


## Implementation of Electronic Traffic Law Enforcement by the Riau Islands Regional Police to Improve Traffic Law Awareness in Batam City

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### Abstract

**Introduction:** Road users' legal awareness of the road itself is a key factor driving the urgency of creating safety and order on the roads. In Batam City, the Riau Islands Regional Police's (Polda Kepulauan Riau) implementation of Electronic Traffic Law Enforcement (ETLE) is a means of enforcing traffic laws to increase public awareness and compliance with traffic laws through an electronic ticketing system based on Closed-Circuit Television (CCTV).

**Purposes of the Research:** This research analyzes the implementation of ETLE in Batam City and its effectiveness in terms of increasing legal awareness of drivers, especially in Batam City, as well as various obstacles faced in the implementation of ETLE itself, both problems from the community and problems with law enforcement officers who organize ETLE.

**Methods of the Research:** This research is an empirical legal study. The approaches used in this study are the statute approach and the sociological approach. The statute approach is used to examine the legal basis for implementing ETLE. Meanwhile, the sociological approach is used to understand how the law is applied in practice by the police. The data collection method for this research is through interviews with law enforcement officers, field observations, and analysis of secondary data from related sources.

**Results Main Findings of the Research:** The final results of this research found that the implementation of ETLE implemented by the Riau Islands Regional Police (Polda Kepulauan Riau) in Batam City continues to face significant challenges and has not yet operated effectively. Although ETLE has recorded more than 1.526.013 traffic violations since its implementation, the extremely low rate of ticket resolution only approximately 13.232 offenders fulfilling their legal obligations. One of the main obstacles is inaccurate vehicle ownership data, particularly in cases where vehicles have changed ownership but the name transfer process has not been completed, resulting in violation confirmation letters failing to reach the actual offenders. Furthermore, the very limited number of static ETLE cameras restricts the scope of surveillance and causes many traffic violations to go unrecorded by the system.

**Keywords:** Electronic Traffic Law Enforcement (ETLE); Legal Awareness; Law Enforcement; Behavioral Change.

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## INTRODUCTION

Batam City is one of the fastest-growing cities in Indonesia<sup>1</sup> When it was built in the 1970s by the Batam Authority, the city was home to less than 10.000 residents. Within 40 years, Batam City population grew 158-fold. According to the government's population

<sup>1</sup> Zaenal Abidin and Ahmad Sofyan, "Strategi Manajemen Pemasaran Dalam Era Digital Pada Masa Sekarang," *Khidmatussifa: Journal of Islamic Studies* 2, no. 1 (2022): 11-16, <https://doi.org/10.56146/khidmatussifa.v2i1.76>. p.14

census, the average annual population growth rate from 1990 to 2000 was 12.87%<sup>2</sup>. Batam's large population growth was largely due to the massive influx of migrants from various regions across the country<sup>3</sup>.

**Table 1: Vehicle data registered in Riau Islands Regional Police**

No.	Sub District	Passenger Vehicle	Bus	Transport Vehicle	Motorcycle	Special Purpose Vehicle	Total	Percentage (%)
1	Batam City	186.271	1.911	29.167	929.122	228	1.147.195	67,94
2	Tanjung Pinang City	26.546	241	6.099	178.447	181	211.629	12,53
3	Karimun	16.800	149	2.910	141.591	57	161.575	9,57
4	Bintan	10.162	420	2.823	98.707	62	112.200	6,65
5	Lingga	1.960	25	441	23.774	18	26.232	1,55
6	Natuna	2.426	21	693	21.890	37	25.100	1,49
7	Anambas Island	198	20	63	4.231	25	4.539	0,27
8	(Not Listed)	1	0	0	4	0	5	0,00
<b>Total</b>		244.364	2.787	42.196	1.397.766	608	1.688.475	

**Source: Korlantas Polri (Acesed 2 January 2026)**

Based on the latest data<sup>4</sup>, the total number of vehicles in Batam City has reached 1.147.195 units, with motorcycles dominating at 929.122 units or 67.94% and will continue to increase. The rapid population growth in Batam City automatically causes an increase in the number of vehicles, which also increases the possibility of traffic violations. Legal awareness of the Batam City community regarding traffic and road transportation has created a legal urgency to improve the quality caused by quantity of drivers in the city according to Batam City residents growth. Traffic and road violations themselves are included in the type of criminal offense, according to Indonesian Law Number 22 of 2009 about Road Traffic and Transportation, violations including; traffic regulations on the road, violation of vehicle regulations, violation of driver regulations, Violation of transportation industry regulations. The main and most important factor that influences traffic disorder and traffic violations is the human factor or the road users themselves<sup>5</sup>. Existence of regulations in the state and their legal effect can be seen from the public's compliance with the regulations applied. If there is a lack of compliance with the rules (*das sein*) and their implementation (*das sollen*) in traffic, it is called a traffic violation.

The development of technology and information in the era of globalization has created an unstoppable global movement<sup>6</sup>. In Indonesia, rapid development of technology,

<sup>2</sup> Hendro Murtiono, "Analisis Morfologi Kota Batam Studi Kasus Kampung Sei Jodoh," *Jurnal Arsitektur ARCADE* 6, no. 1 (2022): 64, <https://doi.org/10.31848/arcade.v6i1.890>. p. 65

<sup>3</sup> Imelda Hutasoit, "Population Growth in Batam Municipality As the Frontier and Outermost Region At the Border Between Indonesia-Singapore-Malaysia," *Jurnal Biometrika Dan Kependudukan* 12, no. 2 (2023): 165-76, <https://doi.org/10.20473/jbk.v12i2.2023.165-176>. p. 166

<sup>4</sup> Korlantas Polri, "Electronic Registration Identifiaction," accessed January 2, 2026, <http://rc.korlantas.polri.go.id:8900/eri2017/laprekappolres.php>.

<sup>5</sup> Suryaningsih Suryaningsih, "Kesadaran Hukum Berlalu Lintas Kaitannya Dengan Penegakan Hukum," *Jurnal Jendela Hukum* 7, no. 2 (2020): 48-56, <https://doi.org/10.24929/fh.v7i2.1070>. p. 49

<sup>6</sup> Abdurrakhman Alhakim, Ampuan Situmeang, and Jeannette Andhini Nurrulia Mashita, "Peran Imigrasi Dalam Pencegahan Dan Pengawasan Tindak Pidana Perdagangan Orang Menurut Perspektif Imigrasi Kota Batam," *Jurnal Hukum To-Ra : Hukum Untuk Mengatur Dan Melindungi Masyarakat* 9, no. 3 (2023): 322-38, <https://doi.org/10.55809/tora.v9i3.263>.

information and communication has now spread to various fields, the aim of which is to increase effectiveness and efficiency, especially in government institutions<sup>7</sup>, especially in law enforcement in traffic. The provisions in Article 272 paragraph (2) of Law Number 22 of 2009 concerning Traffic and Road Transportation state that the results of the use of electronic devices to take action against violations in the field of traffic and road transportation can later function as evidence in court. The services provided by law enforcement almost automatically shape the image of the law enforcement performance's itself<sup>8</sup>.

National Police of the Republic of Indonesia has taken an innovative step in monitoring traffic violations by implementing Electronic Traffic Law Enforcement (ETLE)<sup>9</sup>. Through the Riau Islands Regional Police (*Polda Kepri*) Electronic Traffic Law Enforcement (ETLE) implements the digitalization of the ticketing process by leveraging technology to improve efficiency and effectiveness in all stages of ticketing, while also assisting police administrative functions through the installation of CCTV (Closed Circuit Television) at traffic intersections and densely populated areas for road monitoring purposes<sup>10</sup>. The use of this electronic device relies on the sophistication of video cameras by recording and displaying an image at a specific time and place according to the location of the device installed<sup>11</sup>. Violations caught by ETLE include not wearing a safety belt, making phone calls while driving, running red lights, not wearing a helmet, and violating the speed limit<sup>12</sup>.

This research complements previous studies by identifying additional problems in the implementation of Electronic Traffic Law Enforcement (ETLE) in Batam City that are not being added previously. This research uses new empirical findings from interviews with relevant source person and the use of updated data. This empirical research is expected give public understanding of the limitations of ETLE implementation in Batam City. Also this research is expected to provide input for improving and refining ETLE policies, including developing technology and integrated monitoring to ensure more effective and comprehensive traffic law enforcement. Research scope is limited to the implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Islands Regional Police (*Polda Kepri*), specifically in Batam City. The primary focus of the research is on the effectiveness of ETLE in increasing legal awareness and public compliance with traffic regulations, as well as identifying various obstacles encountered in implementing the system. This research does not include an analysis of ETLE implementation in other *Polda* jurisdictions outside the Riau Islands Province. Scope of the research remains focused on optimizing the implementation of ETLE carried out by the Riau Islands Regional Police as an effort to technology based traffic law enforcement as.

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<sup>7</sup> Muhammad Salman Jabbar Sangaji and Jusuf Irianto, "Transformasi Inovasi Pelayanan Publik Menuju Pemerintahan Digital," *Jejaring Administrasi Publik* 17, no. 1 (2025): 54-70, <https://doi.org/10.20473/jap.v17i1.72708>. p. 55

<sup>8</sup> Winsheryly Tan, "Efektifitas Peran Ombudsman Republik Indonesia Lembaga Pengawas Pelayanan Publik," *Jurnal Cendekia Hukum* 6, no. 1 (2020): 141-60, <https://doi.org/10.3376/jch.v6i1.284>. p.142

<sup>9</sup> Rizky Wardana, Iqbal Arysepta Imam Mahbi, and Nabila Annisa Fuzain, "Implementasi Penegakan Hukum Berbasis Teknologi Informasi Terhadap Penggunaan Electronic Traffic Law Enforcement Bagi Pelanggar Lalu Lintas Oleh Lembaga Kepolisian (Implementation Of Information Technology-Based Law Enforcement Using Electronic Traffic L" 4, no. 8 (2024): 1-15. p. 2

<sup>10</sup> Farid Azis Abdullah and Feny Windiyastuti, "Electronic Traffic Law Enforcement ( ETLE ) Sebagai Digitalisasi Proses Tilang," *Jurnal Kewarganegaraan* 6, no. 2 (2022): 3004-8.

<sup>11</sup> Siti Ruqoyyah and Irwansyah Irwansyah, "Implementation of the Law Regarding the Use of CCTV Cameras as Electronic Traffic Enforcement Tools in the City of Medan," *Pena Justisia: Media Komunikasi Dan Kajian Hukum* 22, no. 3 (2023): 92, <https://doi.org/10.31941/pj.v22i3.3440>. p. 95

<sup>12</sup> Siti Zelika and Fani Budi Kartika, "Analisis Penerapan Hukum Terhadap Penerapan E-Tilang Dalam Penertiban Pelanggaran Lalu Lintas Di Wilayah Hukum Polres Medan," *Jurnal Mimbar Ilmu Hukum (MIH)* 2, no. 1 (2024): 27-38. p. 30

## METHODS OF THE RESEARCH

This research uses an empirical juridical research method<sup>13</sup>, which is a legal research approach that examines law as a reality living within society. This method is chosen to obtain a more understanding of the implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Islands Regional Police (*Polda Kepulauan Riau*) in enhancing legal awareness and public compliance with traffic regulations in Batam City. Approaches used in this research consist of the statutory approach and the sociological approach. The statutory approach is applied to examine the legal basis for the implementation of ETLE, such as Law Number 22 of 2009 concerning Road Traffic and Transportation, as well as other regulations related to the application of the ETLE system. Meanwhile, the sociological approach is used to understand how these legal provisions are implemented in practice by law enforcement officers and to analyze public responses to the application of the ETLE system in the field. The data utilized in this research comprise primary and secondary data. Primary data are obtained through direct interviews with police officers of the Riau Islands Regional Police, particularly personnel involved in the operation of the ETLE system. Secondary data are collected through documentation studies of laws and regulations, official police documents, scientific journals, news articles, and other publications relevant to the research topic. Data collection techniques include interviews, observations, and literature studies, while data analysis is conducted qualitatively by interpreting field findings to assess the effectiveness of ETLE implementation and identify obstacles encountered during its execution. Through this method, the research is expected to provide an accurate depiction of both the achievements and challenges of ETLE implementation in Batam City, as well as offer constructive recommendations for future system improvements.

## RESULTS AND DISCUSSION

Based on the results of an interview with the Head of the Traffic Directorate Subdivision of Riau Islands Regional Police (*Kasubdit Dirlantas Polda Kepri*), Kompol Kartijo, S.H., M.H., the implementation of the Electronic Traffic Law Enforcement (ETLE) system in the Riau Islands region has been carried out gradually, starting from Batam City and Tanjung Pinang. In Batam City, ETLE socialization began on 22 September 2022. the socialization period took place from 1 December 2023, with official enforcement commencing on 1 January 2024.

**Table 2: Violations captured by Batam City's ETLE**

Batam City		
Total Violations	Fines Paid by Violators	Confirmations Letter Returned
1.526.013	13.232	1150

**Source:** *Kasubdit Dirlantas Polda Kepri*

According to the collected data, the number of violations captured by the ETLE system has reached 1,526,013 cases. However, out of this total, only 13,232 violators have completed

<sup>13</sup> Sidi Ahyar Wiraguna, "Metode Normatif Dan Empiris Dalam Penelitian Hukum: Studi Eksploratif Di Indonesia," *Public Sphere: Jurnal Sosial Politik, Pemerintahan Dan Hukum* 3, no. 3 (2024), <https://doi.org/10.59818/jps.v3i3.1390>. h.60

the payment of traffic fines. In addition, 1,150 confirmation letters were returned due to incorrect addresses, which indicate weaknesses in the vehicle data validation system.

**Table 3: Foreigner Violations captured by Batam City's ETLE**

Total Foreign Violators	Batam City	
	Confirmed	Not yet Confirmed
10	8	2

**Source:** *Kasubdit Dirlantas Polda Kepri*

In the context of violations committed by foreign nationals, eight individuals have completed the confirmation process, while two others have not yet provided confirmation. This indicates that although the ETLE system has introduced a significant technological breakthrough in traffic law enforcement, various challenges remain in its implementation, ranging from the low rate of fine settlement to insufficient legal awareness among violators, including foreign nationals. Implementation of the Electronic Traffic Law Enforcement (ETLE) itself has become one of the primary methods of electronic based traffic law enforcement. The types of violations most frequently recorded by ETLE cameras include failure to use seat belts, failure to wear helmets, driving against the traffic flow, the use of invalid Vehicle Registration Number Plates (*TNKB*), violations involving carrying more than one passenger or overloading, running red lights, and violations of road markings. The implementation of the ETLE system has had a significant impact on increasing public awareness and compliance with traffic regulations. This is evidenced by observable changes in traffic behavior, which have become more orderly compared to the period prior to the implementation of the system. In practice, the ETLE system also faces several challenges. One of the main obstacles occurs when confirmation letters are sent to addresses that no longer correspond to the actual vehicle owners, for example when vehicles have changed ownership but the transfer of registration has not yet been completed. In addition, the number of static ETLE cameras installed in Batam City is considered very limited, as they are currently installed at only three intersections, namely Masjid Raya Intersection, KDA Residential Area Intersection and Baloi Intersection. To support traffic monitoring, Riau Islands Regional Police also utilizes mobile ETLE in the form of handheld smartphone-based devices, of which 28 units are currently available and distributed across various areas.

In cases where violators use fake license plates, the matter will be referred to the Criminal Investigation Unit (*Reserse Kriminal*) for further legal action. The implementation of the ETLE system has not encountered regulatory obstacles, as it is supported by a clear legal framework, namely Law Number 2 of 2002 on the Indonesian National Police and Law Number 22 of 2009 on Road Traffic and Transportation. From the perspective of human resources, officers at Riau Islands Regional Police are considered highly capable of managing the ETLE system, as they have received specialized training for both back-office and front-office operations, including training provided by the central authority in Jakarta. To address existing challenges and maintain the effectiveness of ETLE implementation, Riau Islands Regional Police plans to continuously enhance public socialization efforts through activities conducted by the Traffic Safety and Security Unit (*Kamsel*), targeting schools and corporate environments. Based on the interview findings, the implementation of the Electronic Traffic Law Enforcement (ETLE) system in Batam City still faces practical challenges, particularly related to inaccurate vehicle ownership data, limited camera

coverage, and low rates of ticket resolution. Although the ETLE system is supported by a clear legal framework and competent human resources, these findings indicate a gap between regulatory provisions and actual enforcement. These interview results form the basis for further discussion on the effectiveness of ETLE implementation by the Riau Islands Regional Police in Batam City.

Based on field observations findings which conducted at one of the three ETLE locations in Batam, it was found that a significant number of road users still do not comply with traffic regulations. The most common violation observed was the failure to wear helmets. In addition, many drivers deliberately chose alternative routes that are not monitored by ETLE cameras in order to avoid detection. This indicates that public compliance with traffic laws is largely driven by the presence of ETLE surveillance, rather than by internal legal awareness. As a result, compliance tends to be situational and occurs mainly due to fear of electronic enforcement, not because of a genuine commitment to obey the law.

#### **A. The implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Islands Regional Police in enhancing legal awareness and public compliance with traffic regulations in Batam City.**

The implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Islands Regional Police, particularly in Batam City, is a form of modernization in traffic law enforcement aimed at increasing legal awareness and public compliance with traffic regulations. ETLE, an electronic ticketing system based on CCTV technology, has been implemented since October 22, 2022, after a socialization period that began on September 22, 2022. In practice, this system works automatically by recording traffic violations such as not wearing a helmet, not wearing a seat belt, running a red light, and using a mobile phone while driving. It has been recorded more than 1.526.013 violations have been captured by ETLE cameras, but only 13.232 violators have completed the process of paying their fines. This figure reflects a significant gap between the number of detected violations and the level of compliance of violators in fulfilling their legal responsibilities, which ultimately indicates that public legal awareness is still low. This low compliance is also influenced by various technical obstacles, such as invalid address data on confirmation letters, vehicles that have changed hands but have not been transferred, and the limited number of ETLE cameras which are only installed at three busy intersections. Theory of legal effectiveness is used to analyze the implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Island Regional Police in Batam City. The ETLE system is a form of technology-based modernization of traffic law enforcement, where traffic violations are detected automatically through surveillance cameras installed at various strategic road points. In this case, the ETLE system is part of the legal means or infrastructure that functions to strengthen law enforcement objectively and efficiently. Prof. Satjipto Rahardjo's theory of legal effectiveness provides a relevant analytical framework to be an analytical tool to analyze the extent to which the implementation of the ETLE system by the Riau Islands Police is able to achieve its goals, namely increasing legal awareness and public compliance with traffic regulations in Batam City.

Introduced by Prof. Soerjono Soekanto. In his view, law cannot be understood simply as written regulations, but also as a living social system that interacts with society<sup>14</sup>. Effective

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<sup>14</sup> Indra Cahyadi and Budi Muliawan, "Efektivitas Dan Efisiensi Penegakan Hukum Terhadap Aspek-Aspek Ekonomi Di Indonesia (Berdasarkan Teorema Coase Dan Pemikiran Posner)," *Jurnal Magister Ilmu Hukum* 4, no. 1 (2021): 6, <https://doi.org/10.36722/jmih.v4i1.757>. h.10

law is law that regulates societal behavior in accordance with the purpose for which it was created. Therefore, to measure whether a law is effective or not, it is necessary to examine the extent to which it is accepted, complied with, and implemented by society in daily practice<sup>15</sup>. According to Prof. Soerjono Soekanto, several key factors influence the effectiveness of a law<sup>16</sup> First, the content or material of the law itself, namely whether the law is relevant, fair, and understandable to the public. Second, law enforcement officers, as implementers of the rules, must possess competence, integrity, and professionalism. Third, legal support facilities or infrastructure, including technology, facilities, and other support systems. Fourth, the level of public awareness and compliance with the law. And fifth, the legal culture of society, namely how society perceives, values, and habits regarding the existence and function of law.

The effectiveness of law is not only determined by the existence of legal regulations, but also by how effectively those regulations influence<sup>17</sup>. There are five main factors that determine the effectiveness of law, namely the substance or content of the law itself, law enforcement officials, supporting facilities or infrastructure, the level of public legal awareness, and legal culture. When this framework is applied to the implementation of ETLE in Batam The legal substance is available and clearly regulated under Law Number 22 of 2009, which provides the legal basis for the use of electronic devices as valid evidence. Law enforcement officials have also been equipped with specialized training, in terms of human resource capacity, the Riau Islands Regional Police have met the necessary requirements as implementing authorities. With regard to facilities and infrastructure, the limited number of ETLE cameras and inaccuracies in vehicle registration data constitute significant obstacles. Furthermore, from the perspective of legal awareness and legal culture, the high number of traffic violations and the low rate of fine settlement indicate that the public has not yet fully recognized the importance of law as a means of social regulation. Public compliance tends to occur only under the pressure of supervision, and such compliance has not yet emerged from internalized legal awareness.

Legal Compliance Theory is one of the theories in legal studies and social psychology<sup>18</sup> developed by Tom R. Tyler, a professor of legal psychology at Yale University. In his theory, Tyler proposes a more in-depth approach to understanding the reasons why individuals comply with the law. According to Tyler, compliance with the law is not solely driven by fear of sanctions or punishment (instrumental compliance), but is also strongly influenced by public perceptions of the legitimacy of the law and the institutions that enforce it<sup>19</sup>. Legal compliance is divided into two main types<sup>20</sup>. First, instrumental compliance, where individuals obey the law primarily due to fear of sanctions such as fines, criminal penalties, or social consequences. This form of compliance is temporary and highly dependent on external control and law enforcement supervision. Second, normative compliance, which arises from internal beliefs that the law is legitimate, fair, and should be obeyed for the

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<sup>15</sup> Irwan Triadi et al., "Strategy For Improving Awareness And Legal Compliance In National Legal Guidance," *International Journal of Law, Crime and Justice* 1, no. 4 (2024): 243–54, <https://doi.org/10.62951/ijlcj.v1i4.308>. h. 250

<sup>16</sup> Djaenab, "Efektifitas Dan Berfungsinya Hukum Dalam Masyarakat," *Jurnal Pendidikan Dan Studi Islam* 4, no. 2 (2018): 4. h. 149

<sup>17</sup> Erlan Wijatmoko, Armaidly Armawi, and Teuku Faisal Fathani, "Legal Effectiveness in Promoting Development Policies: A Case Study of North Aceh Indonesia," *Heliyon* 9, no. 11 (2023): e21280, <https://doi.org/10.1016/j.heliyon.2023.e21280>. h.1

<sup>18</sup> Shubhangi Roy, "Theory of Social Proof and Legal Compliance: A Socio-Cognitive Explanation for Regulatory (Non) Compliance," *German Law Journal* 22, no. 2 (2021): 238–55, <https://doi.org/10.1017/glj.2021.5>. h. 247

<sup>19</sup> Khafid Abadi et al., "Kesadaran Dan Ketaatan Hukum Masyarakat Pekalongan Terhadap Penolakan Dispensasi Kawin" 04, no. 02 (2024): 101–16. h. 105

<sup>20</sup> Weni Susanti, "Persepsi Auditor Tentang Faktor Faktor Yang Mempengaruhi Kualitas Audit Internal," *Journal of Business Economics* 24, no. 2 (2019): 122–35, <https://doi.org/10.35760/eb.2019.v24i2.1905>.

common good. In this context, individuals comply with the law due to a moral and social sense of obligation. Tyler emphasizes that the legitimacy of legal authorities plays a crucial role in assuring long term compliance. When law enforcement is perceived as fair, transparent, and accountable, public trust increases and voluntary legal compliance is strengthened. Therefore, law enforcement strategies that rely solely on sanctions tend to be ineffective in the long term, whereas approaches that build public trust offer more sustainable impacts. The implementation of ETL in Batam mainly reflects instrumental compliance, where people obey traffic rules because they are afraid of sanctions. This can be seen from the fact that drivers tend to behave more orderly in areas monitored by ETL cameras, but violate traffic rules again in areas without surveillance. Long term legal compliance can only be achieved through normative compliance, which is based on the belief that the law is fair and should be obeyed for the common good. The socialization efforts by Riau Islands Regional Police in schools and companies aim to build legal awareness from within the community. Therefore, to ensure that ETL truly improves public legal awareness and compliance, it is necessary to expand ETL coverage, update vehicle data, and strengthen educational efforts to make obey traffic rules not only out of fear of punishment, but because they feel a moral responsibility to follow the law.

## **B. Obstacles faced in implementing CCTV based ETL by the Riau Islands Regional Police**

One of the main challenges faced in the implementation of ETL is related to the validity of vehicle registration data within the system. In many cases, ETL violation confirmation letters are returned due to incorrect addresses. This situation occurs because vehicles have changed ownership without being followed by an official transfer of registration in the vehicle ownership documents. As a result, the law enforcement process is hindered because violators cannot be accurately identified or properly confirmed. This issue reflects weak integration between the ETL system and the national motor vehicle database. The limited number of static ETL cameras also constitutes a major obstacle to ensuring equitable enforcement of traffic violations. In Batam City, ETL cameras are installed at only four strategic locations, namely Masjid Raya Intersection, KDA Residential Area Intersection and Baloj Intersection. Considering that the number of registered vehicles exceeds one million units, this level of coverage is highly insufficient to comprehensively monitor traffic behavior. Consequently, only a small portion of violations are successfully captured, while the majority remain undetected. Another significant challenge is the low rate of fine settlement by violators. Out of more than a million violations detected through ETL cameras, only less than 15.000 violators have fulfilled their obligation to pay traffic fines. This data indicates a substantial gap between enforcement actions and public compliance with legal consequences. Contributing factors include limited public understanding of fine payment procedures, insufficient socialization, and a tendency to disregard confirmation letters due to the absence of immediate sanctions or firm follow-up actions. A further critical issue concerns the use of fake license plates (*TNKB*) by certain drivers. This practice complicates the identification of violators because vehicle data becomes inaccurate. Such cases require the involvement from the Criminal Investigation Unit (*Reserse Kriminal*), which constitutes a separate criminal offense beyond ordinary traffic violations<sup>21</sup>.

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<sup>21</sup> Arif Wicaksana and Tahar Rachman, "Penegakan Hukum Pidana Terhadap Pemalsuan Plat Nomor Polisi Pada Pemeriksaan Kendaraan Lalu Lintas Di Jalan Raya Oleh Satuan Lalu Lintas Polisi Resor Kota Pekanbaru Berdasarkan Undang-Undang Nomor 22

It can be concluded that the effectiveness of ETLE in Batam is still constrained by two main components: legal facilities/infrastructure and the level of public legal awareness. Although the legal substance and legal basis of ETLE are already available and relatively strong, limitations remain in supporting infrastructure, such as the number of cameras, vehicle data systems, and technological integration. In addition, the low rate of fine settlement reflects weak public legal awareness, which is a crucial determinant of the overall effectiveness of a legal system<sup>22</sup>. It also indicates that the form of compliance generated through ETLE implementation in Batam tends to be instrumental compliance, meaning compliance driven by fear of sanctions due to camera surveillance. The public tends to comply only in areas monitored by ETLE, but resumes violations in areas that are not under surveillance. This condition demonstrates that compliance has not yet reached a normative level, where obedience arises from internal awareness and trust in the law itself. Therefore, improving the effectiveness of ETLE cannot rely solely on the expansion of technological tools, but must also be accompanied by educational approaches that strengthen legal legitimacy and foster a sense of social responsibility within the community.

## CONCLUSION

Implementation of the Electronic Traffic Law Enforcement (ETLE) system by the Riau Islands Regional Police in Batam City still faces various significant challenges and has not yet been carried out effectively. Although ETLE has recorded more than 1.526.013 traffic violations since its implementation, the extremely low rate of fine settlement only approximately 13.232 violators have fulfilled their legal obligations—indicates that public compliance with the system remains weak. One of the main obstacles is the inaccuracy of vehicle registration data, which often causes violation confirmation letters to fail to reach the actual violators, particularly in cases where vehicle ownership has changed without an official transfer of registration. In addition, the very limited number of static ETLE cameras—installed at only four locations—restricts the scope of surveillance and results in many violations going undetected. Other issues include the use of fake license plates (invalid TNKB) and low public legal awareness, as compliance tends to occur only under camera surveillance and diminishes in areas outside monitored zones. ETLE has not yet been implemented effectively. Although normatively and juridically the system is supported by a strong legal basis, namely Law Number 22 of 2009 and Law Number 2 of 2002, significant weaknesses remain in terms of legal infrastructure such as camera availability and vehicle data systems as well as public legal awareness. This indicates that the law has not yet been able to regulate public behavior as intended, as it has not been fully accepted and practiced by society. Public compliance with ETLE remains largely instrumental in nature, driven by fear of being detected by cameras, rather than having reached the level of normative compliance characterized by obedience based on a sense of legal fairness and social responsibility. Public behavior that shows compliance only in areas equipped with ETLE cameras while violations continue elsewhere. Therefore, according to the author, the implementation of ETLE in Batam cannot yet be considered effective, both in terms of law enforcement and the development of public legal awareness. Further strategies are required, including the expansion of ETLE infrastructure, comprehensive

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Tahun 2009 Tentang Lalu Lintas Dan Angkutan," *Angewandte Chemie International Edition*, 6(11), 951-952. 3, no. 1 (2018): 10-27, <https://medium.com/@arifwicaksanaa/pengertian-use-case-a7e576e1b6bf>.

<sup>22</sup> M. Hanif Ihsani, "Pentingnya Mentaati Dan Meningkatkan Kesadaran Hukum Di Masyarakat," *Jurnal Penelitian Ilmu Hukum* 1, no. 2 (2021): 61, file:///C:/Users/user/Downloads/567-Article Text-3287-1-10-20230510.pdf. Hal. 72

validation and updating of vehicle registration data, and more intensive legal socialization efforts to build a sustainable, compliant, and legally conscious traffic culture.

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