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Mapping Gen Z Sustainable Footprint: Insights from a Bibliometric Study

Maapeo de la Huella Sostenible de la Generación Z: Conclusiones de un Estudio Bibliométrico

I. INTRODUCTION

The importance of the young generation in adopting sustainability has come to light as environmental challenges have become more pressing. Among these, Generation Z (Gen Z) has become a key age cohort in the global sustainability conversation due to their competency in technology and increased consciousness of environmental and social issues. To understand the scholarly study involving Gen Z adoption of sustainability, this research uses bibliometric analysis, examining the sector-specific trends, relevant publications, citations, co-authorship, and co-citation analysis. This study offers a thorough picture of how Gen Z sustainable footprint is being conceptualised, researched, and discussed in the academic community by mapping scholarly contributions. The amount of research that concentrates on bibliometric studies has rapidly increased. Over the years, there has been an increasing number of scholars who have become interested in bibliometric research (Cheng et al., 2024). Bibliometric analysis involves the application of quantitative techniques to study scholarly literature, identify patterns, trends and their influence within a specific domain (Al Barra et al., 2024). It is a systematic process of collecting, scrutinising, filtering, and analysing data from numerous databases and employing different bibliometric techniques (Passas, 2024). The emergence of the latest software applications, interdisciplinary approaches, and the capacity to manage vast databases have contributed to the popularity of this analysis (Khan et al., 2022). In Addition, bibliometric analysis allows objective data analysis and



EXECUTIVE SUMMARY

Gen Z, the age cohort born between the years 1997 and 2012, is identified as the most sustainable generation of the 21st century, transforming traditional consumption patterns and driving sustainability. Despite of the comprehensive literature on Gen Z and sustainability, there is a lack of systematic and focused bibliometric studies on sector-specific sustainable behaviour. The study aims to perform a systematic bibliometric analysis of academic literature on Gen Z adoption of sustainability, focusing on tourism, fashion, food, and hospitality. Data was retrieved from the Scopus database, including 2236 publications on Gen Z and 156 on Gen Z and sustainability. The data retrieved from Scopus yielded 2236 English-language articles in the initial search, which were refined to 1440 results based on the document keywords 'Generation Z' and 'Gen Z'. Further filtering was done by adding the 'Sustainability' keyword, which narrowed the selection to a final 173 articles. Using VOSviewer software, performance analysis and science mapping were conducted on 173 articles to evaluate publication trends, citation metrics, key authors, influential journals, and keyword co-occurrence networks. The analysis shows an increasing number of publications on sustainability annually. Co-occurrence analysis indicates tourism as a frequently discussed sector, and social media as a substantial thematic node within the Gen Z adoption of sustainability, demonstrating its influence on Gen Z behaviour. Bibliographic coupling reveals that the journal Sustainability (Switzerland) is highly influential, with a significant number of publications and citations. This study provides the first bibliometric analysis of Gen Z adoption of sustainability, highlighting growing academic interest. The results will act as a valuable resource for Industry leaders, policymakers and educators aiming to promote sustainable development practices. Future studies should continue to explore the dynamic interactions between Gen Z and sustainability to enhance sustainable growth and address several emerging trends in the field.

RESUMEN DEL ARTÍCULO

La generación Z, un grupo de edad nacido entre 1997 y 2012, es conocida por sus valores y comportamientos orientados a la sostenibilidad y está influyendo cada vez más en los patrones de consumo globales. A pesar de la extensa bibliografía sobre la generación Z y la sostenibilidad, el análisis bibliométrico sistemático en este ámbito es notablemente limitado. Este estudio pretende llenar ese vacío analizando la bibliografía sobre la adopción de la sostenibilidad por parte de la generación Z, centrándose en cuatro sectores clave: turismo, moda, alimentación y hostelería. Los datos obtenidos de Scopus arrojaron 2236 artículos en inglés en la búsqueda inicial, que se refinaron a 1440 resultados basados en las palabras clave «Generación Z» y «Generación Z». Se realizó un filtrado adicional con la adición de la palabra clave «Sostenibilidad», lo que redujo la selección a 173 artículos finales. Utilizando el software VOSviewer, se llevó a cabo un análisis del rendimiento y un mapeo científico de los 173 artículos para evaluar las tendencias de publicación, las métricas de citas, los autores clave, las revistas influyentes y las redes de coocurrencia de las palabras clave. El análisis del rendimiento revela un aumento significativo de las publicaciones, que pasan de 1 en 2016 a 55 artículos en 2023. Se observa una evolución paralela en el número de citas, que pasó de 5 en 2019 a 474 en 2023. Los resultados indican un aumento anual de las publicaciones centradas en la sostenibilidad, con la emergencia de turismo como el sector más comentado. «Sustainability (Suiza)» se identifica como la revista más importante en el acoplamiento bibliográfico. Dado que los datos se recopilan exclusivamente de la base de datos Scopus, su capacidad para analizar citas y metadatos de forma tan exhaustiva como SSCI y Web of Science es limitada. El presente estudio ofrece conocimientos valiosos a las empresas para diseñar estrategias basadas en valores que fomenten un comportamiento responsable entre la generación Z. Los legisladores pueden integrar iniciativas sostenibles que se ajusten al sistema de valores de la generación Z. El estudio puede ayudar a los académicos a diseñar planes de estudio que se ajusten a los Objetivos de Desarrollo Sostenible y fomenten la ciudadanía responsable.

The emergence of the latest software applications, interdisciplinary approaches, and the capacity to manage vast databases have contributed to the popularity of this analysis...

identification of various trends in a specific research field, journal performance, co-authorship, co-citations, and references (Ellili, 2022). According to a study, Sustainability had the highest link strength value in recent years (Krishna et al., 2023). The majority of research examined food security (Pieroni et al., 2020), sustainability in the agriculture sector (Medina et al., 2020) and biodiversity (Teraa & Bencherif, 2021), land degradation and management (Zyoud, 2022), climate change (Staupe-Delgado, 2019), urban management and planning (Sunardi et al., 2020), carbon and pollution emission (Kapitonov, 2020). Gen Z exhibits unique characteristics, a high level of awareness, and commitment towards tourism, though their actions may be limited (Pulido-Fernández et al., 2024). Gen Z pro-sustainable tourism behaviours include economic, environmental, social, and cultural factors, which are influenced by both internal (personal norms) and external factors (social media) (Salinero et al., 2022). Gen Z consumers advocate sustainable fashion consumption through corporate social responsibility and environmental awareness (Contreras-Massé et al., 2024). Gen Z displays a consistent sustainable fashion behaviour and attitude than previous generations. Corporate social responsibility, environmental knowledge, and social media influence Gen Z's sustainable behaviour (Zhang et al., 2023). Prior bibliometric studies conducted on Gen Z and Sustainability mostly focused on general trends and thematic fields, with limited consideration of sector-specific research. The current study addresses this gap by scientifically analysing the sustainable consumption behaviour of Gen Z across four specific sectors, including tourism, fashion, food, and hospitality. The study offers valuable insights into Gen Z attitude, perception, and behaviour towards these sectors and their impact on sustainability, which was previously unaddressed in the scholarly literature.

The research study addresses the following research questions:

- RQ 1. What is the year-wise trend in research publication in the area of Gen Z and Sustainability?*
- RQ 2. What are the major contributions by Authors, Journals, and Countries in the field of study?*
- RQ 3. What is the major Industry in which the maximum research publications have been recorded?*

RQ 4. What are the emerging trends in the field of sustainability that impact the Gen Z approach towards the area of sustainable development?

RQ 5. How do the number of publications and citations correlate in the study of Gen Z and sustainability across the Tourism, Fashion, Food, and Hospitality sectors?

KEYWORDS

Gen Z, Sustainability, Bibliometric Analysis, Scopus, Vosviewer.

PALABRAS CLAVE

Generación Z, Sostenibilidad, Análisis Bibliométrico, Scopus, Vosviewer.

2. LITERATURE REVIEW

2.1. Sustainability and Generational Dynamics

The terms generations and generational differences have received significant attention in the last decade in academic research, among practitioners, the popular press, and businesses (Costanza et al., 2023). The generational theory (Strauss and Howe, 1991) classifies individuals based on birth year cohorts that were reshaped by shared experiences, and remains the most popularly adopted theory among social science researchers. According to a generational theory developed by Mannheim, the term generation includes social groups that share a similar attitude, social experiences, understanding, and orientation. These characteristics set them apart from previous generations (Mannheim, 1952). According to a study, there is a significant generational difference in sustainable consumption attitude and behaviour. Gen Z shows a more sustainable buying habit than prior generations, particularly while shopping on online platforms (Brand et al., 2022). On the contrary, Baby Boomers present higher levels of unnecessary consumption habits than the younger generation (Bulut et al., 2017). Studies on generational differences identify that younger groups, especially Gen Z and Millennials, display higher environmental awareness than older generations (Judijanto et al., 2024). A study observed a transition in priorities, with younger generations placing greater emphasis on sustainability in their buying decisions, career choices, and community engagement. This trend is largely driven by exposure to social media, environmental education, and digital activism (Twenge et al., 2012). People now use social media platforms as online forums to exchange ideas, recommendations, and experiences, forming a strong social influence network that has a big impact on consumer choice (KV, 2024). Gen Z, the modern generation of travellers, is shaping tourism trends through social

media and online engagement (Torrejón-Ramos et al., 2023). Although this generation is aware of the advantages of sustainable food consumption, their ability to practice it is often constrained by factors like time and budget, especially during travel (Orea-Giner & Fusté-Forné, 2023).

2.2. Sustainability Research Trends

Bibliometric analysis is increasingly utilised because of its ability to discover patterns, delineate the current state of knowledge, and assess the influence of academic contributions across diverse disciplines and viewpoints (Aria & Cuccurullo, 2016). Sustainability research is a rapidly expanding topic that is becoming more and more relevant across disciplines, according to bibliometric assessments. Research indicates that publications on sustainability have increased significantly, especially in the past ten years (Maier et al., 2020). With learning, socioeconomic management, and climate change recognised as major themes, knowledge management has become an essential component of sustainability research (Sanguankaew & Vathanophas Ractham, 2019). (Ortiz-Pimentel et al., 2020) conducted a bibliometric analysis of intergenerational research in business and management journals, examining Generations X, Y, and Z, together with Baby Boomers and the Silent Generation, using the Web of Science database. Another bibliometric study analysed 102 papers from the Web of Science database on Gen Z employees, published between 2009 and 2020 (Benítez-Márquez et al., 2022). Research trends in sustainable consumption and Gen Z purchasing habits have been examined in recent bibliometric analyses. Using databases such as Scopus, studies have looked at important research issues, significant journals, and publishing trends (Gupta et al., 2022; Li & Hassan, 2023).



2.3. Industry-Specific Studies

Gen Z has become a significant target group in the tourism sector, presenting a unique set of opportunities and challenges for marketers. As per the research, Gen Z travellers are significantly influenced by digital and social media trends, online engagements and entertainment, and word of mouth while making travel decisions (Liu et al., 2022). As compared to previous generations, Gen Z travellers mostly belong to the 'environmental' or 'Mixed-Bag

environmental' segment and are highly inclined towards engaging in sustainable travel practices, including resource conservation and consuming local food (Prayag et al., 2022). A study revealed that attributed responsibilities and values significantly influence Gen Z environmental concerns, which in turn affects the willingness to sacrifice, attitude, and pro-environmental behaviour (Ribeiro et al., 2023). Environment-conscious Gen Z consumers prioritise healthy and eco-friendly food options, while individuals with low consciousness focus mainly on affordability, accessibility, and convenience (Su et al., 2019). The study's findings reveal that knowledge and attitude are key drivers in influencing Gen Z adoption of sustainable food consumption; however, perceived behaviour, trust, health consciousness, and subjective norms do not significantly affect the purchase intentions (Jakubowska et al., 2024). Bibliometric analysis on the Gen Z influence on the tourism sector has gained popularity, showing an increasing academic interest in collaborative research and global contribution since 2020 (Anward et al., 2024).

The novelty of the present study lies in the fact that it provides an extensive understanding of Gen Z and their approach towards sustainable consumerism while utilising bibliometric analysis. Though there are numerous research studies in the area of Sustainable consumerism and Gen Z, there isn't a substantial study conducted using Bibliometric analysis while focusing on four major sectors, namely Tourism, fashion, food, and hospitality. This study would be the first of its kind, exploring and organising performance and scientific mapping through bibliometric analysis while focusing on four specific sectors. The bibliometric study is carried out to evaluate sector-specific publications and offer a visual mapping of the data while using VOSviewer. The study employs Elsevier's Scopus database, a leading and comprehensive research repository, as a secondary source of data (Çağlayan Akay et al., 2022). Scopus is a renowned resource for academic research, recognised for its wide-ranging interdisciplinary journal coverage and high-quality standards (Baas et al., 2020).

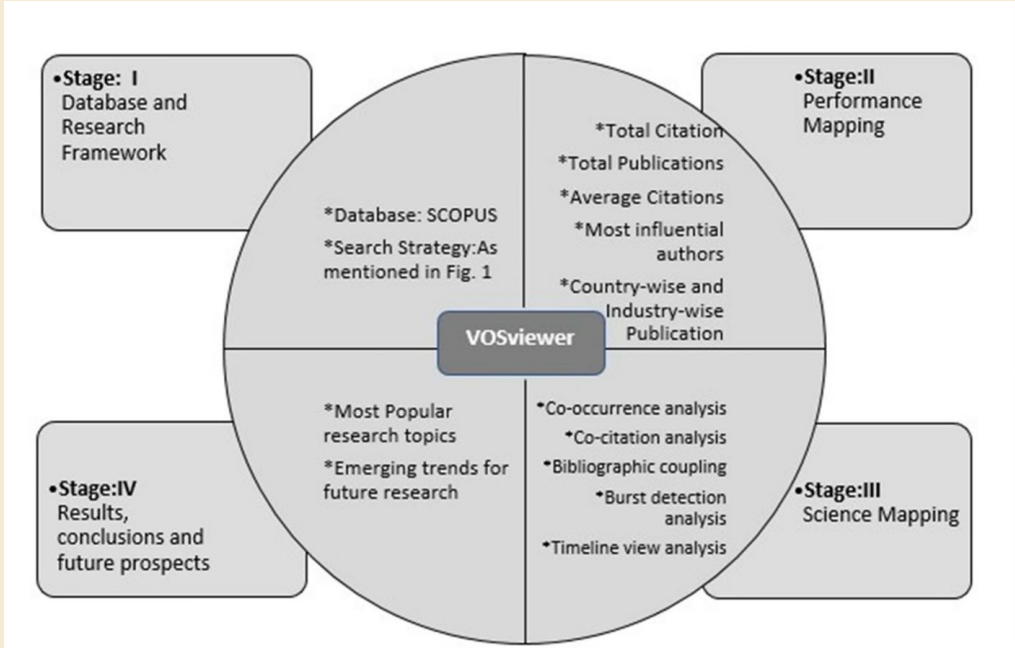


3. METHODS AND MATERIALS

The study initially analysed peer-reviewed articles published in English. Articles published in English-language publications allow for

wider dissemination of scholarly work, contributing to limited biases (Morrison et al., 2012). The study has excluded the book chapters, books, conference reviews, and a short survey. The study indicates that such articles are frequently deemed preliminary or may give partial findings, skewing the analysis towards less validation or non-peer-reviewed information (Kristia et al., 2023). The retrieved data was then filtered, and bibliometric analysis was carried out on four key sectors, namely, tourism, fashion, food and hospitality, because of their theoretical and practical significance in shaping the Gen Z sustainable consumption behaviour. These sectors are the most responsive, impacted by environmental challenges and are closely aligned with the SDG 12, i.e, Responsible Consumption and Production. Several theoretical theories, including the theory of planned behaviour (Ajzen, 1991), stakeholder theory (Freeman, 2010), and sustainable consumption theory (Lang & Barling, 2013), highlight the role of consumers in influencing sustainable consumption behaviour. Various studies show Gen Z growing inclination towards sustainable travel (Gössling & Hall, 2019), eco-conscious fashion choices (Niinimäki et al., 2020), sustainable

Figure 1. **Systematic Research Framework**



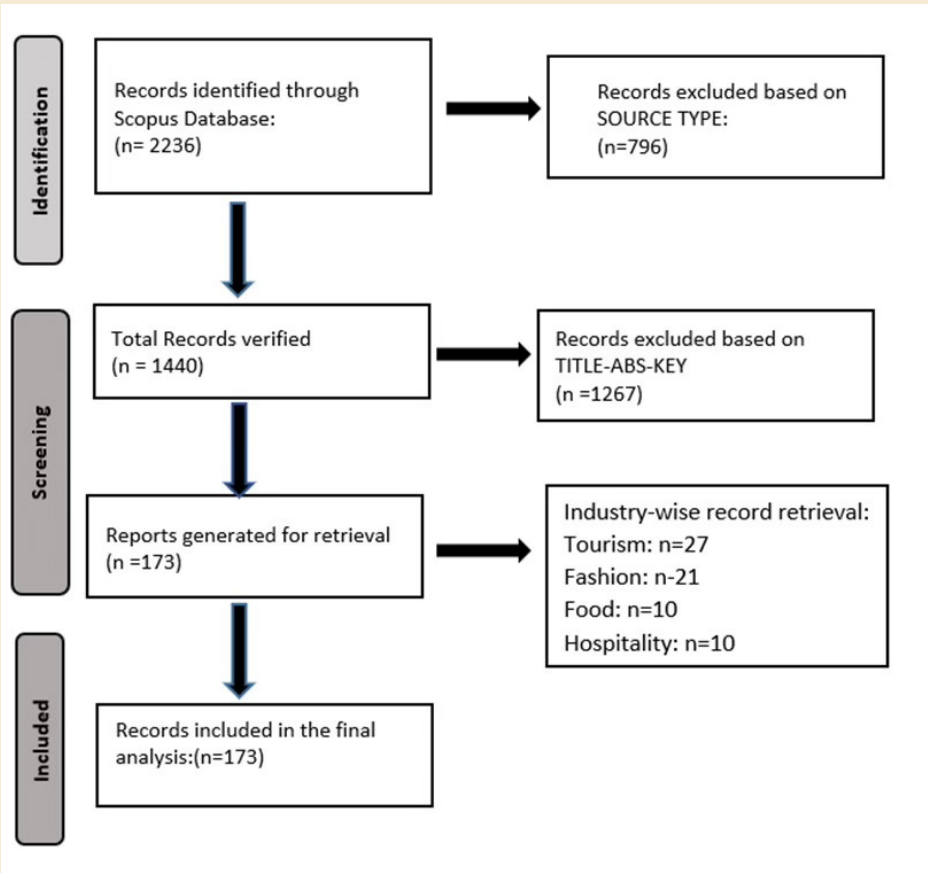
Source: Developed by the Author

food consumption (Hartmann & Siegrist, 2017), and responsible hospitality services (Jones et al., 2016). The data generated after applying the above keywords was run through bibliometric analysis, and a comprehensive result was generated based on a scientific research framework that is illustrated in **Figure 1**.

3.1. Research Framework and Database

The data extracted from the Bibliometric analysis was used to perform PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses, which was recently updated by (Page et al.,2021). PRISMA 2020 offers several advantages to the researchers and academicians, such as comprehensive, rigorous,

Figure 2. **PRISMA 2020 Flow diagram**



Source: Developed by the author and adapted from Page et al. (2020).

and well-designed checklists to improve the entire procedure for conducting bibliometric analysis, meta-analysis, and systematic review reporting (Streimikis & Saraji, 2021). Below is the PRISMA flow diagram created based on the new PRISMA (2020) guidelines. To organise a systematic flow of data, the first step included in the PRISMA 2020 flowchart was the identification of an appropriate database. The research includes a database from Scopus, which is considered to be one of the major sources of rich, valuable, and comprehensive research. Scopus offers a more exhaustive spectrum of Journal publications than Web of Science and PubMed. The citation analysis conducted in Scopus is faster and includes more publications than the citation of Web of Science (Falagas et al., 2007). The research study commenced on 2 July 2023 and was concluded on 13th December 2023. According to a research study, the accuracy of the search criteria incorporated to gather data significantly affects the reliability of the bibliometric analysis (Alshater et al., 2021).

Table 1. **PRISMA Flow Summary of the Literature Search and Screening Process**

STAGE	DETAILS	NO. OF RECORDS.
Identification	Records identified through the Scopus Database	2,236
	Records excluded based on source type	796
Screening	Total records verified after source filtering	1,440
	Records excluded based on TITLE-ABS-KEY	1267
	Reports generated for retrieval	173
Sector-specific data	Tourism sector-specific studies	27
	Fashion sector-specific studies	21
	Food sector-specific studies	10
	Hospitality sector-specific studies	10
Included	Final records included in the bibliometric analysis	173

Source: Created by the author

The very first search initiated for collecting data could yield 2236 number of articles using the filter of language and including only articles published in English. Further 1440 results were generated, which contained document types 'articles' with keywords Generation Z and Gen Z. More specific results were generated in the later stage by adding Sustainability as another keyword, which yielded 173 articles in total. From 173 articles, the data search was further

segregated into 4 categories relating to Sector-wise segmentation. Four keywords were added to Gen Z and sustainability to get specific results. Tourism, Fashion, Food, and Hospitality were used at every stage to collect sector-wise literature relating to Gen Z and sustainability. When combined with Gen Z and sustainability, tourism resulted in 27 publications. Similarly, fashion used with Gen Z and sustainability generated 21 searches, food 10, and hospitality resulted in 10 article publications.

Table 2. Illustration of the search procedure

SEARCH STRING NO	KEYWORD SEARCH QUERY	SEARCH RESULTS IN SCOPUS (NO. OF ARTICLES)
	TITLE-ABS-KEY ("Gen Z "OR "Gen Z") AND (LIMIT-TO (LANGUAGE, "English"))	2236
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z") AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))	1,440
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability) AND (LIMIT-TO (LANGUAGE, "English"))	173
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability OR tourism OR fashion OR food OR hospitality) AND (LIMIT-TO (LANGUAGE, "English"))	455
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability AND tourism OR "sustainable tourism") AND (LIMIT-TO (LANGUAGE, "English"))	27
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability AND Fashion OR "sustainable fashion") AND (LIMIT-TO (LANGUAGE, "English"))	21
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability AND "Food consumption" OR "sustainable food consumption") AND (LIMIT-TO (LANGUAGE, "English"))	10
	TITLE-ABS-KEY ("Gen Z" OR "Gen Z" AND sustainability AND Hospitality OR "sustainable hospitality") AND (LIMIT-TO (LANGUAGE, "English"))	10

Source: Created by the author

3.2. Bibliometric Analysis

Scholars and academicians employ bibliometric analysis to explore current and emerging trends in multiple domains as well as uncover journal performance, authors' contribution, country-wise development, and Institutional collaborations (Donthu et al., 2020). Bibliometric analysis helps map the cumulative and scientific knowledge structure as well as develop a well-established and meaningful sense to a huge amount of unstructured data (Donthu et.al.,2021).



The two major approaches utilized to examine the bibliometric data are performance analysis and science mapping (Gutiérrez-Salcedo et al., 2017). Performance analysis is a technique used to examine the research element contribution towards specific research, such as year-wise publication based on average number of citations, total number of articles published by an author, and the average number of citations in the name of the author (Cobo et al., 2011). Science mapping offers a systematic and visual presentation of the knowledge, the intellectual organization, and its development in the research and study field (Dede & Ozdemir, 2022). Science mapping offers five different evaluation techniques, which are as follows:

- **Citation analysis:** It includes the process of analysing the quality or impact of an article or author by assessing the frequency of citations mentioned by another author (Hallinger & Kovacevic, 2019).
- **Co-citation analysis:** The technique of co-citation analysis is for mapping specific subject-related research areas and for understanding the differences in research topics between various sets of publications (Braam et al., 1991).
- **Co-authorship analysis:** Co-authorship is the outcome of publications developed by two authors (Lu and Wolfram, 2012).
- **Bibliographic coupling:** is a technique used to identify two different publications that share the same citations (Jarneving, 2007).
- **The co-occurrence of keywords:** The co-occurrence of keywords offers a significant insight into the most trending and popular research topics, areas and patterns that has potential to gain traction in future (Wang & Chai, 2018).

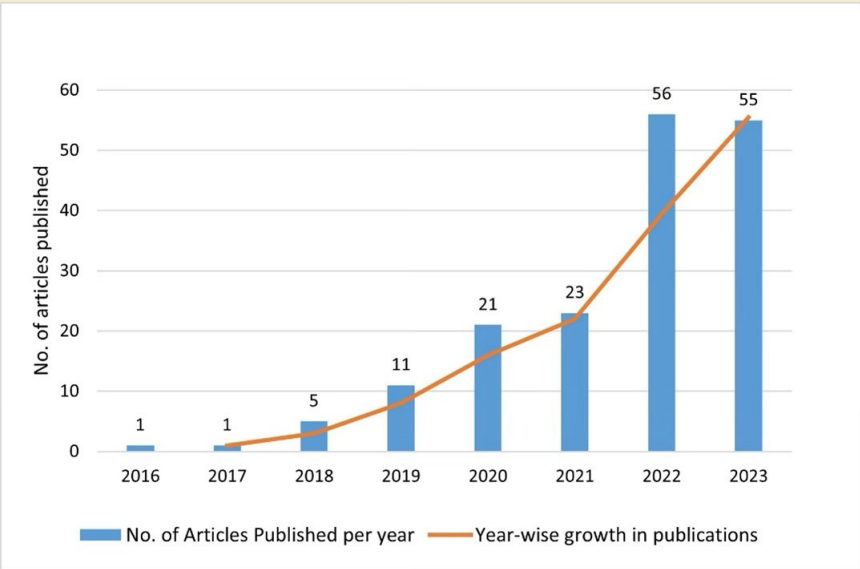
All the above-mentioned techniques are incorporated in the study to gain a precise intellectual structure and develop a network analysis to enrich the discussions of research trends and prospects.

3.3. Data Analysis and Results

The major aim of conducting the bibliometric analysis is to present an exhaustive study on the present and future trends in the area of Gen Z adoption of sustainability.

3.3.1. Performance Analysis

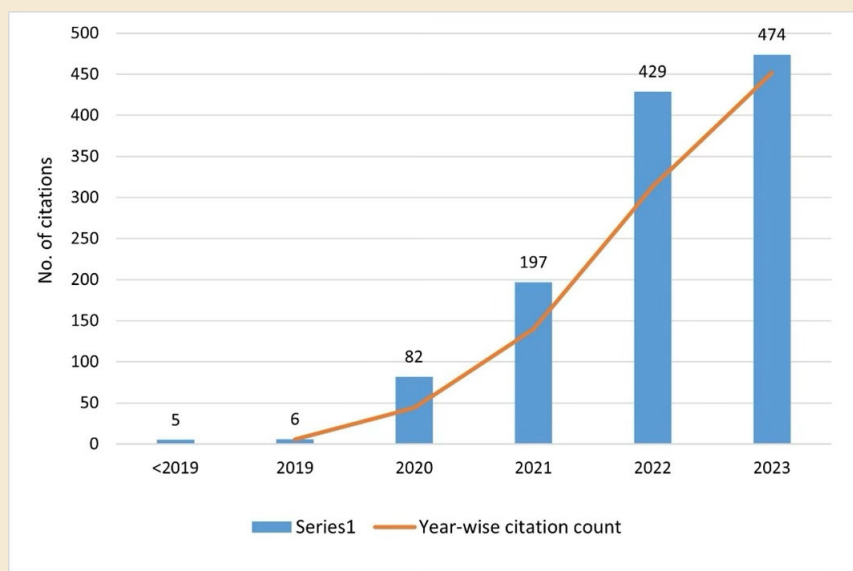
Figure 3. Year-wise Trend in Research Publication on the Keywords



The data set consists of a total of 173 documents published from 2016 to August 2023. **Figure 3** shows the progression in the publications on the topic, 'Gen Z adoption to sustainability' over the eight years. During 2016 and 2017, one document per year was published. Gradually, there seems to be an increase in the number of publications and the enquiry into the area of Gen Z adoption of sustainability. 2022 shows a tremendous increase in the number of publications with 56 documents, and the same can be observed till August 2023. Looking at the rising number of publications, it can be assumed that linking Gen Z with sustainability is gaining traction and has further scope for exploration.

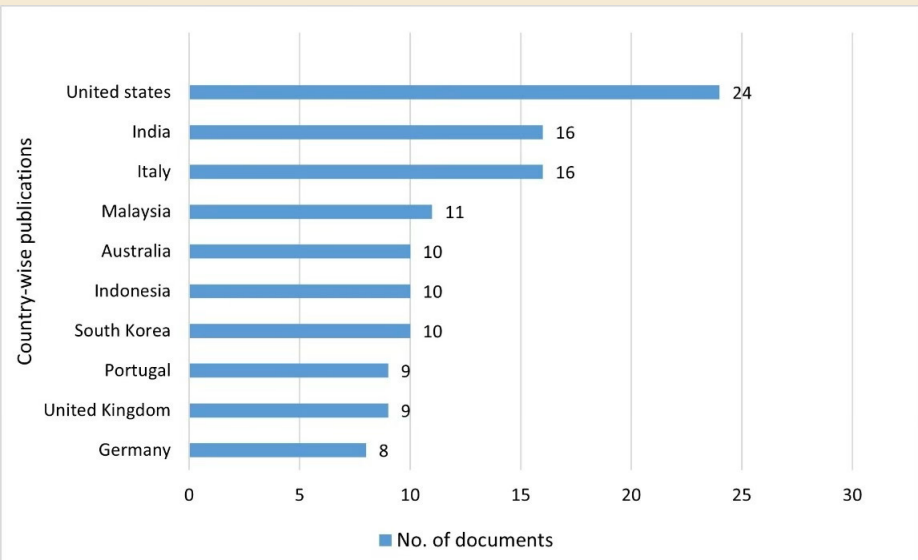
With the increase in publications, there is a parallel shift and development in the number of citations registered per year. It has been observed that there is a significant rise in the number of citations received by publications related to Gen Z and sustainability, particularly in the last four years. A phenomenal growth in citations is observed in the year 2021, with 197 citations from 82 in 2020, which is almost double that of the previous year. The year 2022 noted a

Figure 4. Trend in number of citations per year (2018 to 2023)



threefold increase in the number of citations from 197 in 2021 to 429 citations during the year 2022. The Journal of ‘Sustainability (Switzerland)’ published a paper titled ‘Trends in the fashion industry. The perception of sustainability and circular economy: A gender/generation quantitative approach, authored by Gazzola et al., (2020), has received the highest number of citations with a total of 122 counts.

Figure 5. Top 10 countries with the highest contribution to document publication



The above Figure presents an exhaustive dataset of the top 10 countries that have progressively contributed to the study of Gen Z adoption of sustainability. From the data, it is clear that authors belonging to the United States lead the list with the highest number of Publications, with 24 documents published between 2016 to 2023 through the Scopus database. India and Italy are in the second position with 16 publications each.

The present research has assessed sector-wise data to understand the sector that is more focused on by the authors while conducting research within the broader field of Gen Z adoption of sustainability.

Figure 6. Sector-wise publication

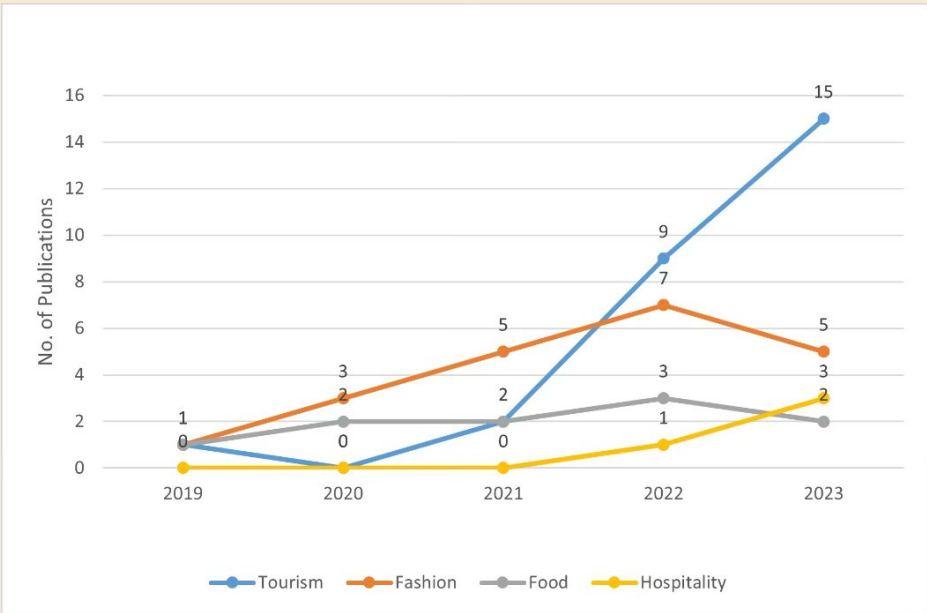


Figure 6 depicts a comprehensive analysis of sector-wise publications in Gen Z and sustainability from the year 2019 to the present. From the above figure, it can be noted that research studies in the domain of tourism and sustainability account for the highest number of publications, with 27 articles. According to one study, tourism has achieved growing importance and is observed to have a significant impact on environmental sustainability. Gen Z is expected to become the largest group of travellers in the coming times (Pinho, & Gomes, 2023). In the second position is the Fashion industry,

which constitutes 21 articles published in the area of Gen Z and sustainability. A recent study reveals that there exists a significant relationship between the positive attitude of Gen Z towards sustainable apparel and their intention to buy sustainable apparel (Arora & Manchanda, 2022). There are 10 articles belonging to Gen Z and the food industry concerning sustainability and hospitality, has 4 articles published with regards to Gen Z and sustainability. Even if Tourism holds the highest number of publications, Table A3 shows that the food sector has registered the maximum number of citations with 67 counts. Though a few publications exist in the food sector compared to tourism, the high citation indicates significant impact, scholarly engagement, and relevance. From the above analysis, it can be assumed that there is no direct relationship between the number of publications and citations.

3.4. Science Mapping and Visualization

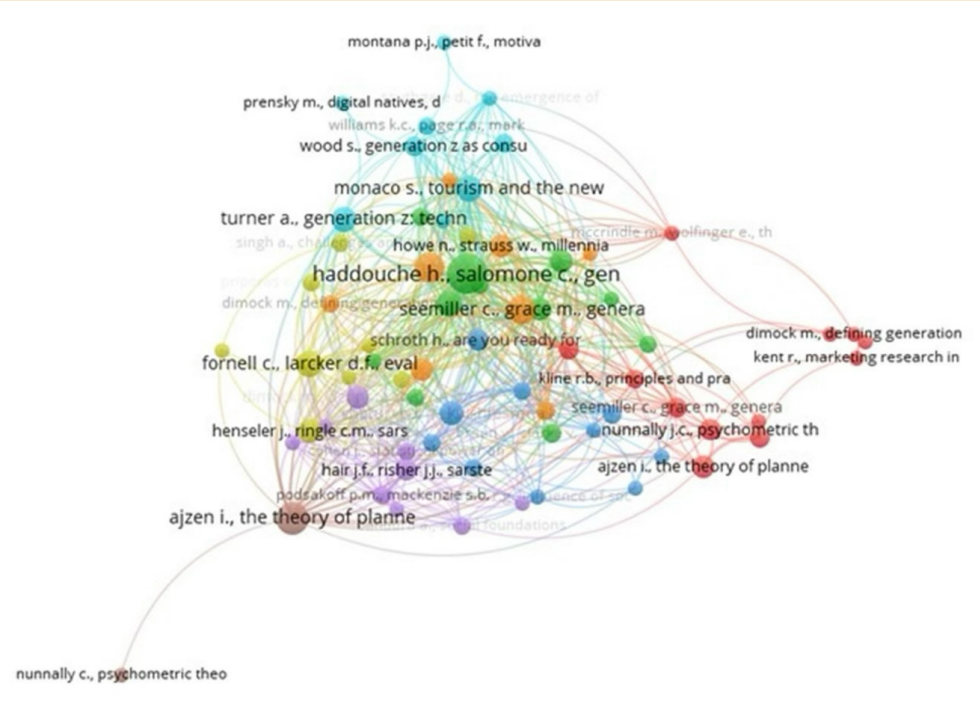
Science mapping is one of the important tools in bibliometric studies, which helps researchers to conduct systematic analysis and mining of scientific data (Moral-Munoz et al., 2019). Scientific mapping includes various elements: a body of systematic and scientific literature, a range of visual analytic tools, metrics to identify and examine trends and patterns, and theories based on scientific change (Chen, 2017). The present research study aims to create a scientific map with the help of data set while using certain techniques like co-citation analysis, co-authorship analysis, bibliographic coupling, and co-occurrence analysis of keywords.

3.4.1. Co-Citation Analysis

In the present study, the author has identified 456 publications with the keywords (“Gen Z” OR “Gen Z” AND sustainability OR tourism OR fashion OR food OR hospitality) AND (LIMIT-TO (LANGUAGE, “English”)). A minimum number of citations of the cited references is 5. Of the 26694 cited references, 72 meet the threshold. Hence, for each of the 72 cited references, the total strength of the co-citation links with other cited references is calculated. The cited references with the greatest total link strength have been selected, and the number of cited references selected is 72.



Figure 7. Network visualization based on co-citation analysis



Source: Created by the author on VOSviewer software

71 items are highlighted in the network visualization map, with 8 clusters. The co-citation analysis consists of 574 total links and 787 total link strengths. Cluster 1 includes 12 items, cluster 2 includes 11 items, cluster 3 includes 10 items, cluster 4 includes 10 items, cluster 5 includes 9 items, cluster 6 includes 9 items, cluster 7 includes 8 items, and cluster 8 includes 2 items. Table 5 contains the top 10 authors with the highest citations and total link strength. The table shows that author Haddouche H.; Salomone C has registered the highest number of citations count of 33 with total link strength of 126.

Table 3. Top 10 cited references generated through co-citation analysis

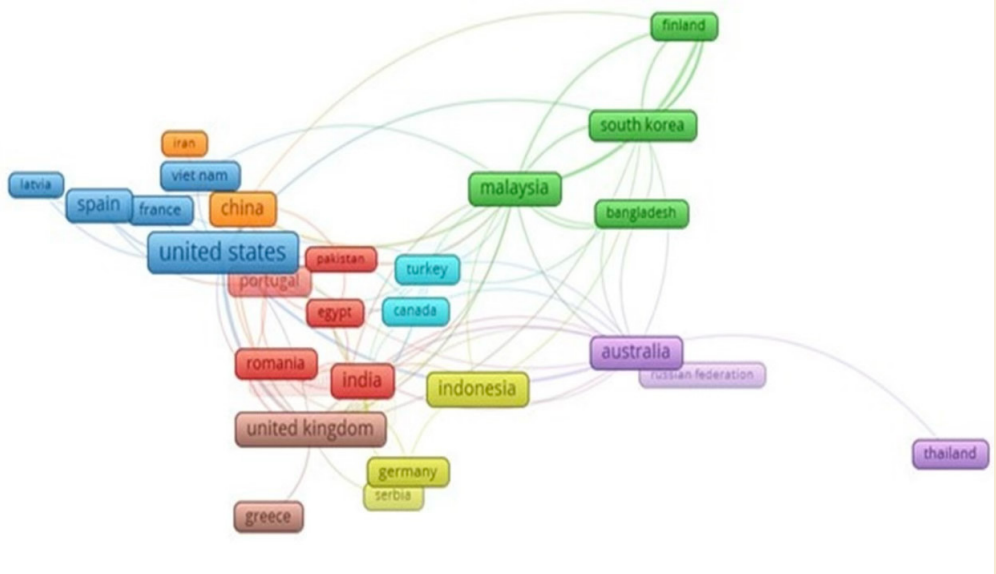
AUTHOR	TITLE OF THE ARTICLE	NO. OF CITATIONS	TOTAL LINK STRENGTH
Haddouche H.; Salomone C.	Gen Z and the tourist experience: tourist stories and use of social networks	33	126
Arora N.; Manchanda P.	Green perceived value and intention to purchase sustainable apparel among Gen Z:The moderated mediation of attitudes	21	57
Goh E.; Lee C.	Job perceptions of Gen Z hotel employees towards working in COVID-19 quarantine hotels: the role of meaningful work	19	35
Sigaeva N.;Arasli H.; Ozdemir E.;Atai G.; Capkiner E.	In Search of Effective Gen Z Engagement in the Hospitality Industry: Revisiting Issues of Servant and Authentic Leadership	17	52
Monaco S.	Tourism and the new generations: emerging trends and social implications in Italy	14	41
Robinson V.M.; Schänzel H.A.	A tourism inflex: Gen Z travel experiences	13	59
Antunes S.; Garrido S.; Bairrada C.	The Influence of Consumer Optimism and Pessimism on Purchasing Intention of Eco-Friendly Clothing by Gen Z: Model Proposal	11	30
Nicolaou C.	Generations and Branded Content from and through the Internet and social media: Modern Communication Strategic Techniques and Practices for Brand Sustainability—The Greek Case Study of LACTA Chocolate	10	29
Pricope Vancia A.P.; Băltescu C.A.; Brătucu G.; Tecău A.S.; Chitu I.B.; Duguleană L.	Examining the Disruptive Potential of Gen Z Tourists on the Travel Industry in the Digital Age	10	21
Wee D.	Gen Z talking: transformative experience in educational travel	10	51

Source: Created by the author

3.4.2. Co-Authorship Analysis

Figure 8 shows a visual representation of co-authorship network analysis, while considering countries as a unit of analysis. The minimum number of countries per document is 5, the minimum number of documents of a country is 2, and the minimum number of citations of the country is 2. Out of the total 70 countries, 44 meet the threshold. Total items identified were 39, the number of clusters of networks developed was 8, links were 104, and total link strength was 164. Cluster 1 had 10 items that were networked closely with each other, cluster 2 with 7 items, cluster 3 had 6 items, cluster 4 had 5 items, cluster 5 with 4 items, cluster 6 with 3 items, cluster 7 had 2 items, and cluster 8 with 2 items, respectively. The top 5

Figure 8. **Co-authorship analysis**



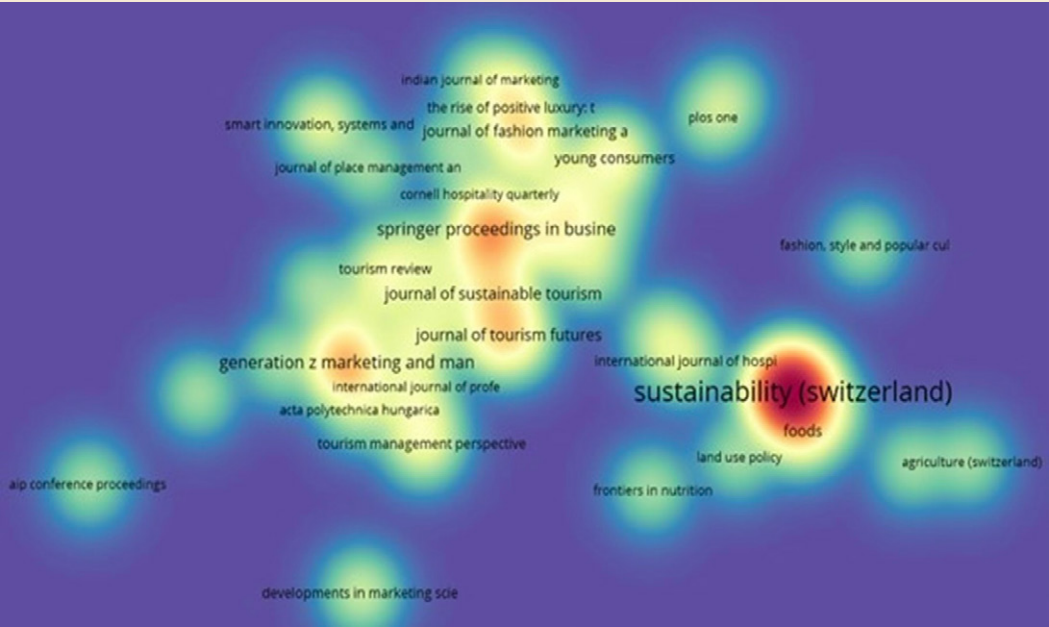
Source: Created by the author on VOSviewer software

countries with maximum research collaboration were found in the United States, the United Kingdom, China, Australia, and Malaysia. The United States has the maximum number of articles published, with 73 count, 637 registered citations, and a total link strength identified as 32.

3.4.3. Bibliographic Coupling

Bibliographic coupling identifies two articles that cite another common third article and also indicate the fact that both the articles potentially involve a common topic of debate (Caputo et al.,2021).

Figure 9. Bibliographic Coupling



Source: Created by the author on the VOSviewer software

The above figure represents the bibliographic coupling analysis of journals, from the total of 455 documents, 261 sources were identified, and 59 items met the actual threshold. A minimum number of records of a source selected was 2, and a minimum number of citations of a source was 2. A total of 54 items were identified through VOSviewer analysis with 10 Clusters, 409 links, and a total link strength was 1165. Out of 54 sources, the Journal of Sustainable Tourism, with 8 documents registered 50 citations and the highest total link strength of 268. Next is the Gen Z marketing and management journal with 12 papers, 25 citations, and a total link strength of 194. Sustainability (Switzerland) records the highest number of publications on the topic related to Gen Z adoption of sustainability, with a maximum citation of 707 and total link strength of 132. From the above bibliographic coupling analysis, it can be noted that the Journal titled, Sustainability (Switzerland), is the most influential in the current research field with regards to several document publications and citations registered.

in the documents related to Gen Z adoption of sustainability are Gen Z (179- Occurrences and 684-total link strength), Sustainability (76-Occurences and 453- total link strength), Gen Z (43- Occurrences and 155-total link strength), tourism (32- Occurrences and 146-total link strength), social media (28-Occurences and 167-total link strength). From the co-occurrence analysis, it can be stated that tourism is quite a talked-about area in the field of sustainability. Furthermore, Gen Z has entered the youth travel category, which is now considered to be the fastest-growing segment in the international tourism sector. It accounts for more than 23 % of the over one billion tourists travelling internationally every year, while generating a revenue of more than €250 billion (WTO, 2016).

4. DISCUSSIONS

4.1. Evolution of Sustainable Behaviours among Gen Z

Marketers and academicians are extensively paying attention to the generation of young population, which is termed as Gen Z, who currently represent the major proportion of the Global population, accounting for 32 %, which is almost 2.5 billion individuals (Peers, 2021). The overall analysis suggests that there is a rising trend in annual publication and citation in the area of Gen Z and sustainability. From 1 document publication in the year 2016, there has been an increase in document publication to 56 in the year 2023. A total of 173 documents were published in 8 years, while taking into consideration Gen Z and Sustainability as the major keywords. Studies highlighted that the COVID-19 pandemic has significantly impacted and heightened the Gen Z interest in sustainable fashion and circular options (Han et al., 2024; Šimek & Sadílek, 2024). Another important finding revealed that there is a significant increase in the number of citations over the 5 years from 2019 to 2023. With 5 citations registered in the year 2019 to the number increased to 474 citations in 2023. This shows that there is a significant amount of research effort put into the area of Gen Z adoption of sustainability. According to a study, Gen Z is considered an indispensable and most strategic component contributing to building a sustainable future (Yamane & Kaneko, 2021).



4.2. Sector-specific sustainability Trends

A prior study highlighted that the United States leads globally in terms of publications and citations, with sustainability becoming a key strategic focus for both businesses and travel destinations (Niñerola et al., 2019). The current study revealed that Sustainability Switzerland, an international, interdisciplinary, open-access journal published by MDPI, recorded the highest number of publications, totalling 37 documents, and achieved the maximum citation count of 616. An important trend observed during the research study is that out of 10 highly cited publications in the Gen Z approach towards sustainability, 50 % of the documents published focus on the food industry. A study revealed that Gen Zs are receptive to consuming plant-based meat with favourable expected desires and emotions (Chen, 2022). This reveals that the food sector has become a major concern for Gen Z when it comes to a sustainable lifestyle. Out of 10 documents, 5 have focused their research on 3 keywords, namely Gen Z, sustainability, and food. The food industry is experiencing a surge in research interest in circular economy practices, particularly in major economies like the United States, China, and Germany, as evidenced by a study. This underscores the urgent need to address sustainability challenges in swiftly expanding markets (Fernández Bandera et al., 2024)

Furthermore, the study indicated that tourism sustainability has achieved greater importance in academic research since 2019. Over the 5 years from 2019 to 2023, there seems to be a rising trend in the number of research publications related to Gen Z and sustainable tourism, contributing to 27 publications, followed by the fashion sector with 21 publications. The third position is taken over by the food industry with 10 publications, and the hospitality sector accounts for 4 articles. The co-occurrence analysis identified social media as a substantial thematic node within the Gen Z adoption of sustainability, demonstrating its influence on Gen Z behaviour. A study revealed that Gen Z considers social media a key platform for communication and information purposes (Ku et al., 2019). Gen Z's exposure to sustainability-related content on various social media platforms influences their purchase behaviour and lifestyle (Confetto et al., 2023).



5. LIMITATIONS OF THE STUDY

The potential limitation of this study is that it relies only on the Scopus database for data collection and analysis. While Scopus provides comprehensive coverage and inclusivity, numerous studies indicate that Web of Science and SSCI typically include higher-quality papers (Cifuentes-Faura & Faura-Martínez, 2021). Furthermore, the study's emphasis on four specific industries—tourism, fashion, food, and hospitality- may limit its applicability to other areas. The analysis also focuses on English-language publications, thus neglecting important research in other languages. The lack of qualitative interpretation may limit the contextual understanding of the study. Finally, the depth of the study may get affected due to potential keyword selection biases.

5.1. Scope for Future Research

Future research could be broadened by including other databases such as Web of Science and Dimensions, providing a more comprehensive and diverse view of Gen Z approach to sustainability. Incorporating cross-sectional studies (Gen Z v/s Millennials) on sustainability behaviours across industries would provide a more inclusive view of demographic cohorts. Furthermore, qualitative research could supplement bibliometric analysis by capturing the varied motives and challenges impacting sustainable practices. The addition of non-English periodicals could enhance our understanding of global trends. Future research should also look into other sectors, including technology, healthcare, education, and entertainment, to further understand Gen Z impact on sustainability across industries. The future studies can adopt an Interdisciplinary approach to bibliometrics by integrating the domains of marketing, psychology, sociology, and management.

6. CONCLUSIONS

Overall, the bibliometric study highlights the growing influence of Gen Z towards sustainable behaviour and shaping sustainable practices across the tourism, fashion, food, and hospitality sectors. The result indicates a progression in the number of publications year by year in the area of research mentioned above. The reviewed literature emphasises the importance of Gen Z in redefining business strategies and shaping consumer behaviour. Globally, businesses are reevaluating their value proposition, supply chain, and business practices to align with the SDGs. From the scientific



analysis conducted, it has been observed that few journals are dedicated to publications related to the Gen Z approach, behaviour, and attitude towards sustainability. Sustainability, Journal of Sustainable Tourism, Young Consumers, and Journal of Tourism Futures are the leading journals devoted to the present research area. The publications in the field of Sustainability provide evidence of increasing scholarly engagement with Gen Z's role in enhancing sustainability practices across geographies and sectors. In terms of co-authorship analysis, it was found that the United States and the United Kingdom are the top countries with the maximum research collaborations. The United States has the maximum number of articles published, with 73 count, 637 registered citations, and a total link strength identified as 32. The bibliographic coupling revealed that the Journal titled, Sustainability (Switzerland), is the most influential in the current research field with regards to the number of document publications and citations registered in the area of Gen Z adoption of sustainability. Co-occurrence analysis indicates tourism as a frequently discussed sector, and social media as a substantial thematic node within the Gen Z adoption of sustainability, demonstrating its influence on Gen Z behaviour. In conclusion, the study identifies sustainability as a central theme in scholarly discourse while emphasizing the importance of studying Gen Z as a critical driver of sustainable transformation across specific business sectors.



7. DISCLOSURE STATEMENT

The author affirms that there are no conflicts of interest, financial or personal, that could have influenced the findings or interpretation of the research presented in this paper

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