J@TI
JURNAL TEKNIK INDUSTRI
UNIVERSITAS DIPONEGORO

Vol. 19, No. 2, Mei 2024

ANALYSIS OF FACTORS AFFECTING THE INTENTION TO PURCHASE ELECTRIC VEHICLES: A SYSTEMATIC LITERATURE REVIEW (SLR)

Riri Ramadhani Putri*

Department of Industrial Engineering and Management, Faculty of Engineering, Diponegoro University
Jl. Prof. Soedarto, SH, Undip Tembalang Campus, Semarang, Indonesia 50275

Abstract

Electric vehicles are a type of vehicle that is driven by an electric motor powered by a battery. Electric vehicles are gaining popularity worldwide due to increasing environmental awareness and various benefits such as reduced dependence on fossil fuels and being considered an efficient and sustainable mode of transportation. This research presents a comprehensive overview and bibliometric analysis of published studies related to consumer adoption/purchase intentions of electric vehicles (EVs) from 2014 to 2024. The Scopus database was used to extract the papers as it is considered the largest database of peer-reviewed academic publications colleagues. VOS Viewer software was used for bibliometric analysis of networks between authors, institutions, countries, publications, journals, and keyword occurrences. The research was conducted on March 23, 2024, which resulted in a total of 154 documents after exclusion using selected keywords. These findings show a sizable increase in publications regarding intentions to adopt electric vehicles over the past six years. China is the world leader in this research field, providing the maximum number of papers. Sustainability Switzerland Journal stands out as the most productive journal with the most publications. This analysis will help academics better understand historical trends, current challenges, and future research topics in the area of electric vehicle adoption/purchase intentions.

Keywords*: Analysis Bibliometric; Electric Vehicles; Purchase Intention; VOSViewer*

1. Introduction

Pollution impacts our ecosystem and a healthy life. The incidence of bronchitis, myocardial infarctions, asthma, and cancer is rising worldwide. The detrimental emissions from traditional automobiles contribute to rising pollution levels. According to a European Union assessment, over 28% of global carbon dioxide (CO2) emissions originate from the transport sector, with road transport accounting for more than 70%. Consequently, numerous nations are implementing measures to expedite the adoption of electric vehicles as a transportation mode while also weighing the environmental advantages and diminishing reliance on fossil fuels. Electric vehicles are gaining popularity due to heightened environmental consciousness and deteriorating air quality (Michael et al., 2022). A battery-operated electric engine powers electric vehicles. In contrast to conventional gasoline-powered vehicles that utilize combustion engines, electric vehicles operate on rechargeable batteries by connecting to an outlet or a designated charging station. Electric vehicles are silent and user-friendly and incur reduced operational and maintenance expenses compared to traditional vehicles. The adoption of electric vehicles is comparatively modest when juxtaposed with internal combustion engine cars (Priessner et al., 2018).

Indonesia, the world's fourth most populous nation, has numerous prospects for participants in the electric vehicle ecosystem. Indonesia ranks among the major car markets in Asia. Passenger car sales in Indonesia approach 1 million units per year (Veza et al., 2022), showing a sustained preference for private car ownership, possibly motivated by autonomy and status (Belgiawan et al., 2014). Despite the initial expense of electric vehicles being a significant obstacle to widespread adoption (Padhilah et al., 2023), Indonesia, as a prominent global nickel producer, seeks to improve its manufacturing capabilities, decreasing production costs over time (Cyrill, 2023). This contrasts with other nations that may possess developed automotive sectors, differing resource accessibility, and a range of governmental regulations influencing the uptake of electric vehicles.

Presidential Regulation No. 55 of 2019 regarding Battery Electric Vehicles (BEV) has been implemented to expedite the electrification of such vehicles. This rule was succeeded by implementing Minister of Industry rule Number 27 of 2020 about Specifications, Development Roadmap, and

*Penulis Korespondensi.

E-mail: ririramadhaniputri@students.undip.ac.id

Procedures for Calculating Local Components of BEV in Indonesia. The Indonesian Government intends to deploy electric vehicles throughout its major urban centers, specifically inside the Jakarta Metropolitan Area (JMA) and Nusantara, the New Capital of Indonesia in East Kalimantan (Ratcliffe, 2022). Consequently, a study on the prospective adoption of electric vehicles in Indonesia is essential to bolster the Government's initiative.

The intention to adopt is the primary predictor of actual purchasing behavior (Chang & Wildt, 1994). Upon becoming aware of a new product and expressing a willingness to investigate it, customers decide to purchase it (Febransyah, 2021). The Theory of Planned Behavior (TPB) posits that purchase intention is the primary predictor of subsequent purchasing behavior. Customers tend to purchase more when their acquisition purpose is more pronounced (Huang & Ge, 2019). Policymakers' expectations concerning the significance of electric vehicles in mitigating emissions have markedly intensified recently. Concurrently, scientific inquiry into the desire to deploy electric vehicles has surged significantly (J. Kim et al., 2014). The desire to accept electric vehicles pertains to persons' inclination to embrace and utilize electric vehicles for transportation. This reflects customers' mindset and disposition towards accepting new items or technology in the imminent future. Consequently, the desire to adopt or acquire is crucial for assessing the prospective market demand for electric vehicles and the factors influencing consumer decisions related to their adoption.

Given the expansion and consumer interest in electric vehicles, it remains essential to identify and analyze the primary research trends comprehensively. This comprehensive understanding is crucial to comprehend customer needs and the intention to use electric vehicles, despite prior research efforts. Equally crucial is the comprehensive understanding of the principal studies and authors in this domain and their connection to the comprehensive assessment of research concerning consumer intentions to embrace electric vehicles. The quantitative method for evaluating research literature, known as bibliometric analysis (Farrukh et al., 2020), provides comprehensive insights into individual subjects' developmental trajectories and orientations. This enables a comprehensive examination of particular domains within the literature, derived from quotations, bibliographies, and various data sources. The comprehensive assessment of multiple facets of the scientific communication process, including study impact, author productivity, journal influence, and additional elements, is a significant contribution. Scholars can utilize this comprehensive viewpoint to discern knowledge deficiencies, formulate novel research inquiries, and delineate anticipated contributions to the discipline (Donthu et al., 2021). This research examines the annual evolution of electric vehicle purchase intentions, identifies the leading countries, institutions, and journals in EV Adoption Intention, ascertains the most prolific publications and authors, and points out critical keywords and primary themes, thereby reassuring the audience of the thoroughness of the findings.

2. Research Methods

The Scopus database is the most dependable and renowned source of bibliographic information. It provides extensive coverage across multiple fields. This comprises numerous academic journals, conference proceedings, and other scientific publications, offering consumers an extensive comprehension of research findings across diverse disciplines. Consequently, the researchers selected the Scopus database to do a bibliometric analysis. On 23 March 2024, one hundred fifty-four articles concerning EV adoption intention were extracted from the Scopus database by employing suitable keywords and applying filters, including document type, to refine the pertinent subject areas for the research.

Keywords for analysis include Electric vehicle* OR EV OR EVs AND “Purchase intention” OR “Adoption Intention”. The keywords are examined inside the article's title, abstract, and keywords. Additionally, the VOS viewer program (van Eck & Waltman, 2010) has been employed to generate, visualize, establish linkages within the literature, and analyze bibliometric networks. This bibliometric emphasizes an analytical technique utilized in numerous studies across diverse study fields and is accessible in the public domain. The VOS viewer was employed to construct co-occurrence keyword and citation networks (Martins et al., 2022) The subsequent search was utilized to extract journals from the Scopus database:

TITLE-ABS-KEY (electric AND vehicle* OR ev OR evs AND "Purchase intention" OR "Adoption Intention") AND (LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "ARTS")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (EXCLUDE (EXACTKEYWORD , "China") OR EXCLUDE (EXACTKEYWORD , "India") OR EXCLUDE (EXACTKEYWORD , "Malaysia") OR EXCLUDE (EXACTKEYWORD , "Vietnam") OR EXCLUDE (EXACTKEYWORD , "Beijing [China]") OR EXCLUDE (EXACTKEYWORD , "Hong Kong") OR EXCLUDE (EXACTKEYWORD , "United States")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English")).

In **Figure 1**, displays the process of selecting journal articles for systematic research using the PRISMA methodology. (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The first stage, namely identification, begins with searching for articles in Scopus using keywords related to (*electric vehicle* or *EV*, as well as the terms "purchase intention" or "adoption intention") which results in an initial 306 articles. At the screening stage, selection is made based on certain criteria, such as source (only

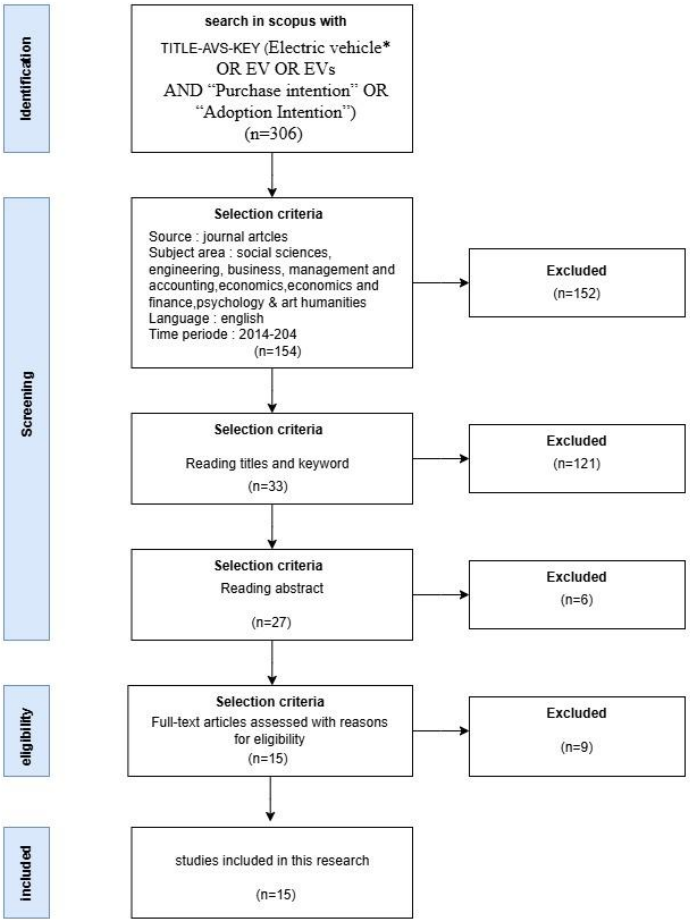

Figure 1. Prisma Literature Review

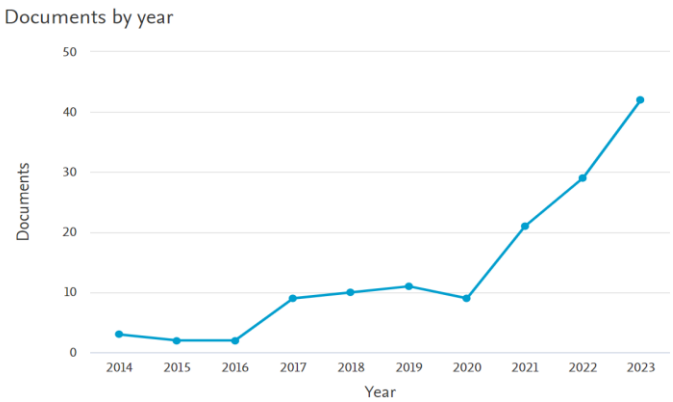

Figure 2. Publications by Year from 2014 to 2023 (Basis Data Scopus, 2024)

journal articles), subject field (social sciences, engineering, business, and others), language (English), and period. (2014–2024). This initial selection eliminated 152 articles, leaving 154 articles for further examination. Next, the articles were filtered based on titles and keywords, reducing the number of articles to 33 after eliminating 121 articles. The next screening was conducted based on the abstracts, which eliminated 6 articles and left 27 articles. At the eligibility stage, the remaining articles are evaluated by reading the full text and considering the reasons for their eligibility. From here, 9 articles were eliminated, and 15 articles were finally included as studies in this research. This process demonstrates a phased screening to ensure that only the most relevant articles are included in the research.

3. Result & Discussions

This section provides a comprehensive presentation of the bibliometric analysis results. The primary aim of the analysis is to present a summary of the research concerning the intention to use electric vehicles.

3.1 Annual Publications Regarding the Intention to Acquire Electric Vehicles

This study seeks to elucidate the topic and showcase advancements in research about electric vehicles and their correlation with adoption and buying intention. The primary metric of advancement in a research domain is the quantity of publications (Kreiman & Maunsell, 2011). As seen in **Figure 2**, this article evaluates the research conducted throughout the

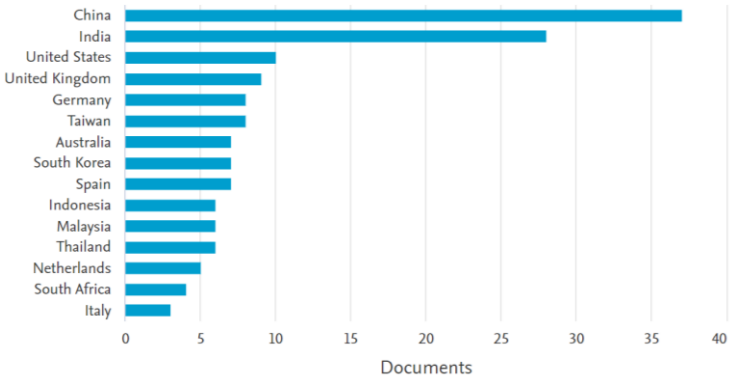

Figure 3. Country-Specific Publications from 2014 to 2024 (Scopus, 2024)

Table 1. List of the Countries with the Highest Rankings (Scopus, 2024)

Country	Total Publications	Total Citations	Average Number of Citations Per Publication
Cina	37	1146	30,97
India	28	321	11,46
Amerika Serikat	10	422	42,2
Inggris	9	207	23
Jerman	8	642	80,25
Taiwan	8	217	27,125
Australia	7	290	41,42
Korea Selatan	7	228	32,57
Spanyol	7	102	14,57
Indonesia	6	19	3,16
Malaysia	6	134	22,33
Thailand	6	32	5,33
Belanda	5	243	48,6
Afrika Selatan	4	16	4
Italia	3	180	60

decade from 2014 to 2024. From 2014 to 2016, there needed to be published research or extremely few. In 2017, there were nine publications, and the number of publications has been rising. In 2022, a record 29 journals were published. Publications in 2022 and 2023 amounted to 46.10%. Seventy-one out of a total of 154 publications. The rise in academic study in this domain can be attributed to the global adoption of sustainable development goals initiated in 2015. Electric vehicles are seen as an eco-friendly energy source, contributing to attaining sustainable development objectives. This figure accurately represents the growing interest in this domain, underscoring the significance of this research.

3.2 National Publications

Figure 3 illustrates contributions from 43 nations over 154 publications. China leads the ranking with 37 articles in this study domain. Chinese researchers have increasingly shown interest in this field of study. China accounts for 24.02% of the overall publications. India, the second most productive country, has produced 28 publications, accounting for 18.18% of the 154 journals. The United States ranks third in productivity for producing journals on electric car adoption intentions, with ten publications (6.49%). England has released nine publications. Germany and Taiwan have each released eight publications, while South Korea and Spain have each produced seven. After Indonesia, Malaysia, and Thailand, six publications were recorded each. The Netherlands released five publications. South Africa released four publications. Subsequently, Italy released three publications.

According to the total citations presented in **Table 1**, China (1146) ranks first, followed by Germany (642), the United States (422), India (321), Australia (290), the Netherlands (243), South Korea (228), Taiwan (217), the United Kingdom (207), Italy (180), Malaysia (134), Spain (102), Thailand (32), Indonesia (19), and South Africa (16). Germany (80.25) leads in average citations per publication, followed by the Netherlands (48.6), Australia (41.42), the United States (42.2), South Korea (32.57), China (30.97), Taiwan (27.125), the United Kingdom (23), Malaysia (22.33), Spain (14.57), India (11.46), Thailand (5.33), South Africa (4), and Indonesia. (3,16). The mean citation count per publication serves as a metric for evaluating research and ascertaining the impact of a nation or journal (Bhardwaj et al., 2020). China leads in overall citations with 1,146, followed by Germany with 642 and the United States with 422. Germany leads in average citations per article with 80.25, followed by the Netherlands at 48.6, Australia at 41.42, the United States at 42.2, South Korea at 32.57, and China at 30.97. Mean citations per publication assess the average influence of a country or journal. Although Germany and the Netherlands have fewer publications, their works are the most frequently cited.

In contrast, China, with the highest publication count, has a lower average citation per article.

3.3 Prolific Authors

This segment analyzed the productivity of authors about E.V. adoption intention. The most prolific authors have been identified. Five prolific authors accounted for 12.98% of the total 154 publications. **Table 2** presents the fifteen most prolific authors according to the quantity of articles they have produced. Higueras Castillo, E. and Liebana-Cabanillas, F. are the most prolific authors in the discipline, each having published five articles, the most significant number of publications. He, X. ranks second with a total of four publications. Krems J.F. obtained the highest total of citations, with 357. X. He has received 348 citations. Zhan, Wenjie has received 332 citations, while Breitner, M.H. and Degirmenci, K. each have 237 citations.

3.4 Preeminent Journals

Table 3 compiles the thirteen most prolific journals, ranked by the number of published documents and citations accrued. These nine journals account for 46.10% of the 154 publications. Sustainability Switzerland permits a maximum of 13 papers, but citations are accepted (209).

3.5 Keyword Analysis

The network depicted in **Figure 4** incorporates 37 keywords. In **Figure 5** and **Figure 6**, a larger circle signifies greater significance or prevalence of the item inside the network. Cluster 1 Red comprises 13 entries. Consumption behavior is the paramount factor, signifying that the subject within this cluster pertains to perception, profit value, environmental concern, climate change, competition, and technological adoption. Cluster 2 Green comprises 11 entries. Electric cars represent the primary focus, signifying that the theme within this cluster pertains to adoption intention, consumer behavior theory, structural equation modeling, marketing, sustainability, and empirical analysis. Cluster 3 Blue comprises nine entries. The most critical element is purchase intention, signifying that this cluster focuses on consumer purchase intention as assessed through surveys, sales, perceived risk, and the technological acceptance model theory. Cluster 4 Yellow comprises three components. New energy vehicles represent the most critical element, signifying that the issue within this cluster pertains to public policy and decision-making. Cluster

Table 2. List of the Most Prolific Authors (Scopus, 2024)

Author	Publication	Citation
Higueras Castillo, E.	5	90
Liebana-Cabanillas, F.	5	90
He,X.	4	348
Eccarius, T.	3	127
Hu, Y.	3	190
Krems, J. F.	3	357
Wang, S.	3	72
Belgiawan, P.F.	2	5
Bhat, F.A.	2	2
Breitner,M.H.	2	237
Degirmenci,K.	2	237
Franke,T.	2	216
Golz,S.	2	48
Sinov,nicole.d.	2	167
Whitee, lee. V.	2	167
Hardman, scott	2	182
Zhan, wenjie	2	332

Table 3. Most Prolific Journal (Based on Scopus Data, 2024)

Source	Document	Citation
Sustainability Switzerland	13	209
Journal Of Cleaner Production	12	900
Transportation Research Part D Transport and Environment	8	720
Transportation Research Part A Policy and Practice	6	486
World Electric Vehicle Journal	6	35
Energies	4	65
Transport Policy	4	127
Environment Development and Sustainability	3	1
International Journal of Electric and Hybrid Vehicles	3	27
Journal Of Consumer Behaviour	3	53
Research in Transportation Business and management	3	66
Transportation Research Part a: Policy and Practice	3	1
Transportation Research Part d: Transport and Environment	3	355

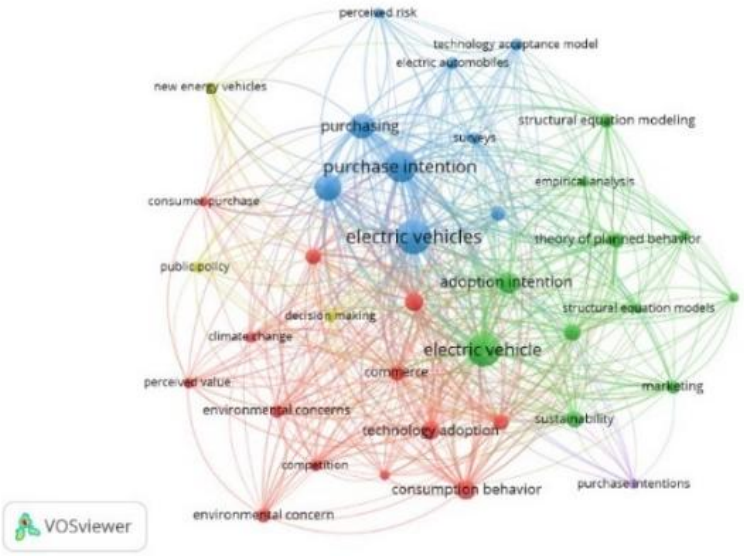

Figure 4 Keyword Network

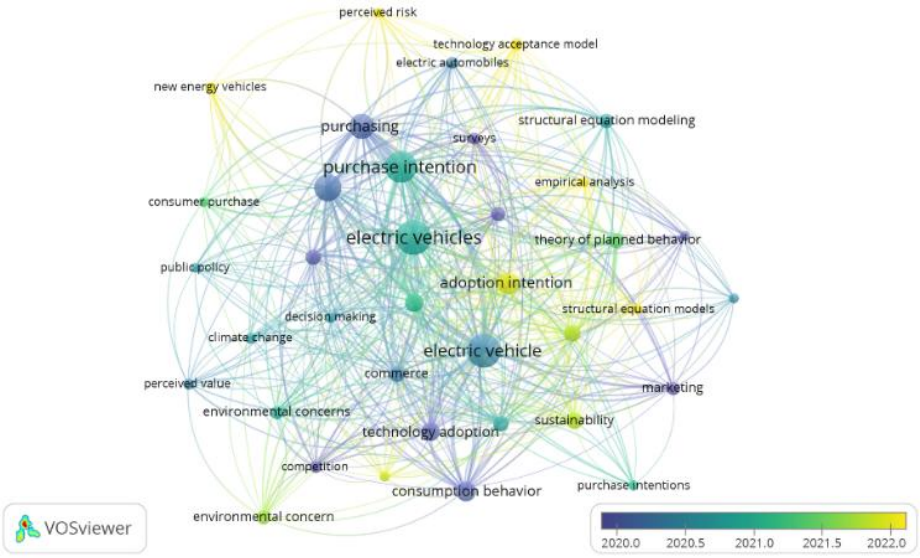

Figure 5. Overlay Visualization

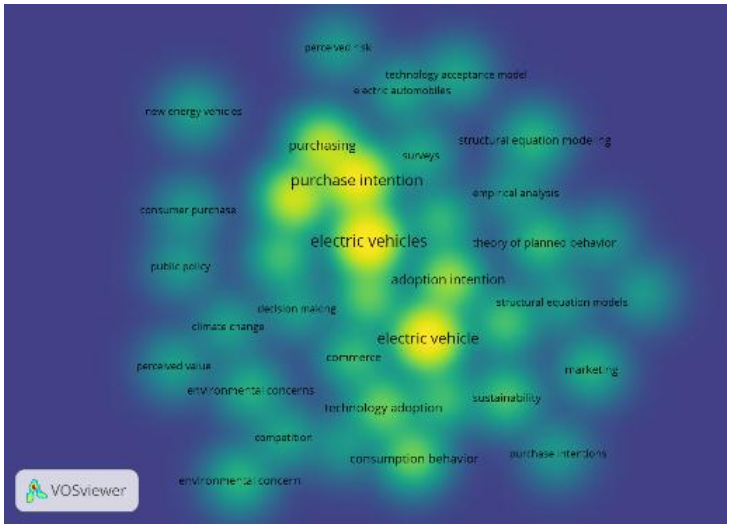

Figure 6. Density Visualization

5 Purple contains one item. The desire to purchase signifies that this cluster's focus is on sustainability, marketing, consumer behavior, and the theory of planned behavior.

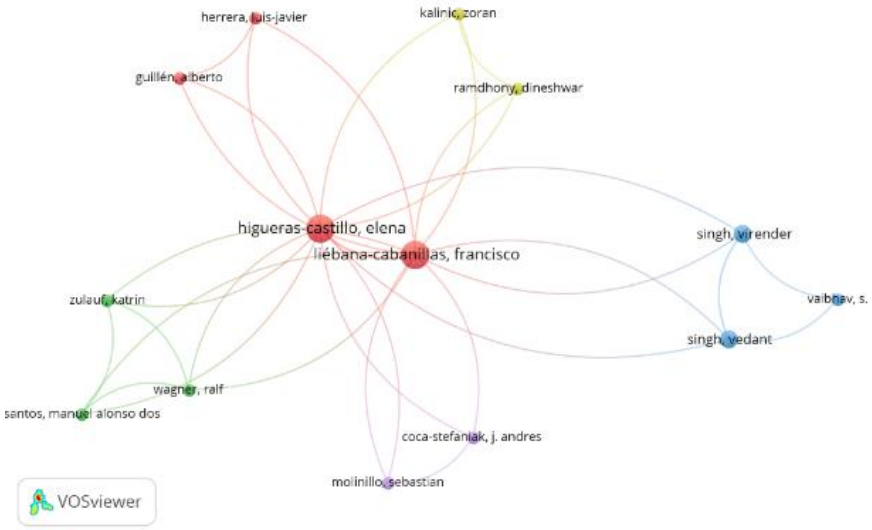

Figure 7. Analisis Co-authorship

3.6 Analisis Co-Authorship

In the red cluster depicted in **Figure 7**, researchers Higueras-Castillo, Elena, and Liebana-Cabanillas, Francisco exhibit a collaborative relationship with researchers Herrera and Gullena.

3.7 Literature Review

The literature review's analysis results are based on the prior screening process, which involves reviewing keywords, titles, abstracts, and the complete content of the reading materials. **Table 4** indicates that 15 journals have been chosen for additional examination to elucidate the direction of this research and discover innovations from prior studies.

Table 4 shows that all 15 studies reviewed used SEM to analyze EV adoption factors, focusing on psychological, economic, and socio-cultural themes. Key psychological drivers include positive environmental attitudes and moral norms, while social norms vary by culture, with limited impact in Turkey (Ikram, 2022). Economic factors like price and government incentives boost adoption, especially where policies support EVs (Wang et al., 2023). Non-monetary incentives, such as charging infrastructure, are also crucial in reducing psychological barriers (Shakeel, 2022). Cultural and demographic factors influence adoption, with high "power distance" societies more likely to follow authority figures (Higueras-Castillo et al., 2023). The literature highlights models like TPB, UTAUT, and NAM, consistently showing attitudes, perceived behavioral control, and social norms as key factors. Studies like Rafiq et al. (2024) and Ikram (2022) emphasize positive attitudes and green trust, while UTAUT research underscores the impact of social factors and infrastructure. Social media also enhances green intentions through social norms (Cattapan et al., 2023). Overall, attitudes, environmental values, social norms, policy incentives, and social media are critical to understanding EV adoption.

Table 4. Literature Review (Scopus Database, 2024)

Author (year)	Model	Variable	Result	Further Research
(Rafiq et al., 2024)	Theory of Planned Behaviour (TPB)	Attitude, Environmental Concerns, Perceived behavioral control, Uncertainty avoidance, intention	Environmental concern boosts consumers' attitudes and purchase intentions towards electric vehicles, with subjective norms partially mediating this relationship.	– Mitigating bias from self-reported data. – Using systematic sampling for more diverse, representative samples. – Expanding the TPB model with additional variables like antecedents, mediators, and moderators.
(Buhmann et al., 2024)	Theory of Planned Behaviour (TPB)	Attitude, Perceived behavioral control, Subjective norm, Moral norm, Environmental concern, Adoption intention	Attitude, perceived behavioral control, subjective norm, and moral norm influence BEV adoption, with attitude as the strongest predictor. Environmental concern affects adoption indirectly, and price sensitivity moderates its impact.	– Investigate the influence of personal values, green moral obligation, and cultural differences on EV adoption. – Examine EV charging infrastructure challenges and the role of government incentives. – Analyze the environmental impact and energy claims of EV production and use.

Author (year)	Model	Variable	Result	Further Research
(Cattapan et al., 2023)	Theory of Planned Behaviour (TPB)	– Biospheric value – Altruistic value – Collectivistic value – Price value – Subjective norm – Green attitude – Social media influencer – Green purchase intention	SMI on Facebook positively influenced Thai Gen Y's perceptions of pro-environmental values, price value, and subjective norms. Collectivistic pro-environmental values, price value, and subjective norms directly shaped green purchase attitudes, affecting purchase intentions.	– Explore SMI's impact on environmental values and green purchase intentions across various social media platforms. – Study social media's role in repeat purchases and e-WOM for EVs. – Use diverse sampling techniques for better generalizability. – Investigate other specific green products beyond just electric vehicles.
(Higueras-Castillo et al., 2023)	The unified theory of acceptance and use of technology (UTAUT2) and the value-belief-norm (VBN) model	Performance expectancy, Effort expectancy, Social influence, Facilitating condition, Hedonic motivation, Environmental concern, Personal norm, Awareness of consequences, Ascription of responsibility, Altruistic value, Egoistic value, Biospheric value, Openness to change, Intention to adopt	– The UTAUT2-VBN model effectively explains cultural differences in EV adoption intentions. – National culture significantly moderates model relationships. – Power distance influences EV adoption in societies relying on authority figures' views.	– Explore negative factors like perceived risk, privacy concerns, and range anxiety in EV adoption. – Expand the sample across more countries and consider gender and age differences. – Use a longitudinal approach to track changes in EV adoption intention over time. – Measure cultural dimensions directly in the questionnaire instead of relying on Hofstede's model.
(Z. He et al., 2023)	Theory of Planned Behaviour (TPB)	Subjective norm, Attitude, Perceived behavioral control, Negative anticipated emotion (NAE), Positive anticipated emotion (PAE), Cognitive environmental benefit (CEB), Cognitive environmental risk (CER), Moral norm, Purchase intention	– PAE has the strongest influence on EV purchase intention, followed by attitude, NAE, and PBC. – NAE impacts high-income consumers most, while PAE is key for low-income consumers. – PBC affects high-income consumers' intentions more than low-income consumers.	– Expanding the sample to include diverse regions beyond economically developed areas. – Exploring the impact of demographic factors like gender, culture, and prior EV ownership on EV purchase intention. – Using multi-group structural equation modeling to assess the influence of these additional demographic variables.
(Wang et al., 2023)	Unified Theory of Acceptance and Use of Technology (UTAUT)	– Perceived Risk – Effort expectancy – Social influence – Performance expectancy – Price value – Facilitating condition – Policy incentive – Adoption intention	EV adoption intention is influenced by social factors, perceived risks, price value, and performance expectations. Policy incentives boost the impact of price value, while facilitating conditions reduce the effect of perceived risks.	Include EV knowledge and environmental awareness in the adoption model, analyze demographic factors with a diverse sample, control for EV performance and price to reduce bias, and study regional variations in EV adoption in China based on local policies.

Author (year)	Model	Variable	Result	Further Research
(Shanmugavel & Micheal, 2022)	Technology Acceptance Model (TAM)	Relative product innovativeness, Relative product advantages, Relative price advantage, Relative promotional effort, Perceived incentives, Personal innovativeness, Perceived usefulness, Purchase intention	– Marketing factors like product innovation, advantages, pricing, and promotions impact EV perceived usefulness. – Personal innovativeness moderates the effect of these marketing factors. – Government incentives strengthen the link between perceived usefulness and EV purchase intention.	– Future research should explore the ecological, functional, and economic value of EVs, along with EV knowledge and experiences, using alternative prediction models for adoption.
(Rahmawati et al., 2022)	Theory of Planned Behaviour (TPB)	– Financial – Technology – Infrastructure – Attitude – Subjective norm – Perceived behavioral control – Purchase intention	Attitude strongly influences electric motorcycle adoption in Indonesia, while subjective norms and perceived behavioral control also impact adoption intention. Cost and technology factors have no direct effect.	– Investigate the gap between stated purchase intention and actual adoption of electric motorcycles. – Explore indirect relationships between variables like technology, finance, infrastructure, attitudes, norms, and behavioral control.
(Asadi et al., 2021)	Norm Activation Model (NAM) and Theory of Planned Behaviour (TPB)	Perceived value, Attitude, Perceived behavioral control, Subjective norm, Awareness of consequences, Ascription of responsibility, Perceived consumer effectiveness, Personal norm, Financial incentive policies, Intention to use EV	– Personal norms, awareness, responsibility, effectiveness, value, attitude, and subjective norms positively impact EV adoption intention. – Combining the Norm Activation Model and Theory of Planned Behavior explained 78% of adoption intention variance. – Perceived consumer effectiveness is key for driving EV adoption.	– Study actual EV adoption behavior, not just intention. – Use models like the Technology Acceptance Model to explore factors like usefulness and ease of use. – Replicate in other countries and apply advanced analysis techniques like machine learning
(Huang & Ge, 2019)	Theory of Planned Behaviour (TPB)	– Attitude – Subjective norm – Perceived behavioral control – Cognitive status – Product perception – Non monetary incentive measure (NMIP) – Monetary incentive measure (MIP)	Attitude, perceived control, cognition, product perception, and monetary incentives positively influence EV purchase intention in Beijing, while subjective norms and non-monetary incentives have no significant effect. Demographic factors show varied impacts.	– Explore the indirect and moderating effects on EV purchase intention, beyond direct impacts. – Analyze differences between consumers' purchase intention and actual behavior. – Consider the role of enterprises and strategic management in promoting actual purchase behavior.
(Shakeel, 2022)	Theory of Planned Behaviour (TPB)	– Attitude – Subjective norm – Perceived behavioral control – Cognitive status – Product perception – Non monetary incentive policy measure (NMIP) – monetary incentive policy measure (MIP) – purchase intention	EV purchase intention is driven by consumer attitudes, social norms, perceived control, awareness, product attributes, and policy incentives. Non-monetary policies have a greater impact than monetary ones, with attitudes being the key predictor.	Recommendations for further research include long-term studies to observe changes in consumer behavior, analysis of the impact of demographic factors, cross-country comparisons, and more in-depth investigations of psychological factors.
(Fatoki, 2021)	Theory of Planned	– Attitude – Subjective norm	In South Africa, EV purchase intention is	Recommendations for future research include long-term studies

Author (year)	Model	Variable	Result	Further Research
	Behaviour (TPB)	- Perceived behavioral control - Environmental consciousness - Anticipated guilt - Response efficacy - Perceived benefits - Perceived barriers - -purchase intention	influenced by positive attitudes, perceived control, environmental awareness, and response efficacy. Belief in effective environmental action boosts intentions, while high prices and limited infrastructure hinder them.	to monitor changes over time, demographic analyses to understand the differential impacts on specific groups, exploration of additional factors, and cross-country comparisons to observe variations in driving and inhibiting factors.
(Jayasingh et al., 2021)	Theory of Planned Behaviour (TPB)	- Environmental concern - Attitude - Perceived economic benefit - Social influence - Charging infrastructure - Purchase intention	Environmental concerns, economic benefits, social influence, and charging infrastructure shape attitudes towards two-wheeled electric vehicles, with economic benefits and charging infrastructure being the main factors influencing purchase intentions.	Further research is recommended to add non-economic variables, conduct cross-country studies, long-term research, and explore the role of media in influencing consumer attitudes.
(Manutworakit & Choocharukul, 2022)	Unified Theory of Acceptance and Use of Technology (UTAUT)	Environmental concern, Effort expectancy, Social influence, Facilitating condition, Hedonic motivation, Price value, Policy measure, Use behavior, Purchase intention	In Thailand, BEV adoption is influenced by performance, ease of use, social influence, hedonic motivation, and environmental concern, while price and incentives have limited impact due to poor infrastructure.	-Expanding the demographic coverage beyond Bangkok and focusing on actual BEV users to gain a deeper understanding of adoption behavior. -Adding factors such as brand loyalty and fuel efficiency. -Using longitudinal data to observe changes in consumer behavior and the impact of evolving policies.
(Ikram, 2022)	Theory of Planned Behaviour (TPB)	Attitude, Subjective norm, Perceived behavioral control, Environmental concern, Green trust, Purchase intention	The study found that in Turkey, attitude, behavioral control, environmental concern, and green trust drive the intention to purchase electric vehicles, while social norms have little impact.	Further research is recommended to include additional factors, conduct long-term studies, and assess the impact of EV technology features to deepen the understanding of sustainable EV adoption.

4. Conclusion

This research reviews recent EV adoption literature, selecting 154 articles from an initial 306 for analysis (2014-2024). Publications have increased since 2017, reflecting rising interest. China leads in influence due to strong funding, followed by India with 28 publications. Sustainability Switzerland ranks highest in citations and volume. Research on electric vehicle (EV) adoption has several gaps, such as the lack of psychological variables and personal values—like moral obligation and environmental beliefs—in existing models, as well as limited cross-demographic and cultural analyses, which restrict the understanding of the influence of age, gender, and cultural context on EV adoption intentions (Buhmann et al., 2024; Z. He et al., 2023). Additionally, many studies focus on intentions without measuring actual behavior in EV purchases (Rahmawati et al., 2022). Research opportunities include developing models with additional variables, more diverse cross-cultural studies, longitudinal approaches to track changes in intentions, and analyzing the role of social media in promoting pro-environmental attitudes and EV purchase intentions (Higueras-Castillo et al., 2023; Cattapan et al., 2023). The use of analytical techniques such as machine learning can also deepen the understanding of factors influencing EV adoption (Asadi et al., 2021).

5. References

Asadi, S., Nilashi, M., Samad, S., Abdullah, R., Mahmoud, M., Alkinani, M. H., & Yadegaridehkordi, E. (2021). Factors impacting consumers' intention toward adoption of electric vehicles in Malaysia. Journal of Cleaner Production, 282, 124474. https://doi.org/10.1016/j.jclepro.2020.124474

Belgiawan, P. F., Schmöcker, J. D., Abou-Zeid, M., Walker, J., Lee, T. C., Ettema, D. F., & Fujii, S. (2014). Car ownership motivations among undergraduate students in China, Indonesia, Japan, Lebanon, Netherlands, Taiwan, and USA. Transportation, 41(6), 1227–1244. https://doi.org/10.1007/s11116-014-9548-z

Bhardwaj, A. K., Garg, A., Ram, S., Gajpal, Y., & Zheng, C. (2020). Research trends in green product for environment: A bibliometric perspective. International Journal of

Environmental Research and Public Health, 17(22), 1–21. https://doi.org/10.3390/ijerph17228469

Bhat, F. A., & Verma, A. (2023). A Bibliometric Analysis and Review of Adoption Behaviour of Electric Vehicles. Transportation in Developing Economies, 9(1), 1–30. https://doi.org/10.1007/s40890-022-00175-2

Brinkmann, D., & Bhatiasevi, V. (2023). Purchase Intention for Electric Vehicles Among Young Adults in Thailand. Vision, 27(1), 110–118. https://doi.org/10.1177/09722629211001981

Bühler, F., Cocron, P., Neumann, I., Franke, T., & Krems, J. F. (2014). Is EV experience related to EV acceptance? Results from a German field study. Transportation Research Part F: Traffic Psychology and Behaviour, 25(PART A), 34–49. https://doi.org/10.1016/j.trf.2014.05.002

Buhmann, K. M., Rialp-Criado, J., & Rialp-Criado, A. (2024). Predicting Consumer Intention to Adopt Battery Electric Vehicles: Extending the Theory of Planned Behavior. Sustainability (Switzerland), 16(3). https://doi.org/10.3390/su16031284

Cattapan, T., Vilaisri, S., & Chinchanachokchai, S. (2023). the Influence of Social Media Influencers (Smi) on the Pro-Environmental Behavior of Thai Generation Y Regarding the Purchase of Electric Vehicles. ABAC Journal, 43(2), 77–91. https://doi.org/10.14456/abacj.2023.16

Chang, T. Z., & Wildt, A. R. (1994). Price, product information, and purchase intention: An empirical study. Journal of the Academy of Marketing Science: Official Publication of the Academy of Marketing Science, 22(1), 16–27. https://doi.org/10.1177/0092070394221002

Cyrill, M. (2023, October). Indonesia Market Prospects for EV Sales and Manufacturing. https://www.aseanbriefing.com/news/indonesia-market-prospects-for-electric-vehicles-sales-manufacturing-investments/

Degirmenci, K., & Breitner, M. H. (2017). Consumer purchase intentions for electric vehicles: Is green more important than price and range? Transportation Research Part D: Transport and Environment, 51(2017), 250–260. https://doi.org/10.1016/j.trd.2017.01.001

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. Journal of Business Research, 133(March), 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Farrukh, M., Meng, F., Raza, A., & Tahir, M. S. (2020). Twenty-seven years of Sustainable Development Journal: A bibliometric analysis. Sustainable Development, 28(6), 1725–1737. https://doi.org/10.1002/sd.2120

Fatoki, O. (2021). Predicting the intention to purchase electric vehicles in South Africa. Journal of Environmental Management and Tourism, 12(1), 81–96. https://doi.org/10.14505/jemt.v12.1(49).07

He, X., & Zhan, W. (2018). How to activate moral norm to adopt electric vehicles in China? An empirical study based on extended norm activation theory. Journal of Cleaner Production, 172, 3546–3556. https://doi.org/10.1016/j.jclepro.2017.05.088

He, X., Zhan, W., & Hu, Y. (2018). Consumer purchase intention of electric vehicles in China: The roles of perception and personality. Journal of Cleaner Production, 204, 1060–1069. https://doi.org/10.1016/j.jclepro.2018.08.260

He, Z., Zhou, Y., Wang, J., Shen, W., Li, W., & Lu, W. (2023). Influence of emotion on purchase intention of electric vehicles: a comparative study of consumers with different income levels. Current Psychology, 42(25), 21704–21719. https://doi.org/10.1007/s12144-022-03253-1

Higueras-Castillo, E., Singh, V., Singh, V., & Liébana-Cabanillas, F. (2023). Factors affecting adoption intention of electric vehicle: a cross-cultural study. In Environment, Development and Sustainability (Issue 0123456789). Springer Netherlands. https://doi.org/10.1007/s10668-023-03865-y

Huang, X., & Ge, J. (2019). Electric vehicle development in Beijing: An analysis of consumer purchase intention. Journal of Cleaner Production, 216, 361–372. https://doi.org/10.1016/j.jclepro.2019.01.231

Ikram, M. (2022). 2022-Yeğin&Ikram-Analysis of consumers' electric vehicle purchase intentions An expansion of theTPB.pdf. Sustainability.

Jayasingh, S., Girija, T., & Arunkumar, S. (2021). Factors influencing consumers' purchase intention towards electric two-wheelers. Sustainability (Switzerland), 13(22), 1–20. https://doi.org/10.3390/su132212851

Kim, J., Rasouli, S., & Timmermans, H. (2014). Expanding scope of hybrid choice models allowing for mixture of social influences and latent attitudes: Application to intended purchase of electric cars. Transportation Research Part A: Policy and Practice, 69, 71–85. https://doi.org/10.1016/j.tra.2014.08.016

Kim, M. K., Oh, J., Park, J. H., & Joo, C. (2018). Perceived value and adoption intention for electric vehicles in Korea: Moderating effects of environmental traits and government supports. Energy, 159, 799–809. https://doi.org/10.1016/j.energy.2018.06.064

Kreiman, G., & Maunsell, J. H. R. (2011). Nine criteria for a measure of scientific output. Frontiers in Computational Neuroscience, 5(November), 1–6. https://doi.org/10.3389/fncom.2011.00048

Manutworakit, P., & Choocharukul, K. (2022). Factors Influencing Battery Electric Vehicle Adoption in Thailand—Expanding the Unified Theory of Acceptance and Use of Technology's Variables. Sustainability (Switzerland), 14(14). https://doi.org/10.3390/su14148482

Martins, J., Gonçalves, R., & Branco, F. (2022). A bibliometric analysis and visualization of e-learning adoption using VOSviewer. Universal

Access in the Information Society, 0123456789. https://doi.org/10.1007/s10209-022-00953-0

Michael, L. K., K V, S., Hungund, S. S., & Fernandes, M. (2022). Factors influencing adoption of electric vehicles–A case in India. Cogent Engineering, 9(1). https://doi.org/10.1080/23311916.2022.2085375

Padhilah, F. A., Surya, I. R. F., & Aji, P. (2023). Indonesia Electric Vehicle Outlook 2023 Electrifying Transport Sector: Tracking Indonesia EV Industries and Ecosystem Readiness. Padhilah, 1–44.

Priessner, A., Sposato, R., & Hampl, N. (2018). Predictors of electric vehicle adoption: An analysis of potential electric vehicle drivers in Austria. Energy Policy, 122(July), 701–714. https://doi.org/10.1016/j.enpol.2018.07.058

Rafiq, F., Parthiban, E. S., Rajkumari, Y., Adil, M., Nasir, M., & Dogra, N. (2024). From Thinking Green to Riding Green: A Study on Influencing Factors in Electric Vehicle Adoption. Sustainability (Switzerland), 16(1), 1–16. https://doi.org/10.3390/su16010194

Rahmawati, T. S., Yuniaristanto, Sutopo, W., & Hisjam, M. (2022). Development of a Model of Intention to Adopt Electric Motorcycles in Indonesia. Automotive Experiences, 5(3), 494–506. https://doi.org/10.31603/ae.7344

Ratcliffe, R. (2022, January). This article is more than 2 years old Indonesia names new capital Nusantara, replacing sinking Jakarta. The Guardian.

Schmalfuß, F., Mühl, K., & Krems, J. F. (2017). Direct experience with battery electric vehicles (BEVs) matters when evaluating vehicle attributes, attitude and purchase intention. Transportation Research Part F: Traffic Psychology and Behaviour, 46, 47–69. https://doi.org/10.1016/j.trf.2017.01.004

Shakeel, U. (2022). Electric vehicle development in Pakistan: Predicting consumer purchase intention. Cleaner and Responsible Consumption, 5(November 2021), 100065. https://doi.org/10.1016/j.clrc.2022.100065

Shanmugavel, N., & Micheal, M. (2022). Exploring the marketing related stimuli and personal innovativeness on the purchase intention of electric vehicles through Technology Acceptance Model. Cleaner Logistics and Supply Chain, 3(January), 100029. https://doi.org/10.1016/j.clscn.2022.100029

Singh, V., Singh, V., & Vaibhav, S. (2020). A review and simple meta-analysis of factors influencing adoption of electric vehicles. Transportation Research Part D: Transport and Environment, 86(August), 102436. https://doi.org/10.1016/j.trd.2020.102436

van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics, 84(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

Veza, I., Abas, M. A., Djamari, D. W., Tamaldin, N., Endrasari, F., Budiman, B. A., Idris, M., Opia, A. C., Juangsa, F. B., & Aziz, M. (2022). Electric Vehicles in Malaysia and Indonesia: Opportunities and Challenges. Energies, 15(7). https://doi.org/10.3390/en15072564

Wang, D., Ozden, M., & Tsang, Y. P. (2023). The impact of facilitating conditions on electric vehicle adoption intention in China: An integrated unified theory of acceptance and use of technology model. International Journal of Engineering Business Management, 15, 1–15. https://doi.org/10.1177/18479790231224715

White, L. V., & Sintov, N. D. (2017). You are what you drive: Environmentalist and social innovator symbolism drives electric vehicle adoption intentions. Transportation Research Part A: Policy and Practice, 99, 94–113. https://doi.org/10.1016/j.tra.2017.03.008

Zhang, X., Bai, X., & Shang, J. (2018). Is subsidized electric vehicles adoption sustainable: Consumers' perceptions and motivation toward incentive policies, environmental benefits, and risks. Journal of Cleaner Production, 192, 71–79. https://doi.org/10.1016/j.jclepro.2018.04.252