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The Impact of Local Road Infrastructure on Driver Safety: A Systematic Literature Review

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Abstract

Although human movement and economic growth depend on adequate road infrastructure, unsafe construction can have a detrimental effect on safety. Road crashes, a major global public health issue, necessitate research into multifactorial causes, including driver behavior, vehicle performance, and infrastructure. This study employs a Systematic Literature Review (SLR) to identify key infrastructure factors affecting safety, assess research consistency, and pinpoint knowledge gaps. Using Google Scholar, Publish or Perish, and VOSviewer, secondary data from scientific journals (2000-2025) were analyzed. Results indicate "Artificial Intelligence" (401 occurrences) and "Infrastructure" (129 occurrences) as the most frequent keywords, underscoring a strong interest in leveraging advanced technology for road design and safety. VOSviewer identified eight keyword clusters, with "Learning" (147) and "Road" (98) also prominent. Despite increased research, gaps remain in longitudinal studies for long-term benefits and localized infrastructure adaptation. Future research should adopt a multidisciplinary approach, integrating sociology, environmental science, and advanced technologies like adaptive traffic management and computerized ticketing, to holistically enhance road safety.

Keywords: Artificial Intelligence, Road, Infrastructure, Performance Analysis, Impact

1. Background

Infrastructure roads have long been a topic of interest for researchers in both developed and developing countries. Election Infrastructure, proper transportation, can increase safety and comfort for users of transportation roads [1]. Project infrastructure, including roads, also tends to lead to changes in land use in many cities in both the northern and southern hemispheres. In particular, the division of urban environments has become a smaller area with limited or no interaction. This is the same as [2]. In the case of infrastructure transportation, roads are an essential element for the development of the economy, human well-being, and a sustainable society [3]. While roads are essential for economic activity and transportation, if they are built without considering sustainability, they can pose risks to human safety and negatively impact the environment [4].

The Government and People of Indonesia are currently working on this project, aiming to reach national ideals and goals through the implementation of development programs, including infrastructure projects such as roads, which are the most dominant mode of transportation used by residents for their daily activities. Because of this, the road plays a crucial role in supporting social activities and welfare [5]. The availability of good infrastructure has a positive impact on the activities of inhabitants and Society. Conversely, if the infrastructure is inadequate, it can negatively impact public activities, such as those of riders, who can be vulnerable and experience accidents due to poor road conditions. Also, it has an impact on the economy and Society [6]. Accidents are a significant health problem in communities and are one of the main reasons for injury and death on a global scale [7]. Problems critical. This has prompted an extensive study to improve prediction models for accidents and identify the multifaceted reasons behind such incidents. The causes usually involve complex interactions between behavior drivers, performance vehicles, and the environmental conditions or infrastructure. Therefore, an approach to policy aspects becomes essential in establishing a strategy based on rider evidence, convenience, and sustainability [8].

Safety driving is a condition for being on the road, which is achieved through the implementation of responsible driving behavior and prevention-oriented risk management to prevent accidents [9]. This includes compliance with signing and crossing, as well as the use of equipment safety devices such as helmets or seatbelts, and awareness of the importance of maintaining a safe distance from other vehicles [10]. Environmental factors, including infrastructure roads, also have a significant effect on safe driving [11]. Roads equipped with clear markings, adequate lighting, and informative signs will help drivers in making the right decision [12]. On the other hand, the existence of obstacles on the road, such as holes, puddles, or sharp bends that are not given a sign, can become a reason for accidents, especially for motorcycle riders. Therefore, repairing roads becomes an important part of the effort to increase safety on the roads.

The road repair has been undertaken due to various factors, both internal and external. Internal factors can occur due to a condition of the road, such as the structure of the path that is incapable of withstanding the burden of passing vehicles, causing the road to become perforated, poor drainage, or a path that has exceeded its service period [13]. As for external factors, such as those outside the structure, like disasters, it is significant to note [14]. That infrastructure plays a crucial role in contributing to comfort and efficiency, and also plays a vital role in guarding rider safety [15]. Research has shown that well-designed environments, including a wide path and clear equipment signs, are crucial. Then, cross and travel on a quality surface road; this can significantly reduce the risk of accidents [16]. However, despite numerous studies, a gap remains in understanding how various elements of infrastructure interact and influence overall safety. Therefore, a more systematic approach is needed to evaluate and understand the influence of infrastructure roads on safety drivers, especially in developing countries that face the challenge of large-scale infrastructure development [17].

To address this issue, a Systematic Literature Review (SLR) approach will be employed to comprehensively examine the existing literature on the impact of infrastructure roads on rider safety. Through SLR, research aims to identify the most significant factors influencing safety, evaluate the consistency of findings across various studies, and uncover the knowledge gaps that still exist in the literature. Thus, the results of this study are expected to provide recommendations based on evidence for repairing infrastructure in a better, safer, and more sustainable manner, and support the government and Society in creating an environment that is safer for all road users [18]. Research in this area will also contribute to the development of policies and practices for best-in-class design and management of infrastructure transportation, which is crucial for achieving the Sustainable Development Goal and improving public life overall.

Through VOSviewer, users can identify clusters of mutually supportive research, highlighting the most influential authors, examine network collaboration between researchers, and analyze changes that occur over time [19]. In addition, VOSviewer will be used to visualize the connections between various research and frequently used keywords, making it easier to understand the most influential areas for safety riders [20]. Through this objective, it is expected that the study will provide a comprehensive overview of how infrastructure roads can be designed and managed to enhance rider safety. Research also aims to identify gaps in existing literature and recommend a direction for future studies that can help in the development of policies and practices best suited for infrastructure roads. Thus, the study aims to propose a sustainable solution that improves efficiency. Subsequently, riders who prioritize traffic rules and safety can play a vital role in enhancing road safety and minimizing accident risks for all road users.

2. Method

This study's research methodology is the Systematic Literature Review (SLR) method, which aims to gather and critically assess findings related to a specific topic. Based on specific and vital research questions, the SLR approach is used to find, assess, evaluate, and interpret all pertinent research in a subject of interest [21]. In the research This for analyze the repair process road with focus on implications to safety user road. Therefore That SLR approach chosen Because method This provide systematic framework for collect, analyze, and synthesize relevant literature, so allow for answer question study in a way comprehensive In research This is a secondary data source obtained from journal related scientific with regulation vehicle overdimension, salvation road [22]. In its implementation, the criteria for literature selection were determined based on the year of publication, relevance to the topics, and the methodology used. Through a systematic approach to searching and evaluating the literature, it

is expected that trends, findings, and knowledge gaps will be identified, providing a clear reference for the study [23].

2.1. Database Used

The database serves as a foundational element in the development of information systems, where data is logically and systematically organised into interconnected elements. This structure includes stored notes in separate files that are logically linked to the data descriptions to fulfil specific informational needs [24]. The use of an appropriate database is crucial for conducting a comprehensive Systematic Literature Review (SLR). Therefore, selecting the most suitable database is essential to ensure the relevance and accuracy of research outcomes. In this study, Google Scholar was chosen as the primary source for literature retrieval, with a focus on publications from 2000 to 2025. This time frame was selected to reflect recent developments and emerging trends in the relevant field. Google Scholar was preferred due to its extensive coverage of academic materials, such as journal articles, conference proceedings, books, and other scientific works from various academic disciplines. Compared to other data sources such as PubMed or Scopus, Google Scholar offers broader access and more varied content.

Despite the fact that SLRs frequently use databases like Scopus and Web of Science, prior research frequently falls short in elucidating the reasons for selecting Google Scholar over these resources. One key advantage of Google Scholar is its inclusion of region-specific and local publications that may not be available in subscription-based databases. Additionally, it is very accessible to researchers of all skill levels because of its open access and user-friendly design. Google Scholar also provides flexible search capabilities, allowing queries based on parameters such as title, author, affiliation, and publication year. In this study, search filters were applied to include only documents published between 2000 and 2025. This approach supports inclusive literature coverage, including works not indexed by commercial databases. Additional features such as “Cited by” and “Related articles” are beneficial for identifying relevant literature and assessing the influence of specific works. Overall, this method is intended to ensure a literature review, while also providing convenience and access to relevant sources, especially from the last few years. As a result, this study highlights new findings and research progress in the relevant field.

2.2. Search Plan

Before searching, it is essential to select the appropriate database to increase the likelihood of finding relevant articles. Selected databases for the study: Publish or Perish and VoS Viewers [25]. Search using keywords in the title and abstract to effectively identify related literature with influence on infrastructure road to safety rider [26]. The search strategy refers to several articles that have been published as analyses of systematic literature reviews [27]. Keywords used include “artificial intelligence, road, infrastructure, analysis, performance analysis, and impact”.

Publish or Perish (PoP) software is utilized to search for relevant articles on Google Scholar. The purpose of the search on Publish or Perish is to identify a maximum of 1000 articles distributed evenly among five keywords, including “artificial intelligence, road, infrastructure, analysis, performance analysis, impact”, with the hope of producing about 200 articles for every keyword. Related articles with design infrastructure ROA, or safety riders, must be published in the English language between 2000 and 2010, and before fulfilling the minimum threshold quality specified through a manual review of the title and abstract [28]. Then, the collected data was exported to VOSViewers with an RIS form for further processing and analysis. A division article based on various keywords ensures the exploration of more literature focused on the influence of infrastructure on road safety [29].

VOSviewer is used for analysis in Systematic Literature Reviews (SLRs). It has been widely studied in systematic literature reviews (SLRs) and building visualisations of networks. Systematic Literature Review (SLR), where journals, researchers, or publications play a role as actors, based on co-citation relationships, bibliographic coupling, or co-authorship [30]. In this study, VOSviewer was used to visualise connections and relatedness between keywords such as “Road Infrastructure,” “Safety Drivers,” “Road Design,” “Traffic Accidents,” and “Traffic Management.” Mapping helps identify research, groups (clusters), and fill gaps in the literature, providing an understanding of the topic’s infrastructure and roadmap. A methodical and thorough search strategy is ensured by an organized methodology, which makes use of tools to hone and visualize the data gathered. A Java-based program called VOSviewer can be used to visualize and analyze network data by creating maps from it.

2.3. Collecting Initial Statistical Data

System format Information Research (Research Information System/RIS) includes documents that meet the requirements and are obtained from Google Scholar. This format contains SLR data, abstract, keywords, and other essential data components. Devices Publish or Perish (PoP) software can collect and present information in a way that is effective for the required information. Reque. e.g., the number of citations, author, and source publications in the RIS standardised format have been standardised. The review is compiled thoroughly, aiming to collect, assess, and analyse all relevant literature about a Topic or question in research [31]. A thorough picture of research trends and knowledge distribution can be obtained by mapping source literature from numerous international publications. Choose an appropriate journal with a topical study and keywords specific to the field, especially those focused on the influence of infrastructure on safety riders. For representing data visually, research. This device, Soft VOSviewer, displays relationships and patterns in literature in a graphical way [32]. Publish or Perish is also rarely found. This data mapping, visualised through standard scientific writing, will ultimately increase clarity and understanding of the results of the SLR analysis. Table 1 Supporting Software and Hardware.

2.4. Acceptance and Rejection

Materials used based on the criteria that have been set to find related documents with an effective safety rider. Review the literature systematically. This involves using various criteria to ensure relevance. The requirements begin with published documents within the time frame of 2000-2025. As shown in Figure 1, the repair process document consists of four main steps: selection, screening, qualification, and summary [33]. At this stage of the election, we carried out identification against relevant databases, such as the methodology used, which was then explained in detail. Google Scholar served as the central database for the search, as noted as early as in Publish or Perish [34]. During the filtering process, the initial search on Google Scholar yielded a total of 970 publications. The qualification steps aim to refine and filter publications beginning with keywords the emergence threshold is set such that only articles that are closely associated with particular keywords and maintain a minimum frequency are included. The minimum keyword occurrence threshold is set to 5, which results in the expenditure of 235 publications. Keyword selection is complete mainly for filtering existing publications, with 235 terms identified as most relevant, drawn from the initial term list. At the end of the Publish or Perish process, 235 papers were selected for further analysis. The following is a flowchart of systematic SLR analysis.

Table 1: Flowchart of systematic Literature Review analysis

Database selection	Identifying relevant keywords from titles and abstracts
((TITLE-ABSTRACT-KEYWORDS) (artificial intelligence, road, infrastructure, performance analysis, impact))	Search criteria determination; Occurrence threshold relevant terms
Total publication identification 970	
Remaining documents (n = 970)	Reports excluded:
	Documents were excluded because the minimum number of occurrences of a term are (5) (n = 235)
The remaining documents	Final documents selection (n = 235)

3. Results and Discussion

3.1. Visualization Keyword Connection Study

Harzing's Publish or Perish (PoP) version 8 was used to visualize keyword associations. It gathered 1,000 pertinent papers from the Crossref database using predetermined keywords: "Artificial Intelligent", "Road", "Infrastructure", "Analysis", "Performance Analysis", and "Impact". Connection between 970 journals' research collected, displayed using VOSviewer version 1.6.20. Analysis (Systematic Literature Review) of the

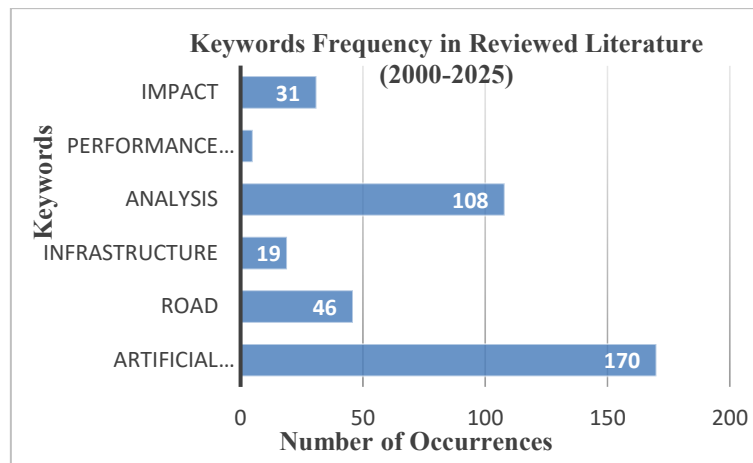


Figure 2: Keyword graph based on frequency emergence

Green colour (Colour 5). Keywords green mainly consists of from “Performance Evaluation,” “Implication,” “Change,” “Network Architecture,” “Highway,” “Artificial Intelligence Techno,” “Data Mining,” “Similar Technology,” Training,” “Transport,” “Factor,” “Society,” “Art,” and “Perspective.” (73 occurrences) indicate the keyword green. This is closely related to evaluation. Then, cross, namely, his ability to handle a safety rider.

Orange colour (colour 6) indicates adequate security. Then cross, with keywords including “Survey,” “Blockchain,” “Edge,” “Security,” “Solution,” and “Transport Network.” With “Survey” dominance (75 times appeared).

The orange colour indicates the strategy for system transportation, with keywords such as “system transportation smart”. Shows that the keyword ‘orange’ is closely related to the condition of transportation, namely, his ability to handle a safety rider.

Blue color of the water (color 8) indicates evaluation infrastructure road for safety rider, with keywords including “Implementation,” “Significant Impact,” “Principle,” Wireless Network,” “Transport Layer,” Negative Effect,” “Construction,” “Artificial Intelligence Technology,” “Problem,” “Simulation,” “Optimization,” “Review,” and “Literature.” Show that this keyword is closely related to infrastructure, specifically its ability to analyze road infrastructure.

By utilizing VOSviewer, the authors visualized both the connections and the emergence patterns derived from 7,087 keywords selected by the researchers. The resulting network, spanning the years 2000 to 2025, forms eight distinct clusters, as shown in Figure 1. Each keyword is represented by a circle, where larger circles signify a higher number of connections, and thicker lines reflect more frequent occurrences, accompanied by elevated visual elements.

The visualization density in Figure 4 shows that the keywords are represented by congested colours and circles, indicating that the study on the topic is conducted more frequently. Along with fading colour, the quantity of study was reduced. The safety and health ownership he highlights is in the growth area [35].

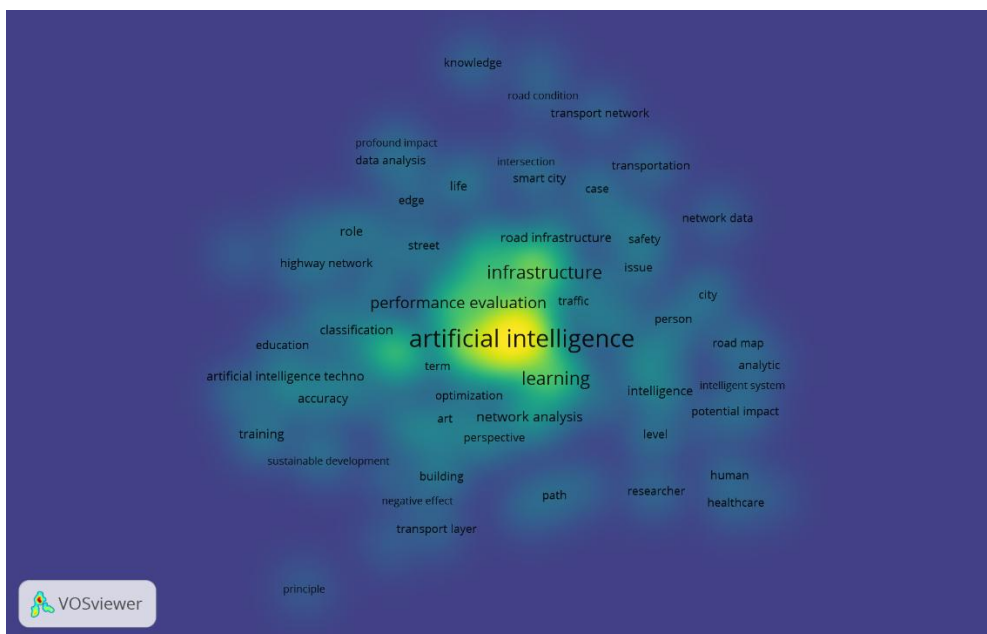


Figure 3 keyword density

Table 2: Keywords by highest studies

Keywords	Total Studies
Artificial Intelligence	401
Learning	147
Infrastructure	129
Road	98
Performance Evaluation	73
Systematic Review	13

Table 1 presents a clear picture of the most frequently investigated keywords in the context of infrastructure. It is clear that “Artificial Intelligence” is the most commonly researched term, appearing 401 times. This demonstrates the existence of numerous dedicated research efforts aimed at understanding intelligence technology for design and evaluating infrastructure roads [36].

Followed by “Infrastructure” and “Road”, field studies are the primary focus in studies about infrastructure and road, with 129 and 98 studies, respectively. Keywords: This highlights a strong focus on assessment performance infrastructure, particularly in reducing accidents, increasing throughput, and improving safety.

3.2. Development Publication Based on Year

To obtain a thorough grasp of the efficacy of road infrastructure, the data were taken from Google Scholar and subjected to Publish or Perish software analysis. Beginning in 2000 and finishing in 2025, the analysis spans 25 years [37].

Figure 5 shows the total data from 1,000 studies conducted. From 2000 to 2025. For 25 years, the number of studies has experienced fluctuations, including significant decreases and increases. There has been considerable growth over the last seven years, from 2018 to 2020, with a peak in 2020, which supports a trend study on the influence of infrastructure on road safety riders. Analysis VOSviewer show keywords most frequent publications used per year: 2000 with ten article, 2001 with twelve article, 2002 with six twelve article, 2003 with three twelve article, 2004 with twenty article, 2005 with six twelve article, 2006 with twenty four article, 2007 with seven twelve article, 2008 with seven twelve article, 2009 with twenty seven article, 2010 with twenty One article, 2011

with twenty four paper, 2012 with twenty One article, 2013 with twenty seven article, 2014 with forty article, 2015 with twenty eight article, 2016 with forty three article, 2017 with fifty six article, 2018 with one hundred articles, 2019 with 124 articles, 2020 with 127 articles, 2021 with seventy One article, 2022 with seventy One article, 2023 with twenty eight, 2024 with twenty five articles, 2025 with ten article.

Unlike previous studies on improving safety and capacity, this study employs a systematic literature review (SLR) analysis spanning 25 years. While studies have often overlooked the role of road structure in rider safety, a significant improvement is evident in research interest. We map the frequency of trend publication and analysis keywords, which reflect new themes in the field. This is with the use of tools such as Publish or Perish and VOSviewer. Contributions studies lie in a comprehensive comprehension, which offers an outlook on facility infrastructure transportation, and then cross-sustainable urbanisation.

3.3. Type of Research determined by the Publisher and Classification Study

The results of research on how road infrastructure affects driver safety are shown in Table 3. Studies on how road infrastructure affects the safety of drivers. The data provide insight into the diversity of sources and global gaps in field studies. Diversity of sources and global gaps in field studies. The study collected data from multiple publishers through a network, demonstrating how different publishers can influence academic research. The data is a globally linked data for civil engineering collected using Soft Harzing using the Publishing “Publish or Perish” strategy as seen in Table 3.

Table 3 Number of Studies By Publisher

Publisher	Total Studies
Ixeeplore.ieee	185
Elsevier	149
Spinner	80
Journals.sagepub	61
Books	62
Wiley Online Library	51
Mdpi	37
Dl.acm	26
Taylor & Francis	23
Ojs.aaai	19
Arxiv.org	18
Nature	17
Green	12
Emerald	10
Jair.org	10

Ixeeplore.IEEE, Elsevier, and Spring are three publishers top contributors part big research. This shows that these platforms are channel leaders for spreading studies about influencing infrastructure roads for safe riders.

Figure 6 shows details of various types of publication research included in this study. The information in the report adds value to the diversity landscape of the infrastructure roads [38]. The journal article contributes to the considerable research. This indicates that peer-reviewed journals are the primary channel for disseminating research findings. Although clear journals are the most common format, other formats, such as books, are less frequently used. This presents empirical data and in-depth studies, but lacks sufficient generalizability in the field research.

3.4. Types of research conducted by some big country

Studying from different places demonstrates the variety of study output. Diversity describes the most recent scientific discoveries and represents the distribution of study topics throughout various worldwide areas.

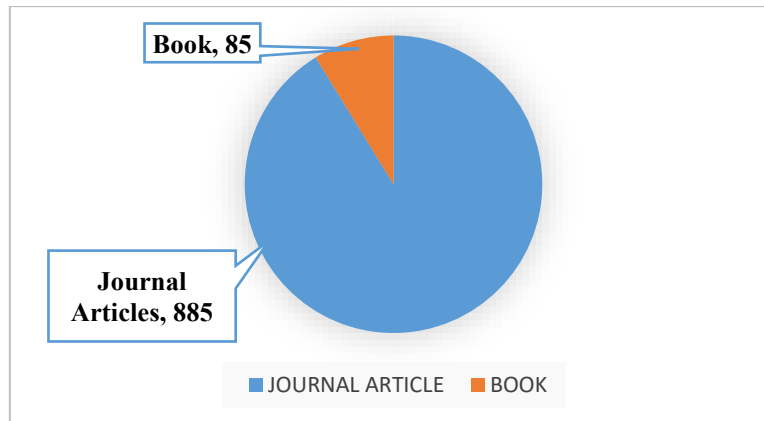


Figure4 Number of Studies by Study Type

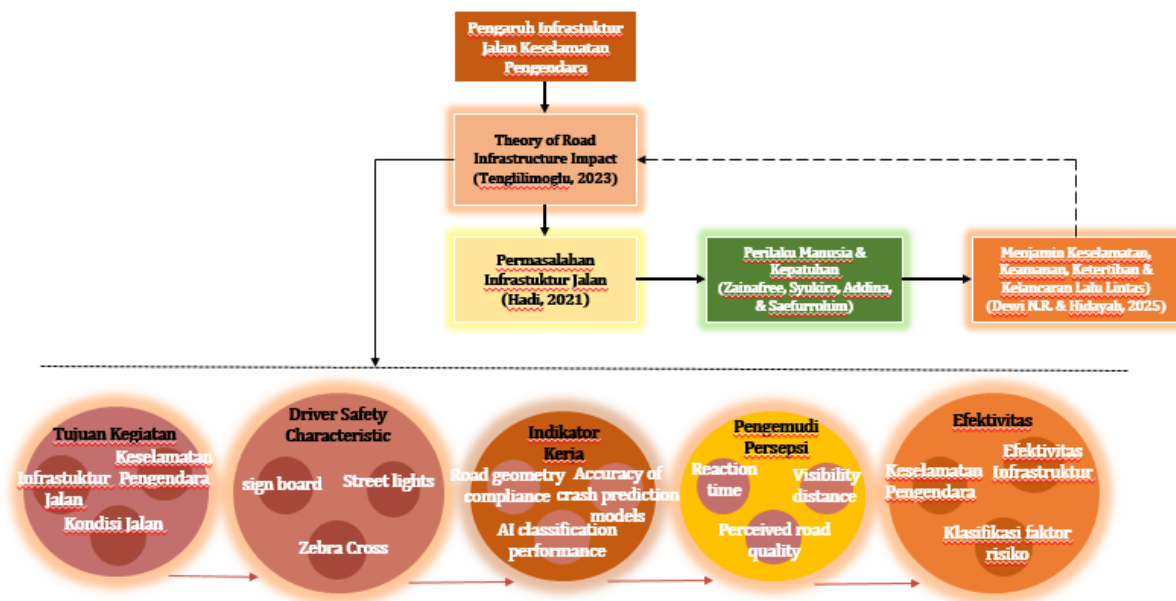


Figure 5 Framework theoretical that describes the key dimensions of effectiveness: Impact Road Infrastructure, Problems Road Infrastructure, Behavior Man Compliance, and Ensuring Safety, Security, Order, and Smooth Traffic.

3.5. Framework theoretical and framework conceptual

A quality and validity study is positively influenced by a structured theory that is logical and connected, originating from one or more theories. The framework, as shown, emphasises aspects of systems and information with journey safety riders—research strategies that have a strong theoretical basis, reinforced by these elements. Review the literature on aspects of safety riders.

Framework theory journey effectiveness infrastructure road to safety rider containing four components of the main system information. Components include the safety riders, effectiveness infrastructure, classification factors, behaviour, compliance with humans, time action, distance, length, and quality of the suggested path—conflict theory. Then cross highlight how “infrastructure” the path “reduces” point conflict and “safety” rider” with allow reduce number accident and improve safety. This theory highlight elements main signs, lights road, and zebra crossing. The goal is is for ensure safe and efficient operations. Sustainability and the environment as well as behavior and compliance human: infrastructure road push subtraction accident with reduce violation Then cross and ensure movement Then smooth traffic. At the same time, its effectiveness influenced by behavior driver who yields, habit pedestrians, and factors culture. This theory emphasize elements main like metric like compliance geometricc, Accuracy of prediction model accidents, and performance Ai classification. Safe and efficient operation confirmed through “indicators” performance and “perception” driver to indicate.”

Findings from the emphasis have highlighted the global interest in riders' safety as an essential issue. However, regional differences in contribution studies show various levels of adoption and adaptation. Developed countries dominate landscape research, while economically developing countries contribute limitedly, although they experience rapid urbanisation. The disparity underscores the importance of increasing investment in local research to support the development of urban infrastructure that aligns with specific contextual needs.

In addition, the dominant theme of economy and efficiency in literature often exhibits a narrow focus, which frequently overlooks socio-environmental aspects. Although facility infrastructure roads can reduce the risk of accidents, they also have the potential to increase safety for riders and reduce the number of accidents. Future studies must take a multidisciplinary approach that integrates the effects of science, sociology, road safety, and infrastructure in order to fully realize the potential of a safe rider.

4. Conclusion

A systematic literature review shows that numerous studies highlight the importance of safety riders and assess their effectiveness. In roles, it is becoming smoother. Road safety and structural efficiency improvements are the primary issues identified in this study. By allowing current sustainable practices and reducing traffic conflicts, infrastructure is improved in the right way, increasing safety and reducing congestion. However, there is still a problem adapting this design to various regional environments and including non-motorcycle users. To overcome this difference, the planner and maker policy should consider applying a project pilot to evaluate the design of the infrastructure road in certain urban regions, particularly in areas with a dense population and limited space. Merging pedestrian and crossing tracks can increase accessibility and safety on the road for everyone. To optimise the performance of the infrastructure road in various conditions, future designs must incorporate new technologies such as sensor systems and automatic monitoring, and then cross automatically. Campaigning to educate the public is also essential to push the use of facilities across the roads. The results of this study indicate a number of research gaps that need to be filled. In some places, it is important to modify road infrastructure facilities to address traffic accidents, environmental conditions, and driver behavior, addressing road users who behave badly, and unfavorable environmental conditions, are important environments to facilitate road infrastructure in certain locations. Various cross-sections are then taken into account. Second, long-term studies are needed to assess performance, assessing the long-term benefits of road infrastructure. Such as the safety and security of road users. Existing technologies, including sensor-equipped electronic ticketing systems and adaptive cross-management systems, present promising opportunities for further research. Prospective research opportunities are presented by the technologies created. In the future, it is interesting because the technologies created, including adaptive cross-management systems and sensor-equipped electronic ticketing systems. Furthermore, studying how the influence of road infrastructure on driver safety is perceived by the general public and accepted in different cultural situations, can provide ideas for increasing public engagement.

References

- [1] H. Z. P. H. H. Z. L. W. K. & L. D. Lu, "Infrastruktur transportasi dan kesenjangan pendapatan perkotaan-pedesaan: Analisis tingkat kota di Tiongkok.," *Jurnal geografi transportasi* , pp. 99 , 103292., 2022.
- [2] R. S. A. E. J. M. J. A. & P. K. Khanani, "The impact of road infrastructure development projects on local communities in peri-urban areas: the case of Kisumu, Kenya and Accra, Ghana.," *International journal of community well-beng*, 4(1), pp. 33-53, 2021.
- [3] G. Immanuel, A. I. Rifai and & J. Prasetijo, "The Road Performances Analysis in Jalan Laksamana Bintan, Batam-Indonesia," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 17-26, 2022.
- [4] T. I. Z. M. M. C.-J. W. J. & D. C. T. Hlatshwayo, "Mainstreaming ecological connectivity and wildlife needs in green road transport infrastructure planning in South Africa," *Journal of Environmental Management*, pp. 371, 123062, 2024.
- [5] Y. Immanuel, A. Rifai and & J. Prasetijo, "The Road Performance Analysis of the Tuah Madani Roundabout, Batam-Indonesia," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 27-36, 2022.
- [6] C. Sasmito, "Implementasi pembangunan infrastruktur jalan desa.," *Jurnal Ilmu Sosial dan Ilmu Politik (JISIP)*, p. 6(3), 2019.

- [7] E. S. A. Andri Irfan Rifai, "Analysis of Factors Causing Traffic Accidents on Sultan Agung Street, Bekasi," *Neutron*, vol. 18, no. 2, pp. 1-9, 2020.
- [8] R. M. M. S. M. M. P. & Y. T. Fisa, "Effects of interventions for preventing road traffic crashes: an overview of systematic reviews.," *BMC public health* 22(1), p. 513., 2022.
- [9] G. (. Dekristian, "ANALISIS FAKTOR INFRASTRUKTUR JALAN, KELAYAKAN KENDARAAN DAN HUMAN ERROR TERHADAP KESELAMATAN BERKENDARA SEPEDA MOTOR (Studi Kasus Pada Ruas Jalan Walisongo Kota Semarang). SKRIPSI.," *Jurnal Universal Technic*, 1(1), pp. 131-139., 2021.
- [10] J. A. Muatan, A. I. Rifai and & S. Handayani, "The Analysis of National Road User Satisfaction in Urban Area (Case Study of The PGC-Kramat Jati-Graha Cijantung Route, Jakarta)," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 397-408, p. 1, 2022.
- [11] M. F. Assalam, A. I. Rifai and & Taufik, "The Effectiveness Analysis of Frontage Road on Jalan Margonda Raya, Depok," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 383-396, 2022.
- [12] W. Wincent, A. I. Rifai and & I. Muhammad, "The Road Performance Analysis in Jalan Ahmad Yani Batam Using IHCM 1997," *Indonesian Journal of Multidisciplinary Science*, 2022, vol. 1, no. 1, pp. 203-116, 2022.
- [13] A. I. Rifai, H. Thalib, D. Prayogo and & M. Isradi, "Customer Satisfaction and Road Performance in Long Segment Maintenance Contract: Application of an Urban Road Network," *United International Journal for Research & Technology*, vol. 3, no. 9, pp. 10-19, 2022.
- [14] A. Z. Sarnoto, S. T. Rahmawati, A. Ulimaz, D. Mahendika and S. & Prastawa, " Analisis pengaruh model pembelajaran student center learning terhadap hasil belajar: studi literatur review," *Jurnal Pendidikan dan Kewirausahaan*, 11(2), pp. 615-628, 2023.
- [15] A. Oktobrianto, A. I. Rifai and & A. F. Akhir, "The Traffic Characteristic Analysis of Jalan Ciater Raya South Tangerang, Indonesia," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 437-450, 2022.
- [16] A. Choundhary, R. D. Garg, S. S. Jain and A. B. Khan, "Dampak variabel desain lalu lintas dan infrastruktur jalan terhadap keselamatan pengguna jalan – tinjauan pustaka sistematis," *Jurnal Internasional Kelayakan Tabrakan*, pp. 583-596, 2024.
- [17] J. Andreas, A. I. Rifai and & M. Taufik, "The Analysis of Road Service Level Due to Rail Crossing: A Case of Railway Cisauk Station Area, Tangerang Indonesia," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 357-368, 2022.
- [18] A. H. Agniya, A. I. Rifai and M. & Taufik, "The Geometric Design of New Jakarta-Cikampek Highway Access Using Autocad® Civil 3D: A Case of West Karawang Industrial Area.," *Indonesian Journal of Multidisciplinary Science*, vol. 1, no. 1, pp. 189-198., 2022.
- [19] E. W. H. Budianto, H. M. G. A. Saputra and N. D. T. & Dewi, "Pemetaan Topik Penelitian Seputar Koperasi Jasa Keuangan Syariah (KJKS): Studi Bibliometrik VOS viewer dan Literature Review. EL MUDHORIB," *Jurnal Kajian Ekonomi Dan Perbankan Syariah*, 3(2), pp. 1-2, 2022.
- [20] A. I. Rifai, M. Isradi, J. Prasetyo and G. & Immanuel, "Bibliometric Analysis of Driver's Behavior on Signalized Intersections.," in *Emerging Cutting-Edge Applied Research and Development in Intelligent Traffic and Transportation Systems*, vol. 1, no. 1, pp. 32-43, 2022.
- [21] A. R. S. F. W. M. N. I. & A. I. W. Putri, "KEMUNGKINAN PENERAPAN BERBAGI RUANG BERDASARKAN PERSEPSI PENGGUNA JALAN.," *Jurnal Pengembangan Kota*, vol. 8, no. 2, pp. 116-131, 2022.
- [22] A. R. N. N. M. R. & D. A. Subhan, "Analisis Kebijakan Overdimensi Kendaraan Uji KIR Terkait Keselamatan Jalan dan Efisiensi Muatan Di Hulu Sungai Utara.," *Journal Of Social Science Research*, vol. 4, no. 6, pp. 4806-4827, 2024.
- [23] S. Lestiyono, "Efisiensi Penggunaan Transportasi Publik Berbasis Rel (Literature Review)," *Jurnal Inovasi dan Tren*, pp. 124-130, 2025.
- [24] E. R. R. S. S. E. M. H. A. E. W. E. N. & H. W. T. Lestariningsih, "Studi Literasi Tersistematis Implementasi Metode-Metode Pengembangan Sistem Informasi Berbasis Basis Data Terdistribusi," *Jurnal Informatika Dan Rekayasa Perangkat Lunak*, pp. 56-61, 2024.
- [25] F. S. Dewi and T. Dewayanto, "Peran big data analytics, machine learning, dan artificial intelligence dalam pendeteksian financial fraud: A systematic literature review," *Diponegoro Journal of Accounting*, 13(3), pp. 1-2, 2024.

- [26] Y. A. Sari, R. S. Indrawan, A. I. Rifai, M. K. A. M. Lazi and &. Indrastuti, "Roundabouts in Urban Mobility: A Bibliometric Review of Design and Performance," *International Journal of Transport Development and Integration*, pp. 27-37, 2025.
- [27] R. Hermawan, A. I. Rifai, M. Pamadi and S. & Handayani, " Risk Management of High-Rise Buildings in Coastal Areas: A Bibliometric Review Using Vosviewer.," *Return: Study of Management, Economic and Bussines*, vol. 3, no. 6, pp. 332-345., 2024.
- [28] O. P. Giri, J. Selvam and P. B. & Shahi, " A Scenario of Road Traffic Safety: A Bibliometric Analysis.," *International Journal of Science, Mathematics and Technology Learning Volume 31 No. 2*, pp. 1-2, 2023.
- [29] A. I. Rifai, D. Angtony, A. J. Saputra and J. & Prasetijo, " A Bibliometric Analysis of International Structural Engineering Standards Using VOS Viewer.," *Engineering Proceedings*, vol. 1, no. 1, pp. 75-84, 2025.
- [30] B. Hammouti, I. Aichouch, Y. Kachbou, K. Azzaoui and R. & Touzani, "Bibliometric analysis of global research trends on UMI using Scopus database and VOS viewer from 1987–2024. J. Mater.," *Environ. Sci, 16(4)*, pp. 548-561, 2025.
- [31] C. Callanga, J. M. Ares, J. Becbec, S. Elladora, J. Gabucan, E. Gaylan and J. M. P. & Sanchez, "Empowering doctoral students: the role of Publish or Perish software in enhancing systematic reviews in science education," *Internet Reference Services Quarterly*, 28(4), pp. 439-452, 2024.
- [32] P. Amblikar, V. Dohale, A. Gunasekaran and V. & Bilollikar, " Product returns management: a comprehensive review and future research agenda.," *International Journal of Production Research*, 60(12), pp. 3920-3944, 2022.
- [33] A. Hermawan, A. I. Rifai and U. H. & Umar, " Analysis of Pavement Condition Index Method for Maintenance and Rehabilitation Strategy for Airport Flexible Pavement: A Bibliometric Review.," *Asian Journal of Engineering, Social and Health.*, vol. 3, no. 4, pp. 739-749., 2024.
- [34] R. Jastino, A. I. Rifai, A. Savitri and S. & Handayan, " Bibliometric Analysis of Risk Management of Water Distribution System.," *OPSearch: American Journal of Open Research*, vol. 3, no. 4, pp. 953-960., 2024.
- [35] D. A. Gultom, A. I. Rifai, M. Pamadi and M. & Isradi, "Bibliometric Analysis Of High-Rise Building Planning With Cpm And Pert Methods Using Vosviewer," *Journal of Social Science (JoSS)*, vol. 3, no. 6, pp. 1437-1446, 2024.
- [36] Y. A. T. Sinambela and A. I. & Rifai, "Bibliometric Analysis of Road Damage Due to High Rainfall Intensity in Mountainous Areas Using VOSviewer. OPSearch:," *American Journal of Open Research*, vol. 3, no. 4, pp. 940-952., 2024.
- [37] V. A. Ricardo, A. I. Rifai, A. S. Savitri and J. & Prasetijo, "A Bibliometric Analysis of Drinking Water Distribution In Coastal Areas Using Vosviewer.," *Asian Journal of Social and Humanities*, vol. 2, no. 9, pp. 1980-1988., 2024.
- [38] A. M. Lubis, A. I. Rifai and A. & Savitri, "Bibliometric Analysis of Drainage System Performance Against Urban Flooding Using Vosviewer. OPSearch," *American Journal of Open Research*, vol. 3, no. 5, pp. 990-996., 2024.