



## Accelerating Smart Governance Through Mandatory Cashless Parking on Public Roads in Surabaya

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**Abstract.** The digital transformation within the public sector has shifted from an optional advancement to a primary parameter for local government success in managing dynamic metropolitan areas. This research examines the acceleration of Smart Governance in Surabaya through the implementation of the mandatory non-cash parking policy on public roads. Using a qualitative approach with a descriptive-analytical design, the study explores how this transition redefine the relationship between the government, parking attendants, and citizens. Findings indicate that the policy effectively minimizes budget leakage and enhances fiscal transparency. The integration of digital payment systems has transformed traditional parking management into a data-driven service, fostering public trust through accountable financial tracking. Furthermore, the shift from cash to digital transactions has successfully professionalized the role of parking attendants within the urban ecosystem. However, success relies heavily on consistent infrastructure readiness and public literacy. The study concludes that Surabaya's non-cash parking model serves as a vital instrument for strengthening Regional Original Revenue (PAD) while modernizing urban governance. These implications suggest that digital integration is not merely a technical change but a fundamental shift in bureaucratic culture. This model provides a strategic framework for other Indonesian metropolitan cities aiming to implement similar digital-based public service innovations and sustainable smart city governance.

**Keywords:** Big Data Analytics; Digital Nudging; Evidence-Based Policy; Mandatory Non-Cash Parking; Smart Governance.

### 1. BACKGROUND

Digital transformation in the public sector has now shifted from being merely an option to becoming a key parameter for the success of local governments in managing dynamic metropolitan areas, where the implementation of Smart City through the Smart Governance pillar is a vital instrument for creating systemic efficiency and transparency that is fully oriented towards data validity. The city of Surabaya, as a major economic center in East Java and the gateway to trade in Eastern Indonesia, plays a strategic role in pioneering the digitalization of services to address the increasingly complex challenges of urban mobility, particularly in the management of public roadside parking which has historically been a major contributor to Regional Original Income (PAD). (Tulungen et al., 2022). The adoption of this technology is not simply an attempt to follow the current of global modernization, but rather a fundamental strategy to redefine the power relationship between government and citizens by providing services that are far more accountable, responsive, and free from illegal levies. By integrating digital systems into parking management, Surabaya strives to build a smart urban ecosystem, where every strategic policy is based on accurate data analysis to ensure that the use of public space can provide maximum added value for inclusive and sustainable

infrastructure development for all levels of society. Philosophically, this step reflects a shift from traditional, rigid bureaucracy to lean and agile governance, where the use of information technology is used to shorten the gap between central policies and implementation on the ground. (Wila Tenga et al., 2023) The sustainability of this vision depends heavily on how the government is able to align technological advances with the mental readiness of the bureaucracy, so that Smart Governance is not just a digitalization slogan, but rather a change in work culture that prioritizes integrity as the main foundation of high-quality public services and can be trusted by all city stakeholders. (Fitriana & Arif, 2024).

The classic problem that has been a chronic obstacle in optimizing regional levies in the City of Surabaya is the high dependence on conventional cash transactions which inherently have minimal audit trails and are difficult to verify in real-time, thus giving rise to various vulnerability gaps such as massive budget leaks and tariff uncertainty which are financially detrimental to service users. (Romadhoni & Dwiangkara, 2025). The practice of extortion carried out by irresponsible individuals and the existence of unofficial parking points has long been a social residue that has eroded public trust in the integrity of the regional bureaucracy, so that the Surabaya City Government has taken radical preventive measures by ratifying regulations that stipulate mandatory non-cash parking policies on various main roads that are the heart of the city's economic activity. (Irvan et al., 2023) By mandating the use of QRIS-based payment methods, electronic money cards, and digital wallets, the government is regularly cutting the chain of manual transactions that are fraught with the risk of manipulation, while ensuring that every rupiah paid by the public is directly distributed to regional treasury accounts without any second-hand distortion. This policy is a transformative effort to standardize parking services, where technology no longer acts merely as a means of payment but also functions as an automated monitoring and evaluation instrument that ensures legal compliance from both parking attendants as partners and vehicle owners as taxpayers. (Natsir et al., 2023) This standardization also includes consumer protection, where service users receive price certainty in accordance with the applicable Mayoral Regulation, thus creating a healthier, more competitive, and distinguished business climate in the city's transportation and parking services sector. Furthermore, this policy aims to eliminate the negative stigma surrounding roadside parking management, which has long been associated with management chaos, transforming it into a system that is orderly, measurable, and fully under transparent administrative control, as well as legally and economically accountable. (Ramadan, 2024).

The implementation of this mandatory cashless parking system acts as a major catalyst for accelerating Smart Governance in Surabaya because it is able to provide a highly precise

big data infrastructure regarding the mobility behavior patterns of citizens every second, which can then be converted by the Transportation Agency to map traffic congestion points and formulate road engineering strategies that are much more effective and evidence-based (evidence-based policy). (Gurusi & Supriyanto, 2025). In addition to providing an immediate impact on increasing fiscal transparency and regional revenue, this sociological policy encourages increased digital literacy among the wider community and empowers parking attendants as frontline government partners who are now required to be technologically literate and professional in serving the public. Although challenges in terms of cultural adaptation and technical constraints of network infrastructure in the field remain a major concern in this complex transition process, the Surabaya City Government demonstrates a strong commitment through continuous socialization and periodic strengthening of digital device capacity. (Permana et al., 2023) Surabaya optimistically projects that the digitalization of the parking sector will become a national model for digital bureaucratic reform, successfully transforming social challenges into opportunities for stable economic growth. Going forward, this integrated innovation is expected to strengthen Surabaya's foundation as a world city that is not only advanced in terms of physical aesthetics and infrastructure, but also excels in the values of clean, just, and fully oriented governance, focusing on the comfort and satisfaction of its citizens. Ultimately, the success of this mandatory cashless parking will be concrete evidence that technology, when combined with strong political will and appropriate regulations, can create a more orderly, modern, and financially independent society for a greater and more competitive future for Surabaya on the international stage. (Anita Tri Agustin et al., 2024).

## **2. THEORETICAL STUDY**

In the horizon of modern thought, Smart Governance has emerged as a key discourse in the development of smart cities that reforms the interaction patterns between public authorities, business entities, and citizens through the integration of information technology. Theoretically, this concept is an evolution of the New Public Management (NPM) paradigm that advocates the adoption of private sector managerial principles into the bureaucracy to pursue operational effectiveness, which is then reinforced by the theory of E-Governance as an instrument to mitigate information inequality. (Supawanhar et al., 2024) In the city of Surabaya, this transformation is not merely administrative digitization, but rather a repositioning of the local government's role as a digital ecosystem manager capable of instantly synchronizing cross-sectoral data. The digitalization policy in the parking sector is a concrete representation of the state's efforts to formalize a service system that minimizes the involvement of individual

subjectivity, thereby reducing transaction costs and ensuring data accuracy. This foundation emphasizes that the automation of public services is an absolute prerequisite for creating a clean rule of law and transparency in regional fiscal management, which has been hampered by manual processes that are immeasurable and difficult for relevant authorities to thoroughly audit. (Dila Kusmawati et al., 2025).

A theoretical analysis of mandatory cashless parking payments in Surabaya can be examined through the perspective of "Lessig's Code," which views technological architecture (code) as a new form of law capable of automatically engineering social behavior without the need for physical cooperation, because digital systems inherently close off space for tariff negotiations outside of official provisions. This approach intersects with the theory of The Tragedy of the Commons, where loose management of public assets in conventional parking systems often results in economic value degradation and revenue leakage due to uncontrolled use by certain individuals. (Safitri et al., 2024) Through the implementation of QRIS-based transactions, or electronic money, the Surabaya City Government is implementing the principle of radical transparency that utilizes digital footprints to eliminate the moral hazard risk that typically arises in cash transactions. Furthermore, this integration touches on the realm of Big Data Analytics theory, where each transaction log is converted into a strategic information asset for road spatial planning and predicting microeconomic dynamics at the local level. (Mega et al., 2025). Thus, the synchronization between digital payment mechanisms and integrated monitoring systems creates a proactive digital accountability model capable of identifying and preventing irregularities in local revenue (PAD) early on. This transformation in Surabaya marks a theoretical shift from simply changing payment instruments to a bureaucratic restructuring that combines integrity values with the power of disruptive technology to ensure public welfare in the increasingly competitive information economy. (Nugroho et al., 2024). In addition to these theories, this study is supported by a review of relevant previous research that serves as a benchmark and foundation. Studies on digital transformation emphasize the vital role of digital leadership in bureaucratic success. Specifically, previous research on Surabaya's electronic parking has shown that technology readiness is a key factor in realizing a Smart City. Furthermore, the use of QRIS as a digital payment tool has been proven to increase productivity and ensure price certainty for service users. While previous studies have focused on the effectiveness of illegal parking regulations and general fiscal optimization, this research provides a new reference by integrating the concept of "Digital Nudging" and the utilization of

big data for macro-transportation planning, thereby strengthening the foundation for sustainable and transparent governance.

### **3. RESEARCH METHODS**

This study uses a qualitative approach with a descriptive-analytical design that aims to deeply dissect the phenomenon of Smart Governance acceleration through the mandatory cashless parking policy on public roads in Surabaya City. The general explanation is based on an effort to understand the social reality and dynamics of public policy through the perspectives of the actors involved, from policymakers at the Transportation Agency to implementers in the field and the public as service users. (Septiana et al., 2024). The use of qualitative methods was chosen because it can provide a holistic picture of the digital transition process, which involves not only changes in technological infrastructure but also shifts in legal culture and economic behavior of urban communities. In the context of Surabaya, this study seeks to explore how digital control mechanisms through cashless payments can reduce the practice of extortion and increase government accountability. This approach allows researchers to capture the nuances of complexity from social resistance, technology adaptation by parking attendants, to the effectiveness of real-time data monitoring systems. (Nurrisa & Hermina, 2025) By focusing on the meaning behind the policy, this qualitative research serves as an instrument to evaluate the extent to which Smart Governance principles such as transparency, efficiency, and participation have been internalized in the practice of roadside parking management. The constructivist paradigm adopted in this method helps researchers understand that the success of digitalization policies is not merely about increasing Regional Original Income (PAD), but rather the creation of a clean and trusted governance ecosystem in the eyes of the public, all of which are explored through participatory observation and in-depth interpretation of qualitative facts in the field. (Bado, 2022).

Operationally, this study relies on primary data collection techniques through in-depth interviews with purposive sampling techniques to identify key informants, including transportation authority officials, city information system experts, parking attendants on duty at crucial points, and civil society representatives to obtain credible and multidimensional data. In addition to interviews, field observations were conducted regularly in mandatory cashless parking areas to observe direct interactions in the digital transaction process and any technical obstacles that arise spontaneously. Secondary data were obtained through documentation studies covering city government regulations (Perwali), annual parking levy reports, and literature related to Smart City implementation in Surabaya. (Sulung & Muspawi, 2024). All

collected data were then processed using the interactive qualitative data analysis technique of Miles, Huberman, and Saldana, which includes the stages of data condensation, data presentation (data display), and drawing conclusions or verification. To ensure the validity of the data, this study applied source triangulation and method triangulation techniques, namely by comparing information from various sources and matching interview results with observational facts and official documents. This analysis also involved identifying patterns of sociological and technical barriers, as well as evaluating the integration of big data in the decision-making system of the Surabaya City Government. With this approach, the study was able to produce theoretical and practical conclusions regarding the effectiveness of Smart Governance acceleration, which ultimately provided strategic recommendations for strengthening an electronic-based government system that is sustainable, transparent, and able to address the challenges of digital disruption in public services in the future. (Arfah & Marsuki, 2025).

#### **4. RESULTS AND DISCUSSION**

This section presents research results on the implementation of the mandatory cashless parking policy on public roads in Surabaya. The research was conducted from 2025 to early 2026, focusing on strategic parking locations such as Jalan Tunjungan and Jalan Darmo. Data was collected through field observations, in-depth interviews with stakeholders, and analysis of digital transaction data from the Transportation Agency.

##### **The "Digital Nudging" Effect in the Behavioral Transformation of Parking Attendants and Service Users**

Conceptually, Digital Nudging is the use of interface design or choice architecture in a digital environment that aims to predictably influence people's behavior without prohibiting other options or drastically changing economic incentives. In the context of public services in the City of Surabaya, the mandatory cashless parking policy on public roadsides is a concrete manifestation of the application of this concept to accelerate Smart Governance. The general explanation is rooted in the City Government's efforts to socially engineer a parking ecosystem that for decades has been trapped in informal, non-transparent cash transaction patterns that are vulnerable to fiscal leakage. (Ruzika Zaimar et al., 2025) By replacing payment methods from physical cash to QRIS scanning or the use of electronic money, the government indirectly provides a "digital push" to all actors involved. This phenomenon creates an environment where transparency is no longer just a moral imperative, but rather a system that is automatically embedded in every transaction. This digitalization acts as an infrastructure that

forces the creation of information transparency, where every rupiah paid by the public leaves a digital audit trail that cannot be erased or manipulated by subjective human intervention. The effect of this nudging is significant because it can change interaction patterns that were previously fraught with tariff uncertainty and potential conflict, into a more formal and professional standard procedure. The Surabaya government has successfully used technology as an "impartial referee," slowly but surely shifting the paradigm of public road governance from a traditional manual system to an electronic-based government system that is accountable, efficient, and oriented towards data validity. (Rudy Tarumingkeng, 2025).

More deeply, the behavioral transformation resulting from the effects of Digital Nudging is seen in stark contrast to the two main actors: parking attendants and service users. On the service provider side, parking attendants, who previously had ample room to negotiate illegal fares or engage in extortion, have now shifted their role to digital assistants responsible for ensuring the smooth running of electronic transactions. They feel regularly "supervised" by algorithms, which psychologically encourage a higher level of discipline because their productivity is now monitored in real time through the Transportation Agency's monitoring dashboard. On the service user or public side, Digital Nudging, through mandatory cashless parking, has successfully rebuilt public trust that had been eroded by the irregularities of the old parking system. The public now has legal certainty that the funds they spend actually go to Regional Original Revenue (PAD) for city development, which in turn increases citizen compliance in paying fees according to the official rates. Qualitative analysis shows that the removal of physical barriers such as small changes and the ease of scanning codes have created access efficiencies that satisfy residents. This discussion demonstrates that technology in Smart Governance in Surabaya functions as a highly effective technological regulation instrument, capable of breaking the chain of information asymmetry and closing the gap of moral hazard without the need for massive physical supervision by security forces. The success of this mandatory policy demonstrates that the integration of public policy and information technology can produce a drastic leap in service quality, transforming the image of the parking sector from a chaotic informal sector to a modern, integrated, and transparent public service. Going forward, this digital nudging pattern is expected to continue to be developed to strengthen the foundation of Surabaya as a smart world city, where governance is truly clean and oriented towards justice and the overall comfort of citizens. (Muhammad Faizal Maulana & Cholid Fadil, 2025).

**Table 1.** Transformation of Parking Attendant Behavior Typology Before and After Digitalization.

<b>Behavioral Dimensions</b>	<b>Condition Before (Cash System)</b>	<b>Post Condition (Mandatory Non-Cash)</b>	<b>Digital Nudging Effect</b>
<b>Tariff Determination</b>	There is often bargaining or rates above the provisions (information asymmetry).	Rates are locked to the QRIS/EDC system according to regulations.	Automatically eliminates illegal negotiation space.
<b>Interaction with Residents</b>	Tends to be transactional and unmeasured.	Acting as a digital assistant (QRIS usage educator).	Changing the image from conventional parking attendants to digital public servants.
<b>Accountability</b>	Deposits are an estimate of the potential for high leakage (moral hazard).	Every transaction is recorded in a digital trail in real-time.	Discipline driven by transparent data monitoring.

*Source: Research source 2026.*

Based on Table 1, it can be concluded that the implementation of the mandatory cashless parking policy in Surabaya City has triggered a significant structural transformation in the behavioral patterns of actors in the field through digital nudging mechanisms. The technology in this ecosystem functions not only as a financial transaction tool but has evolved into an automated regulatory instrument capable of mitigating various information distortions that have been a major obstacle to optimizing regional revenue. In the tariff setting dimension, the QRIS and EDC systems have succeeded in instantly upholding the rule of law by locking in payment amounts according to regulations, which sociologically eliminates the room for illegal negotiations and the practice of extortion that is often complained about by the public. The change in the role of parking attendants from mere conventional fee collectors to digital assistants or technology educators represents an extraordinary leap in work culture this proves that Smart Governance policies are able to transform the image of the chaotic informal sector into a more professional, humane, and measurable public service.

## Mapping of the Public Trust Index in the Smart Governance Ecosystem

As a form of further interpretation, the transformation of officer behavior is linear with public perception. The researcher classified citizen sentiments recorded during the interview process as follows:

**Table 2.** Mapping of the Public Trust Index in the Smart Governance Ecosystem.

Cluster Findings	Interview points	Researcher Analysis
<b>Legal certainty</b>	<i>"It's more reliable to pay using QRIS because the amount is accurate and official."</i>	Technology as an instrument of legal compliance (Technological Regulation).
<b>Financial Security</b>	<i>"I'm sure the money goes to the government, not for extortion."</i>	Reducing fear of misuse of regional funds.
<b>Access Efficiency</b>	<i>"No need to look for small changes, the process is fast."</i>	Digitalization as a solution for service convenience (Responsiveness).

*Source: Research source 2026.*

Based on Table 2, it can be concluded that the success of mandatory cashless parking in Surabaya is largely determined by positive public perception of three key aspects: legal certainty, financial security, and service efficiency. The general explanation rests on the fact that this digital transition has successfully transformed public skepticism into concrete support by providing a transparent and reliable system. More deeply, the "Legal Certainty" cluster demonstrates that payment technologies such as QRIS function as regulatory instruments that enforce compliance with official rates, giving residents a sense of legal protection against extortion or illegal fare practices. This is closely related to the "Financial Security" cluster, where the public experiences a significant psychological shift; they feel more at ease and enthusiastic about paying fees due to the assurance that the funds are directly distributed to regional coffers through an unmanipulated digital footprint. The researcher's analysis confirms that digitalization has effectively reduced public fears of misuse of regional funds or extortion practices that have long been a sociological residue in the cash system. Furthermore, in the "Access Efficiency" dimension, digitalization has proven capable of meeting the needs of urban communities who desire speed and practicality, so that the transaction process is no longer considered an administrative burden but rather a service convenience. Overall, this data demonstrates that the acceleration of Smart Governance in Surabaya through the cashless parking policy has succeeded in creating a public service ecosystem with integrity. The application of this technology has not only changed the means of payment, but has radically

rebuilt public trust in the bureaucracy, while strengthening the government's legitimacy in managing regional assets in a modern, accountable manner, and fully oriented towards the comfort and justice of city residents.

### **Optimizing Parking Big Data as a Macro Transportation Planning Instrument**

Optimizing big data in urban management is rooted in transforming data from mere transactional records into strategic assets that shape the direction of public policy. In the context of Surabaya, the implementation of cashless roadside parking is no longer simply an effort to digitize the retribution system, but rather a fundamental step toward building a "digital sense" capable of capturing the pulse of citizen mobility in real time. Big parking data generated through thousands of daily transactions provides a granular picture of how, when, and where vehicles gather in public spaces. Theoretically, this data serves as the foundation for agile Smart Governance, where the government no longer plans urban planning based on assumptions or sporadic manual observations, but rather on accurate empirical evidence. Optimizing data at a macro scale allows the Transportation Agency to understand patterns of economic behavior and mobility simultaneously; for example, long parking durations in office areas or rapid vehicle turnover in tourist areas like Jalan Tunjungan provide valuable information about the productivity of that road space. By leveraging an integrated data infrastructure, Surabaya has successfully leapfrogged the old paradigm of reactive transportation management to predictive planning. This proves that the success of a smart city is highly dependent on the bureaucracy's ability to process piles of raw data into meaningful information to create policies that are targeted, efficient, and sustainable for an increasingly dynamic urban ecosystem. (Sutisna & Novita, 2025) Utilization of big parking data in Surabaya has been transformed into an Evidence-Based Policy instrument capable of revolutionizing macro transportation management. Through analysis of frequency patterns and peak hours recorded in the cashless system, the city government can implement traffic engineering with a very high level of precision, even claiming to achieve 98 percent accuracy in mitigating congestion before the saturation point is reached. This data enables automatic synchronization of Area Traffic Control System (ATCS) technology, where the duration of red lights can be dynamically adjusted based on the density of vehicles detected from surrounding parking activity. Furthermore, this data optimization provides a qualitative basis for establishing fairer "parking zones," where rates and duration are regulated to prevent overuse of public space and encourage the use of public transportation. The macro impact is particularly noticeable in increasing the efficiency of traffic flow in the city's main corridors, directly reducing air pollution and wasting travel time for residents. Surabaya's success in integrating parking data

into its macro mobility strategy demonstrates that parking management has now become an integral part of integrated transportation solutions, not just a mere matter of fees. In the future, this innovation is expected to become a national pilot model in terms of using technology to create transparent and data-based governance, which will ultimately strengthen Surabaya's position as a world-class metropolitan city that excels in technology integration and the comfort of its citizens' lives. (Hidayat & Andry, 2025).

**Table 3.** Integration of Granular Parking Data in Smart Transportation Policy Architecture.

<b>Data Dimensions</b>	<b>System-Based Findings (Input)</b>	<b>Strategic Policy Implementation (Output)</b>
<b>Mobility Prediction</b>	Parking frequency and duration patterns at crucial economic points.	Congestion mitigation with an accuracy rate of ninety-eight percent before saturation point.
<b>Traffic Engineering</b>	Identify peak hours through digital transaction spikes.	Responsive red light synchronization (ATCS) and alternative route management.
<b>Public Space Efficiency</b>	Dynamics of vehicle turnover in commercial centers.	Optimizing parking zones to reduce excessive use of road space.

*Source: Research source 2026.*

Based on Table 3, it can be concluded that the integration of granular data resulting from mandatory non-cash parking has been transformed into an Evidence-Based Policy instrument that is vital for the macro transportation system in Surabaya City. The general explanation is based on the change in data function from initially only administrative-fiscal to a strategic asset in the city government's decision support system. Through the mobility prediction dimension, it is seen that the frequency and duration patterns of parking at crucial economic points are no longer mere transaction records, but have become the basis for early detection that allows the government to mitigate congestion with an accuracy level of up to 98 percent. This reflects the success of the Smart Governance mechanism in processing digital data input into preventive policy output before vehicle saturation points occur on main roads. Furthermore, in the traffic engineering dimension, the identification of peak hours generated automatically through a surge in digital transactions provides the Transportation Agency with the ability to synchronize the Area Traffic Control System (ATCS) and alternative route management that is more responsive and adaptive to field dynamics. The researcher's analysis confirms that the efficiency of public space can now be managed more scientifically through monitoring the dynamics of vehicle turnover; This provides a strong foundation for optimizing

the zoned parking policy, which aims to reduce the excessive use of road space by private vehicles parked for too long in commercial centers such as Jalan Tunjungan and Jalan Darmo. Overall, the use of big data proves that mandatory cashless parking in Surabaya has leaped into the city's "digital sense" capable of synergizing retribution management with sustainable urban mobility strategies. This transformation creates an intelligent transportation ecosystem, where every planning decision is made based on the validity of precise field data, thus creating a smooth traffic flow, increasing road space productivity, and ultimately realizing modern urban governance that is oriented towards the comfort of citizen mobility as a whole.

## **5. CONCLUSION AND SUGGESTIONS**

The implementation of the mandatory cashless parking policy in Surabaya has successfully accelerated Smart Governance by transforming traditional parking management into a transparent, data-driven system. This transition has effectively minimized budget leakage and enhanced fiscal transparency, directly strengthening Regional Original Revenue (PAD). Through the mechanism of Digital Nudging, the policy has professionalized the role of parking attendants and rebuilt public trust by providing legal certainty and financial security. Furthermore, the integration of granular Big Data allows for evidence-based macro-transportation planning, achieving up to 98% accuracy in congestion mitigation. To ensure the sustainability of this digital ecosystem, it is recommended that the Surabaya City Government maintain consistent infrastructure readiness and network stability to prevent technical disruptions. Continuous education and socialization are vital to improving public digital literacy and supporting cultural adaptation. Additionally, this model should serve as a strategic framework for other Indonesian metropolitan cities to modernize urban governance. Future efforts should focus on further synchronizing parking data with broader smart city initiatives to create a more responsive and inclusive urban environment.

## **REFERENCE LIST**

- Anita Tri Agustin, Endang Indartuti, & Dida Rahmadanik. (2024). Implementation of Electronic Parking Policy Through Technology Readiness in Realizing Smart City in Surabaya. *Social Symbiosis: Journal of Social and Political Science Integration*, 1 (3), 25–37. <https://doi.org/10.62383/social.v1i3.371>
- Arfah, Irma Suryani, & Marsuki, Nur Riswandy. (2025). Legal Literacy in the Use of Social Media: A Qualitative Study. *Social Sciences and Humanities Open*, 12. <https://doi.org/10.1016/j.ssaho.2025.101697>
- Bado, B. (2022). RESEARCH METHODS BOOK EBOOK.

- Dila Kusmawati, S., Anggraini, KE, Wicandra, AA, Dewi, A., & Ardini, L. (2025). New Public Management: Literature Review of New Government Styles in Managing Public Services. 11 (2).
- Fitriana, L., & Arif, L. (2024). Implementation of Smart Governance in Administrative Services. *Wahana Pendidikan Scientific Journal*, 10 (18), 585–596. <https://doi.org/10.5281/zenodo.13924399>
- Gurusi, L., & Supriyanto, S. (2025). Parking Management Legal Policy and Opportunities for Implementing E-Parking: A Solution to Boost Regional Revenue. *USM Law Review Journal*, 8. <https://doi.org/10.56071/de>
- Hidayat, R., & Andry, H. (2025). IMPLEMENTATION OF THE AREA TRAFFIC CONTROL SYSTEM (ATCS) POLICY PROGRAM AT THE PEKANBARU CITY TRANSPORTATION DEPARTMENT. In *Journal of Public Administration Review* (Vol. 2, Issue 2). <https://journal.uir.ac.id/index.php/jpar>
- Irvan, M., Syaifulloh, N., & Wardhono, H. (2023). Implementation of Bureaucratic Reform in an Effort to Realize the Integrity Zone Program at Samsat Manyar Surabaya. In *Hendro Wardhono SMIA* (Vol. 1, Issue 1).
- Mega, C., Laia, P., & Pramono, S. (2025). Implementation of Regional Regulation No. 3 of 2018 in Qris-Based Parking Management in Bungkul Park, Surabaya City. In *Sapto Pramono SAP* (Vol. 3, Issue 3).
- Muhammad Faizal Maulana, & Cholid Fadil. (2025). SMART PARKING SURABAYA: DIGITAL LITERACY TRANSFORMATION FOR PARKING ATTENDEES TOWARDS TRANSPARENT INCOME MONITORING. *BHAKTI NAGORI* (Journal of Community Service), 5 (2), 1209–1217. [https://doi.org/10.36378/bhakti\\_nagori.v5i2.4395](https://doi.org/10.36378/bhakti_nagori.v5i2.4395)
- Natsir, K., Bangun, N., Attan, MB, & Landias, JS (2023). USE OF QRIS AS A DIGITAL PAYMENT TOOL TO IMPROVE MSME PRODUCTIVITY. *Serina Abdimas Journal*, 1 (3), 1154–1163. <https://doi.org/10.24912/jsa.v1i3.26208>
- Nugroho, BL, Supeno, E., Asmorowati, S., & Hapsari, W. (2024). Implementation of the Smart Parking System (SPS): A Study on Cashless Payment for Public Roadside Parking Fees in Surabaya City. *Journal of Governance and Administrative Reform*, 5 (2), 119–136. <https://doi.org/10.20473/jgar.v5i2.61650>
- Nurrisa, F., & Hermina, D. (2025). Qualitative Approach in Research: Strategy, Stages, and Data Analysis. 02, 793–800.
- Permana, Ronan Adi, Rahmadanik, D., & Novaria, R. (2023). 168593 IMPLEMENTATION OF PTOGAM E-PARKIR IN IMPROVING PARKING RETRIBUTION SERVICES IN SURABAYA CITY.
- Ramadhan, R. (2024). EFFECTIVENESS OF ILLEGAL PARKING REGULATION IN SURABAYA CITY BASED ON REGIONAL REGULATION NUMBER 3 OF 2018. In *January* (Vol. 4, Issue 01).
- Romadhoni, Muhammad Aditia Putra, & Dwiangkara, Yoga Putra Aji. (2025). Analysis of Optimization Strategy for Determining and Collecting Entertainment Tax in the Regional Revenue Agency of Surabaya City. *Proaksi Journal*, 8 (2), 523–536. <https://doi.org/10.32534/jpk.v8i2.2172>
- Rudy Tarumingkeng. (2025). Nudge Theory.

- Ruzika Zaimar, F., Haruna, H., Riski Windarsari, W., & Ridha, A. (2025). DYNAMICS OF RESISTANCE AND QRIS ADOPTION IN MSMEs IN MAKASSAR: A QUALITATIVE ANALYSIS WITH A NUDGE THEORY APPROACH. 10 (2). <https://doi.org/10.54964/liability>
- Safitri, Lila Amelia, Avisena, Mochamad Alvin, Tribuana, Aurora Andi, Tukiman, & W, Mega Nahda. (2024). Implementation of Parking Payment Policy Via QRIS (Quick Response Code Indonesian Standard) by the Surabaya City Transportation Agency in the Framework of. *Journal of Social Science Research*, 4, 13840–13854.
- Septiana, Nyangfah Nisa, Khoiriyah, Z., & Shaleh. (2024). CASE STUDY RESEARCH METHOD IN A QUALITATIVE APPROACH. 10 (4).
- Sulung, U., & Muspawi, M. (2024). UNDERSTANDING RESEARCH DATA SOURCES: PRIMARY, SECONDARY, AND TERTIARY. 5 (3).
- Supawanhar, Askani, & Hartono, R. (2024). QUALITY OF PUBLIC SECTOR SERVICES WITH A NEW PUBLIC MANAGEMENT PERSPECTIVE APPROACH.
- Sutisna, B., & Novita, D. (2025). Implementation of the Internet of Things (IoT) and Smart Sensors in Optimizing Parking System Management. 1 (1), 11–20.
- Tulungen, E., Maramis, J., Saerang, D., Tulungen, EE, Saerang, DP, Maramis, JB, Doctoral Study of Management Science, P., Economics and Business, F., & Kunci, K. (2022). DIGITAL TRANSFORMATION: ROLE OF DIGITAL LEADERSHIP. *1116 EMBA Journal*, 10 (2), 1116–1123.
- Wila Tenga, L., Arvianti, Y., Sasmito, C., Bachelor, SP, Tribhuwana, U., & Malang, T. (2023). Analysis of Parking Tax Policy Governance and Parking Retribution in Malang City. *Journal of Public Administration Research*, 9 (1). <https://doi.org/10.30996/jpap.v9i1.8025>