Jurnal Sosial, Sains, Terapan dan Riset (**Sosateris**)
ISSN 2829-7261 (Online) | 2303-3002 (Print)
Volume 13, No. 2, 2025, pp. 91-106

Implementation of Public Services in E-Government-Based Parking Management at the Palangka Raya City Transportation Department in Achieving Good Governance

Rendy Rahmatullah Birowo [1], Ani Nugroho [2], Heriamariaty [3]

[1]Master of Law Study Program, Faculty of Law, Universitas Palangka Raya
[2,3] Faculty of Law, Universitas Palangka Raya

Abstract: In the era of digitalization, optimizing public services has become a crucial aspect of achieving good governance. One of the innovations in public service is the implementation of e-government in parking management. Palangka Raya City faces challenges in parking management, such as disorder, congestion, and potential revenue leakage. To address these issues, the Palangka Raya City Transportation Department has begun implementing an e-government-based parking system to enhance transparency, efficiency, and accountability. However, challenges remain, including infrastructure readiness, human resource skills, and public acceptance of the digital system. This study aims to evaluate the effectiveness of e-government implementation in parking management and its contribution to the quality of public services and good governance. A qualitative approach with a case study method is used in this research. Data collection techniques include interviews, field observations, and document analysis. Descriptive analysis is employed to interpret findings and provide insights into the implementation of the e-government-based parking system. The results indicate that the e-government-based parking system in Palangka Raya has improved transparency and regional revenue management. However, challenges such as inadequate infrastructure, limited digital literacy, and resistance from parking operators remain obstacles. This study recommends enhancing technological support, providing training for stakeholders, and conducting awareness campaigns to ensure the smooth adoption of the digital parking system. The results of this research contribute to the development of e-government policies in other sectors by emphasizing strengthening infrastructure, improving human resource competencies, integrating digital services, and developing evidence-based policies to improve effectiveness, transparency, and responsiveness to community needs.

Keywords: Public Services; Parking Management System; E-Government; Good Governance

Correspondence:
Name: Rendy Rahmatullah Birowo
Emil: rendybirowo@gmail.com

Received: Feb 23, 2025
Revised: Mar 17, 2025
Accepted: Jun 07,2025
Published: Jun 30, 2025

1. Introduction

Public service is one of the important aspects of good governance. Public services cover basic human needs for survival and development, such as education, health services, employment, and social security, which are an important part of the public welfare system provided by local governments (Cepiku & Mastrodascio, 2021; Zamroni, 2019).

In an effort to improve the quality and efficiency of public services, the government is increasingly adopting e-government, which is the use of technology in the government sector to change the work system from manual or non-electronic to digital-based (Suriadi et al., 2022). With the implementation of e-government, administrative processes and public services can become more transparent, fast, and easily accessible to the public (Rachmawati & Fitriyanti, 2021).

The implementation of e-government in public services aims to increase transparency, accountability, and efficiency in the delivery of services to the community (Abbas et al., 2024; Alcaide Muñoz et al., 2017). One form of e-government implementation that is increasingly developing is a digital-based parking management system, which allows parking monitoring and payment to be carried out in a more structured and transparent manner (Hutabarat et al., 2022).

The advancement of digital technology has had a major impact on various aspects of public services, including parking management. Parking issues are now a major concern, especially with the increasing number of vehicles in urban areas (Wangi et al., 2024). The imbalance between the availability of parking spaces and the high demand results in congestion and disruption on the roads, which leads to a decrease in the convenience and quality of life of the community (Sedarmayanti, 2007). In fact, the parking issue has evolved into a political issue that has prompted the government to initiate various programs and design strategic projects to find a quick and effective solution to this problem (Rahman & Ufiteyezu, 2024).

Various previous studies have discussed the implementation of e-government in parking management from various perspectives. Research on e-parking in Surabaya City highlights how digitalization in the parking system can increase the transparency and effectiveness of public services (Permana et al., 2023). However, the research focuses more on the basic concept of e-parking, without reviewing in depth how the implementation of this system can strengthen the principles of good governance. Meanwhile, the research in Sinjai District highlights the impact of parking retribution policy in the perspective of good governance, by emphasizing factors that affect the quality of parking management, such as human resources, facilities and infrastructure, and retribution management system (Ramdhan et al., 2024). However, this research does not specifically discuss how the application of digital technology can overcome these problems and improve efficiency in parking management. In addition, existing research focuses more on the technical aspects and efficiency of digital-based parking systems such as research by Putra & Hidayat (2023); Zein (2023).

While there has been talk of the positive effects of e-government integration in recent years, its relationship with common factors related to the quality and equity of public services has not been widely explored. Hence, not much attention has been paid to the link between e-government integration and public services (Li et al., 2017).

Parking problems in Palangka Raya are increasingly complex due to insufficient public transportation, increasing reliance on private vehicles, and inadequate parking infrastructure. Limited public transportation makes people dependent on private vehicles, thus increasing traffic and demand for parking spaces (Marbun et al., 2024). In addition, the absence of Intelligent Transportation Systems (ITS) hinders the availability of real-time parking information, which exacerbates the situation (Ibrahim, 2017). The lack of designated parking spaces leads to illegal parking and traffic congestion due to the absence of effective mapping and management (Ibrahim, 2017). The impact is increasingly felt by low-income communities facing limited access to affordable transportation, exacerbating their economic difficulties (Marbun et al., 2024). Furthermore, the enhancement of public transportation infrastructure can reduce reliance on private vehicles and alleviate parking demand (Widjaya, 2024). However, expanding parking capacity without sustainable solutions risks encouraging more private vehicle use, so a balanced approach that prioritizes sustainable transport is needed (Ismiyati et al., 2018).

On the other hand, the high level of revenue leakage from conventional parking systems is also a significant issue, often reaching more than 80% in some contexts. This is due to inefficient management, lack of technology, and widespread illegal parking practices. Research in Samarinda indicates that taxpayers' compliance with parking taxes is very low, due to weak supervision and limited public awareness (Praditya et al., 2024). The phenomenon of illegal parking also drastically reduces revenue, as found in a study that revealed 83.56% revenue leakage due to illegal parking (Sari et al., 2023). Technological solutions such as IoT and AI have the potential to improve compliance and efficiency in the parking process, as well as reduce significant revenue leakage (Risqullah & Rosyid, 2022). In addition, utilizing data-driven dynamic pricing models can increase parking revenue by up to 15% and improve inefficiencies in pricing strategies (Risqullah & Rosyid, 2022). Although the current revenue leakage is very detrimental, the

integration of technology and management improvements can help optimize parking revenue and reduce losses.

However, despite these critical issues, no research has specifically addressed the impact of e-government implementation on parking governance in Palangka Raya. Some studies related to e-government implementation in Palangka Raya, such as research by Panjika et al. (2019), reveal that the implementation of e-government can improve public services through the utilization of information technology. Although it does not directly address parking, the concept is relevant in the context of better parking governance through the application of digital technology. Other studies, such as the one conducted by Said et al. (2024) about smart parking, also shows the importance of technological innovation in parking management, which is in line with the principles of e-government. Nonetheless, there is no specific study that examines the impact of e-government implementation on parking governance in Palangka Raya, indicating a gap in the literature that can be used as a topic for further research.

Based on the gaps in previous research, there are still limited studies that comprehensively examine how the implementation of e-government in the parking system can contribute to good governance, especially in the aspects of transparency, effectiveness, and reduction of maladministration practices. Therefore, this study aims to fill the gap by analyzing the implementation of e-government-based parking policies, as well as evaluating its challenges and opportunities in realizing good governance.

2. Materials and Methods

This research uses an empirical juridical approach, which is often referred to as an empirical normative approach. According to Marzuki (2005), legal research is a know-how activity in legal science, not just a know-about. Thus, legal research aims to examine and solve legal issues faced systematically, methodologically, and consistently (Soekanto & Mamudji, 2016).

This research combines normative and empirical approaches. The normative approach is used to analyze laws and regulations related to e-government-based parking management, while the empirical approach is used to obtain data directly from the field to understand the implementation of the policy in practice.

The data in this study were obtained from two main sources, namely primary data and secondary data. Primary data was collected through observation and in-depth interviews with relevant parties, such as the Palangka Raya City Transportation Office, parking officers, and parking service users. Meanwhile, secondary data was obtained through a literature study that included applicable laws and regulations, academic journals, and official reports related to digital-based parking systems.

Informants in this study were purposively selected based on their relevance to the implementation of the digital parking system (Si-Takir) in Palangka Raya City. The selection criteria included officials and staff of the Department of Transportation (Dishub) of Palangka Raya City who were involved in the planning, implementation, and supervision of Si-Takir, authorized parking attendants who use the application, and the public who use digital parking services. Observations were also conducted to evaluate indicators, such as parking attendant compliance in using barcode-based IDs, the digital parking payment process, transaction transparency, and public response to accessing parking information through the Si-Takir application.

Palangka Raya City was chosen as the research location because it has implemented e-government innovation in parking management through the Si-Takir program, which aims to increase transparency, accountability, and local revenue. Interviewed respondents included key individuals, such as the Head of the Transportation department, field parking officers, and users of digital parking services, to provide diverse perspectives. The interview process was conducted using a pre-prepared list of questions, focusing on implementation challenges, public perceptions, impacts on transparency and accountability, and socialization and training efforts that support the effectiveness of Si-Takir implementation.

The research process began with the identification and review of regulations governing e-government-based parking systems. Furthermore, empirical data was collected through field observations and interviews with relevant parties to understand how this policy is implemented in practice. Analysis was conducted to assess the effectiveness of the implementation of a digital-based parking system in improving transparency, efficiency, and accountability of parking management. This research also identifies various obstacles that arise in the implementation of the system, such as infrastructure readiness, human resource competence, and the level of public acceptance.

3. Results

3.1 The Role of the Transportation Department of Palangka Raya City in the Implementation of the Digital Parking System (Si-Takir)

Based on the results of interviews with Rifansyah, as the Acting Head of the Palangka Raya City Transportation Office, it is known that the Transportation Office has a crucial role in the implementation of the digital parking system. This effort is part of the city government's strategy to improve efficiency, transparency, and quality of public services in parking management in urban areas. The implementation of a digital parking system is expected to be a more effective solution in overcoming the limited parking spaces, improving the convenience of motorists, and supporting the principles of good governance (Limantara et al., 2017).

The Palangka Raya City Transportation Department plays a strategic role in implementing the digital parking system, covering aspects of planning, development, and supervision. In the planning stage, the agency is responsible for designing a digital parking system that meets the region's needs, including selecting the appropriate technology platform, determining the payment system to be used (QR codes, electronic cards, or mobile applications), and ensuring the availability of supporting infrastructure. Additionally, public education and socialization efforts are essential elements in increasing understanding and adoption of the digital parking system. These efforts are carried out through educational approaches aimed at introducing the benefits and convenience of the system, ensuring that the public is well-prepared and accustomed to using the technology.

The provision of technological infrastructure is also a key responsibility of the Transportation Department to support the smooth implementation of digital parking. This infrastructure includes the installation of electronic payment devices, the implementation of parking monitoring technology, and management systems that optimize parking space utilization. Integration with GPS-based monitoring systems and digital applications is also a crucial factor in improving parking service efficiency for drivers. Furthermore, the success of this system's implementation heavily depends on coordination with various related institutions. The Transportation Department must establish synergy with relevant authorities to ensure policy, infrastructure, and operational integration of the digital parking system aligns with the city's overall urban policies.

Additionally, supervision and evaluation are integral components of the digital parking system's implementation. The Transportation Department is responsible for ensuring that the payment process operates transparently while minimizing the potential for fraud or system manipulation. Regular evaluations are necessary to identify challenges faced by users and develop solutions to enhance system efficiency. One of the positive impacts of this system is the potential increase in regional revenue through the optimization of parking fee collection. With a digital system, transaction monitoring can be conducted in real-time, reducing revenue leakage and ensuring that the collected fees correspond to the actual number of parked vehicles.

On the other hand, the implementation of a digital parking system also contributes to improving public service quality. Easy access to parking payments, real-time information on parking space availability, and system transparency are factors that enhance public convenience in using this facility. The integration of technology into the parking system

aligns with the principles of good governance, where a transparent and accountable system fosters trust between the government and the public. Overall, the role of the Transportation Department in implementing the digital parking system is not only focused on improving parking service efficiency but also supports better governance through the use of innovative, data-driven technology.

3.2 Integration of Parking Management Policy with Good Governance Principles

Etymologically, integration is an absorption word from English-integrate; integration-which is then adapted into Indonesian to become integration which means fusing; merging or unifying into a unified whole; integrating (Echols & Shadily, 2012). Therefore, Integration means perfection or the whole, which is the process of adjustment between different elements.

Integration is synonymous with fusion, union, or amalgamation, of two or more objects. As stated by Poerwandarminta, who is quoted in Ibnu (2007), that integration is "unification so that it becomes one or a whole". Integration according to Sanusi is a whole unit, not divided and divorced. Integration includes the need or completeness of the members who form a unit with a close, harmonious and intimate relationship between the members of the unit (Ibrahim, 2008). The term integration can be used in many contexts related to the linking and unification of two or more elements that are considered different, both in terms of nature, type name and so on.

Based on the understanding of integration put forward by several experts, integration can be interpreted as a process of uniting or combining different elements into a whole and harmonious whole. In the context of parking management policies, the integration of parking management policies with good governance principles leads to the unification of various existing policies and systems to create efficient, transparent, accountable, and sustainable parking management.

As explained earlier, integration involves combining different elements, which in this case includes parking policies, information technology, as well as community participation and related stakeholders (Sinambela, 2011). Through this integration, parking management policies are not only tools for regulating traffic but also part of efforts to establish good governance. Principles of good governance, such as transparency, accountability, and public participation, can be implemented more effectively when parking policies and their execution are well integrated into the city's administrative system.

According to an interview with Alfrianto, Head of Infrastructure and Parking at the Palangka Raya City Transportation Department, integrating parking management policies with good governance principles is a crucial factor in creating a more organized parking system. This initiative aims to reduce congestion, increase regional revenue, and provide better public services. The integration of these policies goes beyond technical arrangements in parking management, it also involves supervision, evaluation, and community empowerment in e-government-based parking management.

The integration of parking management policies with good governance principles is a critical element in improving urban transportation management effectiveness. Transparency, a key aspect of good governance, requires parking policies to be accessible and understandable to the public. The implementation of a digital parking system enables real-time availability of information regarding parking locations, rates, and payment procedures, thereby enhancing public participation in policy oversight (Alsaedi & Jalal, 2023). This transparency also contributes to increased accountability in the management of parking resources, where a digital system with real-time reporting can ensure that funds collected from user fees are used appropriately (Tasente & Stan, 2023).

Accountability in parking governance requires every agency involved to be accountable for the policies and actions taken. A digital system allows for the tracking of revenue from parking fees, preventing potential misappropriation and ensuring that the budget is allocated according to its intended purpose (Brenner et al., 2023). In addition, citizen feedback mechanisms in parking systems, such as those implemented in

Constanta, Romania, show that public involvement in the policy evaluation process can improve the effectiveness of parking management (Tasente & Stan, 2023).

Public participation is an important factor in the planning, implementation, and evaluation of parking policies. With public discussions and policy socialization, the government can accommodate community input to create a more inclusive and sustainable parking system. Studies conducted in South Africa show that active community participation in development planning can increase the effectiveness of public services and improve policy accountability (Mamokhere & Meyer, 2023; Selepe, 2023). Therefore, a collaborative approach between the government and the community in parking management can produce policies that are more in line with public needs.

Effectiveness and efficiency in parking management policies can be improved through the use of technology. Smart parking systems integrated with mobile phone applications can optimize the use of parking spaces, reduce congestion, and increase local revenue (Tasente & Stan, 2023). Technology also enables closer monitoring of the availability of parking spaces, thereby reducing the risk of misuse and increasing the convenience of parking service users. However, challenges such as the digital divide need to be addressed so that all communities can access the system equally.

Sustainability in parking management policies must take into account environmental aspects by reducing vehicle emissions and encouraging the use of environmentally friendly vehicles. The implementation of policies that support sustainability is aligned with broader environmental goals and public health (Mamokhere & Meyer, 2023; Selepe, 2023). In addition, the integration of parking systems with efficient public transportation can reduce reliance on private vehicles, thereby contributing to the reduction of congestion in urban areas.

Strict monitoring and control are needed to ensure that the parking policy is implemented according to regulations. In the context of good governance, supervision is not only the responsibility of the government, but also the community. The use of information technology in parking management allows real-time access to transaction data and automatic monitoring of violations, as shown in research related to traffic monitoring systems. The implementation of technology-based monitoring systems can also increase transparency and minimize corrupt practices in parking management.

Fairness in parking policy emphasizes the need for a system that is fair to all stakeholders, including vehicle users, parking managers, and the government. Proportionate parking tariffs and equitable distribution of parking spaces are important steps in creating a system that is inclusive and does not burden certain groups of people (Mayasari & Arman, 2022). In addition, parking policies should consider accessibility for all groups of society, including those with economic limitations, to avoid inequality in the utilization of parking facilities.

Overall, the integration of parking policies with good governance principles is a strategic step in realizing a more efficient, transparent, and sustainable urban transportation system. The use of information technology can improve the effectiveness of parking management, while public participation plays a key role in ensuring that policies are implemented in accordance with public needs. While the implementation of digital systems has many advantages, challenges such as the digital divide and resource constraints need to be addressed in order for parking policies to provide equitable benefits to the entire community. By implementing policies that prioritize public participation, accountability, and the use of technology, the government can improve the quality of public services and realize good governance (Rochmansjah, 2019). A fair, efficient, and environmentally friendly parking system will support the achievement of public welfare and satisfaction of parking service users.

3.3 Implementation of E-Government in Parking Management in Palangka Raya City Through Si-Takir (Parking Arrangement System) Program

E-government-based parking management is the application of information technology to create a more efficient, transparent, and easily accessible parking system for the public. This system integrates technology to streamline administrative processes,

supervision, and parking fee payments. In Palangka Raya, the implementation of e-government in parking management is carried out through the Si-Takir (Parking Management System) program.

The Si-Takir (Parking Management System) program is an initiative by the Palangka Raya City Transportation Department aimed at improving the efficiency of parking management in the city. The main goal of this program is to establish a more organized, efficient, and transparent parking system while supporting good governance principles. According to the Head of the Palangka Raya City Transportation Department, Si-Takir is designed to facilitate parking monitoring and control by utilizing digital information technology, leading to a more structured and effective management system.

The Si-Takir program was launched in 2021 by the Mayor of Palangka Raya, Fairid Naparin. This initiative by the Transportation Department seeks to address the issue of unauthorized parking attendants. Mayor Fairid Naparin explained that the launch of the Si-Takir program aims to enhance transparency and collect data on parking attendants from the Transportation Department. The program is also designed to prevent unauthorized attendants, ensuring that parking management in Palangka Raya becomes more orderly and controlled.

Residents of Palangka Raya can download the Si-Takir application on their Android devices. This app allows users to verify the authenticity of official parking attendants, as each authorized attendant is equipped with an identification card containing a barcode. By using the application, the public can scan the barcode on the attendant's ID card to confirm their legitimacy. Additionally, according to the Head of the Transportation Department, the Si-Takir app includes a complaint feature that enables residents to report unauthorized parking attendants or attendants who fail to present their barcode-equipped ID cards.

Based on an interview with Wiltony Banteng, Head of the Infrastructure Planning and Parking Section at the Palangka Raya City Transportation Department, the Si-Takir program was introduced as a solution to optimize parking space management in the city. The program is designed to enhance the recording and monitoring of parking areas in a more systematic and organized manner through digitalization. With this system, residents can easily access information regarding parking fees, available parking locations, and relevant regulations. Additionally, the digital technology used in Si-Takir allows for greater transparency in monitoring parking fees and collected revenue, improving efficiency in parking management while strengthening public trust in government services.

The Si-Takir program provides various benefits for both residents and the local government. One of the key advantages is easy access to real-time information about available parking spaces, parking fees, and related regulations. Moreover, the digital system improves time and cost efficiency by expediting the parking payment process and reducing potential revenue leakage. With technology-based monitoring, the government can oversee and control parking locations more effectively, enabling stricter enforcement against violations or irregularities in parking fee management.

Meanwhile, according to Alfrianto, Head of Infrastructure and Parking at the Palangka Raya City Transportation Department, the Si-Takir program is equipped with various features and technologies to enhance its effectiveness. One of its main features is the e-parking system, which allows parking payments to be made electronically. This feature facilitates transactions for users without the need to queue, while also accelerating real-time revenue collection for parking officers. Additionally, digital monitoring is implemented to oversee parking areas, identify full or available spaces, and accurately track parking status. To improve accessibility, the program is also equipped with a mobile application that helps residents locate available parking spaces, check parking fees, and make online payments. With these innovations, Si-Takir is expected to create a more organized, efficient, and transparent parking system in Palangka Raya.

Table 1. Difference Between Si-Takir App and Manual Parking System

Aspect	SI TAKIR App	Manual Parking System
Definition	A digital-based application used to manage parking in an integrated manner.	A parking system that still relies on manual recording without digital technology.
Payment Method	Uses e-payment or digital transactions.	Uses direct cash payments to parking attendants.
Data Recording	Automated and stored in the system in real-time.	Manual, recorded on paper or tickets without digital storage.
Data Security	More secure as it utilizes a digital system with documented transaction history.	Higher risk of data loss or manipulation due to manual recording.
Time Efficiency	Faster, as entry and exit processes can be conducted using a barcode or RFID system.	Tends to be slower because attendants must manually record and check tickets.
Revenue Leakage Potential	Minimal, as transactions are automatically recorded in the system.	High, due to potential fraud or unrecorded parking transactions.
Attendant Involvement	Fewer attendants required, as the system automatically manages parking data.	More attendants needed to record transactions, direct vehicles, and manage tickets.

Thus, Si-Takir is more modern, efficient, and transparent in managing parking because it is based on a digital system. While the manual parking system still has many weaknesses such as prone to fraud, inaccurate records, and requires more labor. In addition, the implementation of Si-Takir can increase accountability and facilitate effective parking management.

According to an interview with Rifansyah, as the Acting Head of the Palangka Raya City Transportation Department, the main challenge in implementing Si-Takir is to ensure that all related parties, including parking managers, officers, and the public, can adapt to this technology. To overcome this, intensive counseling and training is needed so that they understand and are able to utilize this system optimally. Proper education will help increase the acceptance and effectiveness of using Si-Takir in parking management in Palangka Raya City.

Meanwhile, based on an interview with Dr. Kemilau Mutik, as Head of the Government Section of the Regional Secretariat of Palangka Raya City, the Si-Takir program is a strategic step in creating a parking system that is more efficient, transparent, and in line with the principles of good governance. With the implementation of an e-government-based parking system, it is expected that parking retribution revenues can increase significantly, while providing comfort and satisfaction for the public in accessing more modern and organized parking services. The technology and systems used in e-government-based parking management have many benefits in improving efficiency, transparency, and accountability. With the implementation of a digital parking system, the public can enjoy the convenience of finding and paying for parking, while the government and parking managers can optimize the management of parking spaces and ensure maximum revenue. The implementation of this technology is in line with efforts to realize good governance, where public services become more effective, efficient, and responsive to community needs.

3.4 Analysis of E-Government Effectiveness in Improving Transparency and Accountability of Parking Services

According to an interview with Dony Wandira, Policy Analyst in the Government Section of the Regional Secretariat of Palangkaraya City, e-government, which refers to the application of information and communication technology to improve public services, plays an important role in increasing transparency and accountability in various sectors, including parking services. In the context of e-government-based parking management, the application of technological systems not only facilitates parking management, but also has a positive impact on transparency and accountability.

The implementation of e-government in the parking system has proven its effectiveness in improving transparency and accountability of public services.

Transparency is reflected through the provision of real-time information related to parking availability, which allows motorists to access up-to-date data through an app or website, thus reducing uncertainty in finding a parking space (Long & Gil-Garcia, 2023). In addition, digitizing parking tariffs ensures that the fees charged are openly accessible to the public, reducing the potential for abuse or price manipulation by certain parties (Lourenço, 2023). Furthermore, accessibility to parking data, including the number of registered vehicles and retribution receipts, allows the public to monitor parking management policies, contributing to increased transparency in the governance of public services (Kipshidze, 2022).

In addition to transparency, e-government also plays a role in improving accountability through more effective public oversight mechanisms. With the digital system in place, the public can directly monitor parking management and provide feedback on irregularities that occur (da Silva Campos et al., 2022). Digital platforms can also integrate direct reporting and grievance systems, allowing the public to report problems or provide recommendations for improvements in parking services, which in turn increases the accountability of parking managers. However, the effectiveness of e-government in improving transparency and accountability still faces challenges, such as the digital divide and varying levels of public participation. Therefore, efforts to improve digital literacy and encourage active community involvement in the e-government system are crucial aspects to optimize the benefits of technology in parking service governance.

Accountability in e-government-based parking services is a crucial aspect that ensures transparency and effectiveness of the system. The implementation of technology in parking management allows automatic monitoring of every transaction, so that all payments and facility usage can be audited more easily. In addition, the simplification of the complaint process through digital platforms allows the public to provide direct feedback, which encourages government responsiveness in improving service quality. From a financial perspective, e-government supports more transparent auditing by digitally recording transactions, so the risk of budget manipulation or leakage can be minimized. Furthermore, the integrated system also allows parking managers to apply incentives for outstanding officers and sanctions for rule breakers, to ensure compliance with set standards. Thus, the implementation of e-government in the parking system not only increases the accountability of the management, but also strengthens public participation and oversight of the services provided.

Overall, the implementation of e-government in the parking system contributes significantly to improving the transparency and accountability of parking services. Dony Wandira as Policy Analyst of the Government Section of the Regional Secretariat of Palangka Raya City said that through the application of technology, the government can improve parking supervision and management better and more efficiently. That way, it is hoped that the e-government-based parking system can strengthen good governance, as well as improve more transparent and accountable public services for the community. However, to ensure its effectiveness, there needs to be continuous efforts in strengthening infra-structure, digital education, and personal data protection.

The effectiveness of e-government in improving transparency and accountability of parking services is also illustrated by the Community Satisfaction Index (IKM) based on the Community Satisfaction Survey (SKM) conducted by the Palangka Raya City Transportation Office in 2023 and 2024. Rifansyah as the acting head of the Palangka Raya City Transportation Office said that in 2023 the Palangka Raya City Community Satisfaction Index (IKM) was 88.56%, while in 2024 with a value of 88.68%.

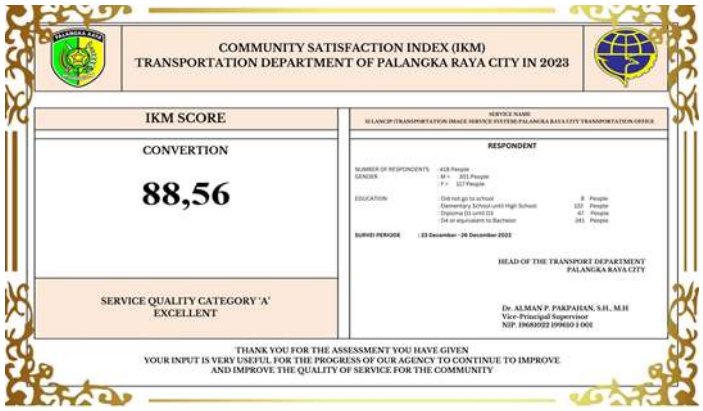

Figure 1. Community Satisfaction Index (IKM) of Palangka Raya City in 2023

Based on the data on the Community Satisfaction Index (IKM) of the Palangka Raya City Transportation Department in 2023 and 2024, it can be seen that there was a slight increase in the IKM value from 88.56% to 88.68%. Although this increase is relatively small, it can show that there are efforts to improve the services provided by the Transportation Department. However, the number of respondents involved in the survey has decreased significantly, from 418 people in 2023 to 142 people in 2024. This may affect the validity and representation of the survey results to the overall level of public satisfaction.

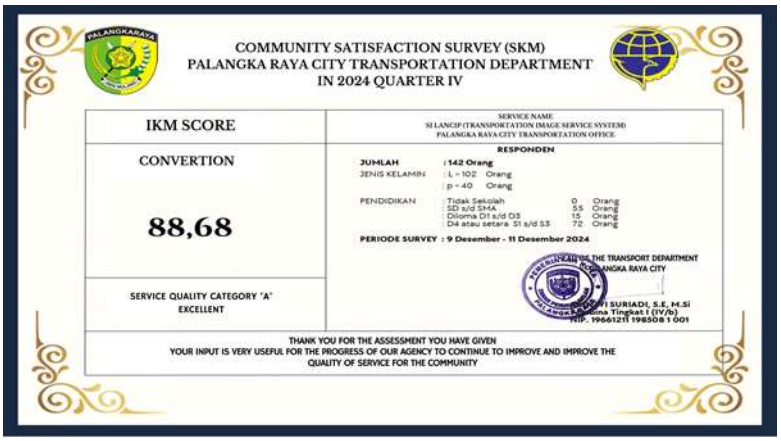

Figure 2. Community Satisfaction Index (IKM) of Palangka Raya City in 2024

The increase in the value of IKM can be an indicator of the effectiveness of digitalization policies in parking governance. The implementation of an e-government system in parking management should contribute to improving efficiency, transparency, and accountability in public services, which are the main principles of good governance. However, to strengthen the analysis, it is necessary to further evaluate the specific factors that contribute to the increase or stagnation of the SMI value, as well as how the implementation of e-government directly affects public satisfaction in parking services in Palangka Raya City.

3.5 Analysis of the Effectiveness of E-Government in Parking Services towards Increasing Regional Original Revenue (PAD) of Palangka Raya City

The analysis of the effectiveness of e-government in parking services towards increasing Regional Original Revenue (PAD) of Palangka Raya City involves evaluating the extent to which the implementation of an e-government-based parking system can have a positive impact on parking management and its contribution to PAD. The e-government-based parking system in Palangka Raya City, known as the Si-Takir (Parking Arrangement System) program, aims to optimize parking management in a more organized, efficient, and transparent manner.

The implementation of public services in e-government-based parking arrangements at the Transportation Department of Palangka Raya City has a direct correlation with efforts to realize good governance. One indicator of good governance is transparency and accountability in local revenue management, which in this context can be realized through a digital-based parking system.

Increased efficiency in parking management with e-government contributes to an increase in local revenue through several mechanisms. First, the digital payment system increases user compliance in paying parking fees as transactions are transparently recorded, reducing the potential for leakage due to manipulation by field officers. Second, the system optimizes retribution collection with more accurate calculations based on parking volume, duration of use, and location, so that the potential for local revenue can be maximized. Third, the application of technology in parking services reflects the local government's commitment to improving bureaucratic efficiency, which can be an attraction for investors. Cities that have a good digital-based public service system tend to be more attractive to the business world and investment, which in turn also has a positive impact on increasing PAD.

From a good governance perspective, the implementation of e-government in parking management shows the principles of accountability, transparency, effectiveness, and efficiency in public services. Thus, research on the implementation of public services in e-government-based parking management at the Department of Transportation of Palangka Raya City is relevant in examining the extent to which technology can improve the quality of governance and support regional economic growth through optimizing parking sector revenue.

The implementation of an e-government-based parking system is proven to have a positive impact on parking management and its contribution to the Regional Original Revenue (PAD) of Palangka Raya City. This can be seen from the graph of PAD achievements of the Palangka Raya City Transportation Office in 2020-2024, which reflects increased effectiveness in monitoring and managing parking fees. In accordance with the results of an interview with Alfrianto, Head of the Infrastructure and Parking Division of the Palangka Raya City Transportation Department, the implementation of a digital system in parking management has improved recording efficiency, transaction transparency, and optimization of regional revenue.

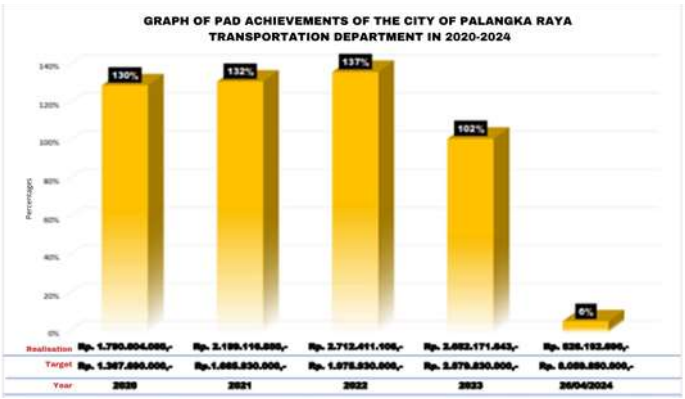

Figure 3. Graph of PAD Achievement of Palangka Raya City Transportation Department in 2020-2024

Based on the data in the graph, the realization of Regional Original Revenue (PAD) from the parking sector in Palangka Raya City shows a significant upward trend from 2020 to 2022, before experiencing a decline in 2023. This increase can be interpreted as an indication of the success of the policy and implementation of the parking management system implemented by the Transportation Department (Dishub) of Palangka Raya City. One factor that may have contributed to the increase is the implementation of e-government in the parking management system, which has the potential to increase efficiency, transparency, and accountability in public services. However, the decline in realization in 2023 to 102% indicates challenges in the implementation of this system,

such as technical factors, public compliance, or the effectiveness of supervision in the field. In the context of this research, the data shows that the implementation of e-government-based public services in parking management has contributed to an increase in PAD, which is in line with the principles of good governance. However, further evaluation is needed to understand the factors causing fluctuations in PAD realization and how e-government policies can be further optimized to support the effectiveness of sustainable parking management.

Table 2. Graph of PAD Achievement of Palangka Raya City Transportation Department in 2020-2024

Year	Target	Realization	Percentage
2020	Rp. 600.000.000,-	Rp. 1.020.000.000,-	170%
2021	Rp. 1.000.000.000,-	Rp. 1.453.953.180,-	145%
2022	Rp. 1.300.000.000,-	Rp. 1.824.930.800,-	140%
2023	Rp. 1.800.000.000,-	Rp. 1.856.811.036,-	103%
26/04/2024	Rp. 7.000.000.000,-	Rp. 514.492.196,-	7%

Based on e-government theory, digitalization in parking management should enhance the effectiveness and efficiency of public services, including the optimization of Local Own-Source Revenue (PAD). The increasing trend of PAD from the parking sector in Palangka Raya from 2020 to 2023 indicates that the e-government-based system has started to have a positive impact on parking fee management. This aligns with the principles of good governance, which emphasize transparency and accountability in public administration. However, despite the revenue growth in recent years, the 2024 target, which saw a significant increase to IDR 7,000,000,000, has not been matched by adequate realization, as only IDR 514,492,196 had been collected as of April 2024. According to policy implementation theory, the disparity between targets and realization highlights that the success of a policy does not solely depend on regulatory formulation but also on technical aspects, public outreach, and compliance from all involved parties. In this context, challenges may be related to the readiness of technological infrastructure, public understanding and acceptance of the digital parking system, as well as the effectiveness of monitoring and enforcement of established regulations. If the digital parking system is not yet fully integrated and widely used, the expected impact on PAD growth may not be maximized.

Hence, an evaluation of the system's implementation is necessary by considering the factors that influence revenue optimization from the parking sector. Based on public policy management theory, policy effectiveness highly depends on the quality of planning, stakeholder coordination, and continuous oversight. The Palangka Raya Department of Transportation must ensure that the technological infrastructure used is suitable for operational needs and easily accessible to the public. Additionally, more extensive public outreach is needed to ensure that people understand the digital parking payment mechanism and its benefits. From a regulatory perspective, implementing sanctions and incentives can be a strategy to improve user compliance with digital parking policies. With these measures, the implementation of e-government in the parking system can be optimized and significantly contribute to increasing PAD as well as improving governance in Palangka Raya.

This research makes an important contribution in strengthening e-government theory, especially in digital parking management in Palangka Raya City through the implementation of the Si-Takir program. This research emphasizes that digital technology is not only able to increase efficiency in parking transactions, but also shows how the integration of technology with the principles of good governance can create a more transparent, accountable, and participatory system. This is reflected in the use of e-payment features, digital monitoring, and mobile applications that allow the public to access real-time information on parking rates, parking locations, as well as complaint mechanisms to improve public oversight. This model reflects a shift from simply digitizing services to strengthening data-driven governance and transparency.

The results of this study have similarities and differences with previous research related to e-government and smart parking management. Study by Panjika et al. (2019) highlights the improvement of public services through information technology, although it does not specifically address digital parking management. Meanwhile, Said et al. (2024) underscores the importance of technological innovation in smart parking systems, but focuses more on the technical aspects without linking the principles of good governance. This research is different because it specifically explores the integration of digital parking policies with the principles of transparency, accountability, and public participation, showing how parking digitalization can strengthen governance by reducing the potential for fraud and increasing public involvement and oversight.

In addition, this study provides empirical evidence related to the impact of parking digitalization on Regional Original Revenue (PAD) of Palangka Raya City. The data shows an increase in PAD from the parking sector between 2020 and 2022, reflecting the success of the digitization policy in recording transactions more accurately and minimizing revenue leakage. However, the finding of a decrease in PAD realization in 2023 indicates the challenges of e-government implementation, such as infrastructure readiness, level of public understanding, and effectiveness of supervision. These findings enrich e-government theory by providing a more comprehensive model of how technology integration and good governance can improve the efficiency of public services and local revenue, while highlighting the importance of HR training, socialization strategies, and infrastructure strengthening to ensure the sustainability of digital policies.

Practically, this study provides insights for local governments to improve the effectiveness of digital-based parking system implementation. The main implication is the need to strengthen technological infrastructure to ensure that the digital parking system operates optimally and sustainably. Additionally, the findings highlight the importance of enhancing human resource competencies through regular training for Department of Transportation personnel so they can efficiently manage the digital parking system. Furthermore, this study serves as a foundation for formulating more adaptive policies to support the sustainability of the e-government-based parking system, particularly through more effective public outreach strategies and stricter monitoring mechanisms.

4. Conclusions

The implementation of public parking management services based on e-government in the Department of Transportation of Palangka Raya City has been carried out with the aim of improving efficiency, transparency, and accountability in the parking system. The introduction of e-government in parking management in Palangka Raya City is done through the Si-Takir program (Parking Regulation System) initiated by the Department of Transportation of Palangka Raya City. However, in its implementation, it has not fully run smoothly, due to obstacles as formulated in the conclusion of the second problem statement. To overcome obstacles related to infrastructure and human resource adaptation to an e-government based parking system, it is recommended to strengthen the technology infrastructure in the Department of Transportation of Palangka Raya City. Additionally, regular training is needed for employees to enhance their understanding and skills in utilizing this system. This training should also include an understanding of the importance of implementing good governance principles in public services. The novelty of this research lies in the analysis of the implementation of e-government-based parking systems in the specific context of Palangka Raya City, which has not been comprehensively examined before. This study provides a new perspective on the challenges and opportunities in the application of digital technology in parking management at the local level, which can serve as a reference for other local governments wishing to implement similar policies. Therefore, this research contributes to the development of studies on e-government in public services and provides strategic recommendations for optimizing digital-based parking policies at the regional level.

References

Abbas, H. S. M., Abbas, S., Gillani, S., & Xu, X. (2024). Role of Digital-Government, Regional Integration, and Government Expenditures on Public Health Services in Selected Asian Economies. *Social Indicators Research*, 1–25. https://doi.org/https://doi.org/10.1007/s11205-024-03379-8

Alcaide Muñoz, L., Rodríguez Bolívar, M. P., & López Hernández, A. M. (2017). Transparency in governments: a meta-analytic review of incentives for digital versus hard-copy public financial disclosures. *The American Review of Public Administration*, *47*(5), 550–573. https://doi.org/https://doi.org/10.1177/0275074016629008

Alsaedi, N., & Jalal, A. S. A. (2023). Efficient automated car parking system based modified internet of spatial things in smart cities. *Indonesian Journal of Electrical Engineering and Computer Science*, *31*(2), 1164–1170.

Brenner, G., Baza, M., Rasheed, A., Lalouani, W., Badr, M., & Alshahrani, H. (2023). Dpark: Decentralized smart private-parking system using blockchains. *Journal of Grid Computing*, *21*(3), 43.

Cepiku, D., & Mastrodascio, M. (2021). Equity in public services: A systematic literature review. *Public Administration Review*, *81*(6), 1019–1032. https://doi.org/https://doi.org/10.1111/puar.13402

da Silva Campos, V. J., Leal, L. C. C., Raposo, C. G., Gomes, K. G. M., Ceolin, A. C., & da Silva Correia-Neto, J. (2022). Transparência no Serviço Público Municipal: analisando as solicitações do Serviço Eletrônico de Informação ao Cidadão/Transparency in the Municipal Public Service: analyzing requests from the Electronic Citizen Information Service. *ID on Line. Revista de Psicologia*, *16*(60), 825–848.

Echols, J. M., & Shadily, H. (2012). Kamus Hukum Inggris Indonesia. *Grammedia Utama, Jakarta*.

Hutabarat, D. T. H., Delardi, E., Irwansyah, A., Bascara, D., Ansori, B., Tanjung, F., Sinaga, S. J., Tah, M., Adrian, R., Budi, A., Tanjung, A. R., Nurcahaya, Mahriva, D. A., Sari, V. M., & Ahmad Helmisyam Silitoga. (2022). The Eradication Of Corruption And The Enforcement Of The Law In Indonesia As Seen Through The Lens Of Legal Philosophy. *Policy, Law, Notary and Regulatory Issues (POLRI)*, *1*(2), 1–8. https://doi.org/10.55047/polri.v1i2.74

Ibnu, T. (2007). *Model Pembelajaran Terpadu Dalam Teori dan Praktik*. Prestasi Pustaka Publisher.

Ibrahim, A. (2008). *Teori dan konsep pelayanan publik serta implementasinya*. Mandar Madju.

Ibrahim, H. (2017). Car parking problem in urban areas, causes and solutions. *1st International Conference on towards a Better Quality of Life*, 1–13. https://doi.org/10.2139/SSRN.3163473

Ismiyati, I., Wicaksono, Y. I., Riyanto, B., Rajani, M. I., & Parulian, R. (2018). Control of urban parking based on zoning rates in the context of sustainable transportation. *MATEC Web of Conferences*, *195*, 4020. https://doi.org/10.1051/MATECCONF/201819504020

Kipshidze, S. (2022). The Principle of Transparency in Public Administration as a Component Element of the Right to Good Governance. *Journal Orbeliani*, *4*(5), 23–33.

Li, B., Li, T., Yu, M., & Chen, B. (2017). Can equalization of public services narrow the regional disparities in China? A spatial econometrics approach. *China Economic Review*, *44*, 67–78. https://doi.org/10.1016/j.chieco.2017.03.010

Limantara, A. D., Krisnawati, L. D., Winardi, S., Mudjanarko, S. W., & Esp, C. (2017). Solusi Pengawasan Kebijakan Mengatasi Kemacetan Jalan dan Parkir Kota Berbasis Internet Cerdas. *Semin. Nas. Teknol. Dan Rekayasa Inf., No. November*, 1–6.

Long, Y., & Gil-Garcia, J. R. (2023). Understanding the extent of automation and process transparency appropriate for public services: AI in Chinese local governments. *International Journal of Electronic Government Research (IJEGR)*, *19*(1), 1–20. https://doi.org/10.4018/IJEGR.322550

Lourenço, R. P. (2023). A framework for public eServices transparency. *International Journal Of Electronic Government Research (Ijegr)*, *19*(1), 1–19. https://doi.org/10.4018/ijegr.317415

Mamokhere, J., & Meyer, D. F. (2023). Towards an exploration of the significance of community participation in the integrated development planning process in South Africa. *Social Sciences*, *12*(5), 256.

Marbun, W. M., Sinaga, M., Sembiring, Y. C., Situmorang, T. S., Ucok, U., & Suherman, S. (2024). Dampak Sosial dan Ekonomi Minimnya Angkutan Umum Terhadap Masyarakat Kota Palangka Raya. *Jurnal Publikasi Sistem Informasi Dan Manajemen Bisnis*, *3*(1), 96–104. https://doi.org/10.55606/jupsim.v3i1.2372

Marzuki, P. M. (2005). *Penelitian hukum*. Kencana Prenada Media.

Mayasari, D., & Arman, A. A. (2022). SupTech governance in regulatory/supervisory government agencies: a systematic literature review. *2022 International Conference on Information Technology Systems and Innovation (ICITSI)*, 151–156.

Panjika, Y. P., Suryad, B., & Mahyuni. (2019). E-Government the Department of Investment and Integrated Services City of Palangkaraya. *Saudi Journal of Economics and Finance*, *3*(11), 549–553. https://doi.org/10.36348/SJEF.2019.V03I11.013

Permana, R. A., Rahmadanik, D., & Novaria, R. (2023). Implementasi Progam E-Parkir Dalam Meningkatkan Pelayanan Retribusi Parkir Kota Surabaya. *PRAJA Observer: Jurnal Penelitian Administrasi Publik (e-ISSN: 2797-0469)*, *3*(02), 182–186. https://doi.org/https://aksiologi.org/index.php/praja/article/view/1077

Praditya, F. F., Israel, R., & Slamet, D. (2024). Efektivitas Pemungutan Pajak Parkir Di Kota Samarinda: Tinjauan Dari Perspektif Hukum Dan Kebijakan. *Collegium Studiosum Journal*, *7*(1), 45–52. https://doi.org/10.56301/csj.v7i1.1249

Putra, D. M., & Hidayat, R. (2023). Media Digital Informasi Geografis Area Parkir Resmi Kota Bukittinggi Berbasis Website. *Jurnal KomtekInfo*, 38–46. https://doi.org/https://doi.org/10.35134/komtekinfo.v10i1.337

Rachmawati, T., & Fitriyanti, K. D. (2021). Analysis of the E-government initiative at local government level in Bandung City, Indonesia. *Jurnal Ilmu Sosial Dan Ilmu Politik*, *25*(1), 62–80. https://doi.org/10.22146/jsp.58966

Rahman, A., & Ufiteyezu, E. (2024). Smart parking occupancy detection method using smart app. *International Journal of Wireless and Mobile Computing*, *26*(1), 99–105. https://doi.org/10.1504/IJWMC.2024.136588

Ramdhan, M. R., Ismail, I., & Pananrangi, A. R. (2024). Implementasi Kebijakan Penyelenggaraan Retribusi Parkir dalam Perspektif Good Governance di Kabupaten Sinjai. *Paradigma Journal of Administration*, *2*(2), 47–53. https://doi.org/10.35965/pja.v2i2.5149

Risqullah, E. D., & Rosyid, H. A. (2022). Optimalisasi Sistem Parkir Masyarakat Teknologi dan Strategi Pemasaran Inovatif Era 5.0. *Jurnal Inovasi Teknologi Dan Edukasi Teknik*, *2*(10), 461–479. https://doi.org/10.17977/um068v2i102022p461-479

Rochmansjah, H. (2019). Application of Good Governance Principles in Government: Perspective of Public Services . *International Journal of Science and Society*, *1*(4 SE-Articles). https://doi.org/10.54783/ijsoc.v1i4.140

Said, A. I., Sofi, N., Yusri, A. R., Damanik, T. S. A., & Basumerda, C. (2024). Re-Design Sistem Parkir Berbasis Internet of Things Melalui Pendekatan Ergonomic Partisipatory. *SHS Web of Conferences*, *189*, 1002. https://doi.org/10.1051/shsconf/202418901002

Sari, V. F., Cheisviyanny, C., & Deviani, D. (2023). Potential Loss From Parking Levies. *Jurnal Pajak Dan Keuangan Negara (PKN)*, *4*(2), 556–562. https://doi.org/10.31092/jpkn.v4i2.1814

Sedarmayanti. (2007). *Good Governance dan Good Corporate Governance (tata Kelola Perusahaan yang baik)*. Mandar Madju.

Selepe, M. M. (2023). The Role of Community Participation in Support of the Successful Implementation of the Integrated Development Planning in South Africa. *International Journal of Social Science Research and Review*, *6*(6), 343–353. https://doi.org/10.47814/ijssrr.v6i6.1371

Sinambela, L. P. (2011). *Reformasi Pelayanan Publik*. Bumi Aksara.

Soekanto, S., & Mamudji, S. (2016). *Penelitian Hukum Normatif Suatu Tinjauan Singkat*. Rajawali Press.

Suriadi, E., Kristiawanto, & T. Paparang, S. (2022). Efektifitas Penerapan Tilang Elektronik Terhadap Pelanggaran Lalu Lintas Di Wilayah Hukum Polda Metro Jaya. *POLICY, LAW, NOTARY AND REGULATORY ISSUES (POLRI)*, *1*(2). https://doi.org/10.55047/polri.v1i2.83

Tasente, T., & Stan, M.-I. (2023). Collaborative Parking Management in Constanta: The Role of Public Policies and Citizen Participation. *Technium Social Sciences Journal*, *43*(1), 37–54.

Wangi, I. P., Lenggogeni, L., Yasinta, R. B., & Fajriah, D. N. (2024). Parking policy and its challenges in metropolitan cities in Indonesia. *AIP Conference Proceedings*, *3222*(1). https://doi.org/10.1063/5.0231124

Widjaya, C. D. P. (2024). Model Pemilihan Kendaraan Umum Dan Kendaraan Pribadi Untuk Perjalanan Bekerja Di Kota Palangka Raya: Mode Choice Public Transportation And Private Vehicle For Work In Palangka Raya City. *Media Ilmiah Teknik Sipil*,

12(3), 176–184. https://doi.org/10.33084/mits.v12i3.7887

Zamroni, M. (2019). General Principles of Good Governance in Indonesia: What Are The Legal Bases? *Varia Justicia*, *15*(1), 1–8. https://doi.org/10.31603/variajusticia.v15i1.2464

Zein, A. (2023). Pengelolaan Sistem Parkir Dengan Menggunakan Long Range RFID Reader Berbasis Arduino Uno. *Jurnal Ilmu Komputer*, *6*(2), 32–37. https://doi.org/https://jurnal.pranataindonesia.ac.id/index.php/jik/article/view/164