

LAW & SOCIAL POLICY | RESEARCH ARTICLE

# Effectiveness of Electronic Law Enforcement in Reducing Traffic Violations: Empirical Evidence from Gowa Regency, Indonesia

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## ABSTRACT

The primary aim of this study is to identify, analyze, and evaluate the effectiveness of the Electronic Ticketing system in reducing traffic violations in Gowa Regency. Additionally, it identifies the factors affecting both the success and the challenges of Electronic Ticketing implementation, using Soerjono Soekanto's theory of legal effectiveness as the analytical framework. This study employs an empirical juridical approach with a qualitative design. Data were collected through literature review, interviews with Gowa District Traffic Police officers (Satlantas Polres Gowa), field observations, and documentation of relevant secondary data. This approach provides a comprehensive picture of the implementation of manual ticketing and the electronic traffic ticket system in practice. The findings show that manual ticketing during the 2022–2024 period was less effective in reducing traffic violations. By contrast, since its introduction in 2025, the Electronic Ticketing system has been able to detect violations automatically, transparently, and accountably. Nevertheless, its effectiveness in reducing traffic violations remains suboptimal because of low public rates of ticket confirmation and fine payment, incomplete delivery of violation notices by the police, and technological infrastructure limitations. Viewed through the perspective of legal effectiveness theory, the aspects of legal substance and legal structure have been met, but the factors of facilities, community, and legal culture still constitute major barriers. This study recommends strengthening regulations on administrative enforcement, optimizing Electronic Ticketing infrastructure, expanding public legal awareness campaigns, and enhancing inter-agency coordination to raise legal awareness. These measures would improve the effectiveness of electronic traffic ticket in reducing traffic violations and foster a disciplined and sustainable traffic law culture in Gowa Regency.

**Keywords:** Legal Effectiveness, Electronic Ticketing, Traffic Violation.

## I. Introduction

The Republic of Indonesia is a state based on law, as clearly stated in Article 1 paragraph (3) of the 1945 Constitution, as amended for the fourth time. This provision signifies that all aspects of life in Indonesia must be governed by the rule of law (*rechstaat*), where law serves as the foundation and guiding principle for social order. Law functions as a compass for human conduct, regulating the balance between rights and obligations in social interaction while providing mechanisms to ensure their fulfillment and protection. Essentially, law exists to structure human coexistence and to anticipate deviations from societal norms. One



such deviation manifests in the form of criminal or administrative violations that disrupt public order, safety, and tranquility. Traffic law enforcement in Indonesia has undergone a significant transformation from conventional manual ticketing methods to technology-based enforcement systems through the implementation of Electronic Traffic Ticketing (ETLE). Gowa Regency, one of the strategic regions in South Sulawesi bordering the city of Makassar, has adopted both systems as part of its effort to improve traffic discipline and safety. The rapid advancement of technology, combined with growing human needs, has simultaneously given rise to more complex forms of violations. The evolution of science and technology has influenced nearly all aspects of life, including transportation. Before the advent of motorized vehicles, people relied on traditional means such as horses; however, with modernization, motor vehicles have become essential, especially in urban areas. As a consequence, every driver is obliged to comply with traffic signs and regulations to ensure personal safety and to protect the rights of others on the road. Despite this, traffic violations remain widespread, and the surge in motor vehicle ownership continues to exacerbate road safety challenges in Indonesia.

The traffic and road transportation system plays a strategic role in supporting national development and integration, contributing to the realization of public welfare as mandated by the 1945 Constitution. The development and supervision of road transportation require a collaborative approach among various government institutions, with clear delineations of authority to ensure that road safety and transportation are organized in an efficient, safe, and accountable manner. Law enforcement in this sector is aimed at ensuring that the norms stipulated in Law No. 22 of 2009 on Road Traffic and Transportation (LLAJ) function effectively as behavioral guidelines. Consequently, the National Police are tasked with imposing sanctions on violators to foster deterrence and compliance. The implementation of Electronic Ticketing (ETLE) is consistent with the provisions of Law No. 22 of 2009, particularly Article 272 paragraphs (1) and (2), which state that:

- a. Electronic equipment may be used to support enforcement activities in the field of road traffic and transportation; and
- b. The results obtained through such electronic devices may serve as valid evidence in court.

Under this legal mandate, police officers enforce traffic laws through on-road monitoring and impose fines on violators who are detected through electronic systems. Traditionally, manual enforcement was prone to procedural inconsistencies and opportunities for corruption or bribery between motorists and officers. The introduction of ETLE represents a major reform designed to enhance transparency, minimize discretion, and eliminate extortion practices by automating evidence collection and ticket issuance. The system was officially launched nationwide on December 6, 2017, as part of the National Police's digitalization of law enforcement. In accordance with Article 1 paragraph (14) of the Regulation of the Chief of the Indonesian National Police No. 2 of 2025 on the Enforcement of Traffic Violations Based on Electronic Evidence, ETLE is defined as "an information technology-based electronic device equipped with cameras that can detect various types of traffic violations for law enforcement in the field of road traffic and transportation." Once a violation is committed, the CCTV camera automatically captures the vehicle's license plate and stores it as legal evidence. The same regulation, under Article 1 paragraphs (1) and (2), stipulates that enforcement using electronic recordings is conducted through the issuance of an electronic ticket accompanied by the recorded evidence, forming an integral part of traffic law enforcement procedures.

Within the framework of legal modernization, ETLE represents a technological innovation aimed at increasing transparency, efficiency, and accountability in traffic law enforcement. Gowa Regency became the first region in South Sulawesi to implement the full ETLE system in June 2025, installing five static camera points located along Sultan Hasanuddin Street (two points), Pallangga Main Road (in front of Mangalli Terminal), Malino Road (in front of SDN 7 Batangkaluku), and Tun Abdul Razak Street (near the Badik Monument). The system operates through a legal mechanism that includes notification of violations within three days, an opportunity for confirmation within five days, and fine payment within seven days, in accordance with national police procedures. Before the static system, Gowa's Police Department had

launched ETLE Handheld in January 2025, recording approximately 500 violations per month, predominantly for not wearing helmets, driving against traffic, and carrying more than two passengers. However, data from June and July 2025 showed a sharp increase—from 375,199 to 625,674 violations—indicating that overall compliance remains low. This underscores that while ETLE has legal legitimacy, its social effectiveness still depends on citizens' awareness and behavioral adaptation. To maximize public acceptance, the Gowa Traffic Police (Satlantas Polres Gowa), in collaboration with the local government, conducted extensive public outreach campaigns to introduce ETLE. The system employs both static and mobile cameras attached to police uniforms, vehicles, and handheld devices to automatically detect and document violations. Yet, despite its advantages, ETLE poses several legal and technical challenges, including potential errors in vehicle identification, limited public access to digital dispute mechanisms, and the absence of systematic procedures for contesting erroneous citations. These issues raise legal questions regarding due process, data accuracy, and the protection of citizens' rights in digital law enforcement.

From a religious and ethical perspective, the importance of obedience to lawful authority is also emphasized in Surah An-Nisa' (4:59), which commands believers to obey God, the Prophet, and those in authority as long as such obedience does not lead to disobedience toward divine law. Similarly, the Hadith narrated by Bukhari and Ibn Majah reinforce that obedience to lawful authority is obligatory unless it commands wrongdoing, and that no harm should be inflicted upon oneself or others. Islamic scholars, such as Syaikh Sulaiman al-Bujairimi, interpret these teachings as prohibitions against any behavior that endangers others, including reckless use of public roads. Hence, compliance with traffic regulations aligns not only with positive law but also with moral and spiritual responsibility. In this sense, traffic law enforcement, including ETLE, is consistent with the *maqāṣid al-sharī'ah*, particularly the preservation of life (*ḥifẓ al-naḥs*) and the protection of public welfare (*maṣlaḥah 'āmmah*). Therefore, both the constitutional and ethical frameworks justify the implementation of ETLE as a legitimate tool for maintaining public order and safeguarding lives. Obedience to traffic laws represents not only civic responsibility but also an act of faith and social ethics. In light of this, the researcher deems it necessary to examine "The Effectiveness of Electronic Traffic Ticketing (ETLE) in Reducing Traffic Violations: A Case Study of Gowa Regency", focusing on the extent to which ETLE has succeeded in minimizing violations and the factors that influence its effectiveness at the local level.

## II. Literature Review and Hypothesis Development

### 2.1. Theoretical Framework

#### a. Theory of Legal Effectiveness

According to Soerjono Soekanto, the effectiveness of law reflects how far people's actions and behaviors align with legal norms to achieve specific objectives. Law is considered effective when enforcement institutions can implement sanctions fairly and consistently. Five primary factors influence legal effectiveness:

- a. **The Law Itself:** It must balance justice, certainty, and utility. Excessive emphasis on legal certainty can hinder justice; therefore, justice must remain the ultimate goal of legal application.
- b. **Law Enforcers:** Effective law enforcement requires professional and ethical officials with adequate resources and fair regulations.
- c. **Facilities and Infrastructure:** Skilled human resources, efficient institutions, and technological and financial support are vital.
- d. **Society:** Public awareness and perception toward law affect enforcement. Socialization and education can strengthen legal compliance.
- e. **Culture:** Law functions as an instrument of social engineering. For law to influence social behavior, it must be internalized and communicated through cultural channels.

Soekanto argues that the degree of public compliance determines the law's success. Handoko defines effectiveness as the achievement of goals using appropriate means, while Budiani identifies indicators of program effectiveness: accurate targeting, proper dissemination, clear objectives, and consistent monitoring.

#### b. Theory of Law Enforcement

Law enforcement aims to actualize justice, certainty, and social utility. It represents both institutional processes and individual actions to apply legal norms in society. Moeljatno outlines criminal law enforcement as a process that defines prohibited acts, determines punishments, and regulates their execution. Lawrence M. Friedman further explains that legal enforcement depends on three interrelated components:

- 1) Legal Structure – institutions and mechanisms enforcing the law;
- 2) Legal Substance – the body of rules and norms;
- 3) Legal Culture – values and attitudes influencing the perception and practice of law.

When these three components operate harmoniously, the legal system functions effectively. Satjipto Rahardjo views law enforcement as the concretization of legal norms in real life, transforming abstract law into a daily social reality. Meanwhile, Soerjono Soekanto defines it as harmonizing social values, norms, and behaviors to maintain public order.

From a policy perspective, criminal law enforcement involves three stages:

- 1) Formulation (legislative phase);
- 2) Application (judicial phase);
- 3) Execution (administrative phase).

The goal is to ensure social order, fairness, and certainty through coordinated institutional cooperation and professionalism among law enforcers.

#### c. Theory of Legal Compliance

Legal compliance links attitudes, motivation, and behavior in relation to law. According to H. C. Kelman, there are three types of compliance:

- 1) Compliance: Obedience based on fear of sanctions.
- 2) Identification: Obedience to maintain relationships or social approval.
- 3) Internalization: Obedience because the rule aligns with personal values and beliefs.

Soerjono Soekanto adds five influencing factors: indoctrination (obedience due to authority), habituation (obedience by habit), utility (obedience because the law is beneficial), group identification (obedience to align with peers), and sanction (obedience from fear of punishment). True compliance emerges when individuals internalize the law as both socially beneficial and morally justified, not merely when they act out of fear or compulsion.

## 2.2. Overview of Traffic Law Enforcement

Law enforcement in traffic aims to realize justice, legal certainty, and public order on the roads. It involves implementing statutory norms through preventive and repressive measures. According to Satjipto Rahardjo, it is the process of transforming legislative intent into real-life practice. Law enforcement operates at multiple levels — formulation (creating rules), application (police and courts enforcing them), and

execution (imposing sanctions). Traffic enforcement specifically emphasizes compliance with Law No. 22 of 2009 on Road Traffic and Transportation, which seeks to ensure road safety, reduce accidents, and promote discipline among road users.

- a. Fundamental legal principles include:
- b. Certainty (laws must be clear and predictable),
- c. Justice (equal treatment before the law),
- d. Utility (law should create safety and order),
- e. Professionalism (integrity and competence among officers), and
- f. Rule of Law (law must prevail over arbitrary power).

Together, these principles guide law enforcement institutions toward transparent, fair, and effective traffic governance.

### 2.3. Overview of Traffic Violations

A traffic violation is an act that contradicts traffic regulations, as stipulated in Article 105 of Law No. 22 of 2009, which mandates orderly and safe road behavior. Violations differ from crimes in degree, being less severe but still punishable by fines or administrative sanctions. Traffic violations include:

- a. Disobeying traffic lights or signs,
- b. Not wearing helmets or seat belts,
- c. Driving without a valid license or registration,
- d. Using mobile phones while driving,
- e. Overloading vehicles or ignoring safety standards.

These actions endanger both the violator and other road users. Because evidence is often immediate and visible, such violations can be processed through simplified judicial procedures. According to Soerjono Soekanto, violations are influenced by:

- a. Human Factors: Low legal awareness and indiscipline among drivers.
- b. Road Conditions: Poor infrastructure or damaged roads.
- c. Vehicles: Technical issues and inadequate maintenance.
- d. Natural Conditions: Weather or environmental challenges.

Hence, traffic enforcement requires both legal sanctions and educational efforts to improve awareness.

### 2.4. Overview of Electronic Ticketing (E-Tilang / ETLE)

Electronic Ticketing (ETLE) was first implemented by the Jakarta Metropolitan Police in 2015, initially using two e-police cameras. Evaluations showed a 44% reduction in traffic violations. ETLE uses Automatic Number Plate Recognition (ANPR) to detect infractions automatically via CCTV and integrates data through the Electronic Registration and Identification (ERI) system. Legal foundations include Police Regulation No. 2 of 2025, Law No. 22 of 2009, and Government Regulation No. 80 of 2012. These regulations legitimize electronic recordings as valid evidence in court. ETLE aims to enhance road safety, improve public discipline, and eliminate corrupt practices by minimizing direct interaction between officers and violators. ETLE operates in five stages:

- a. Cameras automatically record violations.
- b. The system identifies vehicles through the ERI database.
- c. A confirmation letter is sent to the vehicle owner.
- d. The owner verifies the violation online or in person within eight days.
- e. Fines are paid electronically via BRIVA (Bank Virtual Account).

If the violator fails to respond or pay, the vehicle's registration (STNK) is temporarily blocked. This automated process increases transparency and efficiency. The main goals of ETLE include:

- a. Ensuring safe, orderly, and efficient road traffic;
- b. Reducing accident rates and fatalities;
- c. Building a culture of law-abiding road users;
- d. Supporting digital governance and transparency.

Benefits:

- a. Legal: Strengthens accountability and evidence-based enforcement.
- b. Social: Encourages voluntary legal compliance and awareness.
- c. Administrative: Simplifies coordination between police, judiciary, and transport agencies.
- d. Economic: Reduces corruption and increases non-cash revenue collection.

Reports from Jakarta and other pilot regions show ETLE reduced traffic violations by approximately 40% within six months of implementation. Stakeholders involved:

- a. Police (Polri): Lead enforcement, operate ETLE systems, and issue penalties.
- b. Courts: Adjudicate violations and ensure due process.
- c. Prosecutors: Execute penalties and represent the state's legal interest.

Together, these institutions uphold justice while improving administrative efficiency in traffic law enforcement.

## 2.5. Comparison between Manual and Electronic Ticketing

Manual ticketing involves direct interaction between police and violators, often allowing on-the-spot negotiations that may lead to misconduct or corruption. The procedure requires attending court sessions and reclaiming confiscated documents (e.g., driver's license or vehicle registration). In contrast, Electronic Ticketing (ETLE) eliminates face-to-face transactions. Violations are detected automatically, evidence is stored digitally, and fines are paid electronically. This system ensures transparency, efficiency, and fairness, aligning with modern governance principles. However, ETLE has limitations: it cannot detect administrative violations (such as expired licenses) or driver conditions (e.g., intoxication), which still require manual enforcement. Thus, both systems must coexist — ETLE for automated monitoring and manual enforcement for on-the-spot control.

## 2.6. Legal Basis

The legal framework governing traffic law enforcement and electronic ticketing includes:

- a. Police Regulation No. 2 of 2025 on traffic violations detected through electronic evidence;
- b. Law No. 22 of 2009 on Road Traffic and Transportation;

- c. National Police Decree No. KEP/12/2016 on operational standards for manual and electronic ticketing;
- d. Law No. 16 of 2004 on the Public Prosecution Office;
- e. Law No. 48 of 2009 on Judicial Power.

These instruments collectively legitimize ETLE as part of Indonesia's legal modernization and ensure that all traffic law enforcement adheres to principles of legality, justice, and transparency. Theories of effectiveness, law enforcement, and legal compliance provide the conceptual foundation for analyzing ETLE as an innovation in traffic governance. By integrating technology into legal enforcement, ETLE enhances transparency, minimizes corruption, and promotes disciplined road behavior. Although challenges remain, such as public adaptation and infrastructural limitations, the system demonstrates that technological modernization can effectively support the rule of law and the creation of a safer, more law-abiding society.

### III. Research Method

#### 3.1. Research Type

Given the title and problem formulation set out in Chapter I, this study employs an empirical legal research design. Empirical legal research focuses on how law emerges and operates in society by collecting and analyzing primary field data. In this project, empirical inquiry is used to examine the implementation of Electronic Traffic Law Enforcement (ETLE) by the Gowa District Police Traffic Unit (Satlantas Polres Gowa) and to assess its effectiveness in reducing traffic violations and shaping public compliance. Data are obtained through interviews, survey/brief questionnaires, and direct observation in relevant Satlantas work units. The aim is to generate valid, context-grounded knowledge about practice, not merely textual norms, through a planned and systematic procedure consistent with scientific research standards.

#### 3.2. Research Site

The study is conducted in Gowa Regency (Kabupaten Gowa), with fieldwork centered on the Traffic Unit of the Gowa District Police (Satlantas Polres Gowa). As the front-line institution for traffic law enforcement at the regency level, Satlantas Polres Gowa operationalizes national policies, executes local technical enforcement, and serves as the primary interface for implementing ETLE.

#### 3.3. Types and Sources of Data

##### a. Primary Data.

Field data gathered directly from sources with first-hand knowledge of ETLE implementation, obtained through interviews/short questionnaires and limited observation. Key informants include: (i) traffic police officers in Satlantas Polres Gowa; (ii) ETLE back-office operators/administrators in Satlantas; and (iii) community members (including at least one documented ETLE violator and one general road user).

##### b. Secondary Data.

Documentary and library materials relevant to the research problem, including legislation and implementing regulations on traffic and ETLE, institutional SOPs, official reports, scholarly books, journal articles, and other authoritative references.

#### 3.4. Population and Sample

##### a. Population.

All parties directly connected to the implementation and experience of ETLE in Gowa Regency:

Satlantas traffic officers, ETLE operators, and members of the public subject to traffic enforcement (including ETLE recipients).

b. Sample.

Purposive sampling is used to identify respondents who are directly relevant to the problem under study. The minimum sample comprises: two (2) Satlantas traffic officers, one (1) ETLE operator/administrator, one (1) member of the public who has received an ETLE citation, and one (1) general community member/road user. This composition ensures perspectives from implementers and regulated parties are both represented.

### 3.5. Data Collection Techniques

a. Interviews.

Semi-structured interviews with Satlantas traffic officers, ETLE back-office operators, and community members to obtain accurate descriptive accounts of procedures, bottlenecks, and perceived effectiveness. Where appropriate, brief questionnaires may supplement interviews to standardize certain factual items (e.g., frequency and type of violations observed).

b. Document/Literature

Structured review of statutory instruments, institutional guidelines/SOPs, official statistics, or administrative records available from Satlantas Polres Gowa, and relevant academic literature to contextualize and triangulate field findings.

Study.

### 3.6. Operational Definitions

a. Law Enforcement: Practical efforts to translate the ideals and normative concepts of law into social reality through activities of authorized institutions and actors.

b. Road Traffic and Transportation (LLAJ): An integrated system comprising traffic, road transportation, networks, infrastructure, vehicles, drivers, road users, and governance/management.

c. Traffic: All movements of people and vehicles using the road as the primary facility to reach destinations, with or without auxiliary conveyances.

d. Electronic Traffic Law Enforcement (ETLE): An information-technology-based electronic device/camera system that detects various traffic violations for LLAJ enforcement.

e. Electronic Recording Evidence: Electronic data and information recordings of traffic violations produced by ETLE devices, whether as duplicated/saved files, printouts, or photocopies used as evidentiary support.

f. Violation: An act contrary to legal provisions—i.e., conduct constituting *overtredingen* or unlawful behavior under applicable traffic regulations.

g. Electronic Ticketing (E-Tilang): The operational use of information technology to capture, process, and sanction traffic violations electronically to support safety, order, and security in traffic.

h. ETLE Mechanism: Use of CCTV/ANPR-enabled sensors to automatically record violations; issuance of confirmation letters; and notification/payment processes via post/email and integrated electronic channels.

i. Effective: A condition in which all supporting factors—law, law enforcers, facilities/technology, community, and culture—function optimally and are integrated, producing the intended reduction in violations and increased compliance.

j. Less Effective: A condition in which only some factors operate well (e.g., adequate technology and legal basis) while others lag (e.g., low public legal awareness or uneven socialization).

k. Ineffective: A condition in which key factors simultaneously face constraints (e.g., weak infrastructure, limited human resources, low public understanding, and insufficient local government support).

## IV. Results and Discussion

The Electronic Traffic Law Enforcement (ETLE) system in Gowa relies on two complementary technologies: permanently mounted static cameras and mobile (handheld) ETLE used by on-duty officers. The legal basis defines these tools explicitly. Article 1(16) of the National Police Regulation No. 2 of 2025 characterizes *ETLE Static* as equipment permanently installed in road spaces to monitor and identify violations; Article 1(18) defines *ETLE Mobile* as equipment installed on special police vehicles or officer devices to monitor violations while moving. (Peraturan Kepolisian Negara Republik Indonesia No. 2 Tahun 2025, Art. 1(16) & 1(18).)

An officer interview confirms how both modes operate operationally in Gowa: static CCTV captures license plates and infractions continuously, while the handheld device enables officers to photograph violations in the field, pushing evidence directly to the ETLE Back Office for processing and case management. This integration expedites validation and produces digital evidence suitable for sanctioning. (Interview with Briptu Ridwan, Satlantas Polres Gowa, 31 July 2025; 2 August 2025.) From a legal-effectiveness perspective (Soerjono Soekanto), the technology functions as a *facility* (sarana) that strengthens enforcement capacity. In Gowa, however, coverage gaps (limited camera points) mean the *facilities factor* is not yet fully effective, so expansion at high-risk locations remains necessary. (Satuan Lalu Lintas Polres Gowa, 2025.)

### 4.1. Standard Operating Flow (ETLE)

In Gowa, the operational flow follows national guidance:

- a. Cameras record the violation and capture the plate.
- b. Media is transmitted to the ETLE Back Office for validation against the Electronic Registration and Identification (ERI) database.
- c. The registered owner is verified.
- d. A confirmation letter is dispatched to the registered address (target: within 3 days).
- e. The violator confirms within the stipulated window (commonly 8 days) via the ETLE website or in person.
- f. A ticket is issued; payment is completed using BRI Virtual Account (BRIVA); non-payment triggers administrative blocking of the STNK until settlement.

National communications from Korlantas describe the same architecture—Back Office processing, owner confirmation, and non-cash settlement via BRIVA (including message notifications), reinforcing the local SOP.

### 4.2. Legal Consequences and Redress

Failure to confirm or pay within the stated period results in temporary administrative blocking of the vehicle registration (STNK), which in turn delays other obligations (e.g., annual tax). Repeat non-compliance may escalate in accordance with applicable procedural law. Conversely, motorists may contest misidentification by filing a challenge at the police office/online; this grievance path is integral to due process in ETLE. (Interviews: Briptu Ridwan, 31 July & 2 Aug 2025; Bripda Alfian Syam, 31 July 2025.)

### 4.3. Program Effectiveness by Budiani's Criteria

- a. Target Accuracy. ETLE in Gowa primarily captures *visible/behavioral* violations—e.g., red-light running, lane/marla breaches, no helmet, no seatbelt, using a phone, wrong-way driving, speed limits—while administrative checks (e.g., invalid/absent SIM or STNK) remain within manual ticketing.

Interviews indicate ETLE's 24/7 coverage increases certainty and reach for these behavioral offenses, but manual enforcement is still required for document checks. (Interview with Briptu Ridwan, 31 July 2025; Peraturan Kepolisian No. 2/2025; UU 22/2009.)

- b. Socialization. Satlantas Polres Gowa deploys brochures, school visits, billboards, and a community-facing "Badut Simpatik Ceria" program to improve comprehension and acceptance. Coverage in highland/rural areas is still uneven, limiting program uptake where digital access is weaker. (Interview with Briptu Hamzah Has, 31 July 2025.)
- c. Goal Attainment. Goals include higher road discipline, safer traffic, and contactless enforcement (reducing on-the-spot disputes and petty corruption). Operator testimony stresses efficiency and public trust benefits linked to automation and reduced face-to-face bargaining. (Interview with Bripda Alfian Syam, 31 July 2025.)
- d. Monitoring. The ETLE Back Office conducts periodic analysis & evaluation (ANEV) meetings with vendors to resolve network disruptions, slow validations, and evidence-drop issues; monitoring also reviews crash and violation metrics. This oversight loop aligns with Soekanto's emphasis on institutional performance. (Interview with Bripda Alfian Syam, 31 July 2025.)

#### 4.4. Comparative Data: Manual vs. ETLE

##### a. Manual Ticketing (2022–2024)

2022: 1,258; 2023: 3,971; 2024: 4,338 (Total 9,567). These upward trends suggest manual enforcement alone did not curb violations effectively—consistent with capacity limits and social compliance issues. (Satuan Lalu Lintas Polres Gowa, 2025.)

##### b. Early ETLE Rollout (June–July 2025)

- 1) June 2025: 375,199 detected; 344 letters sent; 95 blocked; 0 paid.
- 2) July 2025: 625,674 detected; 2,003 letters sent; 6 confirmed; 1 collected; 0 blocked/paid (as reported).

The technology is *highly effective in detection* but weak in conversion to confirmations and payments, indicating bottlenecks in infrastructure (coverage, connectivity), mailing efficacy, and public legal awareness. (Satuan Lalu Lintas Polres Gowa, 2025; Interview with Bripda Alfian Syam, 31 July 2025.)

##### c. Theoretical Integration

- 1) Soekanto (Effectiveness of Law). *Substance* (UU 22/2009; Perpol 2/2025) and *structure* (Satlantas/Back Office) are in place; *facilities* (network, camera density), *society* (awareness/compliance), and *legal culture* (beyond fear-based compliance) are the current constraints.
- 2) Friedman (Structure–Substance–Culture). Structure and substance are advancing; legal culture lags (low confirmation/payment rates).
- 3) Kelman (Compliance–Identification–Internalization). Present obedience is largely compliance (sanction-avoidance), with limited identification and emerging internalization among tech-literate groups—underscoring the need for sustained education.
- 4) Religious-ethical lens. Public obedience to lawful authority in traffic regulation aligns with An-Nisa:59 and the broader maqāṣid of protecting life and public welfare, supporting the normative legitimacy of ETLE-based enforcement.

Overall, compared with manual ticketing, ETLE in Gowa offers clearer evidence, transparency, and consistency. Yet effectiveness depends on: (i) expanding infrastructure; (ii) reliable mail/notification; (iii)

public-facing education; and (iv) inter-agency coordination for blocking/unblocking flows and payment settlement.

## V. Conclusion

The implementation of the Electronic Traffic Law Enforcement (ETLE) system in Gowa Regency marks a transformative step toward modernizing traffic law enforcement in Indonesia. Conceptually, it embodies a transition from conventional, manual policing to a data-driven, technology-based governance mechanism designed to promote transparency, accountability, and deterrence through automation. From a theoretical standpoint, this system represents a tangible application of *Soerjono Soekanto's theory of legal effectiveness*, where the interplay among five determinants—law, law enforcers, facilities, society, and legal culture—shapes the degree of compliance within a legal framework. The research findings demonstrate that, although ETLE has succeeded in enhancing *detection* and *documentation* of traffic violations through real-time and non-contact monitoring, its effectiveness remains partial. The system's inability to translate detection into enforcement outcomes—such as confirmation, payment, and behavioral compliance—reveals structural and cultural gaps in the continuum of legal implementation. Legally, ETLE's foundation in Law No. 22 of 2009 and National Police Regulation No. 2 of 2025 provides a clear normative framework; however, technical, institutional, and behavioral factors have constrained its full realization. Limited camera coverage, network instability, slow data validation, and low public responsiveness to summonses collectively illustrate that a strong legal framework alone does not guarantee practical compliance. Thus, the ETLE system in Gowa reflects an important paradox in legal modernization: technology can perfect the *form* of enforcement but not necessarily the *substance* of compliance.

Theoretically, this study advances the discourse on the *sociology of law and digital governance* by situating ETLE within a multidimensional understanding of legal behavior. Drawing on *Friedman's tripartite model* of legal structure, substance, and culture, the findings reveal an asymmetrical maturity among these components. The *structure*—involving the Satlantas Polres Gowa, Back Office units, and vendor partnerships—operates systematically under procedural guidance, and the *substance*—the normative rules of ETLE—is already codified and enforceable. Yet, the *legal culture* remains fragile: public compliance tends to be coercive rather than normative, driven more by fear of sanction than by internalized respect for traffic safety or civic responsibility. Similarly, from *Herbert Kelman's theory of legal obedience*, the ETLE system in Gowa demonstrates a dominant stage of *compliance* (obedience motivated by fear) rather than *internalization* (obedience rooted in belief). The presence of partial compliance reflects the transitional nature of legal consciousness in a society adapting to technological governance. Theoretically, this indicates that legal modernization must be understood as a dual process—technological and cultural—where innovations in surveillance and automation require parallel investments in socialization, moral education, and digital literacy. The implication for future theoretical development is that *technological rationality* in law enforcement does not inherently yield *normative rationality* in behavior; the law must be lived as well as legislated. Therefore, ETLE can serve as a model for studying how digital enforcement systems interact with cultural attitudes, institutional capacity, and social trust in developing legal systems.

From a managerial perspective, the implications of this study extend to policy design, institutional reform, and public governance. Administratively, the partial effectiveness of ETLE underscores the need for integrated, adaptive, and human-centered management strategies. Strengthening the legal framework alone is insufficient; managerial coordination between law enforcement, local government, vendors, and civil society is crucial to translate technology into sustained compliance. A holistic approach requires optimizing *infrastructure management* through expansion of camera coverage, stabilization of communication networks, and real-time interoperability of data between ETLE, ERI, and the Samsat system. Furthermore, enhancing *organizational capacity* through targeted training for officers, performance monitoring, and data transparency will elevate professionalism and public trust. Public education campaigns must shift from punitive messaging to constructive narratives emphasizing collective safety, civic duty, and ethical driving

culture. In line with *Budiani's* (2007) framework on program effectiveness, sustainability depends on accurate targeting, consistent communication, and measurable outcomes. For policymakers, this means institutionalizing feedback loops that connect detection data with behavioral research, enabling evidence-based adjustments to enforcement strategy. At the societal level, partnerships with schools, community groups, and media should promote legal internalization, particularly in rural or highland regions where digital access is limited. Finally, managerial decision-makers should view ETLE not merely as a regulatory tool but as a long-term investment in *legal culture engineering*, where continuous education, transparent governance, and community engagement form the backbone of lasting traffic discipline. Through this synergy between theory and management, the ETLE system in Gowa can evolve from a technological innovation into a sustainable model of lawful, ethical, and data-driven public order.

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