A Comprehensive Bibliometric, Informetric, and Science Mapping Study of AI and Sustainability

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Abstract

Artificial Intelligence has emerged as a transformative force across various sectors. It drives efficiency and innovation while making a major contribution to sustainability initiatives. This study presents a comprehensive bibliometric, informetric, and science mapping investigation of sustainability and artificial intelligence. Using data from the Scopus database (1997–2024) and analysed through Biblioshiny supported by R programming, the study identifies key publications, influential authors, and emerging themes. Findings reveal how AI technologies contribute to achieving environmental, economic, and social sustainability goals through data-driven and intelligent practices. By mapping the intellectual structure and evolution of this interdisciplinary field, the study provides valuable insights for policymakers, scholars, and manufacturing organizations to advance sustainable innovation and strategic decision-making.

Keywords: *Sustainability, Artificial Intelligence, Digital transformation, Bibliometrix analysis, Biblioshiny*

1. Introduction

The current wave of technological transformation indicates that innovation is advancing at an accelerating pace; as technologies grow more capable, the rate of their future development increases correspondingly. (Klarin, 2023). The key drivers of this rapid transformation include artificial intelligence (AI), big data, and robotics. As a result of this technological evolution, AI's capabilities have grown significantly, leading to the emergence of new applications across sectors. Although AI is already embedded in nearly every aspect of society, many people remain unclear about its true nature and scope. Consistent with this rapidly changing landscape, leading institutions and enterprises are developing technologies that advance the concept of AI as a catalyst for the evolution of Industry 5.0 (El Namaki, 2018). Also, sustainability has become a crucial phenomenon in the economy, targeting carbon footprint reduction and enhancing resource efficiency (Greif, 2023). Continuous climate change and environmental degradation have made it a top priority (Kimmig, 2023). Luo (2022) conducted a bibliometric study on the use of AI in smart building technologies, underscoring its role in enhancing environmental sustainability and resource efficiency. The study concluded that AI-based systems significantly improve energy management and operational performance, making them valuable for future sustainable building practices. Also, Saeidnia et al. (2024) conducted a systematic review on AI-enhanced scientometrics and bibliometrics, illustrating how AI itself is transforming methods for scholarly evaluation and trend analysis. AI's potential to monitor and lessen deceptive sustainability claims in corporate reporting is also highlighted by research by Moodaley and Telukdarie (2023). Even if research in this field has expanded quickly since 2018, there are still plenty of chances to incorporate interdisciplinary cooperation, policy development, and ethical issues into AI-driven sustainability studies.

This study includes a bibliometric analysis to identify the main research trends and direct future scholars in response to ongoing changes in the economic environment. Authors discovered few papers that used Biblioshiny to perform a thorough bibliometric analysis. As a result, the author chose this work for a bibliometric analysis. Here in this study, the outline of the paper decides as follows: First part consist of the objectives and methodology of the research. Following by the theoretical background and then the year wise analysis on the topics, then to author collaboration, network collaboration along with the co-coupling also has been discussed in the paper. The objectives of this paper are to map the research in scientific way to determine the role of artificial intelligence

(AI) in accomplishing environmental, economic, and social sustainability goals by utilizing AI technologies and sustainable practices
identify the most influential author and papers.

By taking into consideration above objectives, authors referred to use Bibliometric analysis. This study included 1355 papers extracted on 31 July 2024 in total, which are extracted from the Scopus database by putting he word "Artificial Intelligence" and "Sustainability" in the search box. The papers extracted has been limited to English language and only journals. The Scopus database was deemed under investigation since it contained the greatest level of authenticity. The time span considered here was from 1997 till 31st July 2024. Biblioshiny software has been used to analysis the data.

1.1 Scientific Collaboration Analysis

A scientific collaboration analysis was carried out to determine the most important relationships between the actors (i.e., authors and countries). In many research areas, scientific collaboration analysis is employed extensively to determine the social structure of the field.

1.2 Science Mapping

"Science mapping is a spatial representation of the relationships between individual papers or authors, as well as between disciplines, fields, and specializations"(Fusco et al., 2020) . Science mapping is carried out with the help of co- word and co-coupling.

2. Theoretical Background

A review of recent literature highlights the growing significance of Industry 4.0, artificial intelligence (AI), sustainability, and digital transformation in modern industrial and business environments. Grief et al. (2024) employed a SWOT framework to evaluate AI's role in promoting environmental sustainability, offering a strategic perspective distinct from traditional review studies. Ipkovich et al. (2024) proposed a model integrating network science and AI-based life cycle management for sustainability planning. Their study utilized structural equation modeling (SEM) to address challenges of adaptability and effective decision-making in sustainability strategies. Bajic Bojana et al. (2024) emphasized that although Industry 4.0 focuses on smart manufacturing, it lacks human-centric considerations. To bridge this gap, they introduced the concept of human–cyber–physical systems (HCPS) to enhance collaboration between humans and technology. Similarly, Klarin et al. (2024) underlined the need to embed professionalism and ethical conduct in AI systems and developers to ensure responsible implementation. The reviewed studies applied theories such as the Technology Acceptance Model (TAM), Resource-Based View (RBV), Dynamic Capability Theory, and Sustainable Development Theory. Overall, the theoretical insights underscore how technological advancements can align with sustainable and ethical business models, shaping the foundation for responsible digital transformation.

3. Results:

3.1 Scientific Collaborative Analysis

3.1.1 The Main Description of the Study

Table1 describes the main information of this study. The study included 1355 documents with the time span 1997-2024 and annual growth rate of the above topic is 25.53.

Table 1: Main Information about Data

Description	**Results**
Timespan	1997:2024
Sources (Journals, Books, etc)	722
Documents	1355
Annual Growth Rate %	25.53
Document Average Age	1.72
Average citations per doc	14.5
References	0
Document Contents	
Keywords Plus (ID)	6732
Author's Keywords (DE)	4649
AUTHORS	
Authors	5023
Authors of single-authored docs	158
Authors Collaboration	
Single-authored docs	164
Co-Authors per Doc	4.18
International co-authorships %	36.9
Document Types	
Article	1355

(*Source: Author's own contribution*)

3.1.2 Annual Scientific Production

The trend on the relevant issue is displayed by Annual Scientific Production (see fig.1). It illustrates the genesis of the idea of artificial intelligence. According to it, sustainability and artificial intelligence were both introduced to the market in 1997, but at that time, people did not give them much thought. However, starting in 2017, awareness of the concepts has grown, and after COVID-19, they will be given top priority as more people realize the value of sustainability for society. The government has also taken several steps to achieve sustainability and reduce carbon emissions as much as possible.

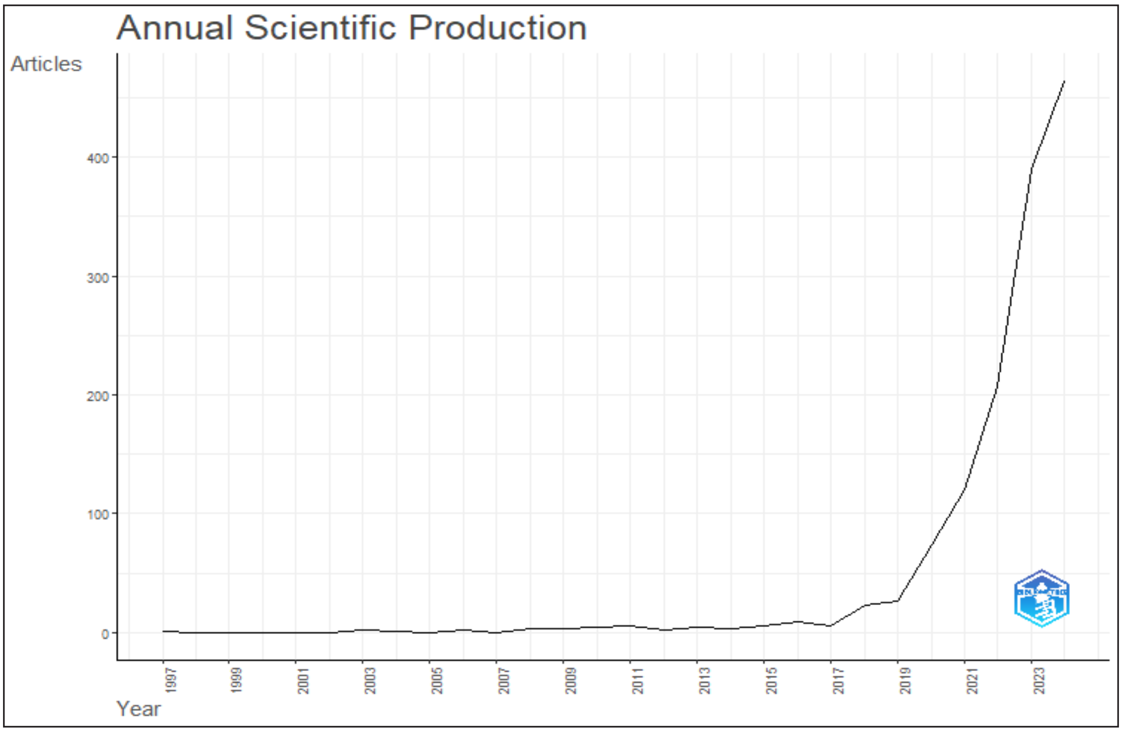

Fig.1: Annual Scientific Production year by year analysis

(Source: Author's own contribution)

3.1.3 Average Citations per year:

Figure 2 shows the average number of citations for the publications each year. It is evident that the year 2020 had the most citations, indicating that artificial intelligence and sustainability were the main topics of research at that time. Both concepts' trends saw a dramatic rise in 2020, but they also saw severe declines in the years that followed, with the current trends continuing the downward trajectory.

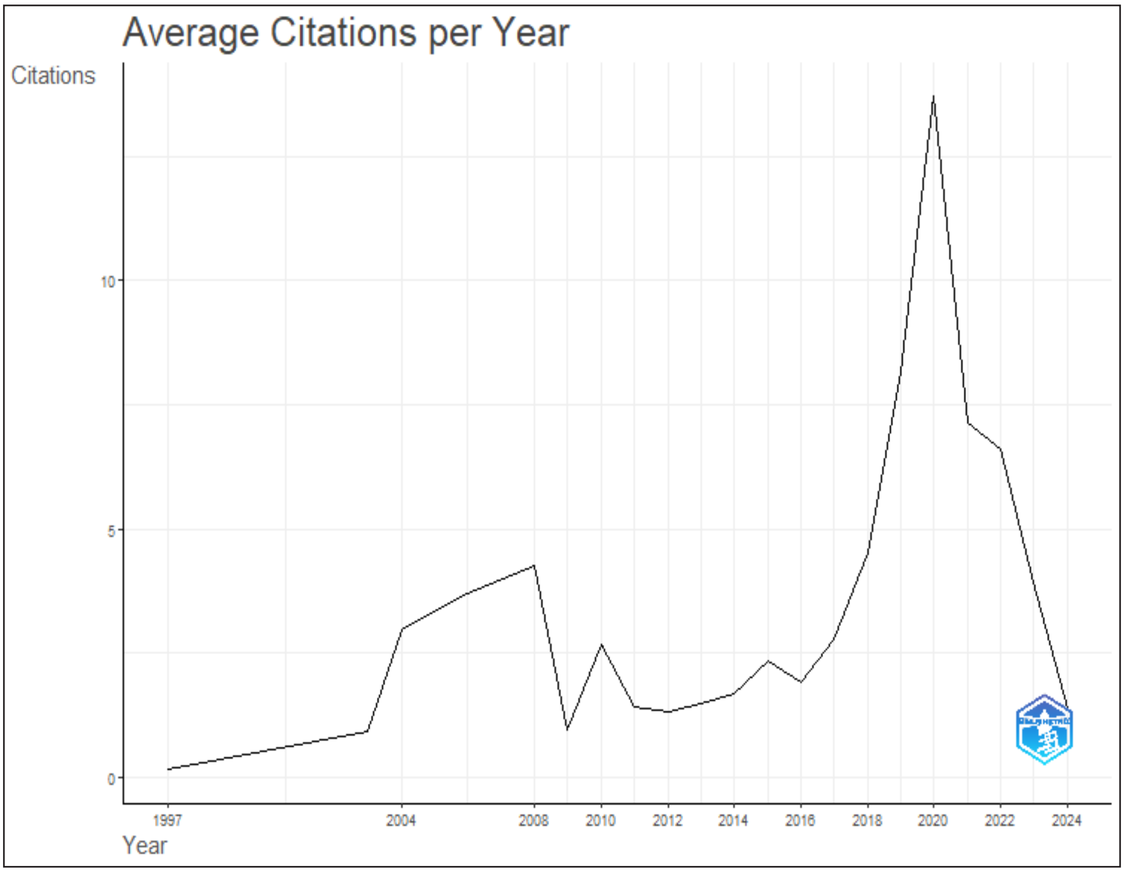

Fig.2: Average Citations per year

(Source: Author's own contribution)

3.1.4 Three Field Plot

The three-tier strategy, or three field plot (see fig.3) is based on the authors' keywords, nations, and subjects of their individual studies. It showed how these three has been connected. The graph has indicated that Chinese and Indian authors has been produced most of the publications on these subjects. China has played the role of main actor. The terms artificial intelligence, machine learning, big data, sustainable development, digitalization, industry 4.0, Internet of Things, innovation, digital transformation, Chat GPT, and block chain has been most frequently used by the writers.

A significant number of Chinese authors has discussed AI, machine learning, and sustainable development. Indians has less concerned with in blockchain and more interested in the ideas of sustainable development and digital transformation. Most of the studies has been talked about sustainability, artificial intelligence and digital transformation.

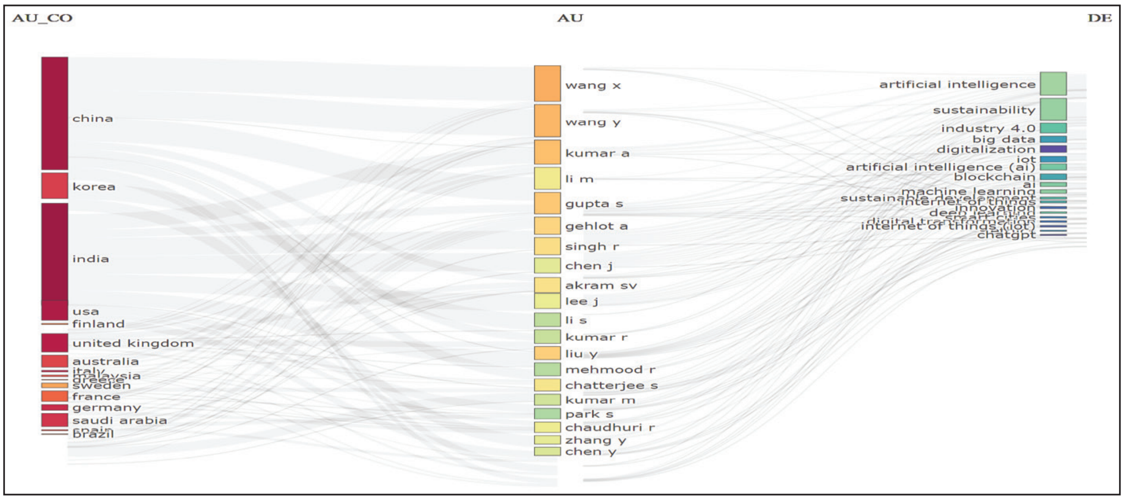

Fig. 3: Three Field Plot

(Source: Author's own contribution)

3.1.5 Most Cited Sources

Figure 4 shows the sources that are most relevant out of the 723 total sources. The most pertinent publications for the reference papers have been depicted in the figure. The study's theme, "Sustainability," is what the most papers published in the Journal of Switzerland were about. IEE access is followed by the Journal of Cleaner Production (impact factor 9.7), Heliyon, and AI and Society. The focus of the journals is the study's central theme.

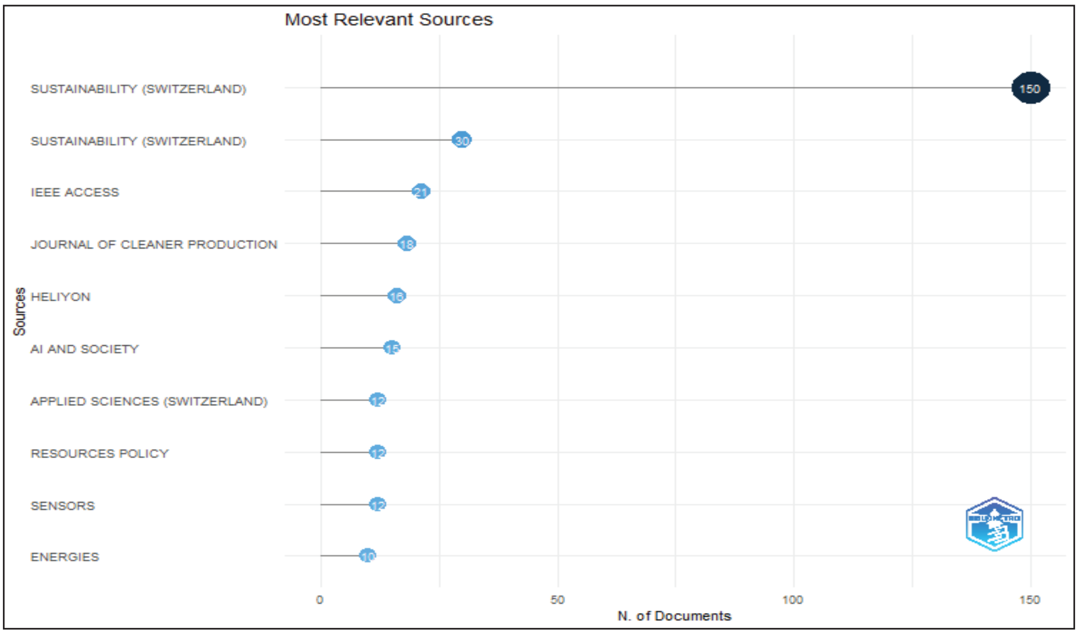

Fig. 4: Most Relevant Sources

(Source: Author's own contribution)

3.1.6 Most Relevant Author

Figure 5 shows the names of the authors who contributed maximum towards this filed. Out of 5024 authors the figure contains the list of only 10 authors. Wang X contributed 11 articles with Articles Fractionalized as 2.28809523809524. The fractionalized frequency implies equal shares among all co-authors of the associated publications, thereby quantifying each author's individual contribution (Wei & Jiang, 2023). This author is followed by Wang Y with the same number of articles with articles fractionalised as 2.43134920634921. The subsequent authors are Kumar A with 10 article, Gupta S. with 9 articles, Liu Y., Gehlot A., Singh R. etc.

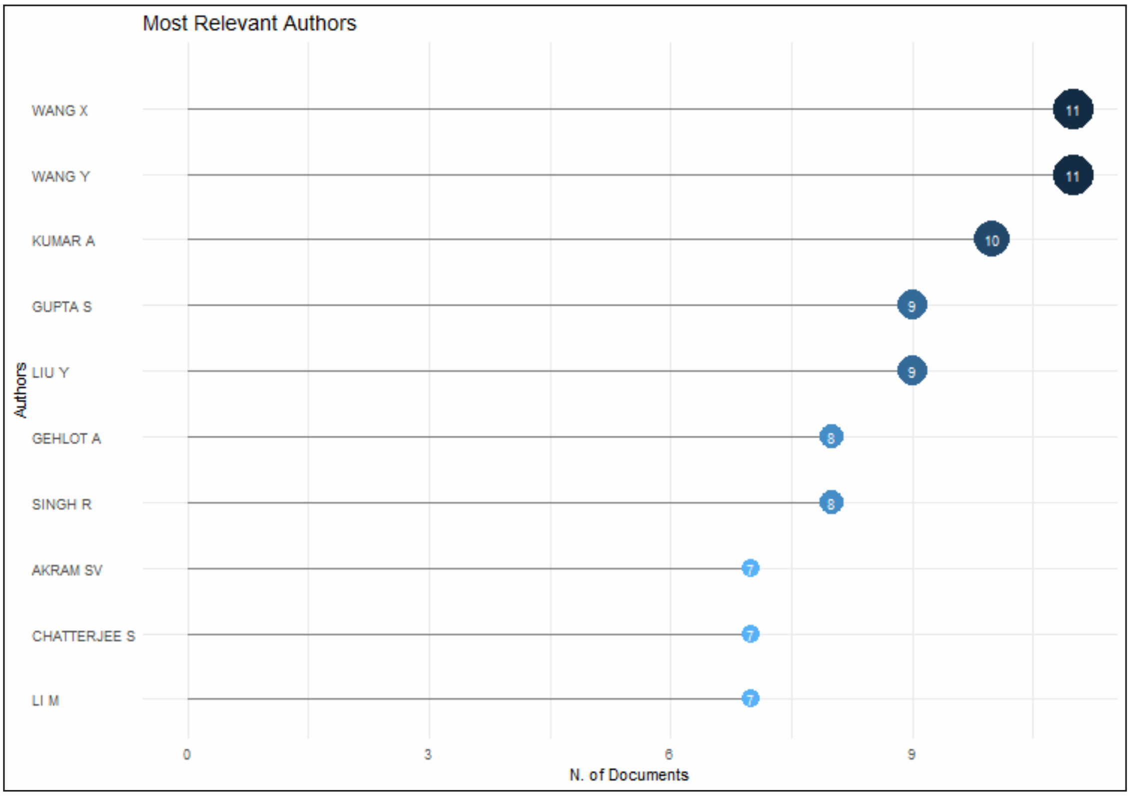

Fig. 5: Most Relevant Authors

(Source: Author's own contribution)

3.1.7 Corresponding Author's Countries

Figure 6 represents corresponding author's countries. Here, SCP means Single Country publication and MCP means multiple countries publications. Figure describes which country contributes maximum towards this topic and their national and international collaboration also. It is clear from the figure that China contributed maximum towards this topic where the single country publication is 98 and multiple country publication is 48. India in the same line has the data 85 and 40 followed by USA with 92 and 11. The other countries line up here are UK, Korea, Italy, Australia, Germany, Saudi Arabia, Spain, Malaysia, Canada, France, Netherlands, Poland, Finland etc.

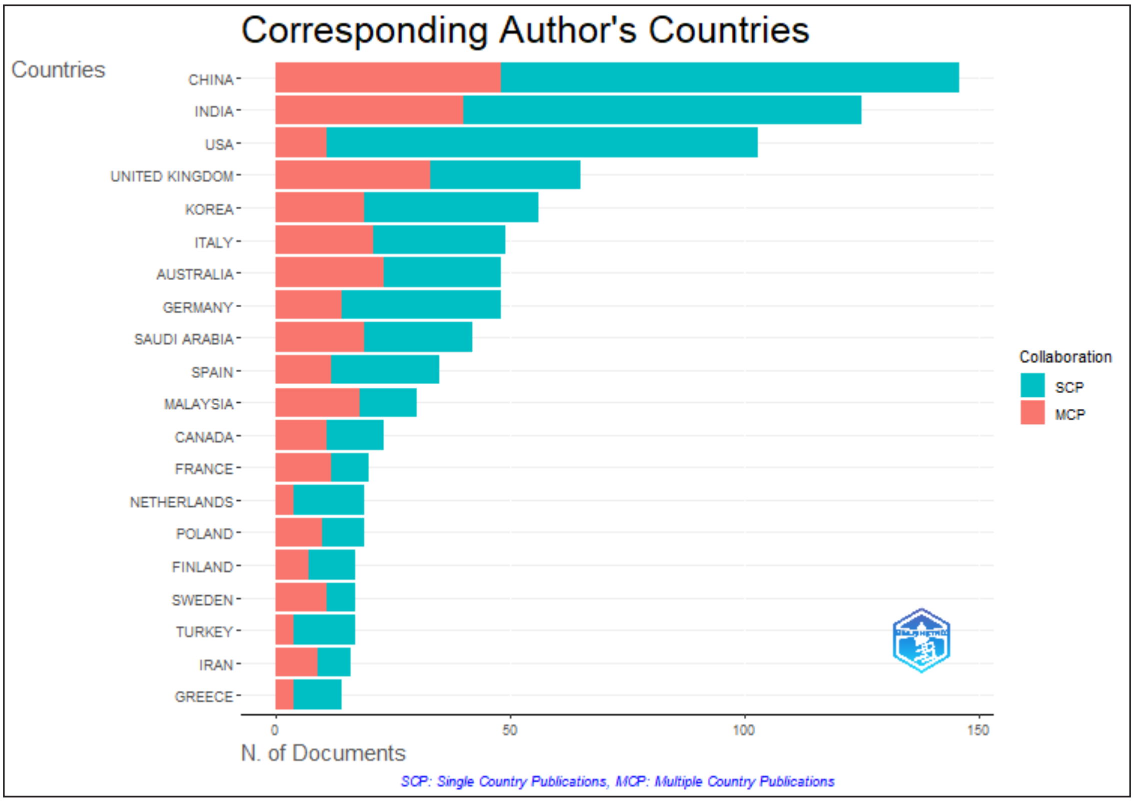

Fig. 6: Corresponding Author's Countries

(Source: Author's own contribution)

3.1.8 Country Scientific Production

Figure 7 shows the county scientific production on the topic of artificial intelligence, sustainability and allied related topics. Here, India is at top position with the frequency of 594 followed by China 572, then USA 570 and UK 315 and so on. In this study, countries and authors were considered as units of analysis (Fusco et al., 2020).

3.1.9 Country Production Over Time

Table 2 displays the total amount of each country's contribution to the writing of articles on the same topics. The largest contributors are the United States, China, and India. The table shows that, following COVID, India has embraced these themes at the quickest pace of adoption.

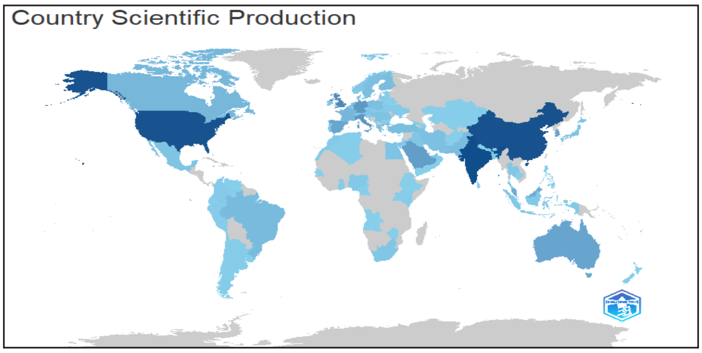

Fig. 7: Country Scientific Production

(Source: Author's own contribution, Different shades of blue indicate different productivity rate: dark blue = high productivity; grey = no articles)

Table 2: Sum of Country Production from the time-period 1997-2024

	China	India	Italy	UK	USA
1997-2024	1324	1272	801	884	2724
Growth rate after COVID	1117.021	2021.429	461.3636	826.4706	277.4834

(Source: Author's own Contribution)

The production by country over time is clearly shows that China's interest in these topics began to increase in 2010 only (see fig.8). Other countries began to show interest later in 2014, and the number of publications on these topics peaked in 2020.

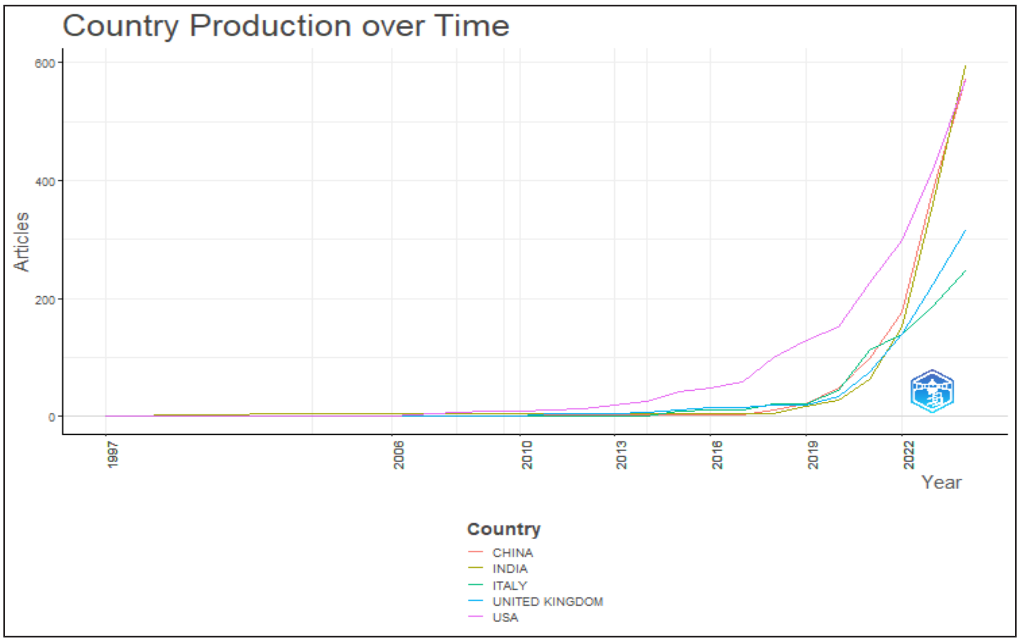

Fig. 8: Country Production over time

(Source: Author's own contribution)

3.2 Informetric Analysis

3.2.1 Frequently Used Word

Table 3, Figure 9 and Figure 10 illustrate the word frequency analysis of the publications reviewed for the literature study. The analysis reveals that *artificial intelligence* (frequency = 436) emerged as the most dominant term, indicating its centrality in the research discourse. This was followed by other prominent terms such as *Industry 4.0*, *machine learning*, and *sustainability* (frequency = 330). The word cloud generated using **Biblioshiny** visually supports these results, emphasizing the prevalence of *artificial intelligence* and *sustainability* as recurring themes across the reviewed literature. The graphical representation aids in identifying the thematic concentration areas and reflects the growing research interest in the integration of artificial intelligence with sustainable industrial practices.

Table 3: Frequently Used Word

Words	Occurrences
artificial intelligence	436
sustainability	330
machine learning	112
ai	93
artificial intelligence (ai)	82
deep learning	58
industry 4 0	46
sustainable development	43
internet of things	38
blockchain	34

(Source: Author's own contribution)

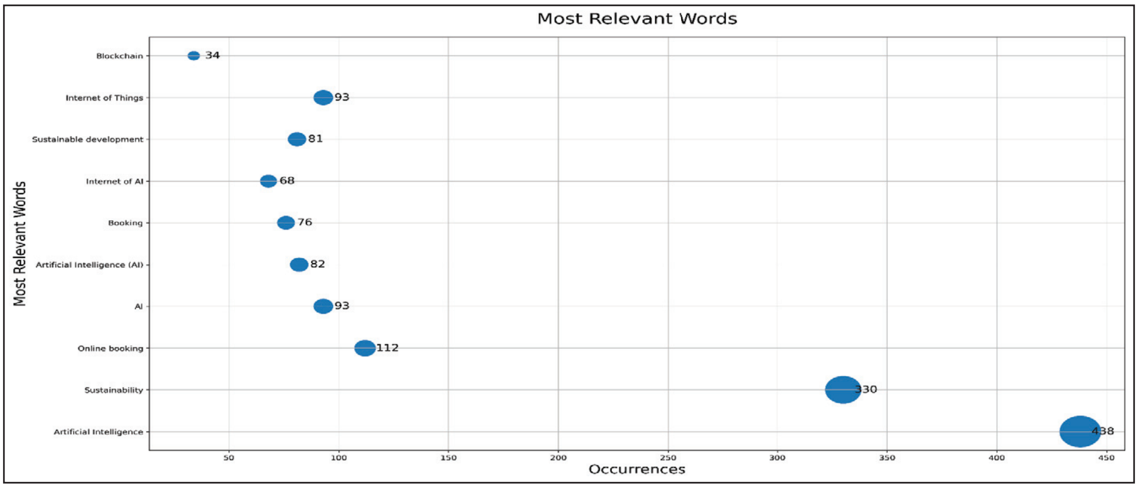

Fig. 9: Frequently Used Word

(Source: Author's own contribution)

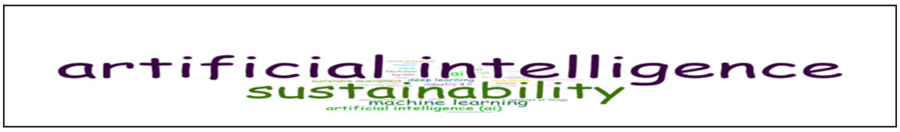

Fig. 10: Frequently Used Word- Word Cloud

(Source: Author's own contribution)

3.2.2 Co-Word Networking

Co- Word Networking is the enhancement by mining the semantic information from co-word networks (Fusco et al., 2020). Results also show there is much connection between the words artificial intelligence and sustainable development (see table 4 and fig.11) There are three groups; 1st in pink circle, second one in purple and third one is in black. Group 1 represents the high connectedness among the words.

Table 4: Co-Word Networking

Node	Cluster	Betweenness	Closeness
artificial intelligence	1	208.549971	0.02040816
sustainable development	1	253.76038	0.02040816
sustainability	1	62.8212452	0.01960784
machine learning	1	24.4972045	0.01923077
decision making	1	21.4229527	0.01886792
climate change	1	2.33804283	0.01449275
innovation	1	0.71688392	0.01234568
algorithm	1	1.69463702	0.01408451
environmental impact	1	1.63517859	0.01369863
smart city	1	0.87500815	0.01333333
sustainable development goal	1	0.144157	0.01176471
environmental sustainability	1	1.52756539	0.01408451
optimization	1	0.32082363	0.01282051
risk assessment	1	0.73857722	0.01282051
water management	1	0.45706551	0.01265823
internet	1	0.70501694	0.01265823
artificial neural network	1	0.09749416	0.01190476
carbon footprint	1	0.22946158	0.01234568
economic and social effects	1	0.82136492	0.01315789
economics	1	0.63381643	0.01333333

(Source: Author's own contribution)

Table 4 displays important terms from research on sustainability and artificial intelligence, emphasizing their roles and impact in the co-word network. A strong thematic group is formed by the fact that all terms are part of a single cluster. Measures like betweenness and closeness centrality show how important each phrase is in relation to others. Artificial intelligence and sustainable development have *high betweenness values*, indicating that these ideas serve as key links that connect many issues within the area. In a similar vein, their high closeness centrality suggests that they are strongly connected to other terms, indicating that they have a significant impact on the direction of study. Even if they are less central, other words like environmental sustainability, climate change, machine learning, and decision making are important sub-themes that add to the larger conversation. Figure 11 shows strong thematic group in in AI and sustainability research.

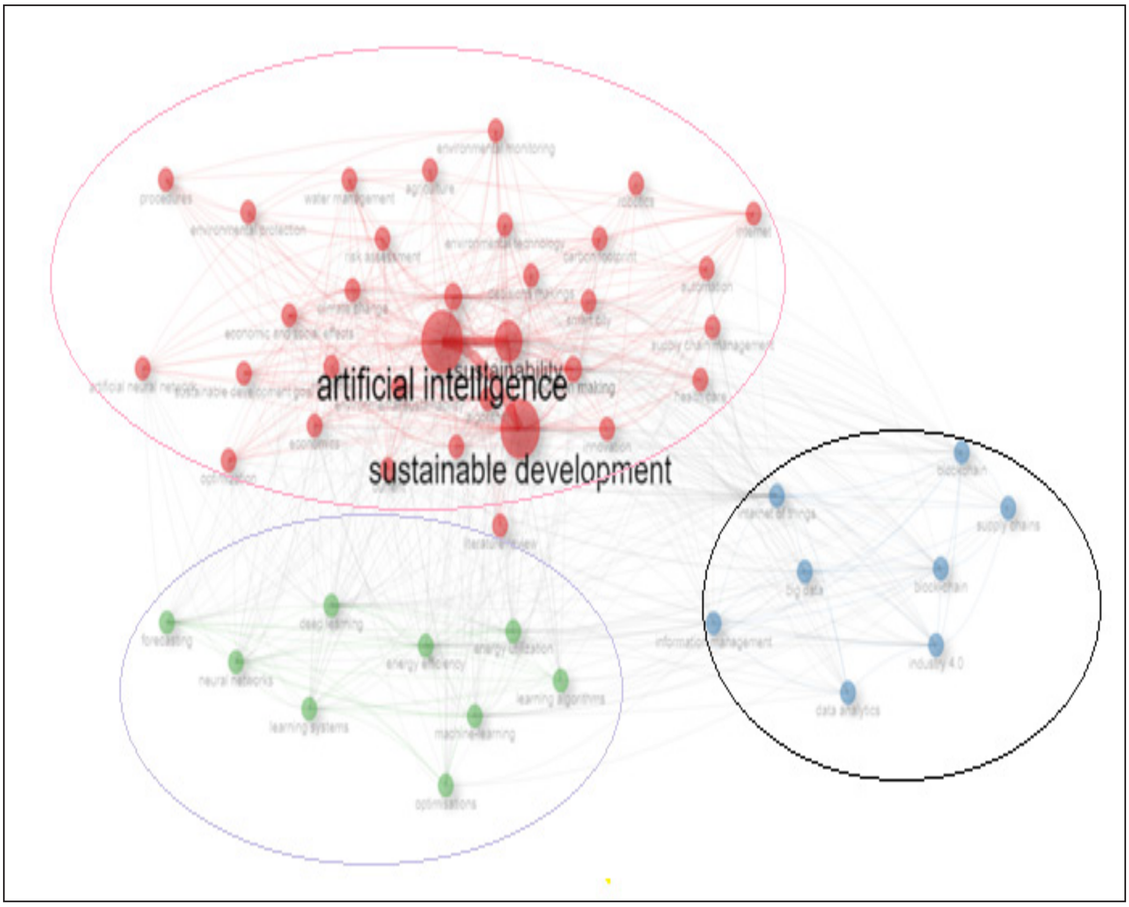

Fig. 11: Co-Word Networking

(Source: Author's own contribution, here, different colours shows different groups, and these circles made with the help of MS- paint)

3.3 Science Mapping

3.3.1 Author Collaboration Network

Co-authorships, which are among the most well-established types of scientific collaboration, are linked together in a social network called the "scientific collaboration network."(Durugbo, 2016). Table 5 shows the author collaboration network.

Table 5: Author Collaboration network

Node	Cluster	Betweenness	Closeness
wang x	1	267.833333	0.00970874
wang y	1	147.633333	0.00862069
liu y	1	0	0.00813008
li m	1	8.9	0.00793651
zhang y	1	0	0.00641026
chen y	1	34.9166667	0.00740741
wang f-y	1	37.4	0.00833333
ali m	1	84	0.00714286
chen l	1	3.58333333	0.00675676
huang s	1	0	0.00684932
liu j	1	1.5	0.00613497
wang j	1	0	0.00769231
wang p	1	36.2333333	0.00793651
kumar a	2	267.858571	0.00869565
gehlot a	2	0.64	0.00714286
singh r	2	0.64	0.00714286
akram sv	2	0.64	0.00714286
kumar r	2	0	0.00704225
agrawal r	2	0	0.00699301

(Source: Author's own contribution)

Table 5 illustrates the author collaboration network in AI and sustainability research, showing how closely researchers are connected. High betweenness values, such as those for Wang X and Kumar A, indicate these authors act as key connectors within the network. Closeness values reflect how efficiently authors can interact with others, highlighting central figures who influence collaboration and knowledge sharing in the field.

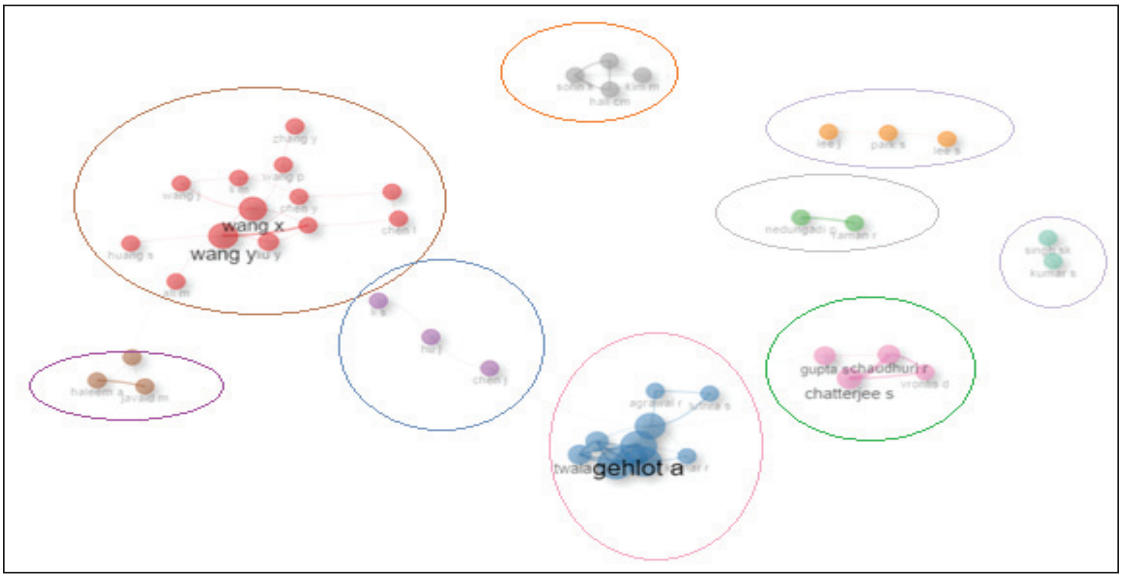

Fig 12: Author Collaboration network

(Source: Author's own contribution, Bibliometric software attributes different colour to each cluster)

The co-citation network's visual depiction reveals the existence of several linkages and bridges—nodes—that link the two clusters (Durugbo, 2016) (see fig.12). Figure 12 shows nine clusters, each of which represents a group of authors with similar interests. They talked about similar ideas.

3.3.2 Keywords Occurrences

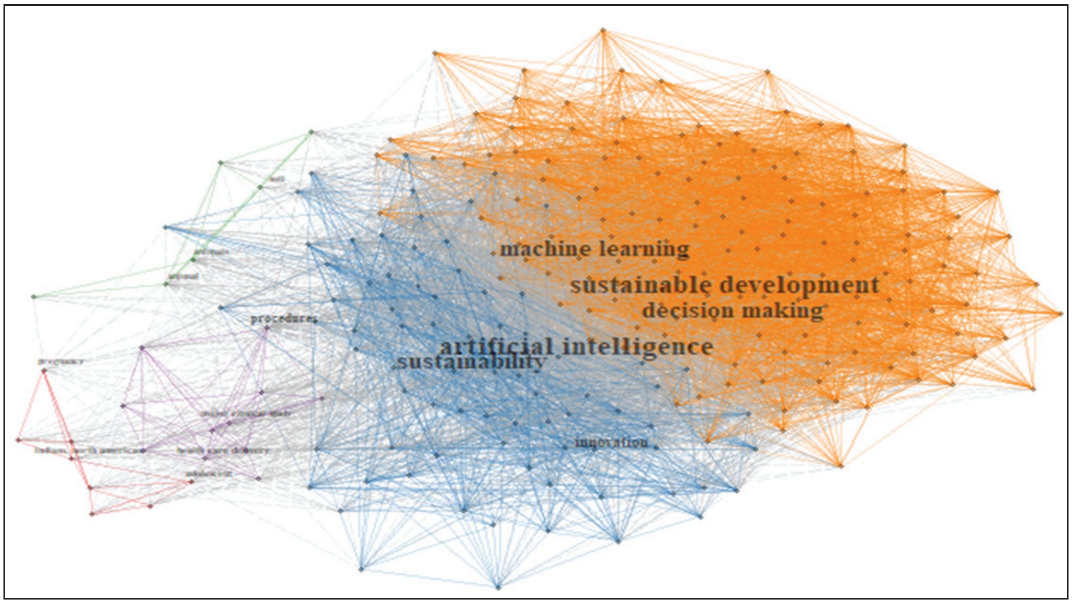

Fig 13: Keyword Occurrences
(Source: Author's own contribution)

The analysis of keyword occurrences identifies the most frequently used terms within the selected body of literature. Each keyword represents a significant concept or topic discussed in the publications. By calculating the number of times a keyword appears, it becomes possible to determine the dominant themes and focal areas of research in the field which is shown by fig.13

3.3.3 Collaboration Analysis

Considering several levels of aggregation, this analysis offers a summary of scientific collaboration and research communities. Nations and writers were considered as units of analysis in this research (Yan E, Ding Y, 2012) (see fig.14)

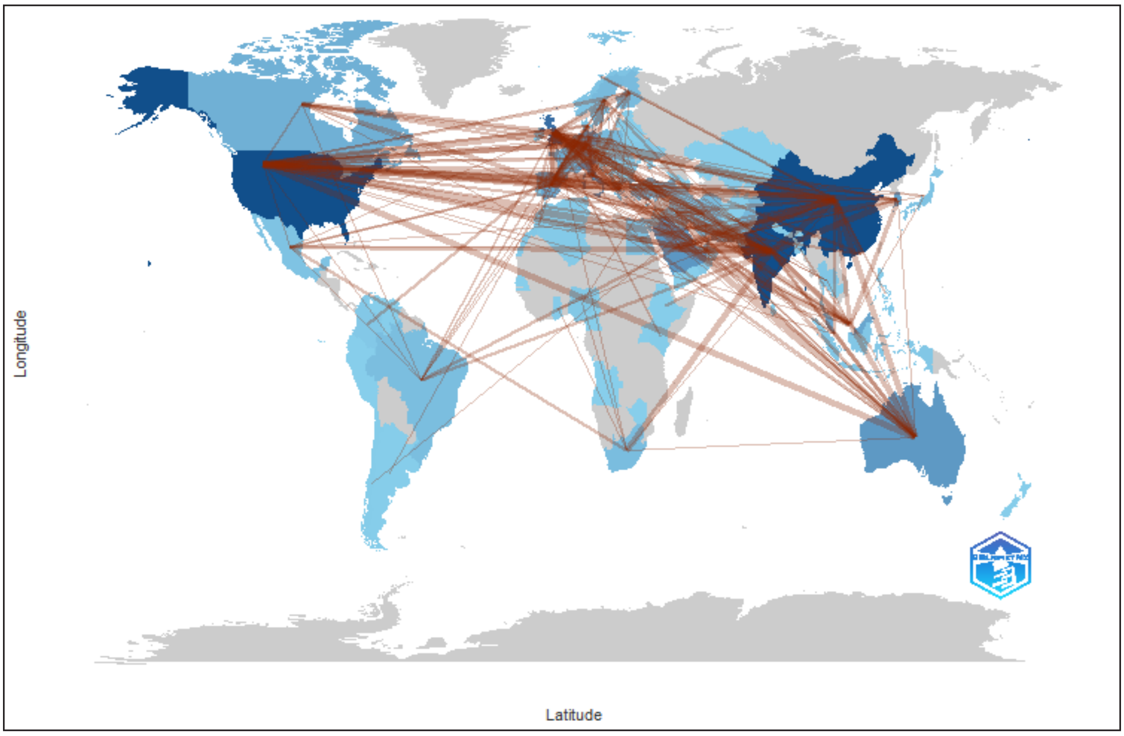

Fig.14: Collaboration Analysis
(Source: Author's own contribution)

4. Discussions

This bibliometric analysis represents a comprehensive picture, information of the structure and the development of the AI and sustainability both together in the world. Although there have been numerous numbers of papers available on this topic but from best of our knowledge this one is the one and unique contribution in the field of AI and Sustainability. The paper highlights the change in the trend of usage of artificial intelligence, and one can enthusiastically use AI to achieve sustainability. The different collaboration of different authors is also illustrated through different graphics. The article fragmentation and network coupling are used to discuss the scenario in detail.

Overall, this field is progressing, but not yet saturated. AI has already demonstrated its capability to reduce environmental footprints, optimize systems, and support data-driven sustainability planning. Yet, challenges remain — especially regarding ethical deployment, transparency, and policy alignment. If upcoming research focuses on bridging technical innovation with social responsibility, the impact of AI on sustainability can move beyond conceptual discussions and translate into measurable real-world benefits.

5. Conclusion

This review and mapping of research from 1947 to 2024 shows how far the world has come in connecting artificial intelligence with sustainability—and how much potential still lies ahead. Over the years, what began as scattered technological experiments has gradually shaped into a focused research area where AI is viewed not just as a digital tool, but as a partner in solving environmental challenges. The study's bibliometric approach proved to be quite helpful in examining and presenting a thorough picture and detailed information sustainability and artificial intelligence, particularly about Industry 4.0 and digital transformation.

There are certain limits to the paper, primarily related to the methodological choices made. Due to the paucity of time, author considered the concept of sustainability and AI in general not in the specific reference. Compared to qualitative methods, bibliometric methods are objective and repeatable, but they also imply a less thorough knowledge. The most cited references, for instance, are displayed by the citation and co-citation analyses, but the purpose of the citation is not disclosed.

Keeping limitations aside this study contributes much in the field of sustainability. The majority of the theoretical and even fewer empirical research on this subject employs a mono-dimensional approach. Overall, this study contributes towards a valuable resource for the policy makers, scholars, manufacturing units etc

References

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. Journal of Informetrics, 11(4), 959–975. Elsevier. https://doi.org/10.1016/j.joi.2017.08.007

Anthony, B. Jnr. (2024). Decentralized AIoT-based intelligence for sustainable energy prosumption in local energy communities: A citizen-centric prosumer approach. Cities. https://doi.org/10.1016/j.cities.2024.105198

Chaudhary, G. (2023). Environmental sustainability: Can artificial intelligence be an enabler for SDGs? Nature Environment and Pollution Technology, 22(3), Article 27. https://doi.org/10.46488/NEPT.2023.v22i03.027

Chou, J.-R. (2024). An integrative review exploring the development of sustainable product design in the technological context of Industry 4.0. Advanced Engineering Informatics. https://doi.org/10.1016/j.aei.2024.102689

Durugbo, C. (2016). Collaborative networks: A systematic review and multi-level framework. International Journal of Production Research, 54(12), 3749–3776. https://doi.org/10.1080/00207543.2015.1122249

Fan, Z., Yan, Z., & Wen, S. (2023). Deep learning and artificial intelligence in sustainability: A review of SDGs, renewable energy, and environmental health. Sustainability (Switzerland), 15(18), 13493. https://doi.org/10.3390/su151813493

Fusco, F., Marsilio, M., & Guglielmetti, C. (2020). Co-production in health policy and management: A comprehensive bibliometric review. BMC Health Services Research, 20(1), 1–16. https://doi.org/10.1186/s12913-020-05241-2

George, B., & Wooden, O. (2023). Managing the strategic transformation of higher education through artificial intelligence. Administrative Sciences, 13(9), 196. https://doi.org/10.3390/admsci13090196

Jankovic, S. D., & Curovic, D. M. (2023). Strategic integration of artificial intelligence for sustainable businesses: Implications for data management and human user engagement in the digital era. Sustainability (Switzerland), 15(21), 15208. https://doi.org/10.3390/su152115208

Klarin, A., Ali Abadi, H., & Sharmelly, R. (2024). Professionalism in artificial intelligence: The link between technology and ethics. Systems Research and Behavioral Science, 41(4), 557–580. https://doi.org/10.1002/sres.2994

Li, M., Wan, Z., Zou, T., Shen, Z., Li, M., Wang, C., & Xiao, X. (2024). Artificial intelligence-enabled self-powered wireless sensing for smart industry. Chemical Engineering Journal. https://doi.org/10.1016/j.cej.2024.152417

Liu, F., & Liang, C. (2024). Examining the role of artificial intelligence in advancing pollution reduction strategies. Managerial and Decision Economics. https://doi.org/10.1002/mde.4173

Luo, J. (2022). A bibliometric review on artificial intelligence for smart buildings. Sustainability, 14(16), 10230. https://doi.org/10.3390/su141610230

Mahariya, S. K., Kumar, A., Singh, R., Gehlot, A., Akram, S. V., Twala, B., Iqbal, M. I., & Priyadarshi, N. (2023). Smart Campus 4.0: Digitalization of university campus with assimilation of Industry 4.0 for innovation and sustainability. Journal of Advanced Research in Applied Sciences and Engineering Technology, 32(1), 120–138. https://doi.org/10.37934/ARASET.32.1.120138

Moodaley, W., & Telukdarie, A. (2023). Greenwashing, sustainability reporting, and artificial intelligence: A systematic literature review. Sustainability, 15(2), 1481. https://doi.org/10.3390/su15021481

Ofek, N., & Maimon, O. (2023). Beyond metrics: Navigating AI through sustainable paradigms. Sustainability (Switzerland), 15(24), 16789. https://doi.org/10.3390/su152416789

Raman, R., Pattnaik, D., Hughes, L., & Nedungadi, P. (2024). Unveiling the dynamics of AI applications: A review of reviews using scientometrics and BERTopic modelling. Journal of Innovation and Knowledge. https://doi.org/10.1016/j.jik.2024.100517

Rusydiana, S. A. (2021). Bibliometric analysis of journals, authors, and topics related to COVID-19 and Islamic finance listed in the Dimensions database by Biblioshiny. Science Editing, 8(1), 72–78. https://doi.org/10.6087/kcse.232

Saeidnia, H. R., Hosseini, E., Abdoli, S., & Ausloos, M. (2024). Unleashing the power of AI: A systematic review of AI-enhanced scientometrics, webometrics, and bibliometrics. arXiv. https://arxiv.org/abs/2403.18838

Suryanarayana, K. S., et al. (2024). Artificial intelligence-enhanced digital learning for the sustainability of education management system. Journal of High Technology Management Research. https://doi.org/10.1016/j.hitech.2024.100495

Tripathi, S., Bachmann, N., Brunner, M., Rizk, Z., & Jodlbauer, H. (2024). Assessing the current landscape of AI and sustainability literature: Identifying key trends, addressing gaps, and challenges. Journal of Big Data. https://doi.org/10.1186/s40537-024-00912-x

Okulich-Kazarin, V., Artyukhov, A., Skowron, Ł., Artyukhova, N., & Wołowiec, T. (2024). Will AI become a threat to higher education sustainability? A study of students' views. Sustainability (Switzerland), 16(11), 4596. https://doi.org/10.3390/su16114596

Velásquez, J. D., Cadavid, L., & Franco, C. J. (2023). Intelligence techniques in sustainable energy: Analysis of a decade of advances. Energies, 16(19), 6974. https://doi.org/10.3390/en16196974

Waqar, A., Othman, I., Shafiq, N., & Mansoor, M. S. (2023). Applications of AI in oil and gas projects towards sustainable development: A systematic literature review. Artificial Intelligence Review. https://doi.org/10.1007/s10462-023-10467-7

Wei, W., & Jiang, Z. (2023). A bibliometrix-based visualization analysis of international studies on conversations of people with aphasia: Present and prospects. Heliyon, 9(6), e16839. https://doi.org/10.1016/j.heliyon.2023.e16839

Xiong, T., Zhou, L., Zhao, Y., Zhang, X., & Li, Y. (2022). Mining semantic information of co-word network to improve link prediction performance. Scientometrics, 127, 2981–3004. https://doi.org/10.1007/s11192-021-04247-9

Yan, E., & Ding, Y. (2012). Scholarly network similarities: How bibliographic coupling networks, citation networks, cocitation networks, topical networks, coauthorship networks, and coword networks relate to each other. Journal of the American Society for Information Science and Technology, 63(7), 1313–1326. https://doi.org/10.1002/asi.22652

Websites

Bibliometrix. (n.d.). Biblioshiny interface for bibliometrix. Retrieved October 23, 2025, from https://www.bibliometrix.org/home/index.php/layout/biblioshiny

Bibliometrix. (n.d.). Bibliometrix R-package. Retrieved October 23, 2025, from https://www.bibliometrix.org/home/index.php/layout/bibliometrix

Bibliometrix. (n.d.). Frequently asked questions (FAQ). Retrieved October 23, 2025, from https://www.bibliometrix.org/home/index.php/faq

Wikipedia. (n.d.). Scientific collaboration network. Retrieved October 23, 2025, from https://en.wikipedia.org/wiki/Scientific_collaboration_network