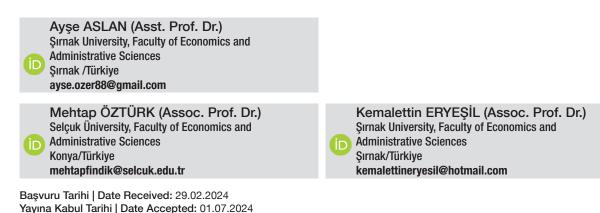
Research Article | Araştırma Makalesi

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Mapping and Current Trends in Sustainable Communication: A Bibliometric View Sürdürülebilir İletişimde Güncel Eğilimler ve Haritalama: Bibliyometrik Bir Bakış



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Abstract

The aim of this study is to examine the development of the concept of sustainable communication in the business, management and communication literature through bibliometric analysis. Sustainable communication involves strategic, transparent dissemination of information integrating environmental, social, and economic factors, engaging stakeholders, promoting awareness, and emphasizing the interconnectedness of sustainability dimensions. The research problem lies in the absence of a comprehensive bibliometric study on sustainable communication, despite the abundance of studies in field of sustainability and communication. This study will fill this gap in the literature by utilizing the bibliometric analysis method and contributing to the existing literature. The situation underscores the significance of research. In line with this purposes, this study examines 2724 articles on sustainable communication, focusing on applied studies and focusing on the distribution of these articles, co-authorship, co-citation, and co-occurence of the authors who published them. As a result of the bibliometric analysis, it has been determined that the field of sustainable communication has continued to develop over the years and that the concepts of big data within the scope of Industry 4.0, green business, sustainable business, sustainable supply chain management, environmental performance, greenwashing, and the circular economy have come to the fore in recent years. The study's findings can be beneficial to scholars as they reveal the current performance of authors, documents, as well as the progression of themes.

Keywords: Communication, Sustainability, Sustainable Communication, Bibliometric Analysis, Web of Science.

Öz

Bu çalışmanın amacı, sürdürülebilir iletişim kavramının işletme, yönetim ve iletişim literatüründeki gelişimini bibliyometrik analiz yoluyla incelemektir. Sürdürülebilir iletişim, çevresel, sosyal ve ekonomik faktörleri bütünleştiren, paydaşların katılımını sağlayan, farkındalığı teşvik eden ve sürdürülebilirlik boyutlarının birbirine bağlılığını vurgulayan bilgilerin stratejik, şeffaf bir şekilde yayılmasını içermektedir. Araştırma problemi, sürdürülebilirlik ve iletişim alanındaki çalışmaların bolluğuna rağmen, sürdürülebilir iletişim üzerine kapsamlı bir bibliyometrik çalışmanın yokluğunda yatmaktadır. Bu çalışma literatürdeki bu boşluğu, bibliyometrik analiz yöntemi kullanarak dolduracak ve literatüre katkı sunacaktır. Bu durum araştırmanın literatürdeki önemine işaret etmektedir. Bu amaç doğrultusunda bu çalışma, uygulamalı çalışmalara odaklanarak ve söz konusu makalelerin dağılımı, ortak yazarlık, ortak atıf ve bunları yayınlayan yazarların ortak varlığına odaklanarak sürdürülebilir iletişim üzerine 2724 makaleyi incelemektedir. Bibliyometrik analiz sonucunda sürdürülebilir iletişim alanının incelendiği yıllar itibariyle alanda gelişim seyrinin devam ettiği ve son yıllarda özellikle Endüstri 4.0 kapsamında büyük veri, yeşil iş, sürdürülebilir işletme, sürdürülebilir tedarik zinciri yönetimi, çevresel performans, yeşil aklama ve döngüsel ekonomi kavramlarının ön plana çıktığı tespit edilmiştir. Elde edilen bulgular, hem yazarların, belgelerin ve dergilerin mevcut performansını hem de temaların ilerleyişini gösterdiğinden akademisyenlere yardımcı olabilir.

Anahtar Kelimeler: İletişim, Sürdürülebilirlik, Sürdürülebilir İletişim, Bibliyometrik Analiz, Web of Science.

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Introduction

Corporate sustainability, defined as a relative term that refers to the strategic management processes that are used to towards a balance between economic, environmental, social goals and values, is an emergent management concept that offers an alternative to the conventional paradigms of short-term wealth maximization (Signitzer & Prexl, 2008). Sustainability has emerged as one of the most influential factors influencing consumer behavior. In response, businesses now prioritize sustainability in their communication (Jha & Verma, 2023). Putting sustainability-related concerns on society's agenda depends critically on communication, a fundamental aspect of the human condition (Fischer et al., 2016). Despite the frightening reports and current scientific findings on the state of the environment, as sustainability does not appear to be a top concern for society, it appears that sustainability communication has been assigned a significant role in the effort to change this situation (Adomßent & Godemann, 2011).

Just like sustainability, sustainable communication is a phenomenon situated at the intersection of different fields and disciplines. Sustainable communication, sometimes known as "green advertising," is discussed in the literature on marketing and advertising. It stresses the need for a more thorough shift to sustainable communication and focuses specifically on the environmental implications of advertising. Therefore, sustainable communication is a newly emerging field with rather ambiguous boundaries. This implies that a better understanding is needed to evaluate the potential of sustainable communication research and how it can be further integrated and promoted (Godemann, 2011; Golob et al., 2023; Weder et al., 2021).

Corporate sustainability communication refers to the use of corporate communication to address sustainability issues, focusing on social justice and environmental consciousness. Topics include sustainability management effects, product sustainability, production methods, objectives, current situation, status-quo, corporate social responsibility, and stakeholder behaviors (Signitzer & Prexl, 2008). Sustainability communication is a mutual understanding process focused on societal development in the future, driven by a vision of sustainability. It involves values, principles, and norms like inter-generational justice, awareness of problems, research into root causes of issues, and possibilities for individuals and society to take action and shape development (Godemann & Michelsen, 2011).

It is concerned with conveying sustainability concerns to other people (sender to receiver) utilizing various forms of communication in order to promote sustainable development (Saleh & Mehellou, 2024). Businesses can communicate their performance, which takes into account social, economic, and environmental factors, by publishing sustainability reports. This is beneficial to their sustainability (Sururi & Gantyowati, 2023).

Sustainable communication is crucial and important for both social and global peace (Oral, 2023), for brand marketing (Vardar, 2014) and for a competitive advantage (Line et al., 2016). In particular, it is vital to create flexible processes that respond to specific needs through sustainable communication in organizations (Bae, 2024). Corporate sustainability communication promotes the formation of imagined communities, or the perceived connection between an individual and unknown others (Reeves, 2016).

The tasks of sustainable communication, which offer a framework for comprehending a broad range of social systems and players, such as business, education, science, and the

media, are developing a critical awareness of the issues surrounding the relationships within these systems, connecting them to societal norms and values, and incorporating an understanding of the world, the relationship between humans and their environment, into societal discourse (Godemann & Michelsen, 2011). At this point, organizations engage in sustainable communication for several reasons, including enhancing the ability to track progress towards corporate goals, facilitating the implementation of corporate environmental strategies, increasing awareness of environmental issues across the organization, clearly conveying the corporate message both internally and externally, increasing corporate transparency and credibility, establishing rules regarding corporate communication efforts and standards, achieving proficiency in corporate activities and campaigns, improving corporate reputation and efficiency, and boosting employee morale and motivation (Çetintaş, 2023).

Sustainable communication is considered a crucial strategy for enhancing market competitiveness and the current customer relationship management within the industry (Shen et al., 2020). Effective communication of sustainability initiatives is crucial for promoting positive attitudes and environmentally friendly behaviors, as investment in these strategies may go unnoticed without transparency and persuasiveness (Bernard et al., 2023).

It is noteworthy that there are studies dealing with sustainability communication and continuous improvement and sustainability (Barchilon, 2011; Chaudhri, 2016; Fels, 2010; Fischer et al., 2021; Franz-Balsen & Heinrichs, 2007; Genç, 2017; Karmasin et al., 2021; Kolandai-Matchett, 2009; Liew-Tsonis & Cheuk, 2012; Ott et al., 2011; Signitzer & Prexl, 2008; Tölkes, 2018; von Kutzschenbach & Brønn, 2006; Weder et al., 2021). However, there has been a dearth of study on sustainability communication and its nexus of maintain a continual process of development and sustainability of companies via the use of detailed bibliyometric studies and frameworks.

Notwithstanding the sheer number of studies in the fields of communication and sustainability, the research problem is the lack of a comprehensive bibliometric study on sustainable communication. It aims to offer a conceptual framework and theoretical underpinning for a communicatively oriented method influencing sustainable development by examining the development of sustainable communication concepts in business, management, and communication literature. The following research questions are investigated in this research with respect to:

RQ1. What are trends and the total volume of sustainability communication research?

RQ2. Which authors, publications, and journals have had the greatest impact or the most contributions on the field of sustainability communication?

RQ3. How is the development of the field of sustainable communication going?

Within the scope of the research, the research evaluated 2944 studies published from 1992 to December 2023 on sustainable communication using the Web of Science Core Collection database (WOS). The term "sustainable communication" was used in the research to search for it. The evaluation included English-written articles from communication, management, and business administration fields. An algorithm was used to identify relevant terms, and a literature review was extended to include keywords, abstracts, and publication titles. As a conclusion, 2724 articles were analyzed, excluding book chapters, proceedings, and review articles, to examine the development

of sustainable communication concepts through applied studies within the scope of the research. This circumstances illustrate the limitations of the research. Utilizing the bibliometric analysis approach, this study will add to the body of knowledge and close this gap in the literature. Thus, this study is expected to contribute to the relevant literature by shedding light on the inclusion of sustainability communication. This situation highlight the importance and value of this research.

Conceptual and Theoretical Framework

Sustainability communication emerged in the business sector in the early 1990s. It is linked to corporate responsibility and is considered to be evolving in its definition (Barchilon, 2011). However, sustainability communication is a unique research field in sustainable science that has significantly advanced over the past three decades (Godemann, 2021). Sustainable communication can be defined as the strategic and transparent dissemination of information and messaging that integrates environmental, social, and economic considerations, engaging stakeholders, promoting awareness, and emphasizing the interconnectedness of sustainability dimensions (Signitzer & Prexl, 2008). An extensive range of disciplines, their bodies of knowledge, and methodological methods are all incorporated into the interdisciplinary field of sustainable communication (Godemann, 2021). Sustainable communication means understanding the relationship between humans and their environment (Godemann & Michelsen, 2011). From this point of view, sustainability communication is an overlapping concept with environmental communication (Saleh & Mehellou, 2024). Moreover, sustainable communication refers to the communication of corporate social responsibility issues while considering economic, social, and environmental concerns and also considering stakeholder interests. It can be defined as responsible communication, eco-design of communication products, and communication for sustainable development, despite the confusion of its various meanings (Dincer & Dincer, 2022). As a new term, sustainable communication is generally defined as a global social process consisting of recurring contributions and discussions for a better ecological, economic, and social life. The term "sustainable communication" refers to a broad range of topics, including production, consumption, mobility, biodiversity, and climate change. It is used in a variety of social systems and at different public sphere levels (Golob et al., 2023).

Sustainability communication is characterised as a dynamic and ever-changing corporate response to a range of stakeholder expectations, information demands, and societal concerns (Herzig & Schaltegger, 2011). On the other hand, a psychological view of sustainability communication focuses on firstly the social and societal construction of complex concepts such as environment or sustainable development which is accomplished via both direct and indirect communication; secondly, the analysis of human-environment problems and their systemic interrelationships which rely on verbal and visual communication but are not immediately perceptible, and thirdly the use of communication to stimulate sustainable behaviour patterns (Kruse, 2011).

Özgen (2022) defines sustainable communication as a series of communication efforts centered on establishing transparent communication with stakeholders on sustainability issues, persuading target audiences about the benefits of sustainability processes, ensuring their participation in the process, or creating sustainability awareness. In this regard, communication about sustainability (CaS) describes the processes by which opinions, information, and interpretations regarding sustainability-related topics are debated and exchanged (Newig et al., 2013). CaS involves interactive approaches geared

towards shared meaning-making, deliberation, and social learning(Fischer et al., 2021). CaS refers to the exchange and discussion of information, interpretations, and opinions on sustainability issues. It occurs at various levels, from interpersonal interactions to mass communication. CaS frames concerns and structures facts, arguments, and claims, establishing a common understanding of the issue, goals, and action. It is not always harmonious and inclusive, but can be controversially structured (Genç, 2017).

In contrast, communication of sustainability (CoS) is a managerial or instrumental approach that primarily focuses on the sender-receiver flow of communication, aiming to achieve a specific communication objective (Newig et al., 2013). CoS, involves oneway approaches that aim to convince the recipient to accept the sender's objectives (Fischer et al., 2021). CoS functions to inform and educate individuals, promote social engagement, and take action, taking an elitist stance by distinguishing experts from ordinary people based on their knowledge and capacities related to sustainability (Genç, 2017). On this matter, sustainable communication is a management function that requires management's participation and commitment, strategic approach, and ability to capture cultural change according to the conditions of the sector and market, exhibits a two-way symmetrical stakeholder approach, adopts transparency and consistency as principles, acts according to social sensitivity, ensures integrity in all functions of the institution, and is also based on measurement and evaluation and requires expertise and professionalism (Saydam, 2014). In this aspect, sustainable communication is transparent, open, and dialogue-based. Sustainable communication responds to industry assumptions, business priorities, process management systems, pollution control systems, risk assessments, life cycle assessments, environmental impact assessments, and societal challenges related to product and technology development (Petts, 2000). Therefore, sustainability communication involves mutual understanding about societal future development, focusing on addressing challenges rather than advocating specific policies or responses to current challenges (Godemann, 2021). It encompasses research on the origins of issues and awareness, as well as values and norms such as intragenerational and intergenerational justice, as well as individual and societal ways to take action and impact development. Mutual understanding takes place in a variety of settings and at different levels, including between people, between people and institutions, within institutions, in schools and colleges, in the media, in politics, in business, in communities, and at the local, state, federal, and worldwide levels. Many variables affect the effectiveness of communications on sustainability and sustainable development, and these aspects don't make the process any easier (Godemann & Michelsen, 2011).

Sustainable communication has two main focuses: "to inform the target audience about how the products offered to them address their needs while tackling economic, social, and environmental issues" and "to facilitate a dialogue among stakeholders about the company as a whole" (Villarino & Font, 2015). Sustainable communication aims to provide individuals, groups, institutions, or organizations with the skills necessary to interpret the confusing and contradictory scientific, economic, and technological information available to them and then to be able to respond to and deal with the ensuing complex, long-term societal challenges (Adomßent & Godemann, 2011).

The goal of sustainability communication is to make a company's sustainability engagement more transparent in order to promote interactive discourse between businesses and stakeholders regarding the business's operations (Tölkes, 2018). Sustainability communication's other objective is to produce knowledge through

interdisciplinary or transdisciplinary research processes and to have it enter public discourse (Godemann, 2011). In this context, the task of sustainability communication is to integrate the understanding of human-environment relationships into social discourse, raising critical awareness of issues, and linking them to social values and norms. And so, sustainability communication provides a chance for effective public engagement (Godemann, 2021). We can emphasize that the main aim of sustainability issues, is "not only to change what people know and how they feel about each other but also to improve the accuracy of their perceptions of each other's views, thereby enhancing the relationship between the institution and its stakeholders. " (Ciletti et al., 2010; Signitzer & Prexl, 2008; von Kutzschenbach & Brønn, 2006).

Consequently, sustainability communication must address diverse understandings of sustainability, assumptions about human nature, societal concepts, interests, and values. It is important to note that sustainability communication has no single audience and societal contexts surrounding different issues can vary significantly (Godemann, 2021). Sustainability communication requires various scientific disciplines with their own theoretical principles and knowledge. It uses systems theory, constructivism, media theory, communication theory, psychology, and sociology, but lacks a 'own' theoretical framework (Godemann & Michelsen, 2011). Besides these, the signalling theory is crucial in understanding sustainability communications by companies. It suggests that companies should signal their sustainability to a targeted audience, reducing information asymmetry between senders and receivers. This process helps receivers attribute positive attributes to companies, gaining social capital and optimizing the strategic value of sustainability practices. This is especially important for businesses not directly observable by end-consumers (Wang et al., 2021). Moreover, sustainability vision theory outlines eight phases which are called "vision communication", "emotionally committed members","shared vision", "congruous acts", "satisfied stakeholders", "corporate sustainability performance", and "sustainable well-being" for an organization to achieve its sustainability vision. Communication is the primary mechanism for sharing sustainability messages internally and externally according to the sustainability vision theory (Saleh & Mehellou, 2024).

The roots of sustainability communication, a relatively new concept, is rooted in various discourses like risk, environment, and science communication. While they share a thematic focus and media's pivotal role, they differ in theoretical underpinnings, political reach, and relevant actors. Sustainability communication should be seen as an integrative approach that combines key components of various communication perspectives (Adomßent & Godemann, 2011).

Literature Review on Sustainable Communication

The debate on sustainable development is extensive and mature, but the field of communication has recently gained attention, drawing from existing research on environmental, risk, and science communication. Subfields including corporate sustainability communication, climate change communication, and sustainable consumption communication have emerged within the general framework of sustainability communication (Newig et al., 2013). Relatively little research has been done on sustainable communication (Lee, 2020). Academic literature supports sustainable communication as an interdisciplinary yet identifiable field of research, and shows that the concept of sustainable development, along with sustainability as a

normative framework, can only be reflected in relation to public discourses amidst the continuously changing climate and associated challenges (Weder et al., 2021). In this vein, sustainability communication, a crucial aspect of corporate social responsibility, has become a prominent aspect of environmental communication literature (Ji et al., 2021).

The literature review reveals studies utilizing the bibliometric analysis method to explore corporate social responsibility in communication (Alarcón-Sánchez & Soriano-Sandoval, 2022; Ji et al., 2021; Ji et al., 2020), environmental communication (Akerlof et al., 2022; Wu et al., 2021), ecological communication (Suldani et al., 2023), green communication (Liao & Chen, 2021), and the use of information and communication technology in the management of sustainable tourism (Vidal-Serrano et al., 2022) or Sustainability Journal (Tang et al., 2018).

Tang et al. (2018) provides a bibliometric overview of the Sustainability (SUS) journal and its 6459 publications from 2009 to 2018. The number of publications has been increasing, especially in recent years. China, the USA, and South Korea are the most active countries in SUS publications, with Chinese and Korean institutes having a significant impact. International co-authorship plays a critical role in scientific research cooperation in sustainability. The most frequently observed keywords in SUS publications are "sustainability", "management", and "China", with "Community" having the strongest citation burst.

Ji et al. (2020) examine CSR literature in communication, analyzing 290 articles from 1980-2018 across 61 journals. The study reveals limited collaborations among researchers in and outside the communication discipline, with significant influence from management and marketing perspectives. It also shows structural evolution of scholarly collaboration and foundation literature networks, indicating a maturing process of CSR knowledge construction in communication. Similarly, Alarcón-Sánchez and Soriano-Sandoval (2022) analyze the global scientific production of corporate social responsibility (CSR) and corporate communication through a bibliometric analysis on the Scopus using VOSviewer software. It finds that CSR and corporate communication have become significant variables in strategic management over the past 20 years. According to the results, the scientific output of CSR and Corporate Citizenship (CC) has experienced significant growth since the 2000s, reaching 200 publications by 2019. Over the past 15 years, there has been a significant increase in the main approaches related to CSR and CC. The highest scientific production was found in the United States, the United Kingdom, and Spain. Most studies related to CSR and CC are published in journals, with 12.2% published in conference proceedings and 7.5% in book chapters. Business administration is the most studied field, followed by social sciences and economics, which align with the theoretical foundations of the CSR phenomenon. Moreover, Ji et al. (2021) investigate CSR research in communication from 1980 to 2018 through a bibliometric network analysis and found that CSR literature in communication has grown over the past four decades, with a diverse range of theories and concepts applied. The literature tends to gravitate towards specific groups, resulting in denser article networks. Management (e.g., stakeholder and legitimacy theory) and psychological perspectives (e.g., attribution theory) significantly influence CSR research in communication, while public relations concepts and theories such as relationship management theory, have influenced research across various communication subfields.

Liao and Chen (2021) aims to map the global research landscape on green communications

and computing networks. A dataset of 684 bibliographic records was collected between 2009 and 2021. The study reveals that green communications and computing research has primarily focused on technical support for energy sustainability in developing wireless or mobile networks, including station bases, terminal devices, and data centers, with the conceptual structure evolving from energy efficiency to efficient resource management.

Dincer and Dincer (2022) synthesized prior research on corporate sustainability communications in the Science Direct database. Research papers on sustainable communication since 2000 were synthesized based on the attribution theory frame and congruence theories. It highlighted the impact of sustainable communication on consumer perception of internal motivation, emphasizing the company's perceived effort and the moderating role of other situational variables. The authors of works with 'sustainable communication' in the title and title, abstract or author-specified keywords were visualised using Voswiewer analysis software. On the other hand, it is noteworthy that this study did not conduct a co-occurrence analysis focusing on the concept of sustainability communication.

Wu et al. (2021) utilized knowledge mapping analysis to review environmental communication (EC) research from 1900 to 2020. A scientometric analysis of 2219 journal articles was conducted on the Web of Science database, revealing widespread attention since the beginning of the 21st century, with 2010 being a significant turning point. EC research shows interdisciplinary development, with well-known universities from Western countries. Climate change, a complex scientific issue, is not only a global environmental concern but also a major political issue in EC. The research hotspots were innovatively divided into an initial stage, development stage, and rising stage. Research hotspots in the initial stage include environmental journalism and climate change, twostep flow, while in the development stage, they focus on journalism studies, media use, young people, on the other hand, in rising stage, thet interested in intermedia agenda setting, motivated reasoning, news consumption, indigeneous media. The research frontier was divided into four periods: initial 2007-2008, early 2008-2012, middle 2013-2016, and recent 2017-now. The research on EC began with an exploration of the field and discussion of EC, with climate change being the main focus. The early research emphasized the influence of communication media on environmental problems. The middle stage focused on interdisciplinary research, with political science, environmental sociology, and environmental advertising as frontier directions. The recent stage emphasizes the influence of modern technological changes on EC.

Akerlof et al. (2022) analyzed articles published between 1970 and 2019 in Scopus containing the term environmental communication via bibliometric analysis. The dataset revealed an increase in journals publishing environmental communication studies, with climate communication, corporate social responsibility, and public engagement being the most common abstract topics. Co-citation analysis revealed that foundational literatures in environmental communication have grown into interconnected networks across various fields, including social sciences, natural sciences, engineering, and business.

Vidal-Serrano et al. (2022) provide a bibliometric analysis of the various uses of Information and Communication Technologies (ICT) in sustainable tourism management. According to the results, The study of sustainable tourism management is gaining interest due to growing social ecological awareness. Europe is the most developed country for studying new models using ICT-based tools, with the most studies in this area. The most

frequently used keywords in extracted documents include sustainable development, tourism, ICT, information management, and innovation. These concepts have become increasingly unified due to environmental concerns and increasing knowledge about technology use. The trend in this field initially focused on innovation and new IT, but has since expanded to include sustainable development and cultural heritage. New tourism trends include ecotourism and smart city concepts.

Ţigan (2022) analyze sustainable communication patterns during the telework period in Western Romanian corporations. In this vein, they compares communication methods and quality in global companies between 2021 and 2022. Key sectors include automotive, electronics, household appliances, and cosmetics. To achieve operational objectives, innovative methods and tools like single platforms are crucial. Employees prefer face-toface communication due to its openness, non-verbal interaction, and ability to observe emotions and feelings. This approach encourages efficient open dialogs with stakeholders, fostering productive connections and enhancing customer satisfaction.

Suldani et al. (2023) evaluates the development of studies on disaster-related ecological communication using bibliometric analysis from the Scopus database via Vosviewer. The study found a significant increase in publications discussing ecological communication in disasters, focusing on disaster prevention, risk assessment, climate change, and natural disasters. The research provides insights into the role of communication in responding to disasters and environmental challenges, building community resilience, and opens prospects for expanding understanding and developing effective communication strategies for future environmental challenges.

As a conclusion, previous research has demonstrated that the efficacy of sustainable communication is strongly dependent on the degree of alignment between a company's sustainability practices and core values, with endorsement from the audience only possible if these practices align with the audience's values and concerns (Wang et al., 2021). Moreover, corporate sustainability communication has the potential to spark public discourse on sustainability issues, and it is influenced by societal and corporate culture (Signitzer & Prexl, 2008).

In this vein, bibliometric analysis is one of the methods that provides a conceptual and historical analysis of a research area. Although there are many bibliometric studies in the fields of communication and sustainability (Bota-Avram, 2023; Farrukh et al., 2020; Kim et al., 2021; Kulevicz et al., 2020; Ogutu et al., 2023; Vergura et al., 2023; Vidal-Serrano et al., 2022)bibliometric research of sustainable communication is limited (Akerlof et al., 2022). For this reason, in this study, the scientific and historical evolution of sustainable communication will be examined by bibliometric analysis method.

Research Methodology

The aim of this study is to examine the development of the concept of sustainable communication in the business, management and communication literature through bibliometric analysis. The bibliometric analysis method, which is based on publications and citations, one of the most important indicators of scientific evaluation, is an interdisciplinary field of study that can be used in all scientific fields (Kürklü, 2020). In this context, it is frequently used in the literature as a method to identify the main themes that stand out in the field of sustainability (Akbari et al., 2020; Asmi et al., 2019; Ji et al., 2020; Kobayashi et al., 2017; Meseguer-Sánchez et al., 2021; Vidal-Serrano et al., 2022).

The bibliometric analysis method enables the examination of the development course of a particular subject or field in the relevant literature, analyzing the relationship between authors or publications and visualizing it in a certain systematic way with science mapping (Kürklü, 2020).

Bibliometric analysis is based on two techniques: performance analysis and science mapping. Performance analysis is based on the quantitative results of the data set and citation analysis. Science mapping analysis, on the other hand, presents the networks of related publications for visualizing the data set with techniques such as co-citation and coword analysis (Öztürk & Dil, 2022). In this study, within the scope of performance analysis, co-authorship analysis is performed in the sustainable communication literature, and within the scope of science mapping, co-citation and co-occurrence analysis. In bibliometric analysis, data can be obtained from different databases such as Google Scholar, PubMed, Scopus, WOS. WOS is the most widely used database especially in the field of management and business administration (Mas-Tur et al., 2020; Merigó & Yang, 2017; Qiu, 2014). WOS is also a friendly and easy tool to use bibliometric analysis (AlRyalat et al., 2019).

Within the scope of the research, the studies published from the WOS from 1992, when the concept of sustainable communication emerged in the literature, until December 2023 were evaluated by bibliometric analysis. In the research, the concept of sustainable communication was searched as a keyword, 2944 studies were found in the WO for the concept between 1992-2023 as of December 2023. Articles written in English were included in the evaluation because it is a universal language. To delimit the study area, an algorithm was used to collect the most relevant terms according to the authors in the fields of social sciences such as psychology, sociology, communication, management and business administration. The literature review was extended to include keywords, abstracts and publication titles. 2724 articles were analyzed from these studies by excluding book chapters, proceedings and review articles from the scope of the research since the development of the concept of sustainable communication in the literature will be examined especially through applied studies. Meanwhile, the inclusion and exclusion criteria of the study are presented in Figure 1 according to the PRISMA flow diagram 2020 (https://www.prisma-statement.org/prisma-2020-flow-diagram). In addition, different bibliometric indicators of visibility and impact (Castillo-Esparcia et al., 2012; Vidal-Serrano et al., 2022) on the total number of publications obtained were analyzed in terms of the distribution and trends of publications over time; authors with the most research; authors with the most citations; and related main thematic axes. Bibliometric analyses were evaluated using VOSviewer 1.6.20 software program.

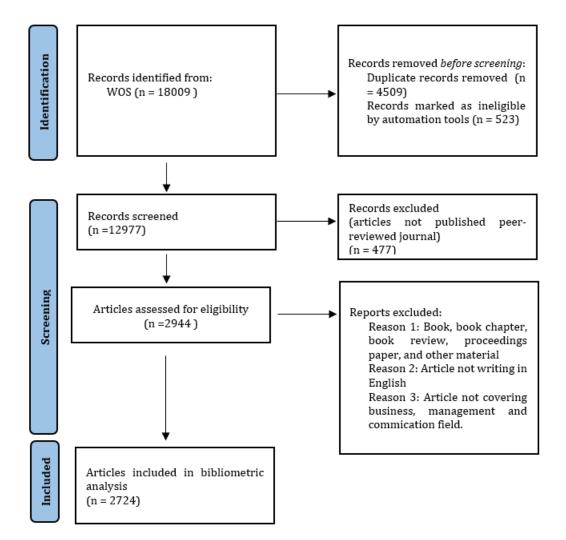


Figure 1. PRISMA Flow Diagram

Findings

Within the scope of the study, in line with the information obtained from the WOS, the distribution of the fields of science in the WOS category with the highest number of publications regarding the 2724 articles examined for the concept of sustainable communication is shown in Table 1.

Table 1. Distribution of Sustainable Communication Articles

WOS Categories	Number of Publications	
Business	1040	
Management	929	
Communication	727	
Other Social Science Diciplines (psychology and sociology)	28	

When Table 1 is evaluated, it is seen that the studies in the WOS are predominantly in the field of management and business administration, and studies in the field of communication are also prominent in the literature. The most cited author list of these studies is shown in Table 2.

Authors	Total Citations	Average per Year
Parmar et al. (2010)	1631	108,73
Schaltegger and Wagner (2011)	888	63,43
Nyaga et al. (2010)	584	38,93
de Sousa Jabbour et al. (2018)	476	68
Butler (2001)	422	17,58
Lichtenthaler (2011)	405	28,93
Tate et al. (2010)	404	26,93
Tchamyou et al. (2019)	310	51,67
Inman and Nikolova (2017)	286	35,75
Çankaya and Sezen (2019)	232	38,67
Kang et al. (2013)	210	17,5

Table 2. The Most Cited Authors

The distribution of the studies on the concept of sustainable communication in the Web of Science database according to years and the total number of citations of the studies are given in Figure 2.

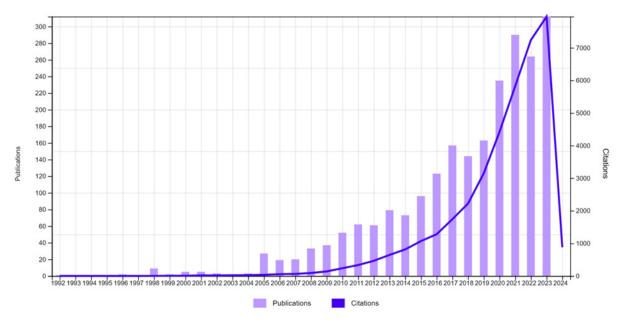


Figure 2. Cumulative growth in the number of source documents

From 1992, when the sustainable communication literature started to become visible in the field, until December 2023, the number of studies conducted in this field and accordingly the total number of citations increased every year. Accordingly, the fact that publications on sustainable communication reached the highest level in 2023 is an indication that the field has started to expand gradually over the years. Within the scope of performance analysis, top publicishng journal list was also given Table 3 in order to determine the most effective journals in the field and therefore the mainstream thoughts of the field.

Journal	Documents	%
Environmental Communication A Journal of Nature and Culture	61	2,513
Technological Forecasting and Social Change	60	2,472
Corporate Social Responsibility and Environmental Management	47	1,937
Business Strategy and The Environment	46	1,895
Frontiers in Communication	33	1,36
Journal of Business Ethics	33	1,36
Entrepreneurship and Sustainability Issues	32	1,319
Journal of Business Research	25	1,03
Telecommunications Policy	24	0.989
Triplec Communication Capitalism Critique	23	0.948
Corporate Communications	20	0.824
Information Communication Society	20	0.824
Jcom Journal of Science Communication	20	0.824
Public Relations Review	20	0.824
World Journal of Entrepreneurship Management and Sustainable Development	20	0.824

Table 3. Top Publishing Journals

Bibliometrics is complemented by the verification of its basic laws. In this context, Bradford (1934) refers to the validation of journals that produce a large number of articles on a given topic. This law estimates the relevance of certain existing academic journals in a given academic field. Hence, if journals are classified in a descending order of productivity, they can be distributed into regions with varying ratios of 1:n:n² and so on (Da Silva et al., 2021). Table 3 shows the journals in which 15 articles were published in the final dataset through the application of law of Bradford (1934). Bradford (1934) states that a small number of core or primary sources will contribute to a significant portion of journals (Özsoy & Sezgili, 2024).

When we examined the dataset of the study, we observed that there were 80 sources in the first region. These sources constitute 2.9% of the total sources in the dataset. This shows that there is no concentration in terms of resources. It can be stated that there is no clear dominance of a few core journals or publications in the field of sustainable communication; instead, there is a wide variety of sources spread across different disciplinary fields. In order to evaluate the development of the concept of sustainable communication in the literature in more detail, a citation analysis based on the number of publications was conducted. Citation analysis results are shown in Figure 3.

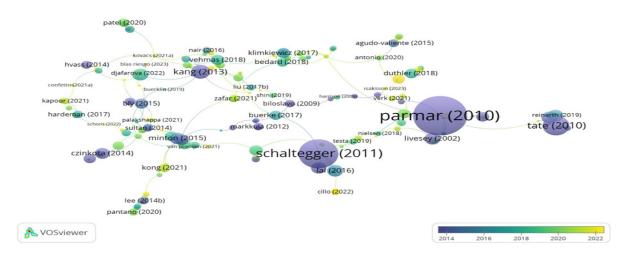


Figure 3. The most cited authors based on the number of publications

When the citation analysis is evaluated, it can be stated that in the first years of the development of the field of sustainable communication, Parmar et al. (2010) studies within the scope of stakeholder theory were at the forefront and Schaltegger and Wagner (2011) sustainable entrepreneurship and sustainability innovation concepts were examined. However, in the development course of the field, it can be stated that studies on communication and consumer behavior were examined between 2016-2018 (Hardeman et al., 2017; Vehmas et al., 2018). In recent years, it has been determined that especially the field of sustainable communication has been evaluated within the scope of social media communication (Kong et al., 2021) and studies on Generation Z (Djafarova & Foots, 2022). In order to examine the development course of the field of sustainable communication in more detail, co-occurrence analysis was conducted and the result of the analysis is shown in Figure 4.

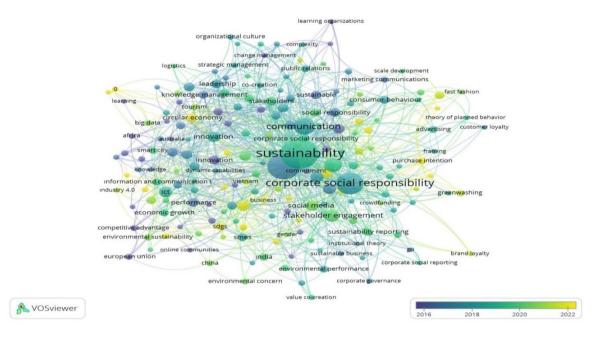


Figure 4. Co-occurrence analysis

When the co-occurrence analysis was evaluated, it was determined that the concept of sustainable communication was associated with the concepts of sustainability, corporate social responsibility, competitive advantage, environmental sustainability, knowledge management, marketing communication and innovation in the development process until 2016. Between 2018-2020, the field was associated with concepts such as leadership, logistics, stakeholder, consumer behavior advertising, theory of planned behavior, public relations. In this context, while the concept of sustainable communication was first examined at the organizational level in the years when it first became visible in the field, as the field expanded, it started to be examined in the field of marketing and communication and became a phenomenon that is also examined at the consumer or individual level. Since 2020, it has been associated with concepts such as big data within the scope of Industry 4.0, and it can be stated that the field has expanded with concepts such as green business, sustainable business, supply chain management, environmental performance, greenwashing, circular economy.

Conclusion

The importance of sustainability communication is highlighted, stating that the capacity to communicate through print and digital media defines human species. The extent to which we communicate, learn, collaborate, and coordinate our actions sustainably will determine humanity's fate and the quality of life for current and future generations (Barchilon, 2011). Sustainable communication is seen as an vital for improving customer relationship management and market competitiveness (Shen et al., 2020). Sustainability communications aims to enhance the relationship between organizations and their publics by changing people's knowledge and perceptions of sustainable development issues, and increasing the accuracy of their views. It requires a systematic approach to communication activities, focusing on enhancing understanding between organizations and stakeholders about these issues (von Kutzschenbach & Brønn, 2006). Corporate sustainability communications can boost customer trust and credibility by positioning the company as a sustainable organization with sustainable products. Lobbying can bring about new environmental and social regulation in business. Corporate sustainability communications is more likely to be conducted in societies that value environmental integrity and social justice (Signitzer & Prexl, 2008). A variety of factors, many of which are complex, affect the success of sustainability communication and sustainable development (Godemann & Michelsen, 2011).

Effective sustainability communication aims to not only understand sustainability and its issues but also change attitudes and behaviors by promoting acceptance of interventions in people's lives, thereby enhancing their overall well-being (Karmasin et al., 2021). Effective internal communication on sustainability can drive environmental learning and change within a company, as public relations specialists possess the expertise to effectively communicate with internal stakeholders, a crucial aspect of sustainability management (Signitzer & Prexl, 2008). Effective sustainability communication can provide a competitive advantage (Line et al., 2016).

As a conclusion, according to the findings in this research, the WOS primarily focuses on predominantly management and business administration fields, with communication studies also being prominent in the literature. From 1992 to December 2023, sustainable communication literature has seen a steady increase in studies and citations, with publications reaching their highest level in 2023. This indicates a gradual expansion in the field. A citation analysis was conducted based on the number of publications, indicating

a gradual growth in the field. The field of sustainable communication has seen significant development, with studies on stakeholder theory and sustainable entrepreneurship and innovation concepts being the most prominent (Parmar et al., 2010; Schaltegger & Wagner, 2011). Between 2016-2018, studies on communication and consumer behavior were conducted (Hardeman et al., 2017; Vehmas et al., 2018). Recent evaluations have focused on the impact of social media on sustainable communication (Kong et al., 2021) the role of Generation Z in shaping its development (Djafarova & Foots, 2022). In relation to this, studies in the Communication for Sustainable Development literature have also underlined that social media is crucial for today's sustainability communication (Saleh & Mehellou, 2024) or green communication (Alam et al., 2024).

The concept of sustainable communication has evolved over time, from its initial focus on sustainability, corporate social responsibility, and innovation to its current focus on leadership, logistics, stakeholder engagement, consumer behavior advertising, and public relations. Since its inception, the field has expanded to include big data within the scope of Industry 4.0, green business, sustainable business, supply chain management, environmental performance, greenwashing, and the circular economy. The field has also expanded to include concepts such as big data, green business, sustainable business, supply chain management, environmental performance, greenwashing, and circular economy.

The findings of this study are important in terms of revealing the main themes on sustainable communication in the field of communication, business administiration and management. At this point, the most cited studies that emerge as a result of bibliometric analysis and thus dominate the field will contribute to future research directions in developing new research questions. Considering the research findings, it has been determined that the concept of sustainable communication has turned towards areas such as big data and green business, especially in recent years. In future studies, in parallel with the development course of the concept, examining the prominent concepts in the field of sustainable communication, especially after 2018, will contribute to the field. Considering the limitations of the quantitative research design and the use of only the WOS database when evaluating the results of this study, it is important to conduct systematic review and meta-analysis studies on sustainable communication in future research directions.

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Mapping and Current Trends in Sustainable Communication: A Bibliometric View

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Extended Abstract

Corporate sustainability is a strategic management approach that balances economic, environmental, social, and values, offering an alternative to short-term wealth maximization paradigms, as defined by emerging management concepts. Corporate sustainability communication addresses sustainability issues, focusing on social justice and environmental consciousness, addressing topics like sustainability management effects, product sustainability, production methods, objectives, status-quo, and stakeholder behaviors (Signitzer & Prexl, 2008). The roots of sustainability communication, a relatively new notion, can be traced in a variety of discourses, including risk, environment and science communication (Adomßent & Godemann, 2011).

Sustainable communication is crucial and important for both social and global peace (Oral, 2023), for brand marketing (Vardar, 2014) and for a competitive advantage (Line et al., 2016). In particular, it is vital to create flexible processes that respond to specific needs through sustainable communication in organizations (Bae, 2024). Corporate sustainability communication promotes the formation of imagined communities, or the perceived connection between an individual and unknown others (Reeves, 2016). Effective communication of sustainability initiatives is crucial for promoting positive attitudes and environmentally friendly behaviors, as investment in these strategies may go unnoticed without transparency and persuasiveness (Bernard et al., 2023).

It is noteworthy that there are studies dealing with sustainability communication and continuous improvement and sustainability (Barchilon, 2011; Chaudhri, 2016; Fels, 2010; Fischer et al., 2021; Franz-Balsen & Heinrichs, 2007; Genç, 2017; Karmasin et al., 2021; Kolandai-Matchett, 2009; Liew-Tsonis & Cheuk, 2012; Ott et al., 2011; Signitzer & Prexl, 2008; Tölkes, 2018; von Kutzschenbach & Brønn, 2006; Weder et al., 2021). Unfortunately, there hasn't been much research done on sustainability communication and how it relates to keeping businesses developing and sustainable via the use of detailed bibliyometric studies and frameworks. This study aims to fill a gap in literature on sustainability communication and its connection to company development and sustainability. It provides a conceptual framework and theoretical underpinning for a communicatively oriented method influencing sustainable development. Through bibliometric analysis, the study examines the development of sustainable communication concepts in business, management, and communication literature, contributing to the relevant literature.

The following research questions are investigated in this research with respect to:

RQ1. What are trends and the total volume of sustainability communication research?

RQ2. Which authors, publications, journal have had the greatest impact or the most contributions on the field of sustainability communication?

RQ3. How is the development of the field of sustainable communication going?

Using bibliometric methods, this study purposes to shed light on the sustainability including sustainability communication. The aim of this study is to examine the development of the concept of sustainable communication in the business, management and communication literature through bibliometric analysis. In line with this purposes, this study examines 2724 articles on sustainable communication, focusing on applied studies and focusing on the distribution of these articles, co-authorship, co-citation, and co-occurrence of the authors who published them.

According to results of the bibliometric analysis, this research reveals that the WOS primarily focuses on management and business administration, with communication studies also being prominent. From 1992 to December 2023, sustainable communication literature has seen a steady increase in studies and citations, with publications reaching their highest level in 2023. The field has seen significant development, with studies on stakeholder theory, sustainable entrepreneurship, and innovation concepts being the most prominent. Between 2016-2018, studies on communication and consumer behavior were conducted. Recent evaluations have focused on the impact of social media on sustainable communication has evolved over time, from sustainability, corporate social responsibility, and innovation to leadership, logistics, stakeholder engagement, consumer behavior advertising, and public relations. It has expanded to include big data within the scope of Industry 4.0, green business, sustainable business, supply chain management, environmental performance, greenwashing, and the circular economy.

As a conclusion, it has been determined that the field of sustainable communication has continued to develop over the years and that the concepts of big data within the scope of Industry 4.0, green business, sustainable business, sustainable supply chain management, environmental performance, greenwashing, and the circular economy have come to the fore in recent years. The study's findings can be beneficial to scholars as they reveal the current performance of authors, documents, as well as the progression of themes.

Keywords: Communication, Sustainability, Sustainable Communication, Bibliometric Analysis, Web of Science.

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Bu çalışmada **"Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi"** kapsamında uyulması belirtilen kurallara uyulmuştur.

In this study, the rules stated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed.

Yazarların çalışmadaki **katkı oranları**; birinci yazar %35, ikinci yazar %30, üçüncü yazar %35. **Contribution rates** of the authors in the study; first author 35%, second author 30%, third author %35.

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