Consumer's Adoption Intention of Electric Vehicles: A Bibliometric Analysis

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Abstract

An electric vehicle is a type of vehicle that is propelled by an electric motor fuelled by a battery. Electric vehicles are gaining popularity worldwide because of increasing environmental awareness and various benefits like less dependency on fossil fuel and they are considered an efficient and sustainable mode of transportation. This research presents a thorough overview and a bibliometric analysis of studies published related to consumer's adoption/ purchase intentions of Electric vehicles (EVs) from 1994 to 2023. The Scopus database was utilized to extract the papers as it is considered the largest database of peer-reviewed academic publications. The VOS Viewer software was used for the bibliometric analysis of networks between authors, institutions, countries, publications, journals, and keyword occurrence. The study was performed on 1 April 2023, which yielded a total of 140 documents after exclusion using the selected keywords. The findings indicate a considerable increase in EV adoption intention-related publications during the past six years. China is the world leader in this field of research, providing the maximum number of papers and involving the most prominent authors and research organizations. Whereas, Wang Z. has been the most productive author with a maximum number of publications in the area. Sustainability (Switzerland) journal stands out as the most prolific journal with the most publications. This analysis will help academicians better understand historical trends, current challenges, and prospective future research topics in the area of electric vehicle adoption/purchasing intentions.

Keywords: Electric vehicles, Adoption intention, Purchase Intention, Bibliometric analysis, VOSViewer.

1. Introduction

Pollution is affecting our environment as well as our health. The bronchitis, heart attacks, asthma, and cancer cases are rising globally. One of the reasons for the rising pollution is the harmful emissions from conventional vehicles. As per the European Union report, over 28% of the world's carbon dioxide (CO2) emissions are attributed to the transportation sector, with road transport accounting for more than 70% of those emissions. As a result, several countries are taking necessary steps for faster adoption of electric vehicles as a mode of transport, keeping in mind the environmental benefits and reducing the dependency on fuels. Electric vehicles are gaining popularity because of environmental awareness and decreasing air quality (K V et al., 2022).

An electric vehicle is a type of vehicle that is propelled by an electric motor fuelled by a battery. Unlike standard gasoline-powered vehicles, which use combustion engines, EVs use batteries that are charged by plugging into an electrical outlet or a specialized charging station. An EV is a vehicle that is silent, simple to use and has less running and maintenance costs as compared to conventional vehicles.

When compared to cars with internal combustion engines (ICE), Electric vehicle (EVs) adoption is relatively low (Priessner et al., 2018). The reasons for its low adoption may be the charging infrastructure, its high initial price, and people may be concerned about its low driving range. Therefore, it becomes pertinent to study the adoption intention of electric vehicles as an intention to adopt a product is an essential phase of the consumer consumption process.

Adoption intention is a key predictor of actual purchasing behaviour (Chang & Wildt, 1994). Beginning with the consumer's awareness of the presence of a new product and desire to examine the product, the consumer decides whether or not to buy the new product (Febransyah, 2021). Also, the Theory of Planned Behaviour (TPB) contends that customers' buying/purchase intentions are a key determinant of future purchase behaviour. Customers are more likely to purchase when their purchasing intention is greater (Huang & Ge, 2019). Policymakers' expectations about electric vehicles' importance in decreasing emissions have recently grown significantly. Meanwhile, scholarly research on EV adoption intentions has risen considerably (Kim et al., 2014). Based on the available literature, the Adoption intention of EVs refers to an individual's proclivity to adopt and utilise electric vehicles as a means of transportation. It indicates the mentality and attitude of consumers to accept new products or technologies in the near future. Thus, adoption/purchase intention is important for evaluating the potential market demand for electric vehicles and the determinants that impact consumer decisions about EV adoption.

In light of the growth and consumer interest in electric vehicles, and despite the past research, it is still necessary to identify and analyse the major research trends to comprehend consumers'

adoption intention of electric vehicles. It is also important to know the essential studies and authors in this field and their relationship by reviewing all the research related to consumers' adoption intention for electric vehicles. A quantitative way of examining research literature is known as bibliometric analysis (Farrukh et al., 2020). The bibliometric technique provides complete information about the evolving patterns and direction of a specific topic, and it allows us to concentrate our attention on a certain area in the literature. It is based on citations, bibliographies, and other sources of data. It is used to evaluate various facets of the scholarly communication process, including the research impact, author output, journal influence, and others. Scholars can use it to (1) get a comprehensive perspective, (2) spot knowledge gaps, (3) generate original research questions, and (4) state their intended contributions to the area (Donthu et al., 2021).

The objectives of the study were:

- To explore the year-to-year progression of purchase intention of EVs.
- To identify the most productive countries, institutions, and journals in the field of EV Adoption Intention.
- To know the most prolific publications and authors.
- To identify the essential keywords and the main themes in the field.

2. Materials and Methods

It is important to discover, gather, categorize, and consolidate the existing published information on the selected topic and related issues in order to accomplish the objectives of a research utilising bibliometric techniques (Bhardwaj et al., 2020). In the present study, bibliometric analysis has been employed to determine trends and future directions in adoption intention for electric vehicles. For study findings to be accurate, thorough, and reliable, selecting the appropriate database for bibliometric analysis is essential. The Scopus database is considered the most dependable and well-known source of bibliographic information. It has comprehensive coverage of a wide range of disciplines. It contains an extensive number of academic journals, conference proceedings, and other scholarly publications, giving users a thorough understanding of the research results produced across multiple areas of study. Therefore, the researcher has selected the Scopus database for further conducting the bibliometric analysis.

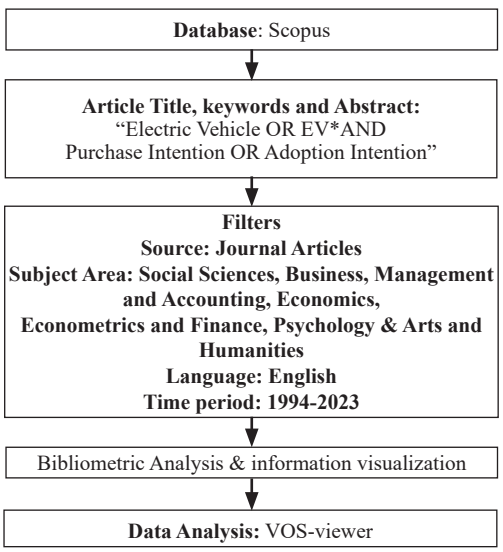
One hundred forty papers data on EV adoption intention was retrieved from the Scopus database on 1 April 2023 after using the appropriate keywords and applying filters like document type, limiting the subject area relevant for the study.

Electric vehicle* OR EV OR EVs AND Purchase intention OR Adoption Intention were used as keywords to perform the analysis. These keywords were searched within the Article title, abstract, and keywords. Further, the VOS viewer software (van Eck & Waltman, 2010) has been used for creating, visualizing, establishing linkages within

the literature and analysing bibliometric networks. It is a prominent bibliometric analysis tool that has been utilized in several studies in various study domains and is available in the free domain. We have used VOS viewer to construct keyword co-occurrence networks and citation networks (Martins et al., 2022).

The following search string has been used to extract the papers from the Scopus database:

TITLE-ABS-KEY ('electric AND vehicle* OR EV OR EVs' AND 'purchase AND intention' OR 'adoption AND intention') AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "ARTS")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j"))



The selected keywords were searched in Article Title, Keywords and Abstract. Only journal articles have been considered from various subject areas like Social Sciences, Business, Management and Accounting, Economics, Economics and Finance and Psychology & Arts and Humanities. These domains have been selected keeping in view the relatedness to consumers' adoption behaviour towards EVs. Journal articles in English have been considered as English is the most widely used and read language worldwide. Research papers related to EV adoption intention for the time period 1994 to 2023 have been included in the study.

3. Results & Discussion

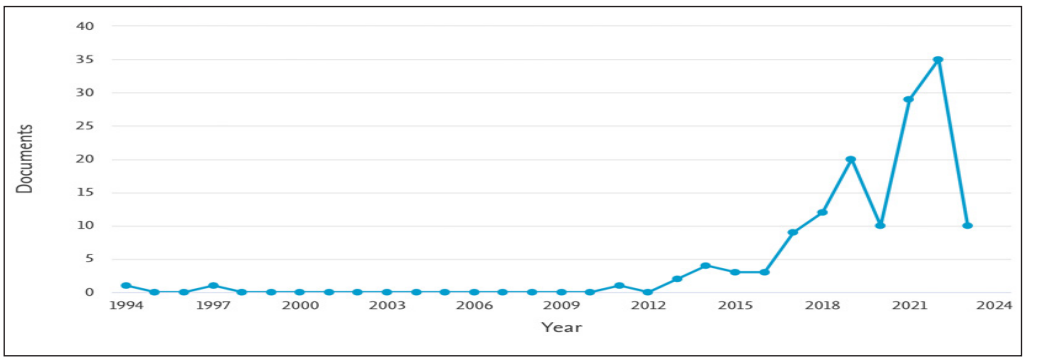
The outcomes of the bibliometric analysis are presented in detail in this section. The main objective of the analysis is to present an overall picture of research related to electric vehicle adoption intention.

3.1 Year-Wise Publications on Adoption Intention of Electric Vehicles

The study aims to provide insight into the subject and show the advancements in research on electric vehicles and their connection to adoption/purchase intention. The primary indicator of a research field's advancement is the volume of publications (Kreiman & Maunsell, 2011). This paper examines research during the 19 years from 1994 to 2023. From 1994 to 2016, no or few researches were published. The year 2017 witnessed nine publications and

the number of publications has started rising since then. The year 2022 has the maximum number of publications as 35 research papers are published in the year. It is worth noticing that publications during 2021 and 2022 account for 45.71 % (64 out of the total number of publications 140). More authors who are continually attempting to convince consumers of the value of electric vehicles are now exploring this area. Another reason for rising academic research in this area could be the applicability of sustainable development goals globally from 2015. Electric vehicles are considered a clean energy source and thus will help in achieving the sustainable development goals. This figure amply illustrates the increased interest in this field, which highlights the importance of this research.

Figure 2. Year-wise publications from 1994 to 2023



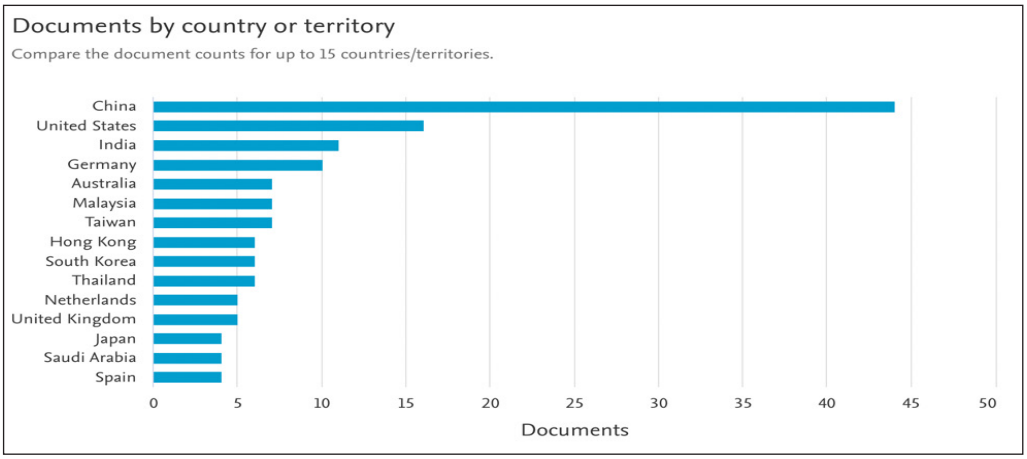
Source: Scopus database

3.2 Country-wise Publications

Contributions from 38 countries were identified in 140 publications.

China has topped the list with 44 publications in this field of research. It can be inferred that Chinese researchers have gained interest in this field of research. China alone has contributed 31.40% of the total publications. The US, being the second most productive country has contributed 16 publications, which is 11.42% out of the total 140 papers. India is the third most productive country publishing papers on electric vehicle adoption intention with 11 publications (7.85%). It may be because the awareness of electric vehicles has risen in India, motivating Indian researchers to measure EV adoption intention. Germany has published ten publications. Australia, Malaysia, and Taiwan have published seven publications each, followed by Hong Kong, South Korea, and Thailand with six publications each. They are followed by the Netherlands and the United Kingdom with five publications. Whereas Japan, Saudi Arabia, and Spain have 4 publications respectively.

Figure 3. Country-wise publications over the years 1994 to 2023



Source: Scopus database

Table 1. List of top most countries

Country	Total Publications	Total Citations	Average number of Citations Per Publication
China	44	1204	27.36
United States	16	856	53.5
Germany	10	614	61.4
Australia	7	302	43.14
Netherlands	5	247	49.4
United Kingdom	5	236	47.2
Denmark	3	211	70.33
Hong Kong	6	203	33.83
India	11	200	18.18
Taiwan	7	176	25.14
Malaysia	7	160	22.85

In terms of total citations, China (1204) is the top-ranked country, followed by the United States of America (856), Germany (614), Australia (302), Netherlands (247), United Kingdom (236) Denmark (211)), Hong Kong (203), India (200), Taiwan (176) and Malaysia (160). In terms of the average number of citations per publication, Denmark (70.33) ranks highest followed by Germany (61.4), the United States (53.5), the Netherlands (49.4), the United Kingdom (47.2), Australia (43.14), Hong Kong (33.83), China (27.36), Taiwan (25.14), Malaysia (22.85), and India (18.18). The average number of

citations per publication may be used as a criterion for valuing research and aids in determining the influence of a nation or journal (Bhardwaj et al., 2020). In terms of overall citations, China (1204) is the top-ranked country, followed by the United States of America (856), and Germany (614). Denmark is first in terms of average citation per article (70.33), followed by Germany (61.4), the United States (53.5), Taiwan (25.14), Malaysia (22.85), and India (18.18). The average citation per publication may be used as a research valuation statistic, to determine a country's or journal's average influence. Compared to the most prolific countries, papers from Denmark and Germany are the most frequently mentioned by other authors in the same field. Even though, these countries have much fewer publications compared to other top countries. Despite having the most publications, China's average number of citations per publication is a bit less. India is the third most productive country in terms of publications, yet it ranks the lowest among the 11 countries in terms of average number of citations per publication.

3.3 Institution-wise Publication on Adoption Intention of Electric Vehicles

Table 2 shows the most productive institutions in the area related to the adoption intentions of electric vehicles. School of Management and Economics, Beijing Institute of Technology has been the most productive institution with three publications and 217 citations. School of Economics and Management, Leibniz University Hannover, and School of Management, Queensland University of Technology are at the second and third positions with two publications and 186 citations each. It can be inferred that only two articles each have been published by nine institutions.

In terms of average number of citations per publication, the School of Economics and Management, Leibniz University Hannover, Germany and the School of

Table 2: Most Prominent Institutions

Organization	Total Publications	Citations	Average Number of Citations Per Publication
School of Management and Economics, Beijing Institute of Technology, China	3	217	72.33
School of Business Administration, South China University of Technology, China	3	68	22.66
School of Economics and Management, Leibniz University Hannover, Germany	2	186	93
School of Management, Queensland University of Technology, Australia	2	186	93
School of Economics & Management, Open University of China	2	158	79

University of California at Davis, Plug-In Hybrid & Electric Vehicle Research Center, United States	2	101	50.5
Collaborative Innovation Center of Electric Vehicles in Beijing, China	2	100	50
Sustainable Development Research Institute for Economy and Society of Beijing, China	2	100	50
Graduate School of Design, National Yunlin University of Science and Technology, Taiwan	2	94	47
Institute of Chinese Studies, Freie Universität, Berlin, Germany	2	82	41
Skalitzer Str. 100, Berlin, Germany	2	82	41

Source: Scopus database

Management, Queensland University of Technology, Australia are at the first position (93). Followed by the School of Economics & Management, Open University of China (79) and the School of Management and Economics, Beijing Institute of Technology, China (72.33). It can be inferred that these institutions are quite influential and various authors cite their work in the same field.

3.4 Literature Review of Top 10 Cited Publications

The scientific community believes that a document's overall quality is closely correlated with the number of citations it receives. Hence, the more citations a study receives, the better it is (Martins et al., 2022). It shows how the adoption intention of Electric vehicles has an impact on academia and other professions. The most cited publications are from 2013 to 2019. 'Intent to purchase a plug-in electric vehicle: A survey of early impressions in large US cities' by Carley et al., (2013) published in the year 2013, is the most cited publication with 383 citations. In this paper, the authors have studied the significance of car attributes in purchase intention, and they have discovered concerns as compared to conventional vehicles that discourage customers from buying EVs. The second most cited paper 'Consumer purchase intentions for electric vehicles: Is green more important than price and range?' by Degirmenci & Breitner, (2017), found that EV's environmental performance predicts attitude and purchase intention more accurately than price value and range confidence. 'Is EV experience related to EV acceptance? Results from a German field study' by Bühler et al., (2014) is the third most cited paper which found that EV driving experience had a substantial favourable influence on an overall view of EVs and intent to suggest EVs to others but not on attitudes or purchase intentions. In the fourth most cited paper by Kim

et al., (2014), the authors had given a single integrated model of purchase intentions, which evaluated various diverse effects. In the fifth paper, Huang & Ge, (2019) in their findings suggest that policy interventions affecting attitude, cognitive status, perceived behaviour control, product perception, and monetary incentives have a substantial favourable influence on customers' intentions to purchase EVs in Beijing.

The sixth most cited Haustein & Jensen, (2018) study's main objective was to investigate the factors that influence Battery electric vehicle (BEV) adoption among Conventional Vehicle(CV) and BEV users using an expanded version of the Theory of Planned Behaviour.

In the seventh most cited paper by He et al., (2018), this article proposed a personality-perception-intention framework to investigate customers' purchase intention. The findings showed that customer perception and personality may account for 57.1% of the variance in EV purchase intention. Wang et al., (2017) applied an extended theory of planned behaviour model and a structural equation model to investigate the factors influencing Chinese residents' intentions to purchase New energy vehicles. Schmalfuß et al., (2017) conducted two studies to examine the association between direct experience and battery electric vehicles (BEV): (1) an online survey (N = 286) and (2) a 24-hour field test (N = 30). Both studies revealed several experience-based variations in how individuals assessed BEV characteristics, attitudes, and purchase intentions. Hardman et al., (2016) study is the tenth most cited paper in the list with 109 citations. In this paper, the authors have compared high-end adopters and low-end adopters and found that high-end adopters are more inclined to keep driving battery electric cars when they make subsequent purchases.

Table 3. Most Cited papers on adoption intentions of electric vehicles

Authors	Title	Citations
(Carley et al., 2013)	Intent to purchase a plug-in electric vehicle: A survey of early impressions in large US cities	383
(Degirmenci & Breitner, 2017)	Consumer purchase intentions for electric vehicles: Is green more important than price and range?	182
(Bühler et al., 2014)	Is EV experience related to EV acceptance? Results from a German field study	143
(Kim et al., 2014)	Expanding scope of hybrid choice models allowing for mixture of social influences and latent attitudes: Application to intended purchase of electric cars	139
(Huang & Ge, 2019)	Electric vehicle development in Beijing: An analysis of consumer purchase intention.	128

(Haustein & Jensen, 2018)	Factors of electric vehicle adoption: A comparison of conventional and electric car users based on an extended theory of planned behaviour.	128
(He et al., 2018)	Consumer purchase intention of electric vehicles in China: The roles of perception and personality	123
(Wang et al., 2017)	Purchasing intentions of Chinese citizens on new energy vehicles: How should one respond to current preferential policy?	117
(Schmalfuß et al., 2017)	Direct experience with battery electric vehicles (BEVs) matters when evaluating vehicle attributes, attitude and purchase intention	115
(Hardman et al., 2016)	Comparing high-end and low-end early adopters of battery electric vehicles	109

Source: Scopus Database

3.5 Prolific Authors

The author's productivity in the field of EV adoption intention is analysed in this sub-section.

The most prolific authors have been identified. The five most prolific authors accounted for 15% of the total 140 publications.

Table 4 shows the nine most productive authors based on the number of papers published by them. In terms of number of papers, Wang Z. has been the most productive author in the field with the most publications (6). Followed by Hardman S., Long R., and Li W. with the second-highest number of publications (4) each.

In terms of total citations, Krems J. F. has received the maximum number of citations (305) with three publications. Followed by Hardman S. (247), Wang Z. (227), Timmermans H. (187), and Zhang X. (158). Although Long R. and Li. W. have published four papers each, yet their work have received fewer citations among the other most productive authors.

Table 4: Most productive authors list

Authors	Documents	Total Citations
Wang Z.	6	227
Hardman S.	4	247
Long R.	4	73
Li W.	4	67
Krems J.F.	3	305
Timmermans H.	3	187
Zhang X.	3	158
Tal G.	3	138
Higueras-Castillo E.	3	108

3.6 Prolific Journals

It is essential to analyse the citations of journals. Journals with the most citations are those whose articles have been cited more. Most cited journals are often regarded as prominent and influential in their respective research areas as it shows that their publications

are extensively read and referred to by other academicians.

Table 5 shows the list of the nine most prolific journals based on the number of documents published and citations received. These nine journals have accounted for 61.4 % out of 140 publications. Out of 140 publications, 86 studies have been published in these journals. Consequently, it can be concluded that these journals have taken the sustainable transportation seriously and encouraged academics to write in this field.

Sustainability (Switzerland), with an impact factor of 3.9 has topped the list with a maximum of 29 documents but has received fewer citations (488). It is the most productive journal as it accounts for 20.7 % of the total publications in the area of adoption intentions of electric vehicles. Transportation Research Part A: Policy and Practice and Transportation Research Part D: Transport and Environment are second and third with 14 and 13 documents respectively. Transportation Research Part D: Transport and Environment came out to be the most influential journal in terms of citations with the maximum number of citations (1016) along with the third highest publications (13) and an impact factor of 7.6. Journal of Cleaner Production is the fourth most productive journal in terms of publication with 8 publications, received 670 citations, and has the highest impact factor of 11.1.

In general, it can be depicted that journals are mostly related to transportation and environmental research areas. Besides, journals from other domains like psychology, management, and social sciences also encourage similar research work in this area.

Table 5: Most Prolific Journals

Source	Documents	Citations	Impact factor 2022
Sustainability (Switzerland)	29	488	3.9
Transportation Research Part A: Policy and Practice	14	518	6.4
Transportation Research Part D: Transport and Environment	13	1016	7.6
Journal of Cleaner Production	8	670	11.1
International Journal of Sustainable Transportation	6	161	3.9
Transport Policy	5	261	6.8
Transportation Research Part F: Traffic Psychology and Behaviour	5	446	4.1
Frontiers in Psychology	3	0	3.8
Journal of Consumer Behaviour	3	43	4.3

Source: VOS viewer

3.7 Keyword Analysis

The keywords used in an article are distinctive because they reflect the terms that the authors believe to be most crucial to their arguments (Pesta et al., 2018)they can even shed light on which research topics in a field are popular (or less so. Keyword occurrence analysis helps in identifying the core themes and trending areas of a research field. The keyword of a research article may be used to represent its primary purpose as the authors try to give the most 4-6 appropriate keywords relevant to the study. Repetition of keywords depicts the importance of those keywords and helps to identify the trend or inclination of researchers during the present and past in that field. This analysis has been performed to determine the essential keywords and identify themes to comprehend better the EV's purchase/ adoption intention (Barbosa et al., 2022). Table 6 shows 44 keywords (out of a total of 1004 keywords) that have occurred at least 6 times in the selected research papers of the Scopus database. The Total Link Strength shows the number of articles where two keywords co-occur. The most occurred keywords as expected are Electric vehicle, electric vehicles, and purchase intentions. It has been found that more empirical studies have been done such as surveys (19), structural equation modelling (13), empirical analysis (7), and questionnaire survey (7) are highly used keywords. Many researchers have used the Theory of Planned Behaviour to assess the adoption intention of electric vehicles. Other adoption theories, like the technology acceptance model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), are less used by researchers. Therefore, it can be inferred that future researchers can use these to understand consumers' perceptions and purchase/ adoption intentions for electric vehicles.

Table 6. Keywords that occurred at least 6 times

Keyword	Occurrences	Total Link Strength	Cluster
Electric Vehicle	87	448	2
Electric Vehicles	63	305	4
Purchase Intention	49	281	1
Sales	42	274	3
Consumption Behaviour	32	215	2
Purchasing	30	180	1
China	27	154	3
Perception	23	146	4
Technology Adoption	23	145	4
Surveys	19	133	1
Sustainability	14	95	2

Battery Electric Vehicles	13	91	2
Structural Equation Modeling	13	88	1
Theory of Planned Behaviour	13	83	1
Consumer Behaviour	12	78	2
Electric Automobiles	12	74	1
Electric Vehicles (Evs)	12	72	4
Behavioural Research	11	68	1
Marketing	11	63	2
Public Attitude	10	62	1
Sustainable Development	9	61	2
Vehicles	9	50	3
Decision Making	8	45	2
Numerical Model	8	45	1
Commerce	7	44	4
Empirical Analysis	7	44	4
Innovation	7	43	2
New Energy Vehicles	7	42	3
Psychology	7	40	3
Questionnaire Survey	7	39	1
Structural Equation Model	7	39	2
Transportation Policy	7	39	3
Attitudinal Survey	6	37	4
Car Ownership	6	37	3
Carbon Emission	6	37	2
Electric Cars	6	34	1
Environmental Concerns	6	34	4
Incentive	6	33	3
Perceived Value	6	31	4
Policy Approach	6	30	3
Theory of Planned Behaviour	6	27	1
Travel Behaviour	6	25	3
United States	6	24	3
Willingness to Pay	6	19	4

Source: VOS viewer

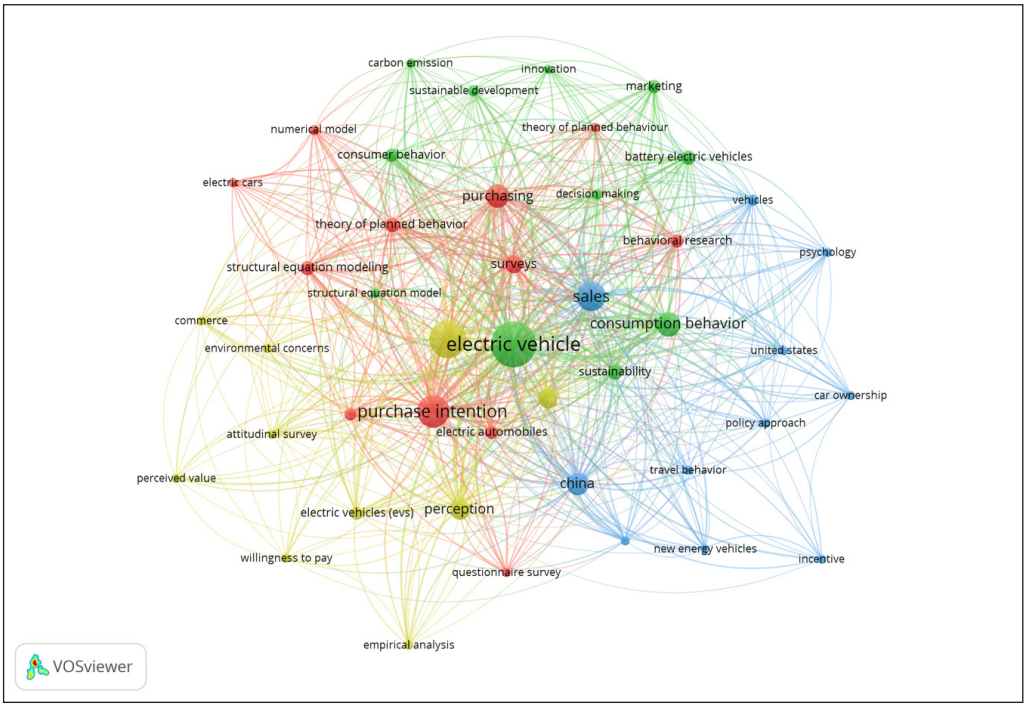


Figure 4. Keywords Network

The above network map has been performed on 44 keywords that have occurred at least six times. The wider the circle, the more important or common the item is in the network. This helps to rapidly find the things in bibliometric analysis that are the most significant or relevant. The distance between links represents the strength of the relationship between two items in a network diagram. The most related terms fall into one cluster since VOS Viewer clusters are based on minimizing distances between keywords (Waltman et al., 2010). The more articles in which both keywords were discovered, the greater the relationship between the words. Colours denote clusters of keywords that are closely connected to one another (Van Eck & Waltman, 2017). Here four clusters are formed based on the networking between them.

Cluster 1 Red has 12 items

In cluster 1, Purchase intention being the most significant node, it indicates that themes in this cluster are related to consumers' purchase intentions of consumers through quantitative techniques like questionnaire survey, structural equation modelling, surveys, etc.

Cluster 2 Green has 11 items

This cluster has keywords related to the environment like sustainability, sustainable development, and carbon emission. Also, it is inferred that the authors have worked in the area of consumer behavior, and how consumers

make decisions by considering the factors like sustainability, marketing, innovation, and carbon emission.

Cluster 3 Blue has 11 items

In Cluster 3, the authors may have studied the actual sales of electric vehicles as Sales being the largest node in this cluster. Therefore, it may be believed that to explore the actual usage of electric vehicles, the writers looked for connections between incentives, policy approach, transport policy, travel behaviour, and car ownership. Furthermore, the presence of China and the USA in this cluster demonstrates the dominance of these two countries in studying the actual purchase of electric vehicles.

Cluster 4 Yellow has 10 items

Whereas in cluster 4 with the occurrence of the keywords like perception, perceived value, and willingness to pay, it can be inferred that the authors have worked on how the consumers are perceiving EVs and they measured how willing consumers are to adopt the new EV technology.

4. Conclusion

The main aim of this research was to shed light on the adoption intention of electric vehicles by using existing literature to understand the trends and patterns in scientific research and assess the impact of the previous research on the research community.

Before exclusion, the Scopus database yielded 225 results. After the exclusion criteria, the papers were reduced to 140. This study presents the bibliometric analysis of 'adoption intention of electric vehicles ' related publications between 1994 and 2023. The total number of papers published has steadily increased after the year 2017, which may be because of the rising interest of researchers in this field. Thus, it can be concluded that the purchase/ adoption intention of electric vehicles is a promising area to be studied by future researchers to get a clear picture of how consumers perceive electric vehicles and assess their intention to purchase them in the coming years. Also, this study conducted a country-wise analysis, China remains the most influential country out of 38 countries that have worked in this field. This may be because academics in China receive financial assistance for publishing research papers. This system is uncommon in the majority of other countries, which may be a contributing factor in the significant development in the number of research publications from China (Bhat & Verma, 2022). India stands at the third place with 11 publications. Although Indian researchers are interested in the area, perhaps they do not get enough assistance. Furthermore, the adoption of electric vehicles in India is still low, which might explain why there is less study on electric vehicle adoption intention in India. Further, in the institution-wise publication analysis, the School of Management and Economics, Beijing Institute of Technology, China came out to be the most productive institution with three research papers and maximum citations. Apart from that, various other Chinese institutions were there in the top 10 institutions. Further

in the analysis of the ten most cited publications, 'Intent to purchase a plug-in electric vehicle: A survey of early impressions in large US Cities' (Carley et al., 2013) published in the year 2013, was the most cited paper. The authors compared the Electric vehicle attributes with conventional cars to analyse the reasons that discourage customers from adopting EVs. Wang Z. remained the most cited and most productive and prolific author with 6 publications and maximum citations.

In the analysis of journals, the top most 9 journals have accounted for 61.4% of the total publications. These journals have considered sustainable transport as a solution for the rising pollution level globally and encourage academics to publish in this area. Sustainability (Switzerland) is the most prominent journal in terms of citations and the number of publications. Also, keyword analysis is carried out to aid academics in understanding previous patterns, present obstacles, and potential future directions of study in the field of purchase intention of electric vehicles. More quantitative studies have been done so far in this field as keywords like empirical studies, structural equational modelling, and surveys appear more frequently in the keyword. The outcomes of this study demonstrate that research on electric vehicle adoption intention is still in its early stages. This study is beneficial in comprehending the present problems and research hotspots in this field. The researchers can further study in this field as there is so much to be discovered. The results of this analysis on EV adoption intention may be used to illustrate how electric vehicle relates to other management related subjects.

5. Limitations and Direction for Future Scope

Despite the various advantages of this study, there are a few limitations that should be considered. The Scopus database is one of the most significant academic databases that served as the source for academic publications, therefore the authors utilized it in this research. However other significant databases like Science Direct, Web of Science, and Google Scholar were left out to condense the effort and provide a more thorough view. Researchers may take them into account for further research. Moreover, the research articles considered in this review are from peer-reviewed journal publications. Some publications may be published in conference proceedings or book series that might be useful to this review. The next major limitation of this study is that it has mainly focused on the bibliometric details of authors, journals, and countries. In the future, the researchers may conduct a systematic literature review and meta-analysis to better understand the studies. Bibliometric analysis alone may not help in building theories. Researchers can uncover gaps in literature and practise by using bibliometric analyses, which provide new research goals and directions in different research fields (Koseoglu et al., 2016). It has been observed that the penetration of Electric vehicles is less in developing countries therefore potential buyers may be surveyed to assess their purchase intentions for EVs (Bhat & Verma, 2022).

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