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Analysis Of The Effectiveness Strategy Of E-Samsat In Increasing Motor Vehicle Tax Revenue At The Kisaran Pependa UPTD

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Abstract

This research was conducted at the Kisaran Regional Revenue Service Office (UPTD Pependa) to analyze the effectiveness of e-Samsat in increasing motor vehicle tax revenue, addressing the issue of low public participation in paying taxes through the e-Samsat application. The method used in this study was a qualitative research method with a descriptive approach. Data collection techniques used were field studies consisting of observation, interviews, and documentation. The findings indicate that E-Samsat is very efficient in improving internal administrative processes, reducing recording errors, and accelerating financial reporting. However, its effectiveness in increasing overall PKB revenue remains low, marked by minimal taxpayer participation (0.153%). This is due to uneven and ineffective socialization, as well as slow community adaptation due to low digital literacy, limited access to technology, and doubts about the security of online systems amidst rampant fraud and lack of education. The implication is that although E-Samsat is an efficient innovation, its full potential in increasing PKB revenue has not been achieved, requiring a more comprehensive and equitable socialization strategy, increased technological accessibility, and ongoing education to build public trust and digital literacy.

INTRODUCTION

Indonesia is one of many developing countries that relies on two primary sources of funding: foreign and domestic. Indonesia's largest source of revenue is taxes, which constitute a major component of domestic revenue. Taxes are the country's primary source of revenue, all of which are allocated to finance all expenditures and development implementation (Haryanti et al., 2022). Taxes can also be interpreted as a source of state income that has a large capacity to support government work programs in implementing transformation to support government goals (Hidayat & Gunawan, 2022). Through taxes, the government can provide various public services such as education, healthcare, infrastructure, and security. To increase the efficiency and ease of paying taxes, the government is developing digital innovations, one of which is online tax payment applications. Motor Vehicle Tax (PKB) revenue is one source of regional revenue. Factors influencing motor vehicle tax (PKB) revenue include the annual growth rate of vehicles, the efficiency of the payment system (manual or digital), penalties for late payments or violations, and service innovation.

In the digital era, the use of information technology is a key driver in improving the quality of public services, including tax payments. The use of computer technology, such as data processing and information management, is expected to increase efficiency and innovation in managing critical organizational data (Nurul Noviyana & Muhammad Irwan Padli Nasution, 2024). Limited access to information in manual systems also contributes to a lack of transparency. Transaction data and tax calculations stored in physical form are also difficult to access and share efficiently with stakeholders, including internal supervisors, external auditors, and even taxpayers

themselves. For the government, this can result in difficulties in optimizing tax revenue and inaccurate budget planning. Therefore, the urgent need to transition from a manual system to a more digitalized and integrated system is becoming increasingly clear.

According to Article 1, paragraph 2 of Law Number 28 of 2007, Taxpayers are defined as individuals or business entities, including taxpayers, tax withholding agents, and tax collectors who have tax rights and obligations in accordance with tax laws and regulations (Finrely & Ardiansyah, 2022). Taxpayers are divided into two categories: individuals and corporate taxpayers. Individual taxpayers include employees, entrepreneurs, or freelancers who earn income, while corporate taxpayers include PTs, CVs, foundations, firms, and other business entities.

However, its implementation still faces numerous challenges, such as low taxpayer participation in online payments and the continued use of manual systems for recording and payment, leading to a lack of transparency in both tax calculations and transaction recording. Therefore, financial management through e-Samsat (the Taxpayer Identification System) is crucial to improve the effectiveness and efficiency of tax administration and encourage greater tax compliance.

To facilitate taxpayers' motor vehicle tax payments and as an innovation in information technology development, the government developed Electronic Samsat (the "Samsat"), or e-Samsat. E-Samsat facilitates taxpayers' online tax payments (Dewi & P, 2019). One concrete manifestation of digital transformation in the government sector is the presence of an electronic tax payment system, known as e-Samsat. In accordance with Presidential Regulation Number 5 of 2015 Article 22 paragraph 1 concerning the Implementation of the One-Stop Integrated Administration System, it states that improving the quality of services at the Joint Samsat Office can be done by establishing a National Online Samsat (e-Samsat). E-Samsat is an alternative service for paying Motor Vehicle Tax (PKB), Compulsory Road Traffic Accident Fund Contributions (SWDKLLJ), and Annual Vehicle Registration Certificate (STNK) electronically through Bank Channels (ATM, Mobile Banking, and Internet Banking) (Sanda et al., 2022). E-Samsat or Electronic Samsat System is a service provided by Samsat for electronic banking payments or vehicle tax payment methods made via designated ATMs (Maulana & Septiani, 2022). The presence of this application is to achieve efficiency in paying motor vehicle tax so that the tax payment process is simpler and faster (Noo et al., 2023). By leveraging information and communication technology, e-Samsat offers convenience, speed, and transparency in vehicle tax payments, which can be linked to various strategies underlying the system's implementation, both from the government and the users.

In this context, strategy is the tools used to achieve industry goals and the consumption of the methods and allocation of resources needed to achieve these goals (Nasution & Rahma Aini, 2022). This way, the public can fulfill their obligations anywhere and anytime, without having to physically visit the office. The implementation of e-Samsat is expected to have a significant positive impact on the effectiveness and efficiency of overall tax administration.

The Kisaran Regional Technical Implementation Unit (UKM) began implementing the e-Samsat application in 2019. This step is part of the local government's initiative to improve the effectiveness and efficiency of tax administration and facilitate tax administration payments without having to visit the Samsat office in person. However, although the application is available and accessible to the public, the first year of implementation was relatively low, as evidenced by the very small number of taxpayers making online payments. The following data shows the growth in taxpayer payments via the e-Samsat application from the previous year.

Table 1. Taxpayer Growth Through The E-Samsat Application

Year	Number of Online Taxpayers	Growth from previous year (%)
2020	97	-
2021	112	15,46
2022	130	16,07
2023	157	20,77
2024	235	49,68

Source: UPTD PEPENDA Kisaran

Based on Table 1 above, the Kisaran UPTD PEPENDA shows a significant upward trend in the number of taxpayers using e-Samsat each year. In 2020 and 2021, e-Samsat users were still relatively few, possibly due to the initial stages of socialization or limited access. 2022 and 2023 showed positive growth, at 16.07% and 20.77%, respectively. A significant spike occurred in 2024, with an increase of 49.68% compared to the previous year.

Effectiveness is a measure that indicates the quantity, quality, time required to achieve a target, and the extent to which it has been achieved (Pajak et al., 2024). Effectiveness in this context refers to the ability of a tax administration system to achieve its objectives, including improving taxpayer compliance, expanding the tax base, and increasing regional revenue. Effectiveness is used to assess the extent to which work is done well and the extent to which an individual can produce results that meet expectations (Nouval et al., 2023). Meanwhile, efficiency emphasizes optimizing the use of available resources, including increasing the productivity of tax officials and minimizing the potential for administrative errors and inefficient practices. Effectiveness is measured based on three factors:

Goal achievement: the overall effort to achieve goals must be viewed as a process. Therefore, to ensure the achievement of the final goal, a gradual approach is necessary, both in terms of the phased achievement of its parts and in terms of its periodicity (Balqist Putri Zahrani & Khairul Amri, 2024). Integration is a strategic step in creating an efficient, responsive, and modern system. Integration is a measure of an organization's ability to socialize, develop consensus, and communicate with other organizations (Fajriyanti et al., 2022). And finally, adaptation is the organization's ability to adjust to its environment (Maghfira et al., 2023). Adaptation means adjusting strategies, work systems, and services to external factors such as technological developments, new regulations, and community needs.

Efficiency refers to optimizing the use of existing resources without waste, with the goal of achieving optimal results. The Big Indonesian Dictionary (KBBI) defines efficiency as the ability to complete tasks well and accurately while saving time, energy, and costs (Maulana & Septiani, 2022). Efficiency means performing tax administration tasks in the most efficient manner in terms of time, cost, labor, and other resources, without compromising the quality of service or the effectiveness of achieving objectives. With efficient processes, tax administration officers can complete more work in the same amount of time while maintaining quality. An operational process can be said to be efficient if a specific product or work result can be achieved with the lowest possible use of resources and costs (Yuni Tirtasari Siallagan & Kusmilawaty Kusmilawaty, 2023). An efficient system tends to have a lower error rate due to structured processes and reduced potential for errors in tax calculations and transaction recording.

Tax administration is a dynamic or continuous activity involving recording, classifying, storing, and providing services to taxpayers at the Tax Office (Pertiani et al., 2021). In the self-

assessment system, the tax administration plays an active role in carrying out the tasks of guidance, supervision and the application of sanctions for delays in fulfilling tax obligations based on the provisions outlined in tax regulations (Hertati, 2021). With the increasing complexity of economic activities and demands for transparency and public accountability, the tax administration system is required to continuously adapt and innovate. Digitizing the tax system through the application of information technology is one of the strategic steps taken by the government to improve taxpayer compliance and optimize state revenues.

Motor Vehicle Tax revenue is a regional tax that serves as a source of regional finance drawn from various revenue sources within the regional government, consisting of regional taxes, regional levies, proceeds from the management of separated regional assets, and other legitimate regional original revenues (Irsan, 2022).

A large portion of the Motor Vehicle Tax (PKB) is used to fund the development and maintenance of road infrastructure, public transportation, and traffic facilities. Motor vehicle tax (PKB) is a tax imposed on the ownership/control of motorized vehicles, including all wheeled vehicles used on roads and powered by motors. PKB is a type of regional tax that is important for regional revenue and is used to finance infrastructure development, such as roads and public transportation.

However, many challenges remain regarding the effectiveness of the e-Samsat application. These include: Many people do not fully understand how to use the online tax payment application or platform; Not everyone has adequate access to technological devices or a stable internet connection; Some people may feel doubtful or distrustful of the security and reliability of the online payment system; this can be a barrier to online tax payments. While tax payments continue to increase annually, they are not commensurate with the number of taxpayers. However, this application significantly helps people living outside the city fulfill their tax obligations by paying online through the e-Samsat application. So that with the e-Samsat service, it can also reduce long queues at Samsat offices, especially during the Covid-19 pandemic (Balqist Putri Zahrani & Khairul Amri, 2024).

Research from (Opit et al., 2024) The study, entitled "The Effectiveness of Implementing e-Samsat-Based Online Payments in Motor Vehicle Tax Collection at the Regional Revenue Agency of North Sulawesi Province," found that e-Samsat-based payments were quite effective in PKB (Vehicle Tax) collection. However, the study also indicated that the PKB target had not been fully met due to a lack of public understanding of the collection system and inadequate outreach.

In a study by (Maghfira et al., 2023) with the title The Effectiveness of the Implementation of E-Samsat Services by the Regional Revenue Agency of West Java Province in an Effort to Increase Public Compliance in Paying Motor Vehicle Taxes in the City of Bandung with the results of the study that the implementation of e-Samsat services carried out by the Regional Revenue Agency of West Java which is supported by adequate infrastructure for making payments through e-Samsat namely strategic ATM locations and spread everywhere is not enough to make people start switching to paying taxes through the e-Samsat service, socialization has also been optimized in various ways but has not been effective enough to increase public awareness and compliance in paying taxes, especially through e-Samsat because taxpayers who pay taxes through the e-Samsat service are still below 2%.

In the study (Fajriyanti et al., 2022) The study, entitled "The Effectiveness of the Online Motor Vehicle Tax Collection System (E-Samsat) at the Regional Revenue Management Center of Bandung I Rancaekek Regency," found that the online motor vehicle tax collection system (e-

Samsat) has been operating quite well. However, several dimensions require improvement, such as the adaptation indicator. This adaptation dimension has not been sufficiently implemented due to shortcomings in infrastructure, such as the lack of facilities to support e-Samsat validation requirements. Furthermore, many people still experience difficulties accessing the application, often unable to find the taxpayer's vehicle registration number.

Based on the previous research mentioned above, the connection between this study and the previous research is the vehicle tax collection system through e-Samsat. The e-Samsat application has been proven to significantly simplify the motor vehicle tax payment process in several regions. By utilizing digital technology, this application allows taxpayers to make payments online without having to physically visit the tax office. This not only saves time and effort but also reduces queues and crowds at payment locations. Furthermore, e-Samsat also increases transparency and accountability in tax management, as all transactions are recorded electronically. However, despite this effectiveness, many challenges remain, such as not all people have adequate access to technological devices and a stable internet connection. Another challenge is that many people lack understanding of how to use online tax payment applications, and remain uncertain about the security and reliability of online tax payment systems.

This study aims to analyze the effectiveness and efficiency of the e-Samsat application in increasing motor vehicle tax revenue. This study aims to evaluate the extent to which the e-Samsat application can simplify the motor vehicle tax payment process, reduce the time and costs required by taxpayers, and increase transparency and accountability in tax management. Furthermore, this study aims to identify challenges faced by the public in using the application and provide recommendations for further improvement and development. Therefore, this research is expected to make a significant contribution to understanding the role of technology in tax administration and encourage increased tax compliance among the public.

METHODS

This research was conducted at the UPTD PEPENDA Kisaran, Asahan Regency, North Sumatra Province. The research method used was a qualitative method with a descriptive approach. According to (Rahmani, 2022) Qualitative research describes research that uses scientific methods to reveal a phenomenon by describing data and facts through words comprehensively regarding the research subject. This means that researchers collect data and focus on rich and detailed descriptions, through interviews, observations, and documentation supported by SWOT analysis. SWOT analysis is a strategic method used to identify and evaluate Strengths, Weaknesses, Opportunities, and Threats. The informants in this study were the Head of the UPTD, Tax Payment Administration, and Taxpayers who pay online. The data obtained were then analyzed through data analysis, namely data collection, data editing, data presentation, and drawing conclusions from the data obtained.

RESULTS AND DISCUSSION

Background to E-Samsat Implementation

E-Samsat is a government-provided service to facilitate document processing and motor vehicle tax payments (Huwaidaa et al., 2024). Based on an interview with the Head of the Kisaran UPTD PEPENDA (Regional Revenue Administration Unit), the e-Samsat application has been implemented since 2019 and provides significant benefits for staff in recording transactions and reducing errors in financial reports. This application also makes it easier for the public to pay

taxes without having to come directly to the office and queue, thus saving time. Since its implementation, the number of taxpayers paying through e-Samsat has begun to increase annually, although it remains relatively low.

Taxpayer Perspective

Based on interviews with several taxpayers in the Kisaran UPTD PEPENDA (Regional Tax Administration) work area, it was found that the implementation of the e-Samsat application significantly facilitates the payment of motor vehicle taxes.

Wahyu, one of the taxpayers interviewed, stated that the use of the e-Samsat application is very helpful, especially for those who live far from a Samsat office. He said:

> "*The e-Samsat application makes paying taxes very easy. I no longer need to go to the Samsat office and wait in line. I can simply open the application from home; the process is fast and convenient*." (Interview with Wahyu, 2025)

This statement demonstrates that the digitization of tax services through e-Samsat has had a positive impact on time efficiency and ease of access for the public. Taxpayers can fulfill their tax obligations without having to interrupt their primary activities.

However, Wahyu also revealed that technical difficulties still frequently occur, especially when the internet connection is unstable. He explained:

> "*Sometimes the application is difficult to open when the internet connection is weak. I have to try repeatedly to log in and pay*." (Interview with Wahyu, 2025)

This shows that although the e-Samsat application is considered effective, limited internet network infrastructure is a major obstacle to its implementation in the field.

Meanwhile, Ikbal, another taxpayer, shared a similar view. He believes the e-Samsat application provides a practical solution for people with high mobility. In the interview, he stated:

> "*I think this application is suitable for busy people who don't want the hassle. No need to queue, just open the application and pay immediately*." (Interview with Wahyu, 2025)

According to Ikbal, the motor vehicle tax payment feature via e-Samsat is very helpful for people who want to fulfill their tax obligations quickly without having to visit the Samsat office in person.

However, he also highlighted the same problem as Wahyu, namely unstable network access. He added:

> "*If the internet connection is weak, sometimes I worry that the payment won't go through or won't be recorded. So, you have to ensure a good signal before making a transaction."* (Interview with Wahyu, 2025)

Based on the statements of these two informants, it can be concluded that taxpayers generally have a positive perception of the e-Samsat implementation. This application is considered capable of increasing efficiency and convenience in paying motor vehicle taxes. However, technical obstacles such as limited internet access and concerns about the reliability of the online payment system remain, which require government attention so that future e-Samsat implementation can be more optimal and reach all levels of society.

Effectiveness Analysis Based on Three Factors

This research uses the theory of effectiveness which has three important factors: goal achievement, integration, and adaptation.

1. Goal Achievement

Achieving goals is seen as a process that requires stages, both in achieving its parts and its periodization. In this context, there are two main indicators:

a. Completion Time

According to the Tax Administration department, the e-Samsat tax payment system is very helpful. The payment process, which used to take a long time, can now be completed in minutes. Taxpayers no longer have to wait in long lines. This system significantly simplifies the administration process, as payments that previously had to be recorded manually are now automatically recorded by the system, reducing the risk of recording errors and speeding up financial reporting. Interviews indicated that the completion time indicators were appropriate, quite effective, and met standard operating procedures.

b. Target (Taxpayer Target)

Target indicators are used to measure the system's effectiveness in achieving taxpayer targets through e-Samsat. The following data shows the number of tax payments through e-Samsat from 2020 to 2024:

Table 2. Number of Tax Payments via E-Samsat in 2020-2024

Year	Number of Payers Through e-Samsat	Total Motor Vehicle Tax Payers	Percentage (%)
2020	97	476.097	0,02
2021	112	476.097	0,02
2022	130	476.097	0,03
2023	157	476.097	0,03
2024	235	476.097	0,05

Source: UPTD PEPENDA Kisaran, 2025

Based on the table above, the number of motor vehicle taxpayers paying their taxes online through e-Samsat shows an increasing trend every year. However, overall participation remains very low. Over the past five years, only 731 taxpayers have paid online. Of the 476,097 taxpayers, e-Samsat utilization rate is only 0.153%. This indicates that despite the increase, the majority of taxpayers still pay their taxes manually or conventionally, resulting in suboptimal system utilization.

2. Integration

Integration is a measure of an organization's ability to socialize, build consensus, and communicate with other organizations. Integration is a strategic step in creating an efficient, responsive, and modern system.

The Kisaran UPTD PEPENDA (Regional Tax Office) conducted outreach to introduce the e-Samsat application through brochure distribution, banner installation, and social media. However, outreach was only conducted in busy areas such as shopping malls. According to the Head of the Kisaran UPTD PEPENDA:

"*Brochures were distributed only in busy areas, and outreach was also conducted through social media because social media is now more frequently viewed by the public at any time, and it also doesn't take much time.*" (Interview with the Head of the Kisaran UPTD PEPENDA, 2025)

Based on this statement, integrated outreach has not been effective because outreach is not evenly distributed, limited to busy areas. Outreach through social media is also less effective because not everyone has access to social media. It would be better if outreach were conducted

directly and evenly across various areas, including those far from busy centers and Samsat offices.

3. Adaptation

Adaptability is an organization's ability to adjust to its environment. Adaptation means adjusting strategies, work systems, and services to external dynamics such as technological developments, new regulations, and societal needs.

a. Internal Adaptation (Employees)

Based on interviews with administrative staff, they have received training on how to operate the e-Samsat application and adapt work procedures to the automated tax recording system:

"We were used to a manual system, but since the e-Samsat application was introduced, we've started learning and receiving guidance. We also received training on how to use the e-Samsat application, which has been very helpful. Gradually, all staff are also becoming accustomed to using e-Samsat, which has made our work much easier." (Interview with administrative staff, 2025)

This demonstrates that the organization's internal adaptation process is supportive. Staff understand how to operate e-Samsat and are ready to serve those who have difficulty using the online payment application.

b. External Adaptation (Society)

From the community's perspective, adaptation is slower. Several influencing factors include:

1) Low digital literacy among the public
2) Minimal public awareness of e-Samsat procedures
3) Limited access to the internet and electronic devices
4) Public doubts about the security and reliability of digital systems

Effectiveness in Increasing Motor Vehicle Tax Revenue

Based on research conducted at the Kisaran Regional Tax Administration Unit (UPTD PEPENDA), it was found that the implementation of the e-Samsat application has significantly contributed to streamlining the motor vehicle tax administration process and increasing time efficiency for both the public and tax officials. However, in terms of effectiveness in increasing motor vehicle tax revenue, the research results indicate that this system has not yet fully achieved its objectives, particularly in expanding the taxpayer base and driving a significant increase in regional revenue.

The Head of the Kisaran UPTD PEPENDA stated that since the implementation of e-Samsat in 2019, there has been an increase in the number of taxpayers paying their taxes online each year. In an interview, he explained:

"*Since e-Samsat was implemented, there has indeed been an increase in the number of taxpayers paying their taxes through this application every year. However, when viewed as a total, the number is still relatively small. Most people still prefer to come directly to the office to pay their taxes.*" (Interview with the Head of the Kisaran UPTD PEPENDA, 2025)

This statement indicates that despite the increasing trend in e-Samsat use, its adoption rate among the public remains low. Based on data from the Kisaran UPTD PEPENDA (Regional Tax Office) (UPTD PEPENDA Kisaran), the number of motor vehicle taxpayers paying their taxes through e-Samsat during the 2020–2024 period was recorded at 731 out of a total of 476,097 taxpayers, or only 0.153%.

This indicates that the use of e-Samsat services has not significantly impacted the increase in motor vehicle tax revenue. The Head of the UPTD added that various obstacles still affect the system's effectiveness, particularly in terms of socialization and public readiness to utilize digital services. He said:

> "*The obstacles lie in socialization and public habits. Many still don't know how to use the e-Samsat application, and some are still hesitant due to fear of making mistakes or distrust of the online system*." (Interview with the Head of UPTD PEPENDA Kisaran, 2025)

In terms of achieving administrative goals, administrative officers revealed that the implementation of e-Samsat has helped speed up the service process and reduced the risk of recording errors. An administrative staff member stated:

> "*From our administrative perspective, e-Samsat is very helpful. The transaction recording process is automated, eliminating the need for manual input, making it faster and financial reports more accurate*." (Interview with administrative staff, 2025)

This statement reinforces the finding that e-Samsat's effectiveness is more evident in the internal efficiency of the organization than in directly increasing tax revenue. This means that the system has succeeded in creating faster, more transparent, and error-free administrative governance, but has not yet been accompanied by a significant increase in the number of taxpayers using the service.

From observations and interviews, it can be concluded that e-Samsat's effectiveness at the Kisaran UPTD PEPENDA is partial: the system is effective in supporting service efficiency and administrative convenience, but not yet fully effective in increasing motor vehicle tax revenue. To achieve optimal effectiveness, broader outreach efforts, increased public digital literacy, and expanded internet access are needed in areas with limited infrastructure.

Efficiency in the Tax Payment Process

Efficiency is a key pillar of modern public administration, emphasizing the optimization of resource use without waste, with the goal of achieving maximum results. In the context of public services, efficiency refers to an institution's ability to complete a task or achieve a goal using minimal time, effort, costs, and other resources while still producing high-quality results.

Interviews with the Kisaran UPTD PEPENDA (Regional Tax Administration Unit) revealed that the implementation of the e-Samsat system has significantly improved the efficiency of motor vehicle tax administration. The Head of the Kisaran UPTD PEPENDA explained that since the e-Samsat application was implemented, the process of recording transactions and preparing financial reports has become much faster and more accurate. He stated:

> "*Since e-Samsat was implemented, the staff's workload has been significantly reduced. Previously, we recorded tax transactions manually one by one, sometimes resulting in errors or duplicate data. Now, the system automatically records each payment directly, so financial reporting is faster and more accurate*." (Interview with the Head of the Kisaran Regional Tax Administration Unit (UPTD PEPENDA), 2025)

This statement demonstrates that the digitalization of the tax payment system has minimized the potential for administrative errors that were previously common in manual systems. Prior to e-Samsat, tax recording and calculation processes were still carried out physically, making them susceptible to input errors, reporting delays, and overlapping data. This resulted in low work efficiency and slow preparation of regional tax revenue reports.

The implementation of e-Samsat is considered successful in transforming the work system

into a faster and more transparent one. Tax payment transactions are now recorded in real time in a digital database, allowing officials to access tax information instantly and accurately. This process not only expedites service to taxpayers but also assists the finance department in preparing reports more systematically.

Field findings are also supported by statements from tax administration staff who stated that the presence of e-Samsat has significantly improved their daily work efficiency. One administrative staff member said:

> "*The e-Samsat tax payment system is very helpful. Previously, the process could take hours due to queuing and manual recording, but now it only takes a few minutes. Data is directly entered into the system and automatically recorded in reports. This significantly saves time and reduces recording errors*." (Interview with administrative staff, 2025)

This statement reinforces the importance of time and labor efficiency as the most tangible impact of e-Samsat. With an automated system, administrative staff can complete work more quickly without having to re-record. This has resulted in increased employee productivity and the quality of service to the public.

Furthermore, interviews indicate that the implementation of e-Samsat also improves financial transparency and accountability within the Regional Tax Service Unit (UPTD). All transactions are automatically recorded and can be easily tracked, reducing the possibility of irregularities or reporting errors.

Thus, it can be concluded that the implementation of e-Samsat at the Kisaran UPTD PEPENDA has successfully increased the efficiency of the motor vehicle tax administration and service processes, both in terms of time, labor, and data accuracy. However, to achieve optimal efficiency, stable technological infrastructure support and continuous training are needed for officers to be able to adapt to the ever-evolving digital system.

Obstacles to the Effectiveness of E-Samsat in Increasing PKB Revenue at the Kisaran PEPENDA UPTD

Based on research conducted at the Kisaran UPTD PEPENDA (Regional Tax Administration Unit) (UPTD PEPENDA Kisaran), it was found that while the implementation of the e-Samsat application has had a positive impact in terms of administrative efficiency and convenience for taxpayers, its effectiveness in increasing Motor Vehicle Tax (PKB) revenue is still suboptimal. Data obtained shows that despite an increase in the number of taxpayers paying through e-Samsat each year, the overall participation rate remains relatively low.

The Head of the UPTD PEPENDA Kisaran stated in an interview:

> "*Since e-Samsat was implemented, the number of taxpayers paying through the application has indeed increased every year, but when viewed as a total, the figure is still very small. Many people still prefer to come directly to the office to pay their taxes*." (Interview with the Head of UPTD PEPENDA Kisaran, 2025)

According to UPTD data, of the total 476,097 motor vehicle taxpayers, only around 731 (0.153%) have used the e-Samsat service in the past five years. This indicates that even though the system is available and functioning well, utilization remains low, resulting in a significant impact on increasing regional tax revenue.

One of the main factors contributing to the low level of taxpayer participation is the lack of equitable and sustained outreach. The Kisaran UPTD PEPENDA (Regional Tax Administration Unit) has undertaken various outreach efforts, such as distributing brochures,

putting up banners, and publicizing through social media. However, these efforts remain focused on busy centers like markets and shopping centers, thus not reaching all levels of society. The Head of the UPTD explained:

> "*We have conducted outreach through brochures and social media, but it is still limited. Direct outreach to the regions has not been optimal due to time and energy constraints. Furthermore, many people are unaware that they can pay their taxes via e-Samsat.*" (Interview with the Head of the Kisaran UPTD PEPENDA, 2025)

This statement indicates that the outreach strategy has not been effective, as it is uneven and does not reach areas with low digital literacy levels. Many people in remote or rural areas do not yet know how to use the e-Samsat application, so they continue to choose manual tax payments.

In addition to socialization factors, limited access to technology and internet networks is also a significant obstacle. An interview with an administrative employee revealed:

> "*The obstacles we often encounter come from the community itself. Some want to use e-Samsat but the internet connection in their area is unstable, or they don't have a smartphone capable of accessing the application.*" (Interview with administrative employee, 2025)

This indicates a significant digital divide between urban and rural communities. Not all taxpayers have adequate technological devices or stable internet access, even though these two are essential requirements for using the e-Samsat application. As a result, most people still rely on conventional methods, perceived as more reliable and secure.

Based on these field findings, it can be concluded that the main obstacles to e-Samsat's effectiveness include:

1. Low taxpayer participation due to a lack of outreach.
2. Limited technological infrastructure and internet networks.
3. Low digital literacy, especially in non-urban areas.

To address this issue, efforts are needed to increase more equitable and sustainable outreach, down to the village and sub-district levels, as well as in areas far from city centers. Outreach can be conducted through various methods, such as hands-on training, demonstrations of application usage, and collaboration with village officials and educational institutions.

An administrative employee also added a suggestion in an interview:

> "*If possible, hold direct training for the community. For example, at the village office or school, so they can learn how to use the e-Samsat application from start to finish.*" (Interview with administrative employee, 2025)

Furthermore, local governments are expected to improve the accessibility of technology and network infrastructure so that the e-Samsat system can be better accessed by all levels of society. This way, the application will not only be administratively efficient but also truly effective in increasing Motor Vehicle Tax revenue and supporting the comprehensive digitalization of public services.

SWOT Analysis of the Effectiveness Strategy of E-Samsat in Increasing Motor Vehicle Tax Revenue at the UPTD PEPENDA Kisaran

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a systematic identification of strategic factors to formulate a strategy. The purpose of this SWOT analysis is to maximize strengths and opportunities, while minimizing weaknesses and threats, in order to operate more optimally and make a real contribution. The following is a simple SWOT analysis

table related to the effectiveness of e-Samsat in increasing motor vehicle tax revenue at the Kisaran UPTD PEPENDA.

Table 3. SWOT Analysis of E-samsat Effectiveness Strategy

Strengths	Weaknesses	Opportunities	Threats
1. Increase tax administration efficiency. 2. Reduce recording errors and expedite financial reporting. 3. Save time for taxpayers and officials. 4. Payments can be processed without having to come to the office. 5. Provide regular training on using e-Samsat. 6. Provide a dedicated website for the Kisaran Regional Revenue and Tax Administration Unit (UPTD PEPENDA)	1. Very low taxpayer participation (0.153%) 2. Uneven socialization (only in crowded areas and on social media) 3. Low digital literacy among the public 4. Limited access to technology and the internet in some areas	1. Developing a broader and more comprehensive outreach strategy (including villages/sub-districts) 2. Digital literacy training for the community and village officials 3. Collaboration with educational institutions or community organizations 4. Increasing government access to digital devices 5. Creating understandable video tutorials, illustrated guides, and simulations for using e-Samsat	1. Public distrust of online systems due to the prevalence of digital fraud. 2. Potential stagnation in e-Samsat usage if there is no further education. 3. Internet network infrastructure is not evenly distributed across all regions. 4. Not everyone has access to social media. 5. Social media outreach is not sufficient to raise public awareness.

Source: Data processed 2025

Alternative Efforts from SWOT Analysis Results

Based on the SWOT analysis, strategies can be formulated to increase the effectiveness of e-Samsat at UPTD PEPENDA Kisaran which can be divided into several groups (SO, WO, ST, WT). The SO (Strengths-Opportunities) strategy is to utilize internal strengths to seize opportunities, such as optimizing the advantages of administrative efficiency, fast reporting, and system transparency by expanding socialization widely to villages/sub-districts, utilizing the official UPTD website and regular staff training to develop digital educational media such as video tutorials, illustrated guides, and simulations of e-Samsat usage, as well as collaborating with educational institutions, village officials, and community organizations to improve community digital literacy. The WO (Weaknesses-Opportunities) strategy is to minimize weaknesses by utilizing opportunities, such as addressing the low taxpayer participation (0.153%) with direct digital literacy training in villages/sub-districts, developing hybrid socialization (offline and

online) so that it is not only focused on crowded centers or social media, and striving for local governments to improve digital access and internet networks in areas with infrastructure gaps. The Strengths-Threats (ST) strategy leverages strengths to address threats, using data transparency, automated system security, and administrative efficiency as evidence to build trust among communities concerned about digital fraud. The Helpdesk feature, or a 24-hour assistance center, is available to respond to public complaints regarding application errors or network issues. The Weaknesses-Threats (WT) strategy mitigates weaknesses and avoids threats by developing a comprehensive outreach strategy, not only on social media (because not everyone has access) but also through village announcements and face-to-face meetings. The provision of direct assistance services at village/sub-district offices to assist communities with low digital literacy, and the provision of public Wi-Fi at service offices and villages to reduce barriers to internet access.

Based on the explanation of SO (Strengths-Opportunities), WO (Weaknesses-Opportunities), ST (Strengths-Threats), and WT (Weaknesses-Threats) strategies, strategies can be produced as a form of problem solving that exists in the low participation of taxpayers who pay taxes online in increasing motor vehicle tax revenue at UPTD PEPENDA Kisaran, the author developed a strategy by considering the following factors: Maximizing and developing socialization through social media and digital education to maximize the advantages of easy access with increasing internet use, conducting direct training to villages/sub-districts, collaborating with each village/sub-district to conduct direct e-Samsat socialization evenly and continuously, making video tutorials on using e-Samsat that are easy for the public to understand starting from how to install, register and make payments. The UPTD can also explain digital transparency and security by highlighting the advantages of the automated system as proof of security and accountability, thereby building public trust. Providing assurance to the public that the application has been tested for security by official agencies such as KOMINFO or BSSN. Propose improvements to digital infrastructure, such as the development of public Wi-Fi in village offices or public services, and the provision of a technical helpdesk for complaints or assistance for people who have difficulty using e-Samsat. The UPTD can also strengthen synergies with regional apparatus and community leaders to help reach people who are not yet familiar with the use of e-Samsat and expand services to be more equitable.

Discussion

The research results show that the implementation of e-Samsat at the Kisaran UPTD PEPENDA has positively contributed to increasing the efficiency of motor vehicle tax administration, particularly in terms of accelerating transaction recording and financial reporting. This finding reinforces the effectiveness theory proposed by (Huwaidaa et al., 2024), The effectiveness of a public organization can be measured by the extent to which the system achieves its goals, integrates between units, and adapts to environmental changes. In the context of e-Samsat, effectiveness is evident in the efficiency of service times and the accuracy of transaction data recording, which is now automated through a digital system.

Regarding goal achievement, interview results and UPTD data indicate that tax payment completion times have become shorter and more practical, in line with research findings (Balqist Putri Zahrani & Khairul Amri, 2024) and (Irsan, 2022) which states that e-Samsat accelerates the motor vehicle tax payment process and improves taxpayer convenience. However, user engagement remains low, reaching only 0.153% of the total 476,097 taxpayers during the 2020–2024 period. This indicates that while the system is administratively effective, its user reach is far

from optimal. A similar phenomenon was also found by (Fajriyanti et al., 2022) In North Sulawesi, e-Samsat is considered efficient but has not significantly increased regional tax revenue due to low public participation.

The second factor, integration, shows that the Kisaran UPTD PEPENDA (Regional Tax Administration Unit) has conducted outreach through brochures, banners, and social media, but these activities are not evenly distributed and have not reached communities in non-urban areas. The limited outreach strategy, limited to busy centers, reduces the effectiveness of public communication, resulting in many people not knowing how to use the e-Samsat application. These results align with the findings of (Maghfira et al., 2023) which explains that despite adequate supporting facilities, the low effectiveness of socialization is the main cause of the slow public adaptation to the e-Samsat system in West Java.

In terms of adaptation, this study found that administrative staff demonstrated good adaptive skills through training on system usage and digital record-keeping integration. This indicates positive organizational learning, as explained by (Pajak et al., 2024) Internal adaptation is a crucial factor in maintaining the sustainability of digital service systems. However, community adaptation has been slow due to limited digital literacy, minimal direct outreach, and limited network infrastructure in some areas. This situation emphasizes the digital divide, which remains a major obstacle to the equitable implementation of technology-based public services in the regions.

The research also shows that the effectiveness of e-Samsat is stronger in terms of internal efficiency than in increasing motor vehicle tax (PKB) revenue. The heads of UPTD (Regional Technical Implementation Units) and administrative staff emphasized that digitalizing the system makes work faster and more accurate, in line with the view of (Maghfira et al., 2023) Efficiency is defined as the ability to complete work optimally by saving time, effort, and costs without compromising service quality. E-Samsat has successfully created a real-time reporting system, minimizing recording errors, and improving regional financial accountability. Thus, this application is operationally effective but not yet substantively effective in driving increased tax revenue.

The main obstacle identified in this study is the low level of taxpayer participation due to uneven outreach, limited internet access, and low digital literacy. These results are consistent with research (Maulana & Septiani, 2022) and (Fajriyanti et al., 2022) This study highlights the importance of technological readiness and public digital education in supporting the successful digitalization of the tax system. Rural communities tend to lack adequate devices or networks, thus opting for conventional methods, which are considered safer and more reliable.

The SWOT analysis in this study confirms that e-Samsat's main strengths lie in administrative efficiency, transparency, and the accuracy of financial reports. Its weaknesses include low levels of taxpayer participation and uneven outreach. In terms of opportunities, developing digital-based outreach strategies, community literacy training, and increasing technology access could be potential solutions. However, threats include low public trust in the online system and limited network infrastructure. Therefore, strengthening strategies need to be directed at cross-sector collaboration between local governments, village officials, educational institutions, and the community.

The strategies resulting from the SWOT analysis indicate that increasing e-Samsat's effectiveness can be achieved through four main approaches:

1. SO Strategy – Optimizing the advantages of an efficient system by expanding outreach to villages/sub-districts through digital education and visual media such as video tutorials.

2. WO Strategy – Addressing outreach weaknesses by developing hybrid (offline-online) training and strengthening network infrastructure in remote areas.
3. ST Strategy – Building public trust through ensuring system security and responsive helpdesk services.
4. WT Strategy – Expanding direct assistance services and providing public Wi-Fi access in public service areas.

Thus, the results of this study confirm that the effectiveness of e-Samsat at the Kisaran UPTD PEPENDA is partial: efficient in terms of administration and reporting, but not yet optimal in increasing PKB revenue. To achieve comprehensive effectiveness, an integrative strategy based on community digital empowerment, expanding technology networks, and increasing the intensity of outreach is needed. Theoretically, these findings enrich the literature on the effectiveness of digital public services by emphasizing the importance of balancing system efficiency and community social preparedness in facing the digital transformation of the tax sector.

CONCLUSION

Based on the results of research on the effectiveness strategy of e-Samsat in increasing Motor Vehicle Tax (PKB) revenue at the Kisaran UPTD PEPENDA, the following conclusions can be drawn:

1. The implementation of e-Samsat has generally been effective in terms of administrative efficiency and public service. This system accelerates the tax payment process, minimizes recording errors, and improves the accuracy of financial reports through automatic, real-time transaction recording. For the administration, e-Samsat has provided significant benefits in expediting work and increasing financial transparency.
2. The effectiveness of e-Samsat in increasing motor vehicle tax revenue remains relatively low. Data shows that only around 0.153% of the total 476,097 taxpayers made payments through e-Samsat in the last five years (2020–2024). This means that despite an increasing trend in annual usage, its contribution to regional tax revenue is not yet significant.
3. The main obstacles to e-Samsat's effectiveness include a lack of dissemination, which is uneven and has not yet reached communities in non-urban areas, low digital literacy, and limited access to internet networks and digital devices. These factors slow the community's adaptation to the digital-based tax payment system. 4. The SWOT analysis demonstrates the need for a collaborative and integrated strategy between local governments, village officials, educational institutions, and the community. Possible strategies include: expanding digital outreach and education to the village level, developing educational media such as video tutorials on using the e-Samsat application, providing helpdesk facilities or community assistance, and improving network infrastructure and public Wi-Fi access in service areas.

Thus, it can be concluded that e-Samsat is internally efficient but not yet fully effective externally in driving increased PKB revenue. Sustainability efforts need to focus on improving public digital literacy, equitable distribution of technological infrastructure, and strengthening public trust in the security and reliability of digital systems. This optimization is expected to achieve more modern, inclusive, and effective tax services for increasing regional revenue.

REFERENCE

Balqist Putri Zahrani, & Khairul Amri. (2024). Efektivitas Pelayanan E-Samsat Riau Dalam Upaya

Peningkatan Penerimaan Pembayaran Pajak Kendaraan Bermotor di Kota Pekanbaru. *Journal of Research and Development on Public Policy*, *3*(2), 01–10. https://doi.org/10.58684/jarvic.v3i2.134

Dewi, I. G. A. M. R., & P, K. W. L. (2019). Efektivitas E-Samsat, Pajak Progresif Dan Kualitas Pelayanan Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor. *Jurnal Ilmiah Akuntansi Dan Bisnis*, *4*(1), 50. https://doi.org/10.38043/jiab.v4i1.2151

Fajriyanti, N., Kusumadewi, R., & Wahyu, F. P. (2022). Efektivitas Sistem Pemungutan Pajak Kendaraan Bermotor Melalui Online (E-Samsat) Pada Pusat Pengelolaan Pendapatan Daerah Wilayah Kabupaten Bandung I Rancaekek. *Jurnal Dialektika: Jurnal Ilmu Sosial*, *20*(2), 95–109. https://doi.org/10.54783/dialektika.v20i2.74

Finrely, C., & Ardiansyah, A. (2022). Efektivitas Penghapusan Sanksi Administrasi Perpajakan Melalui Program Pengungkapan Sukarela Dalam Meningkatkan Kepatuhan Pajak Sukarela. *Jurnal Kewarganegaraan*, *6*(2), 4365–4374.

Haryanti, M. D., Pitoyo, B. S., & Napitupulu, A. (2022). Pengaruh Modernisasi Administrasi Perpajakan, Pengetahuan Perpajakan, Sosialisasi Perpajakan Dan Sanksi Perpajakan Terhadap Kepatuhan Wajib Pajak Orang Pribadi Di Wilayah Kabupaten Bekasi. *Jurnal Akuntansi Dan Perpajakan Jayakarta*, *3*(02), 108–130. https://doi.org/10.53825/japjayakarta.v3i02.105

Hertati, L. (2021). *Pengaruh Tingkat Pengetahuan Perpajakan dan Modernisasi*. *2009*, 59–70.

Hidayat, I., & Gunawan, S. (2022). Kesadaran Wajib Pajak, Sanksi Perpajakan dan Kualitas Pelayanan Perpajakan terhadap Kepatuhan Wajib Pajak dalam Membayar Pajak Bumi dan Bangunan. *Manazhim*, *4*(1), 110–132. https://doi.org/10.36088/manazhim.v4i1.1625

Huwaidaa, N., Kamilah, K., Islam, U., & Sumatera, N. (2024). Analisis Efektivitas Program E-Samsat Dalam Pengoptimalisasi Penerimaan Pajak Kendaraan Bermotor (Studi Pada Uptd Ppd Medan Selatan Bapenda Provinsi Sumatera Utara). *Jurnal Masharif Al-Syariah: Jurnal Ekonomi Dan Perbankan Syariah*, *9*(204), 595–602.

Irsan, M. (2022). Analisis Efektivitas Pembayaran Pajak Kendaraan bermotor (PKB) Terhadap Penerimaan Pajak Kendaraan Bermotor. *Balance : Jurnal Akuntansi Dan Manajemen*, *1*(2), 267–272. https://doi.org/10.59086/jam.v1i2.136

Maghfira, S. A., Sagita, N. I., & Sutisna, J. (2023). Efektivitas Penerapan Layanan E-Samsat Oleh Bapenda Provinsi Jawa Barat Dalam Upaya Meningkatkan Kepatuhan Masyarakat Membayar Pajak Kendaraan Bermotor di Kota Bandung. *Jurnal Administrasi Pemerintahan (JANITRA)*, *3*(1), 75–86.

Maulana, M. D., & Septiani, D. (2022). Pengaruh Layanan Samsat Keliling, E-Samsat dan Sanksi Perpajakan Terhadap Kepatuhan Wajib Pajak Kendaraan Bermotor. *Jurnal Akuntansi*, *14*(2), 231–246.

Nasution, M. L. I., & Rahma Aini. (2022). Marketing Strategy for Financing Products of PT. Bank of North Sumatra KCP Syari'ah Simpang Kayu Besar. *Jurnal Ekonomi Manajemen Akuntansi Dan Keuangan*, *3*(Marketing Strategy for Financing Products of PT. Bank of North Sumatra KCP Syari'ah Simpang Kayu Besar Strategi Pemasaran Produk Pembiayaan PT. Bank Sumut KCP Syari'ah Simpang Kayu Besar), 951–958.

Noo, H. H., Nurlaila, N., & Ahmad, N. F. (2023). Analisis Efisiensi Dan Efektivittas Penerimaan Pajak Kendaraan Bermotor (PKB) Dan Bea Balik Nama Kendaraan Bermotor (BBNKB) Pada Kantor Badan Pengelolaan Pajak Dan Retribusi Daerah Provinsi Sumatera Utara (BPPRDSU). *Jemba: Jurnal Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *2*(4), 615–624.

Nouval, A. F., Harahap, R. D., & Nasution, Y. S. J. (2023). Efektivitas Penerapan Sistem Dan Prosedur Akuntansi Aset Tetap Pada Badan Keuangan Dan Aset Daerah Sumatera Utara (Bkad). *Jurnal Akuntansi AKTIVA*, *4*(2), 149–158. https://doi.org/10.24127/akuntansi.v4i2.4842

Nurul Noviyana, & Muhammad Irwan Padli Nasution. (2024). Penerapan Teknologi Informasi Untuk Efektivitas dan Efisiensi Pengolahan Data Mahasiswa. *Jurnal Ilmiah Research and Development Student*, *2*(1), 152–160. https://doi.org/10.59024/jis.v2i1.578

Opit, A. N., Budiarso, N. S., & Tangkuman, S. (2024). Efektivitas penerapan pembayaran online berbasis e-Samsat dalam penerimaan pajak kendaraan bermotor pada Badan Pendapatan Daerah Provinsi Sulawesi Utara. *Riset Akuntansi Dan Manajemen Pragmatis*, *2*(2), 172–182. https://doi.org/10.58784/ramp.103

Pajak, P., Online, Y., Badan, D. I., Kota, K., Islamyathi, A., Krystan, N., Gobel, L. Van, & Kadir, J. (2024). *3 1,2,3*. *4*(3), 9796–9802.

Pertiani, K., Saladin, H., & Jusmani, J. (2021). Analisis Penerapan Modernisasi Sistem Administrasi Perpajakan Pada KPP Pratama Seberang Ulu. *Jurnal Media Akuntansi (Mediasi)*, *3*(2), 182–196. https://doi.org/10.31851/jmediasi.v3i2.5491

Rahmani, N. A. B. (2022). Metodologi Penelitian Kualitatif dan Kuantitatif. In *Rahmani*.

Sanda, I. H., Walewangko, E. N., & Masioman, I. (2022). Analisis Sebelum dan Sesudah Penerapan E-Samsat Terhadap Penerimaan Pajak Kendaraan Bermotor di Kantor Samsat Manado. *Jurnal Berkala Ilmiah Efisiensi*, *22*(7), 61–67.

Yuni Tirtasari Siallagan, & Kusmilawaty Kusmilawaty. (2023). Efisiensi Realisasi Anggaran Belanja Dan Kinerja Keuangan Pada Badan Kepegawaian Dan Pengembangan Sumber Daya Manusia Pematang Siantar. *Jurnal Penelitian Ilmu Ekonomi Dan Keuangan Syariah*, *2*(1), 165–176. https://doi.org/10.59059/jupiekes.v2i1.879