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## Effectiveness of Electronic Traffic Law Enforcement in Enforcing Traffic Rules

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### ABSTRACT

*Technological developments have driven changes in the implementation of activities in various sectors, including government. Cirebon Regency also utilizes technological advances by implementing a mobile-based Electronic Traffic Law Enforcement (ETLE) system to reduce the number of traffic violations and accidents. The implementation of ETLE in Cirebon Regency is still not optimal, because public awareness to comply with traffic rules is still low, especially when there is no physical presence of officers on the road. This study uses a descriptive qualitative approach to measure the effectiveness of ETLE, obstacles in implementation, and efforts to overcome these obstacles. The results showed that the implementation of the ETLE system in Cirebon Regency has not fully run optimally. Some of the obstacles faced are the culture of people who are not orderly in traffic, limited equipment, and issues with the distribution and validation of violator data. The Cirebon Police Traffic Unit's efforts are needed to overcome these obstacles, such as conducting more evenly distributed socialization, procuring more adequate equipment, and developing face recognition technology to identify violators.*

**Keyword:** Technology, System, ETLE, Traffic, Citizen

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### INTRODUCTION

Technological development is inevitable in life, because technological progress will go hand in hand with the development of science (Ngafifi, 2014). Technological advances encourage changes in patterns and methods of carrying out activities in various sectors, especially government (McNabb, 2015). Active participation in the technology, information, and communication revolution will be a determining factor for the future welfare of a nation (Irawan, 2013). The government also utilizes technological advances to support the implementation of *electronic-based government*. The development of an *electronic-based government system* in Indonesia aims to increase efficiency and effectiveness in providing public services (Saibi & Sihombing, 2024).

National Police Chief General Listyo Sigit Prabowo inaugurated the first phase of the Electronic Traffic Law Enforcement (ETLE) system on Tuesday, March 23, 2021. In this initial stage, 12 Regional Police (Polda) began operating 244 electronic ticket

cameras (Setiawan et al., 2021). The implementation of ETLÉ aims to increase transparency, minimize direct contact between officers and violators, and encourage public discipline in traffic (Sari & Yulianto, 2022). This policy is expected to enhance law enforcement and reduce corruption in traffic violations, as noted by Johnson and Huang (2020). The system utilizes advanced surveillance technology, such as high-definition cameras and automated data processing, which helps detect and record violations accurately and efficiently (Wang et al., 2021). Additionally, the integration of ETLÉ with the national transportation database supports better monitoring of traffic violations and law enforcement (Kurniawan & Putra, 2021). This policy is in line with Law Number 22 of 2009 concerning Road Traffic and Transportation, which prioritizes the use of technology to improve driving safety (Ramadhan & Rafiq, 2022).

As part of the national policy, the Cirebon Police Traffic Unit also officially implemented the *ETLE* system on Monday, July 10, 2023. The implementation of the *ETLE* system in Cirebon Regency is one of the efforts of law enforcement to increase public compliance with traffic rules. This system uses camera and sensor technology to detect traffic violations, thereby reducing dependence on the presence of police officers in the field (Armala & Yasir, 2022). *ETLE* is an innovation that has a major impact in increasing the efficiency of law enforcement in the traffic sector (Nafsiah et al., 2024). The Cirebon Police Traffic Unit implemented the *ETLE* system with the hope of being able to solve various problems related to traffic violations. This service is designed to create a ticketing system that is more efficient than conventional methods. This innovation reflects the professionalism and commitment of the police in increasing public trust in law enforcement services provided by the National Police (Gunawan, 2023).

However, the effectiveness of *ETLE* in reducing traffic violations is still questionable. Based on the results of the study, traffic violations still occur frequently. This shows that public awareness to comply with traffic rules is still low, especially when there is no physical presence of officers on the road.

One of the main obstacles that reduces the effectiveness of *ETLE* is limited infrastructure. In Cirebon District, the implementation of *ETLE* still relies on a mobile system using smartphones and officers' personal internet quota, because this area is not yet equipped with static cameras installed to record traffic violations. This limitation can affect public understanding of *ETLE*, which in turn is oriented towards reducing the level of compliance with traffic rules.

Another obstacle is the attempt of violators to disguise the identity of the vehicle by replacing the license plate with a fake one. Traffic violators continue to find ways to avoid prosecution, such as by using fake police numbers or modifying vehicle license plates (Kurnia Wahyu & Tukiman, 2022). Therefore, cooperation with other agencies is needed to strengthen supervision and law enforcement against offenses involving disguise, as well as to conduct educational campaigns to the public regarding the legal consequences of disguising identity and the importance of complying with traffic regulations.

Previous research by Zebua et al. (2024), titled “Effectiveness of the *E-Tilang* Program in Suppressing Traffic Violations in Surabaya City - East Java,” using descriptive qualitative research methods, shows that the *E-Tilang* program in reducing traffic violations in Surabaya City is effective because it is supported by complete electronic devices and supporting providers. However, there is still a high number of non-ticket violations in the form of warnings to people who commit violations while driving.

Research conducted by Armala & Yasir (2022), titled “Implementation of *Electronic Traffic Law Enforcement (ETLE)* in the Bojonegoro Resort Police Law Area,” using a conceptual approach research method, shows that *ETLE* is capable and effective for building public legal awareness of traffic, as seen from comparative data before and after the implementation of *ETLE*, where the level of violations has decreased. However, the effectiveness of traffic law enforcement through the *ETLE* system in the Bojonegoro District Police area is not yet clear.

Research conducted by Fadilah et al. (2024), titled “Implementation of the *E-Ticket* System in the Prosecution of Traffic Violations in Cirebon City,” using qualitative research methods, shows that the implementation of the *E-Ticket* system in Cirebon City has not run optimally due to various obstacles, such as the limited number of human resources in the police, the lack of static *E-Ticket* camera devices installed, and inaccurate vehicle ownership data.

Although various regions in Indonesia have implemented the *ETLE* system, the effectiveness and success levels vary significantly depending on infrastructure readiness, policy support, and the traffic behavior of local communities. Previous studies conducted in Surabaya, Bojonegoro, and Cirebon City have highlighted these factors; however, limited research has specifically examined the effectiveness of *ETLE* in Cirebon Regency, which has different geographic and infrastructural characteristics compared to urban centers. This study presents a novelty by focusing on the implementation of mobile-based *ETLE* operated manually by officers in Cirebon Regency—an approach that remains underexplored in existing literature.

The research gap addressed in this study lies in the lack of empirical understanding of the specific challenges faced by suburban areas like Cirebon Regency, particularly regarding equipment limitations, low public legal awareness, and technical issues related to the distribution and validation of violator data. Therefore, this study aims to evaluate the effectiveness of *ETLE* in the local context of Cirebon Regency, identify the key obstacles to its implementation, and propose practical strategies to address these challenges.

The significance of this research lies in its potential to offer targeted policy recommendations for the police and local government to optimize the *ETLE* system, while also serving as a comparative reference for evaluating the implementation of electronic traffic law enforcement in other regions facing similar constraints.

The research conducted by the author is different compared to previous researchers, even though the theme is the same, namely about *ETLE*. The author focuses more on the effectiveness of *ETLE* itself, namely examining all indicators of

effectiveness, obstacles in implementation, and efforts to overcome these obstacles, so that the discussion of *ETLE* is important and still requires further research.

## **RESEARCH METHODS**

In this study, the authors used a qualitative descriptive method. The research was based on post-positivism philosophy and aimed to explore phenomena in a natural setting, with the researcher acting as the key instrument. The purpose of using this method was to describe in detail the events surrounding the effectiveness of the Electronic Traffic Law Enforcement (ETLE) system in Cirebon Regency.

Data collection techniques in this research included both secondary and primary data. Secondary data consisted of information gathered from literature such as books, articles, and other scientific works related to the topic. Primary data was obtained from interviews with sources who had the capacity, competence, and relevance to this study, namely members of the Cirebon Police Traffic Unit and the traffic user community. The data, once complete and validated, was analyzed qualitatively and then systematically arranged to clarify the problem and draw conclusions.

The informants in this study were selected using purposive sampling, which involved choosing individuals with relevant knowledge and direct experience related to the research topic. These included members of the Cirebon Police Traffic Unit who were directly involved in the implementation of ETLE, as well as members of the public who had been ticketed or were regular traffic users. This selection ensured the credibility and relevance of the data collected.

The interview procedure followed a semi-structured format, allowing researchers to explore key themes while providing informants the flexibility to express their views. Interviews were conducted in person and through online calls, recorded with consent, and transcribed for analysis. Researchers also triangulated the data with secondary sources such as documents, statistical reports, and relevant literature.

Data analysis was carried out using a qualitative descriptive approach, starting with data reduction through summarization and selection of key information, followed by data display in the form of matrices and tables to identify patterns. The final stage involved drawing conclusions and verifying findings to ensure their reliability. This structured approach ensured that the results were not only descriptive but also analytically rigorous, providing meaningful insight into the ETLE implementation process.

## **RESULTS AND DISCUSSION**

The results of research conducted by researchers using the focus of Effectiveness Theory according to Campbell in (Mutiarin & Zaenudin, 2014) including Program Success, Target Success, Satisfaction with the Program, Suitability of Inputs and Outputs, and Achievement of Comprehensive Goals are explained as follows:

### **Program Successes**

In the indicators of program success, effectiveness can be measured by a decrease in the number of traffic violations and an increase in public awareness of traffic rules. To see the success rate of the program, the following table shows the number of two-wheeled (R2) and four-wheeled (R4) traffic violations from year to year:

**Table 1. Two-Wheeled Traffic Violation Data (R2)**

No.	Year	Month	Total
1.	2022	January - December	10.719
2.	2023	January - December	8.692
3.	2024	January - November	7.418
Total			26.829

Source: Cirebon Traffic Police Unit, 2024

**Table 2. Four-Wheeled Traffic Violation Data (R4)**

No.	Year	Month	Total
1.	2022	January - December	779
2.	2023	January - December	1.222
3.	2024	January - November	605
Total			2.606

Source: Cirebon Traffic Police Unit, 2024

Based on the table above, it can be seen that the data on traffic violations in Cirebon Regency on two-wheeled vehicles has decreased from 2022 to November 2024. Meanwhile, data on traffic violations on four-wheeled vehicles shows a fluctuation where there is an increase in violations from 2022 to 2023 and then a decrease from 2023 to November 2024.

The results of the research that has been carried out show that the Cirebon Police Traffic Unit began implementing ETLE in 2023. Before this system was implemented in Cirebon Regency, the number of traffic violations (R2) was quite high, with the majority of violations of vehicle documents such as Driving License (SIM) and Vehicle Registration (STNK). However, after ETLE was implemented, the number of traffic violations (R2) decreased because this system could not detect administrative violations, so only visible violations such as not wearing helmets or violating traffic signs were recorded.

Since the implementation of ETLE was first implemented in Cirebon Regency in 2023 until November 2024, this system has been quite successful in reducing the number of traffic violations. However, despite the decrease in the number of violations, the effectiveness of this program still cannot be considered optimal because the application of ETLE in Cirebon Regency has not been evenly distributed throughout the region. Public awareness of traffic rules is also still low, especially outside the Cirebon Police jurisdiction.

### **Goal Successes**

The implementation of this ETLE system targets people who commit visible traffic violations such as not wearing helmets, not using seat belts, against the current, not complying with signage, riding more than one person, and using cell phones.

Based on the results of the study, regarding the success of the target in implementing the ETLE system, it is still not successful because there are still many tickets returned to the Cirebon Traffic Police Unit due to a mismatch between the vehicle license plate and the intended address. This shows that there are obstacles in data distribution and validation, which affect the effectiveness of achieving targets. Disorderly behavior of traffic users such as modifying and using fake license plates is one of the main causes of this problem. This kind of action not only hampers the effectiveness of the ETLE system, but also reflects the low legal awareness of the public on the importance of obeying traffic rules.

In addition, the implementation of ETLE in Cirebon Regency is still not optimal, as seen from the coverage area which only covers the Cirebon Police legal area, while many other areas have not been touched. As a result, supervision and prosecution of traffic violations have not run optimally, coupled with a lack of public education about the existence and function of ETLE. The lack of adequate supporting infrastructure is a factor that causes uneven implementation, thus reducing the effectiveness of the system in traffic law enforcement.

### **Satisfaction with the program**

In this indicator, effectiveness is measured based on the level of satisfaction with the implementation of the ETLE system.

#### **a. Satisfaction of Cirebon Traffic Police Unit officers with the ETLE system**

The results of interviews conducted by researchers with the Cirebon Traffic Police Units regarding the implementation of the ETLE system, that the implementation of ETLE in Cirebon Regency is still not running effectively, mainly because of the culture of the community that tends to only obey the rules when there is a police presence. In addition, the limited ETLE equipment causes its application to still rely on the mobile ETLE system where it is an obstacle because not all police officers have adequate equipment to run the system.

#### **b. Public satisfaction with the ETLE system**

The results of interviews conducted by researchers with the community regarding the implementation of this ETLE system, found that the community was quite satisfied because the ETLE system had succeeded in eliminating the existence of individuals who abused their authority in enforcing traffic laws. However, many people who violate still do not understand the process of resolving tickets online, and prefer to settle them directly at the Cirebon Police.

### **Input and Output Suitability**

In this indicator, effectiveness is measured based on the comparison of inputs with outputs. Based on the results of the study, it shows that in Cirebon Regency the use of the

mobile ETLE system is still the main choice. This is due to the high cost of procuring and maintaining a static ETLE system which is much more expensive than the manual ticketing method, which is considered more efficient in terms of operational costs. The implementation of the mobile system is also considered ineffective because this system still relies on officers' personal devices and quotas, where not all officers have gadgets or devices with high-quality cameras capable of recording violators clearly and accurately. This suggests that in order to achieve the desired efficiency, adequate infrastructure and funding support from the local government is required.

This indicates that the implementation of mobile ETLE by the Cirebon Police Traffic Unit is still not optimal, seen from the limited equipment available and the lack of support from the local government in encouraging efforts to increase public awareness of orderly traffic rules.

### **Achievement of Comprehensive Goals**

The results of the research that have been carried out show that the ETLE system implemented in Cirebon Regency has contributed to reducing the number of traffic accidents and building public awareness of orderly traffic. This can be seen in the data on the incidence of traffic accidents which decreases every year. The following is a table of data on the number of traffic accidents from year to year:

**Table 3. Data on Traffic Accidents**

No.	Year	Month	Total
1.	2022	January - December	835
2.	2023	January - December	829
3.	2024	January – November	685
Total			2.349

Source: Cirebon Traffic Police Unit, 2024

Based on this table, the number of traffic accidents from 2022 to 2024 has decreased. This means that there has been an increase in traffic safety in Cirebon Regency.

### **ETLE Implementation Obstacles in Cirebon Regency**

The results showed that overall, the achievement of the overall goal of implementing the ETLE system in Cirebon Regency was still not fully effective. Although there is a decrease in the number of traffic violations, in achieving its goals there are still several obstacles such as:

1. The culture of people who tend to obey the rules only when there are police officers present in the field, so traffic violations still often occur when supervision is not visible.
2. Limitations on equipment that still relies on officers' personal devices. Not all officers who take action against traffic violations have devices with adequate cameras to capture violators.

3. Distribution and validation of violator data is a challenge due to the behavior of people who try to circumvent the ETLE system by covering or using fake vehicle license plates.

### **Efforts to Overcome the obstacles on applying ETLE Implementation in Cirebon Regency**

To overcome several obstacles in the implementation of ETLE, efforts are needed by the Cirebon Police Traffic Unit to increase the effectiveness of ETLE in Cirebon Regency such as:

1. More active and equitable socialization to the public about the program and the benefits of ETLE so that they understand the importance of traffic discipline.
2. Procurement of more sophisticated and adequate mobile ETLE equipment such as devices with higher camera quality, as well as installation of static ETLE cameras in strategic locations in Cirebon District.

Utilize face recognition technology to detect traffic violations, which includes identifying data such as the name, address, and driver's license status of the violators.

### **CONCLUSION**

Based on the research findings, the implementation of *Electronic Traffic Law Enforcement (ETLE)* in Cirebon Regency has positively contributed to reducing traffic violations and improving the efficiency of law enforcement compared to manual ticketing, while also minimizing the potential for officer misconduct. However, several challenges remain, including the tendency of the public to comply with rules only when officers are present, as well as limitations in equipment and issues with the distribution and validation of violator data. To address these obstacles, the Cirebon Police Traffic Unit needs to intensify public education, invest in better equipment, and develop technologies such as face recognition for more accurate identification of violators. For future research, it is suggested to explore the long-term impact of ETLE on public behavior and road safety, as well as to assess the effectiveness of advanced technological solutions in overcoming current implementation barriers.

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