and suboptimal manual SPPT distribution. In fact, the system was designed to minimize barriers in SPPT delivery and to enhance the quality of regional tax services and supervision.

Based on the aforementioned discussion, the author intends to conduct an in-depth study on the effectiveness of e-SPPT implementation. This serves as the foundation for the research entitled “The Effectiveness of Using Electronic Tax Notification Letters (e-SPPT) in Increasing Locally Generated Revenue (PAD) in Nganjuk Regency.”

1.2 Problem

Research on the effectiveness of electronic-based tax information systems such as e-SPPT has been widely conducted at both national and regional levels. Previous studies indicate that the digitalization of local taxation, including PBB-P2, positively influences taxpayer compliance and increases local tax revenues. In general, these studies emphasize that the success of electronic systems largely depends on service efficiency, accessibility, and adequate policy support. However, most of them have not comprehensively examined the effectiveness of e-SPPT using the DeLone and McLean Information System Success Model, which consists of six main dimensions: system quality, information quality, service quality, use, user satisfaction, and net benefits (DeLone & McLean, 2003). This model provides a complete framework for evaluating the performance of e-SPPT implementation, especially in measuring its impact on enhancing Local Own-Source Revenue (PAD). Furthermore, previous studies have tended to focus on larger cities with relatively well-developed infrastructures, such as Denpasar or Malang. Few have specifically investigated the implementation of e-SPPT in second-tier regions like Nganjuk Regency, which still faces challenges related to infrastructure, digital literacy, and limited system dissemination.

1.3 Previous Studies

This study refers to several previous works to highlight its novelty and relevance. Amalia Dinda Bestari (2020) found that e-SPPT PBB significantly affects taxpayer compliance. Research by Feisi N. Prong, Robert Lambey, and Lady D. Latjandu (2023) revealed that the implementation of the PBB-P2 collection system and procedures for registration, assessment, and determination were in accordance with applicable regulations, whereas procedures for data collection, payment, and billing had not yet aligned with the Sangihe Islands Regency Regional Regulation No. 1 of 2013 and Regent Regulation No. 39 of 2013. Abiseka Anoraga (2022) demonstrated that the innovation of drive-thru PBB payment received positive responses from the public, as it was effective, efficient, simple, and highly convenient. Meanwhile, research by Siti Marwiyah, Renny Candradewi Puspitarini, and Nugraha Bayu Anggara (2023) found that the e-SPPT PBB in Probolinggo City had been implemented quite well in terms of procedures, time, cost, products, facilities, and staff competence. Similarly, a study by Putri Febriana Wijayanti, Elva Nuraina, and Elly Astuti (2021) concluded that the implementation of e-PBB was relatively optimal, although challenges such as unstable networks, suboptimal system performance, and limited taxpayer participation still remained. Collectively, these studies serve as important references for the author in analyzing the effectiveness of e-SPPT in increasing PAD in Nganjuk Regency.

1.4 State of the Art

This study contributes to the field by integrating the DeLone and McLean Information System Success Model into the evaluation of e-SPPT implementation in regional taxation, specifically within the PBB-P2 sector in Nganjuk Regency. Unlike previous studies that mainly assessed effectiveness through administrative indicators such as target achievement and the number of SPPT issued, this research adopts a multidimensional approach encompassing system quality, information quality, service quality, use, user satisfaction, and net benefits in enhancing PAD. Moreover, based on the existing literature, this study is the first to fully apply the DeLone and McLean model in the context of e-SPPT implementation in non-metropolitan regions with limited

infrastructure and digital literacy, such as Nganjuk Regency. Consequently, it provides significant and contextually relevant empirical contributions to the development of taxation digitalization policies in emerging regions.

1.5 Purpose

This study aims to determine the effectiveness of using Electronic Tax Notification Letters in increasing Local Revenue in Nganjuk Regency.

II. METHOD

This study employs a descriptive qualitative approach, with data collected through interviews and documentation. The research adopts pragmatic and transformative paradigms in accordance with its objectives and context (Creswell & Creswell, 2018). The pragmatic paradigm was chosen because it emphasizes solving real-world problems regarding the optimization of e-SPPT in increasing local revenue (PAD), using a flexible and results-oriented mixed-method approach. Meanwhile, the transformative paradigm was applied to promote social change, transparency, public participation, and the empowerment of underserved groups through the implementation of e-SPPT. Qualitative research is generally inductive, beginning with problem identification and then linking it to relevant theories or concepts as analytical tools. Data analysis was conducted through data reduction, data display, and conclusion drawing or verification (Simangunsong, 2016). Informants were selected using purposive sampling, in which participants were chosen based on their knowledge and relevance to the research topic (Sugiyono, 2019). The interview method used was semi-structured interviews, where the researcher prepared a set of guiding questions to be answered by the informants. The informants in this study consisted of the Head of Bapenda Nganjuk Regency, the Head of Revenue Management, the Head of Control and Evaluation, Sub-Division officials within Bapenda, as well as PBB-P2 taxpayers who use e-SPPT, as they are directly relevant to the study. Data analysis was based on the effectiveness indicators proposed by DeLone and McLean (2003), namely system quality, information quality, service quality, use, user satisfaction, and net benefits. Through this approach, the study aims to provide an in-depth understanding of the effectiveness of e-SPPT in enhancing local revenue (PAD) in Nganjuk Regency.

III. RESULTS AND DISCUSSION

3.1. System Quality

System Quality was analyzed to assess the e-SPPT system's ability to support the delivery of tax services effectively and reliably. This analysis used several key indicators: Ease of Tax Information, Tax Policy Adjustments, and Personal Data Protection. These three indicators were used to evaluate the e-SPPT system's ability to provide easy access to tax information, support dynamic tax policy adjustments, and ensure the security and protection of taxpayers' personal data as system users.

Ease of Tax Information. Since its implementation in 2021, the e-SPPT system has been proven to simplify the management of PBB-P2, accelerate services, improve data accuracy, and integrate with the population database. The system's dissemination has been carried out through village officials to reach a wider community. However, several challenges remain, such as limited internet connectivity and community adaptation. Data indicates a significant increase in the use of e-SPPT, rising from only 1% in 2021 to 61% in 2024.

Table 1.
Number of Taxpayers Using e-SPPT

Year	Number of Registered Taxpayers (individuals)	Taxpayers who have not used e-SPPT (individuals)	Percentage of taxpayers who have not used e-SPPT
2021	597.486	593.345	99%
2022	601.384	408.876	68%

2023	605.990	257.986	43%
2024	609.782	218.657	39%

Source: Research Data, 2025

Tax Policy Adjustments. The adjustment of PBB-P2 rates is carried out in accordance with Government Regulation No. 35 of 2023, which sets a maximum rate of 0.5%. In Nganjuk Regency, the rate is set at 0.2% under Regent Regulation No. 6 of 2024. The adjustment process involves the preparation of the Land Value Zone (ZNT), the Building Component Cost List (DBKB), mass assessments, and the issuance of valuation reports. This policy reflects the Regional Revenue Agency's commitment to enhancing fairness and effectiveness in the regional taxation system.

Personal Data Protection. Although the e-SPPT system has digitally integrated taxpayer data, challenges remain, such as outdated information, input errors, and limited technological access in certain areas. The Nganjuk Regency Government allocated IDR 275 million for security systems (firewalls, encryption, authentication), IDR 120 million for security audits, and IDR 95 million for data backups. These efforts are estimated to save up to IDR 1.2 billion annually from potential losses due to data breaches, indicating that system security also contributes to regional budget efficiency

1.2. Information Quality

To analyze information quality in the implementation of the e-SPPT system, the author uses several indicators that reflect the quality of information received by taxpayers. These indicators include the SPPT system, information relevance, distribution timeliness, data accuracy, format convenience, information consistency, and compliance with taxpayer requirements. The analysis of these indicators aims to assess the extent to which the information presented by the e-SPPT system meets taxpayers' needs, is accurate, relevant, and timely.

SPPT System. The e-SPPT system provides taxpayers with complete information, including name, NOP, address, property tax bills, penalties, and payment status. For the government, the system also presents data that supports monitoring and evaluation of PBB-P2 realization. Payments can be made through village offices or digital applications, and all transactions are automatically recorded in the system.

Relevance of Information. The information provided by e-SPPT is considered relevant to user needs. Although some rural residents still face difficulties in using it, taxpayers acknowledge that the available features help them better understand their tax obligations. Nevertheless, the development of additional features, such as due date reminders, is still needed.

Timeliness of Distribution. The distribution time of SPPT has been significantly reduced, from an average of 14 days in 2021 under the manual system to only 2–3 days in 2024 after the implementation of e-SPPT. Supporting strategies, such as prize draws and socialization during BLT distribution, have proven effective in increasing on-time payments by up to 20% in certain areas.

Table 2.
Comparison of Distribution Timeliness Before and After e-SPPT

Year	Total issued e-SPPT (units)	Average distribution time (days)
2021 (Before e-SPPT)	597.486	14 days
2024 (Before e-SPPT)	609.782	2-3 days

Source: Research Data, 2025

Data Accuracy. The data accuracy in e-SPPT still faces challenges, particularly for new tax objects and buildings that have undergone functional changes. Out of 4,200 NJOP discrepancies, 20% are due to new

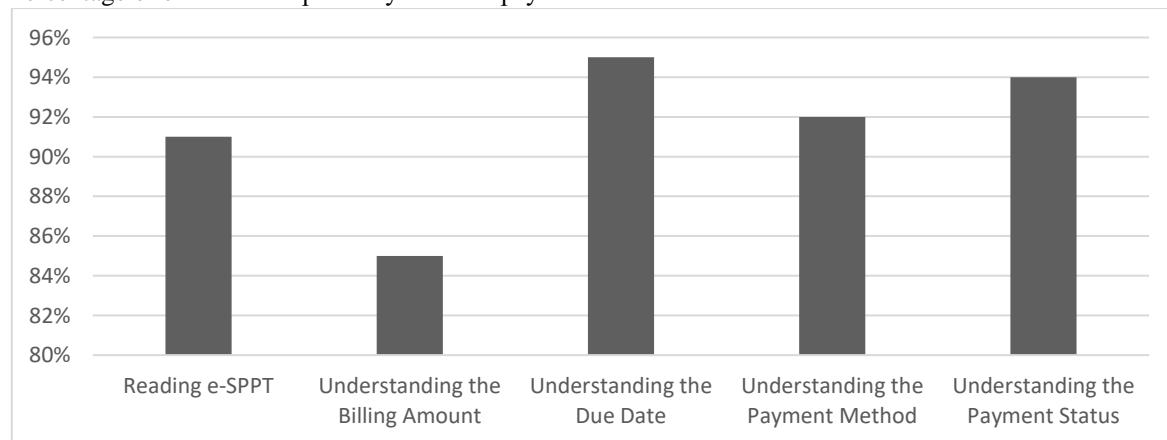
objects and 25% due to changes in building functions. Input errors and delayed updates also affect data reliability.

Format Convenience. The e-SPPT interface is designed to be simple and informative, making it easier for citizens to understand the bill amount and due date. Taxpayers consider the digital format clearer than the often confusing manual SPPT, thereby encouraging timely payments.

Information Consistency. Previously, data discrepancies between printed SPPT and e-SPPT caused complaints. Now, the consistency of information across platforms has been improved, boosting taxpayer trust and positively impacting increased payments and reduced tax objections.

Compliance with Taxpayer Requirements. The alignment of e-SPPT with user needs is very high. About 90% of taxpayers say the format is easy to read, 95% understand the due date, and 94% are aware of their payment status. This ease of access and information presentation enhances compliance and supports the growth of local revenue (PAD).

Figure 1.
Percentage of e-SPPT Compatibility with Taxpayers' Needs



Source: Research Data, 2025

1.3. Service Quality

To analyze Service Quality in the use of the e-SPPT system, the author used indicators related to the quality of service provided to taxpayers. The indicators used included e-SPPT Accuracy and Response to e-SPPT. Through these indicators, the analysis was conducted to determine the extent to which the e-SPPT system is able to provide accurate and responsive services to the needs and problems faced by taxpayers.

e-SPPT Accuracy. The e-SPPT system in Nganjuk Regency is designed to provide accurate and transparent PBB-P2 information to taxpayers. Data is sourced from the official Bapenda database and regularly updated with field validation in collaboration with village and sub-district officials. This feature allows taxpayers to monitor their tax information independently and in real-time, thereby enhancing efficiency and transparency in local tax management.

Table 3.
Accuracy Level of PBB-P2 Tax Objects

Year	Total Tax Objects (units)	Realization of Tax Objects (units)	Percentage Accuracy
2021	597.486	450.365	75,4%
2022	601.384	573.241	95,3%
2023	605.990	580.482	95,8%

2024	609.782	590.880	96,9%
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Source: Research Data, 2025

Since the implementation of e-SPPT, a significant improvement has been observed, with tax object accuracy reaching nearly 97% in 2024. This success is supported by the integration of e-SPPT with population, land, and Geographic Information System (GIS) data, as well as the application of direct digital validation from the field. This enables the system to respond swiftly to changes such as land subdivision, building function modifications, and ownership transfers.

Response to e-SPPT To enhance service quality, Bapenda of Nganjuk Regency provides various complaint and information channels, including WhatsApp, Instagram, and the national platform LAPOR!. Citizens can submit complaints or inquiries regarding e-SPPT and PBB-P2 directly or online without having to visit the office. LAPOR! serves as a key innovation in delivering responsive, inclusive, and information technology-based services. This commitment is reinforced by Bapenda's prompt response to public reports and ongoing efforts to improve digital tax education for the community.

1.4. Usage

To analyze the usage aspect of the e-SPPT system, the author used the Regular Usage and Frequency of Usage indicators, as well as the role of e-SPPT as a primary tool in tax management, particularly in improving administrative efficiency. This analysis aims to examine the level of e-SPPT system utilization by users and the extent to which the system is used sustainably to support PBB-P2 administration.

Regular Usage. Taxpayers in Nganjuk Regency have become increasingly accustomed to using e-SPPT to access information and pay PBB-P2. Based on interviews, active users such as Mr. Puji Wijaya use the service about 2–3 times a year to check bills and payment status. However, many rural residents, such as Mrs. Karti, are still unfamiliar with technology and prefer to rely on village officials for assistance. This indicates that the use of e-SPPT is strongly influenced by age, digital literacy, and the availability of internet infrastructure.

Frequency of Usage. Since its introduction, the frequency of e-SPPT usage has risen significantly. In 2021, only about 10% of taxpayers accessed the service, but this figure increased to more than 70% by 2024, driven by extensive outreach efforts and the convenience of digital access.

Table 4.
Estimated Annual Visits to e-SPPT

Year	Monthly Visits (people)	Yearly Visits (people)
2021	5000	60000
2022	12500	150000
2023	23500	282000
2024	47000	564000

Source: Research Data, 2025

A sharp increase primarily occurs between March and May (the PBB-P2 payment period), with visits surging by more than 60% compared to other months.

E-SPPT Serves as a Key Tool in Tax Management, Particularly in Enhancing Administrative Efficiency. The system provides comprehensive information, reduces input errors, and strengthens monitoring and data analysis functions for Bapenda. One taxpayer mentioned that e-SPPT greatly assists in managing payments and offers reassurance since the data comes directly from the government. However, challenges remain, such as low digital literacy, limited internet access in rural areas, and insufficient outreach. Therefore, further feature development and more widespread education are essential to ensure that the benefits of e-SPPT are accessible to all segments of society.

1.5. User Satisfaction

To analyze user satisfaction with the implementation of the e-SPPT system, the author uses the Administrative Efficiency of PBB-P2 and Taxpayer Satisfaction with e-SPPT indicators. The analysis in this subchapter focuses on determining the level of taxpayer satisfaction with administrative efficiency and their experience using the e-SPPT system in tax services.

Administrative Efficiency of PBB-P2. The implementation of e-SPPT has proven effective in enhancing administrative efficiency in the collection of PBB-P2. Services have become faster and more transparent as taxpayers can view their bills, make payments, and check settlement status independently without visiting the Bapenda office or relying on village officials. This efficiency is further supported by Bapenda through training for village staff, social media outreach, and instructional videos. Based on taxpayer interviews, e-SPPT has reduced bureaucratic processes and simplified access to information, although challenges remain, such as low digital literacy, limited internet connectivity, and features that are not yet fully optimized.

Table 5.
Data Compliance Rate

Year	Percentage of Taxpayers Using e-SPPT	Compliance Rate
2021	10%	55%
2022	30%	65%
2023	50%	75%
2024	70%	95%

Source: Research Data, 2025

The rise in e-SPPT users correlates with an increase in the compliance rate. This demonstrates that the system not only simplifies administrative procedures but also fosters taxpayer discipline in making timely PBB-P2 payments.

Taxpayer Satisfaction with e-SPPT. Taxpayers' express satisfaction as they can check their payment status and settle their obligations directly through the e-SPPT system. On the other hand, Bapenda benefits from the ability to monitor transactions in real-time, allowing for faster and more accurate evaluation of PBB-P2 target achievements. The 2023 survey results revealed that: 80% of taxpayers expressed satisfaction with the system's ease of use; 70% appreciated the reminder notification feature; However, 15% still reported difficulties in accessing the system due to limited internet infrastructure in certain areas.

Overall, e-SPPT is considered to have successfully addressed the community's tax administration needs while enhancing the quality of public services in Nganjuk Regency. The high level of satisfaction reflects the system's effectiveness in fostering taxpayer compliance and strengthening public trust in digital-based tax management.

1.6. Net Benefits

To analyze the Net Benefits of implementing the e-SPPT system, the author uses indicators that reflect the tangible benefits gained by the organization and users. These indicators include Enhancement of Employee Performance, e-SPPT Implementation, Reduction of Administrative Costs, and Data Quality in Decision-Making. Through these indicators, the analysis was conducted to assess the extent to which e-SPPT implementation provides benefits in terms of improved performance, cost efficiency, and data quality in decision-making.

Enhancement of Employee Performance. The implementation of e-SPPT has had a positive impact on improving the performance of Bapenda staff. Through the real-time DHKP feature, staff can update and validate taxpayer data directly without waiting for manual reports from village officials. In addition, the system simplifies the monitoring of PBB-P2 achievements in each region, enabling a more precise and measurable evaluation of village officials' performance.

Table 6.
 Reporting Speed Comparison to BPK

Year	Average Reporting Time to BPK (days after closing)	Notes
2020	± 90 days	Entire process is manual
2021	± 70 days	Initial transition to e-SPPT
2022	± 50 days	Most data are already electronic
2023	± 30 days	Integrated and automated system
2024	± 14 days	Reports can be accessed in real time

Source: Research Data, 2025

This system helps reduce administrative burdens and allows employees to focus more on strategic tasks, such as providing tax education and developing service innovations.

E-SPPT Implementation. With the implementation of e-SPPT, the processes of validation, reporting, and payment monitoring become faster, thereby increasing employee productivity. Tasks that previously took a long time due to manual handling can now be managed digitally, enabling more efficient decision-making. This allows employees to concentrate more on data analysis and strengthening tax compliance strategies.

Reduction of Administrative Costs. The adoption of e-SPPT significantly reduces administrative costs by eliminating the need for physical printing and distribution of SPPT documents. The system also provides legally valid digital transaction records, minimizing expenses related to logistics and manual archiving.

Table 7.
 Administrative Cost Savings

Year	Manual SPPT Administrative Costs (Rp)	e-SPPT Administrative Costs (Rp)	Savings (Rp)
2020	950.000.000	-	-
2024	-	360.000.000	590.000.000

Source: Research Data, 2025

A savings of 62% allows budget allocation for human resource development and the improvement of digital tax infrastructure.

Data Quality in Decision-Making. The e-SPPT provides real-time, accurate data on payment status, billing amounts, and taxpayer identities. This information serves as a crucial foundation for evaluating policy effectiveness, mapping areas with low compliance, and formulating more targeted collection strategies.

Table 8.
 Contribution of PBB-P2 to Local Own-Source Revenue (PAD) in Nganjuk Regency, 2022–2024

Year	Realization of PBB-P2	Realization of PAD	Percentage	Contribution Criteria
2022	51.059.646.881	689.675.455.079	7,40%	Very Poor
2023	52.199.761.709	477.242.109.947	10,94%	Very Poor
2024	62.067.655.925	613.918.189.294	10,11%	Very Poor
Average			9,48%	Very Poor

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Source: Research Data, 2025

Although the contribution of PBB-P2 to regional revenue (PAD) remains relatively low (averaging 9.48%), the e-SPPT system has facilitated improvements in planning, monitoring, and revenue reporting. However, challenges such as low tax awareness, the effectiveness of tax collection, and limited outreach still need to be addressed in order to achieve greater optimization.

1.7. Discussion of Research Findings

The findings of this study indicate that the implementation of e-SPPT has significantly increased taxpayer compliance, rising from 55% in 2021 to 95% in 2024. This result aligns with Bestari (2020), who emphasized that e-SPPT has a strong influence on taxpayer compliance due to its ease of access and the availability of information. Similarly, it supports Marwiyah's (2023) findings that the implementation of e-SPPT in Probolinggo City was consistent with public policy implementation theory, particularly in terms of procedures, timeliness, and staff competence. In the case of Nganjuk Regency, this study found that e-SPPT service procedures have been implemented effectively, although challenges remain in terms of digital literacy and infrastructure.

The implementation of e-SPPT in Nganjuk Regency has also contributed to improving the efficiency of Bapenda staff through the digitalization of reporting and real-time monitoring of PBB-P2. This has streamlined validation processes and accelerated financial reporting to the Audit Board (BPK). These findings reinforce Anoraga's (2022) study, which demonstrated that tax service innovations, such as drive-thru systems, are effective and efficient in enhancing public satisfaction and convenience. In Nganjuk Regency, the easier access provided by e-SPPT offers similar benefits in the context of digitalization without requiring face-to-face interaction. In contrast to Prong et al. (2023), who found that the implementation of PBB-P2 collection in Sangihe Islands Regency did not comply with proper procedures, particularly in payment and collection, this study reveals that Nganjuk has carried out digital and systematic tax collection through the integration of e-SPPT with village-level reporting and monitoring procedures.

Taxpayers in Nganjuk Regency demonstrated high levels of satisfaction with e-SPPT, particularly regarding information transparency, reminder notifications, and the ease of digital transactions. This finding supports Wijayanti's (2021) study, which noted that the implementation of digital tax service systems has a positive impact on public perception, especially in terms of service accessibility and speed. However, although e-SPPT has enhanced efficiency and compliance, the contribution of PBB-P2 to Nganjuk Regency's Local Own-Source Revenue (PAD) remains relatively low, averaging only 9.48%. This finding contradicts assumptions in some previous studies, such as Bestari (2020), which suggested that improved compliance would automatically result in significant increases in regional revenue. This discrepancy is attributable to the specific characteristics of the research setting, where Nganjuk Regency continues to face low tax literacy and awareness in rural areas, as well as heavy reliance on revenue sources beyond PBB-P2.

This study also revealed several challenges affecting the effectiveness of e-SPPT implementation in Nganjuk Regency. These challenges can be categorized into internal and external factors. Internally, the limitations stem from inadequate infrastructure, such as insufficient server capacity, unstable internet networks, and restricted availability of devices and human resources. Externally, obstacles include low digital literacy among taxpayers, lack of outreach initiatives, and limited access to devices, particularly in rural areas and among the elderly. These conditions have led to low adoption rates of e-SPPT and disparities in PBB-P2 revenue realization across regions, ultimately limiting its contribution to local revenue (PAD). Therefore, the success of digital systems like e-SPPT requires stronger support in infrastructure, human resource development, and inclusive social strategies.

To address these challenges, the Nganjuk Regency Revenue Office (Bapenda) has implemented a range of strategies, both direct and indirect. Direct internal measures include upgrading server capacity, improving internet network quality, providing technical training for staff, and offering digital guidelines and IT support at the sub-district level. On the external side, direct efforts involve conducting outreach programs in villages, collaborating with banks and digital platforms to expand payment access, and offering incentives such as penalty waivers and prize lotteries. Indirect initiatives include integrating data with the Civil Registry

(Dukcapil) and the National Land Agency (BPN), developing internal SOPs, strengthening inter-agency coordination, and proposing regulations to support tax digitalization. These strategies are reinforced by data-driven evaluations and the establishment of annual KPIs to boost PBB-P2 realization and its contribution to PAD. This demonstrates that optimizing e-SPPT relies not only on technology but also on institutional commitment, inter-agency collaboration, and a more human-centered approach to the community.

IV. CONCLUSION

Based on the findings of the study conducted at the Nganjuk Regency Revenue Office (Bapenda), it can be concluded that the effectiveness of e-SPPT implementation in enhancing local revenue (PAD) falls into the fairly good category. The system has proven to facilitate access to tax services through improvements in system quality, information, service delivery, user satisfaction, and net benefits, all of which support the realization of PBB-P2 revenue. Nevertheless, the contribution of PBB-P2 to PAD remains relatively low, mainly due to limited taxpayer compliance, insufficient outreach programs, and uneven levels of digital literacy among the public. Key obstacles also include underdeveloped technological infrastructure, limited human resource capacity in managing digital systems, lack of intensive socialization efforts, and low technological proficiency among taxpayers, particularly in rural areas. To address these challenges, Bapenda Nganjuk has implemented various strategic measures, such as upgrading infrastructure and providing staff training, conducting direct community outreach, collaborating with external parties to expand digital payment access, and strengthening internal evaluation and monitoring mechanisms. These efforts are expected to improve the overall effectiveness of e-SPPT implementation and increase the contribution of PBB-P2 to Nganjuk Regency's PAD in the future.

Research Limitations: This study has several limitations. Firstly, its scope is confined to Nganjuk Regency, which means the findings cannot yet be generalized to other regions. Secondly, the descriptive qualitative approach used in this study does not allow for the quantitative measurement of causal relationships. Additionally, data collection through interviews may introduce subjective bias and does not cover all segments of taxpayers, particularly those with limited digital access. Furthermore, the relatively short research period and budget constraints restrict the ability to conduct long-term observations or more in-depth data analysis.

Future Research Directions: Future research can focus on the development of more advanced e-SPPT technology and its integration with regional financial information systems to enhance efficiency and transparency. Furthermore, it is important to analyze the social and cultural factors influencing taxpayers' adoption rates and to conduct long-term studies on the impact of e-SPPT usage on taxpayer compliance and the sustainable increase of Regional Original Revenue (PAD) in Nganjuk Regency.

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