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Carbon Accounting and Corporate Sustainability: Bibliometric Insights from 2010–2025

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ABSTRACT

This study offers a thorough bibliometric review of studies concerning carbon accounting and business sustainability published from 2010 to 2025. Publications were studied using Scopus as the primary database, employing Bibliometrix (R) and VOSviewer to investigate publishing trends, prominent authors, institutions, and countries, alongside co-authorship, co-citation, and keyword co-occurrence networks. The results indicate that carbon accounting, sustainable development, climate change, environmental impact, and greenhouse gas emissions form the fundamental theme framework of the discipline. Emerging domains encompass carbon neutrality, carbon economy, supply-chain emissions, energy efficiency, and artificial intelligence, indicating a transition towards technology-driven and sector-specific decarbonization approaches. International collaboration networks are extensive and worldwide, with the United Kingdom, United States, Australia, China, and Germany serving as primary hubs, but author and affiliation networks are more disjointed. The study enhances theoretical comprehension of carbon accounting as a cohesive component of climate governance and provides practical recommendations for regulators and practitioners aiming to develop more effective reporting systems and decarbonization strategies.

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1. INTRODUCTION

Carbon accounting has become one of the most important tools for dealing with the growing problems of climate change and attempts to make the world more sustainable over the past ten years. As governments and businesses make stronger promises to cut greenhouse gas (GHG) emissions, more and more companies are using carbon measuring and reporting systems that meet international standards. The Greenhouse Gas Protocol (WRI & WBCSD, 2004), ISO 14064 [1], the Paris Agre ement [2], and more recently, the IFRS Foundation's International Sustainability

Standards Board (ISSB, 2023) have all had an impact on how carbon disclosure is done around the world. These changes show that carbon accounting is moving from a narrow regulatory role to a strategic corporate skill that is part of governance, risk management, and creating long-term value [3], [4].

In the larger picture of corporate sustai nability, carbon accounting is a key part of helping businesses come up with low-carbon strategy. Companies increasingly use c arbon data to figure out how climate change can affect their finances, improve their operations, and get stakeholders involved through sustainability reporting tools [5]. Investors are using emissions data more and more, often included in ESG ratings, to judge how trustworthy a company is and how well it can handle transition risks [6]. Consequently, carbo n emissions data have become crucial to organizational decision-making, shaping both internal management frameworks and external stakeholder views. This tendency has made scholars more interested in topics including the quality of carbon disclosure, how well emissions are reduced, how to control climate change, and how to decarbonize [7], [8].

Since 2010, there has been a huge increase in academic study on carbon accounting and corporate sustainability. The establishment of the Task Force on Climate-rel ated Financial Disclosures [9] the emergence of carbon pricing mechanisms by the World Bank in 2022, and the increasing number of c limate-related policies have all sped up the involvement of both scholars and practitioners. Simultaneously, swift technical progress—encompassing big data analytics, machine learning, satellite-based emission tracking, and automated disclosure systems—has influenced novel methodologies in the examination of corporate carbon data [10]. Changes in how companies act, such as making voluntary net-zero commitments and decarbonizing their su pply chains, have expanded the study agenda to encompass Scope 3 emissions, carbon assurance, and integrated sustainability strategies [11], [12].

Even with this expansion, the field of carbon accounting is still not very well or ganized. Contributions originate from various fields—including environmental accounting, management, sustainability science, economics, and energy studies—leading to a range of co nceptual and methodological perspectives. The theoretical foundations are based on legitimacy theory, institutional theory, stakeholder theory, signaling theory, and resource-based perspectives [13], [14]. This diversity enhances the field but also leads to overlapping notions and restricted integration among study domains. The growing number of publications makes it hard for scholars to follow the intell ectual growth of carbon accounting or find new theme groupings. Therefore, a systematic mapping of research progress is essential to integrate findings and monitor significant scientific advancements.

Due to this complexity, bibliometric analysis provides a strong methodological framework for integrating carbon accounting research from 2010 to 2025. Bibliometrics uses quantitative mapping to find important authors, leading journals, conceptual clusters, co-authorship structures, and new research subjects [15]. Tools like VOSviewer and Bibliometrix offer visualization approaches that let researchers follow knowledge paths and see how scientific discussions change over time [16]. The rapidly growing field of carbon accounting is being driven by changes in global climate policy and better ways to measure sustainability. A bibliometric study is needed to find the most important ideas, gaps in knowledge, and areas for future research.

Even though there has been a lot of research on carbon accounting and business s ustainability, there is still no complete bibliometric analysis that comprehensively maps this literature from 2010 to 2025. Current assessments are often narrative, fragmented, or limited to particular subtopics, such factors influencing carbon disclosure, voluntary

reporting processes, or carbon performance. These studies do not offer a comprehensive perspective on the interconnections across research issues or the evolution of conceptual frameworks in response to global climate governance and sustainability reporting criteri a. Scholars' inability to detect prevalent trends, developing research fronts, and conceptual gaps is due to the lack of this kind of integrative knowledge. This requires a comprehensive bibliometric analysis.

The objective of this project is to provide a thorough bibliometric analysis of publications on carbon accounting and business sustainability from 2010 to 2025. It l ooks at how many papers are published, how often they are cited, and how the field's total o utput is changing. It also names important authors, journals, organizations, and countries that are shaping the current conversation about carbon accounting. The analysis also uses co-authorship, co-citation, and keyword co-occurrence networks to show the intellectual structure of the field. This helps us better understand how scholars work together and how ideas are connected. The study also finds the main thematic clusters that have shaped the field's growth and looks at how these themes have changed over time. The study identifies prospective research possibilities based on conceptual gaps and growing opportunities shown by bibliometric evidence, aiming to steer scientists toward potential avenues of inquiry. All of these efforts together give us a comprehensive and integrated picture of the worldwide knowledge structure that supports carbon accounting and how it relates to business sustainability.

2. METHOD

This study employs a bibliometric research design to thoroughly examine the int ellectual framework, thematic progression, and scientific advancement of carbon accounting and corporate sustainability publications from 2 010 to 2025. Bibliometric analysis is a well-established, quantitative methodology for delineating scientific domains and uncovering significant research trends using publication counts, citation metrics, co-authorship networks, keyword co-occurrences, and co-citation analyses [15]. This method gives a full picture of how research themes change over tim e, how scholarly communities grow across disciplines, and how important studies change the way academics talk about things. The bibliometric approach is especially appropriate for carbon accounting research, which has swiftly proliferated across various domains, incl uding environmental accounting, business sustainability, climate policy, and green finance [17].

The Scopus database was used to get the data for this study. It is well-known for ha ving a lot of high-quality peer-reviewed journ als, books, and conference proceedings in the social sciences, environmental sciences, and b usiness fields. A structured search query incorporating phrases such as "carbon accounting," "carbon disclosure," "greenhouse gas reporting," "corporate sustainability," and "climate-related reporting" was employed to locate pertinent papers. The time frame was limited to 2010–2025 to reflect recent changes in how the world deals with climate change and how companies report on their sustainability efforts. We used filters to only show peer-reviewed articles, reviews, and conference papers that were authored in English. We exported the records and metadata we got back in RIS and CSV forms so we could work with them more. This included titles, authors, abstracts, keywords, references, and citation counts. A PRISMA-guided screening and eligibility process [18] was carried out to elimina te duplicates and guarantee that only pertinent literature was incorporated into the final dataset.

The examination of the data used both basic bibliometric markers and more complex science-mapping methods. Using Microsoft Excel and the Bibliometrix package in R, which has powerful features for quantitative literature analysis [17]. we looked at descriptive

variables such yearly publishing patterns, top journals, notable authors, and citation metrics. We used VOSviewer software [19], to show scientific networks, such as co-authorship patterns, clusters of keywords that appear together, and co-citation links. These visu alizations made it easier to find the most important research topics, groups of scholars, and conversations that are changing in the field. Also, thematic evolution and trend topic analyses were done to see how research priorities in carbon accounting and corporate sustainability have changed over time, especially in response to big global events like the Paris Agreement, TCFD recommendations, and ISSB climate disclosure standards. This combined process makes sure that the literature is analyzed in a thor ough, organized, and repeatable way.

3. RESULT AND DISCUSSIONS

3.1 Network Visualization

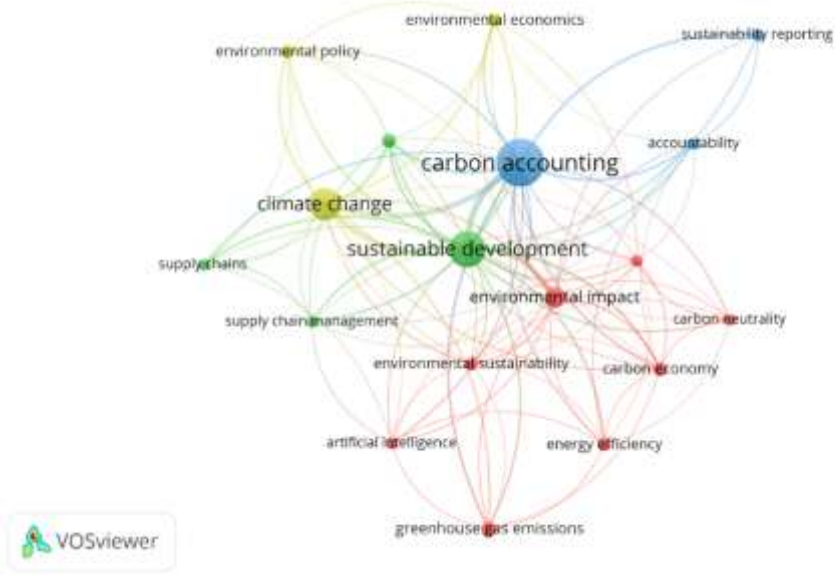

Figure 1. Network Visualization
Source: Data Analysis Result, 2025

The VOSviewer map shows how carbon accounting research is connected by showing a dense network of academic terms grouped around a few main themes. The most important and impactful node on the map is "carbon accounting," which shows how vital it was to the literature from 2010 to 2025. Carbon accounting is conceptually integrated within broader discourses of corporate transparency and sustainability governance, as evidenced by its robust connections to related words such as sustainability reporting, accountability, environmental impact, and sustainable development. The thickness of the link lines sh ows that these two things happen together often. This shows that research in this area often combines climate measuring methodologies w ith corporate sustainability frameworks.

The second main focus is the group of ideas around "sustainable development," which is closely related to climate change, enviro nmental sustainability, and supply chains. This means that study on carbon accounting isn't just about what companies report; it also looks at ho w it affects the environment and society as a whole. The closeness between sustainable deve lopment and phrases like supply chain manage ment and environmental policy shows that more people are realizing that attempts to reduce carbon emissions must also include e missions from the value chain (Scope 3) and policy-driven sustainability transitions. The

tight clustering of green-labeled nodes shows that environmental policy, economics, a nd corporate sustainability strategies are all coming together in a multidisciplinary way.

The map also shows an important theme area relating to adapting to and reducing climate change.This area includes nodes like climate change, environmental policy, environmental economics, and supply chains. These keywords make up a strongly linked green-yellow cluster, which shows that research on carbon accounting is becoming more interested in how climate governance works and how low-carbon transitions affect the economy. The existence of supply chains and supply chain management indicates a developing trend in which carbon measures are utilized to assess lifecycle emissions, supplier performance, and decarbonization plans within industrial networks.

The blue-clustered terms on the right side of the map, like sustainability reporting, a ccountability, and carbon accounting, show that the company is focused on good governance and reporting. This indicates that a consid erable segment of carbon accounting literature emphasizes disclosure quality, regulatory compliance, assurance methodologies, and stakeholder communication. The close relationship between sustainability reporting and carbon accounting means that reporting frameworks like the TCFD, GHG Protocol, and ISSB climate standards are very important topics in academic circles, especially when it comes to how companies measure and report on their emissi ons performance.

Lastly, the red cluster includes new and tech-driven ideas like carbon neutrality, energy efficiency, artificial intelligen ce, greenhouse gas emissions, and the carbon economy. This red zone shows that this area of research is focused on the future and includes new technologies, ways to cut emissions, and ways to make net-zero promises work. The incorporation of artificial intelligence signifies a contemporary study trajectory in which digital tools are being utilized to enhance emissions estimation, automate reporting procedures, and facilitate predictive environmental analytics. There is a strong link between carbon neutrality and environmental effect, which shows that researchers are starting to look at how corporate carbon plans help with bigger decarbonization targets.

3.2 Overlay Visualization

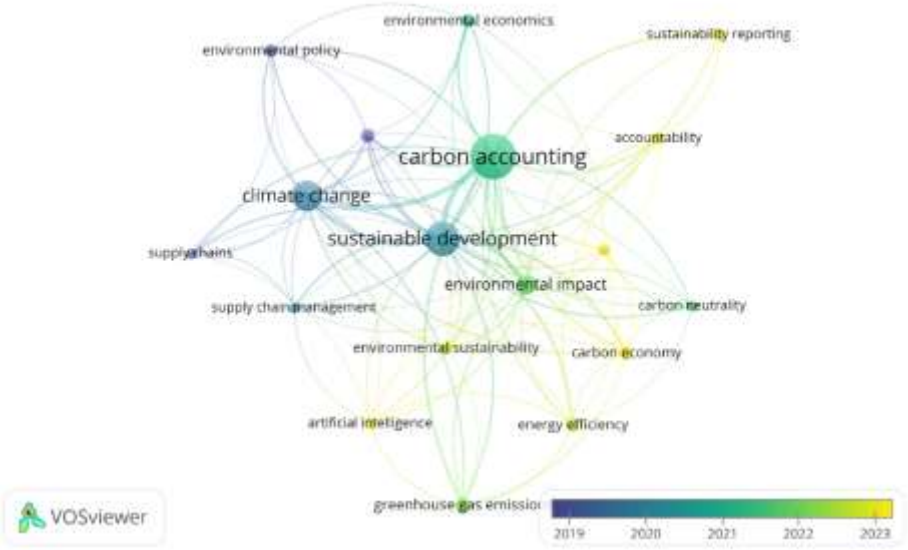

Figure 2. Overlay Visualization

Source: Data Analysis Result, 2025

The overlay graphic shows that carbon accounting, sustainable development, and climate change are the main and long-lasting parts of the research landscape. The greenish tones of these nodes, which stand for the years 2020–2021, show that these ideas have been important for a long time. The close links between them illustrate that carbon accounting research has been a part of bigger conversations about climate policy and sustainability for a long time. The continued popularity of these phrases indicates the enduring impact of global regulations, including the Paris Agreement, early TCFD adoption, and the emergence of ESG-driven reporting standards, which combined influenced research priorities over th is timeframe.

Earlier study themes, like environmental policy, environmental economics, and supply networks, show up in darker blue tones. These represent work done around 2018–2019. These subjects signify the preliminary scholarly involvement with regulatory frameworks, economic instruments, and value-chain aspects in carbon assessment. During these earlier years, researchers were interested in how carbon disclosure affected policy, how economic incentives affected emissions reporting, and how supply networks added to the carbon footprints of organizations. The placement of these phrases on the p eripheral suggests that, while fundamental, these issues have progressively developed into more specialized subfields that bolster the overarching sustainability discourse.

The yellow-toned nodes, like carbon neutrality, energy efficiency, the carbon economy, artificial intelligence, and environ mental sustainability, show the most recent stu dy areas (2022–2023). Their brighter color shows that new trends are starting because of global net-zero commitments, AI-based environmental analytics, and the growth of carbon market mechanisms. The strong connections between these current keywords and crucial terms like carbon accounting and environmental effect imply that scholars are becoming more interested in decarbonization plans that are forward-looking, use technology, and are in line with policy. This shows a modern shift from standard carbon disclosure studies to more creative ones that look at digital measurement methods, approaches to become carbon neutral, and models that combine environmental performance with other factors.

3.3 Citation Analysis

The most significant publications in carbon accounting and corporate sustainability literature offer critical insights into the philosophical foundations and shifting scientific priorities of the discipline. Highly cit ed works frequently represent foundational contributions that influenced scientific techniqu es, conceptual frameworks, and policy-relevant discussions about carbon measurement, emissio n reduction, and sustainability initiatives. The table below presents ten of the most often referenced research, encompassing a variety of subjects such as carbon sequestration, supply chain carbon accounting, stakeholder pressure, voluntary climate measures, life-cycle assessment, and sector-specific decarbonization problems. These books embody the fundam ental scholarly contributions that have profoundly impacted theoretical advancement, empirical investigation, and the implementation of carbon accounting techn iques across various businesses and geographies.

Table 1. Top Cited Research

Citations	Authors and year	Title
499	Smith, P., 2004	Carbon sequestration in croplands: The potential in Europe and the global context
286	Schaltegger, S., Csutora, M., 2012	Carbon accounting for sustainability and management. Status quo and challenges
240	Liesen, A., Hoepner, A.G., Patten, D.M., Figge, F., 2015	Does stakeholder pressure influence corporate GHG emissions reporting? Empirical evidence from Europe
235	Lippke, B., Oneil, E., Harrison, R., ... Gustavsson, L., Sathre, R., 2011	Life cycle impacts of forest management and wood utilization on carbon mitigation: Knowns and unknowns
227	West, T.A.P., Börner, J., Sills, E.O., Kontoleon, A., 2002	Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon
220	Onat, N.C., Kucukvar, M., Tatari, O., 2014	Scope-based carbon footprint analysis of U.S. residential and commercial buildings: An input-output hybrid life cycle assessment approach
159	Smith, P., Davies, C.A., Ogle, S., ... Adhya, T.K., Braimoh, A.K., 2012	Towards an integrated global framework to assess the impacts of land use and management change on soil carbon: Current capability and future vision
126	Muslemani, H., Liang, X., Kaesehage, K., Ascui, F., Wilson, J., 2021	Opportunities and challenges for decarbonizing steel production by creating markets for 'green steel' products
121	Araújo, K., Mahajan, D., Kerr, R., Silva, M.D., 2017	Global biofuels at the crossroads: An overview of technical, policy, and investment complexities in the sustainability of biofuel development
120	Lee, K.-H., 2012	Carbon accounting for supply chain management in the automobile industry

Source: Scopus, 2025

The aforementioned high-impact studies collectively demonstrate the multifaceted nature of carbon accounting res earch, encompassing ecological sciences, business sustainability, industrial systems, and policy assessment. Initial studies, like [20] and [21] established crucial foundations for comprehending carbon sequestration potentials and the constraints of voluntary climate efforts, hence shaping later discussions on land-use management and the efficacy of REDD+. Simultaneously, [22] and [5] profoundly influenced the corporate-oriented aspect of carb on accounting by examining managerial obst acles and the impact of stakeholder pressure on emissions reporting practices. Sector-specific analyses, such as [23] study of automotive supply chains and[24] investigation of green steel markets, underscore the application of carbon accounting principles in formulating operational decarbonization plans across va rious industries. Recent technical and met hodological developments, shown by life-cycle assessment methodologies from [25] and [26] illustrate the evolution of carbon accounting from basic disclosure mechanisms to intricate, system-wide analytical frameworks. Collectively, these papers constitute the intellectual foundation of the discipline and persist in guiding both scholarly research and the practical application of carbon measurement and sustainability initiatives.

3.4 Density Visualization

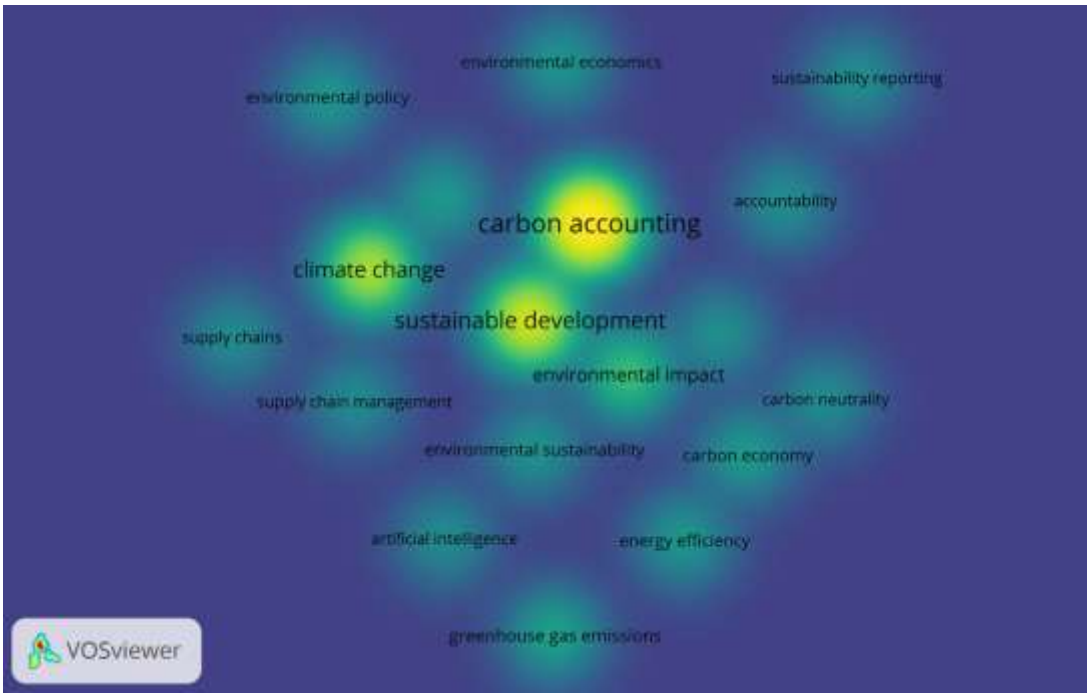

Figure 3. Density Visualization
Source: Data Analysis Result, 2025

The density map emphasizes ca rbon accounting, sustainable development, and climate change as the most extensively studied issues, indicated by the concentrated brilliant yellow-green coloration at the center of the picture. This signifies that these keywords not only manifest often throughout the dataset but also co-occur with a diverse array of other phrases, affirming their vital significance in the intellectual framework of the discipline. The high density surrounding these nodes indic ates that the literature uniformly contextualizes carbon accounting within the larger framework s of sustainability and climate governance, demonstrating the impact of international agreements such as the Paris Agreement, TCFD, and ISSB climate disclosure requirements. The aggregation of pertinent terms—such as environmental impact, environmental su stainability, and greenhouse gas emissions—fu rther substantiates that study in this field is grounded in global environmental issues and corporate reactions to climate threats.

Moderately dense clusters surrounding topics such as sustainability reporting, carbon neutrality, energy efficien cy, artificial intelligence, and carbon economy in dicate new yet increasingly important research trajectories. The topics shown in lighter green areas signify specialist subfields that are garnering increased academic focus, especially those associated with technological innovation and decarbonization techniques. Conversely, domains with reduced density—such as environmental policy, environmental economics, and supply chains—exhibit fundamental yet infrequently co-occurring themes, typically associated with the preliminary phases of carbon accounting research. The density visualization illustrates a field evolving around fundamental notions while concurrently advancing towards sophisticated, technology-driven, and policy-oriented methodologies for carbon assessment and sustainability management.

3.5 Co-Authorship Network

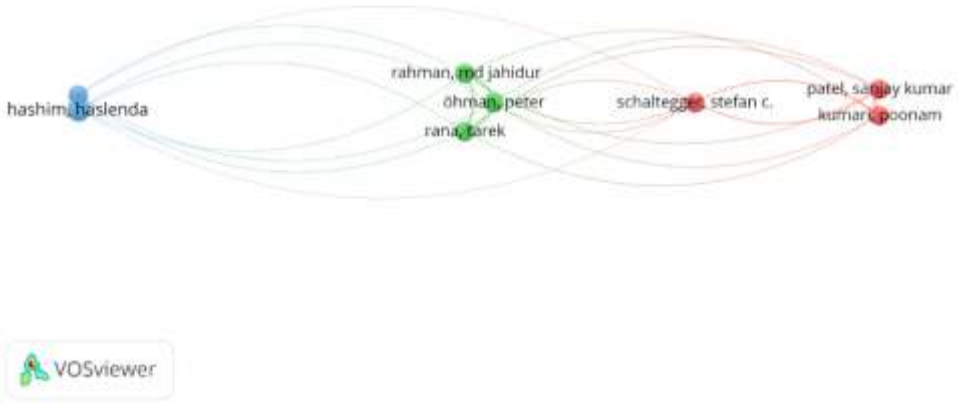

Figure 4. Author Visualization
Source: Data Analysis Result, 2025

The depiction of co-authorship among authors indicates three separate clusters of researchers engaged in carbon accounting and sustainability literature, each embodying a tiny collaborative community with minimal inter-group integration. On the left side of the image, Haslenda Hashim constitutes a solitary blue cluster, signifying a specialized research stream with comparatively less collaboration connections to the wider network. The central green cluster—consisting of Md Jahidur Rahman, Peter Öhman, and Tarek Rana—indicates the most integrated group, reflecting an active collaboration pattern and a common thematic emphasis on carbon accounting, sustainability disclosure, or climate-related reporting. On the right side, the red cluster comprises Stefan C. Schaltegger, Sanjay Kumar Patel, and Poonam Kumari, with Schaltegger serving as a crucial connecting academic, integrating methodological and management viewpoints in environmental accounting. The curving ties between clusters signify conceptual closeness rather than actual co-authorship, indicating that although these groups tackle comparable sustainability topics, formal collaborative research among clusters is still restricted. The map illustrates a disjointed yet conceptually coherent author network, with key figures promoting the dissemination of information across disciplinary divides.

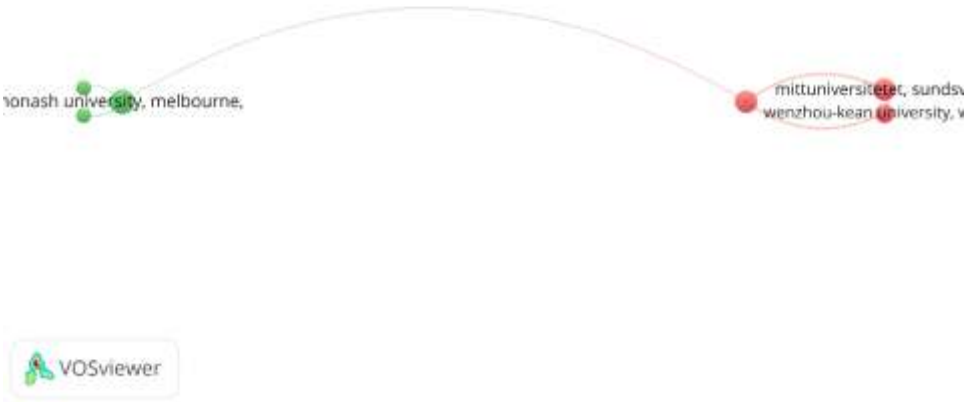

Figure 5. Affiliation Visualization
Source: Data Analysis Result, 2025

The visualization of the affiliation network reveals a fragmented and poorly interconnected institutional framework, suggesting that research collaborations in carbon accounting and sustainability are constrained among universities. To the left, Monash University (Melbourne) constitutes a compact green cluster, indicative of internal collaboration among the same institution or closely affiliated academic units. The red cluster on the right indicates a bilateral institutional partnership between Mittuniversitetet (Sweden) and Wenzhou-Kean University (China), rather than a wide-ranging global network. The solitary, tenuous connection between Monash University and the European–Asian cluster signifies negligible cross-institutional collaboration, underscoring that research initiatives in these areas generally function independently rather than through cohesive multinational teams. The map indicates that although there are areas of collaboration, the field would gain from enhanced institutional integration and stronger transnational research partnerships to further the global advancement of carbon accounting literature.

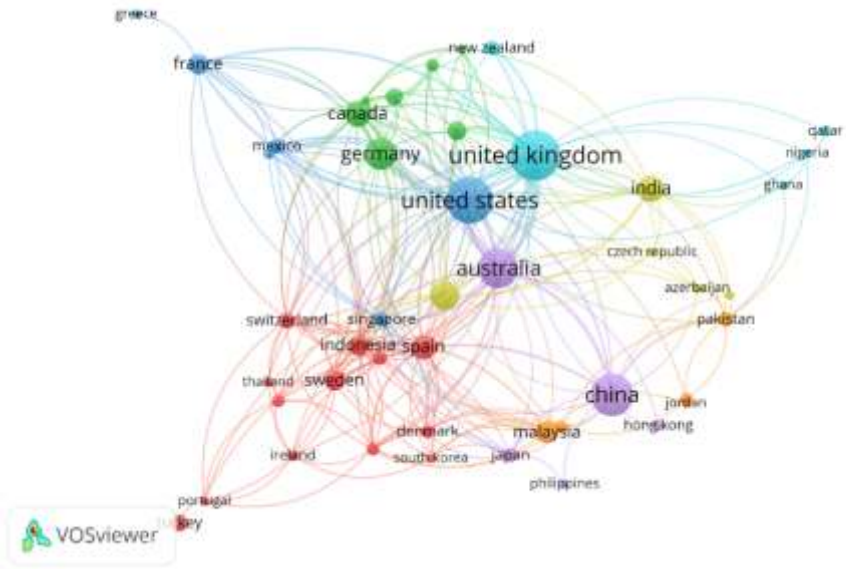

Figure 6. Country Visualization
Source: Data Analysis Result, 2025

The country collaboration map illustrates a highly integrated and globally dispersed research network, with multiple nations emerging as pivotal centers in the advancement of carbon accounting and sustainability study. The United Kingdom, United States, Australia, China, and Germany emerge as the preeminent and most influential entities, signifying their substantial contributions to publication volume, international co-authorship, and leadership in establishing global sustainability research agendas. The strong connections among these n ations indicate substantial international cooperation, especially among Western economies with developed research infrastructures and active policy involvement in climate regulation. Adjacent to these central h ubs are medium-sized nodes, like Canada, India, New Zealand, Malaysia, Sweden, and Spain, which play a vital role by connecting esta blished research institutes with burgeoning academic communities. Furthermore, the int ricate network of relationships spanning Asia, Europe, the Middle East, and Africa illustrates that carbon accounting research has evolved in to a really global initiative, beyond conventional Western hegemony. Countries including Indonesia, Pakistan, Ghana, Qatar, and the Philippines are interconnected inside the network via various collaborative relationships, indicating increased academic involvement from developing and transitional economies with substantial climate threats. The aggregation of nations specifically the European block (France, Switzerland, Denmark, Portugal), the Asian bloc (Japan, South Korea, Hong Kong, Malaysia), and the South Asian–Middle Eastern bloc (India, Pakistan, Aze rbaijan, Jordan) underscores regional cooper ation dynamics influenced by common environmental issues and policy frameworks. The map depicts a dynamic, multi-polar scientific environment where international collaboration enhances the dissemination of information and expedites innovation in carbon accounting and sustainability policies.

Discussions

Practical Implications

This bibliometric study's findings provide significant implications for policy makers, practitioners, and standard-setting organizations engaged in carbon accounting

and corporate sustainability. The prevalence of themes such as carbon accounting, sustainable development, and climate change, along with emerging subjects like carbon neutrality, AI-driven analytics, and supply-chain emissions, indicates that companies must advan ce beyond fundamental carbon disclosure to adopt comprehensive, data-informed decarbonization strategies. Managers may uti lize the delineated clusters to evaluate their reporting methodologies against premier research domains, prioritizing expen ditures in life-cycle assessment, Scope 3 measurement, and digital instruments that improve the precision and promptness of emissions data. Regulators and standard setters can leverage the identified intellectual hubs and international partnerships to formulate sta ndardized disclosure standards and promote cross-jurisdictional learning. The disjointed author and institutional networks present an opportunity for practitioners and governments to cultivate international research-industry collaborations, particularly between advanced and emerging economies, to jointly develop sector-specific guidelines (e.g., steel, buildings, transport) and capacity buildin g initiatives that expedite the realization of credible net-zero pathways.

Theoretical Contributions

This work theoretically enhances the comprehension of carbon accounting as an interdisciplinary field at the convergence of environmental accounting, climate governance, and sustainability management. The analysis delineates the intellectual framework of th e field, elucidating the application of traditional theories namely legitimacy, stakeholder, institutional, and resource-based perspective s in elucidating corporate carbon disclosure, performance, and governance, while concurrent ly uncovering the emergence of novel conceptual connections with technology, supply chain management, and transitions to a carbon economy. The co-occurrence and density patterns indicate that carbon accounting has transitioned from a limited reporting practi ce to a strategic capability integrated within comprehensive sustainable development frameworks, thereby endorsing a more cohesive theoretical understanding of "carbon governance systems" instead of fragmented disclosure activities. Moreover, the identification of specific thematic clusters enables future researchers to situate their work within well-defined streams (e.g., policy and land-use, corporate reporting and assurance, technological and sectoral decarbonization), fa cilitating cumulative theory development and comparative analyses across contexts and sectors.

Limitations and Directions for Future Research

This work, despite its merits, has some shortcomings that warrant acknowledgment and may inform future research. The analysis is solely based on publications indexed in one dat abase and limited to English-language documents, potentially neglecting region-specific scholarship, practitioner reports, or non nglish contributions from emerging economies that are becoming more engaged in climate poli cy and carbon markets. Bibliometric tools primarily identify citation patterns and keyword utilization, rather than comprehensively assessing methodological rigor or causal inference; thus, the study is unable to appraise the robustness of empirical findings within each thematic cluster. Furthe rmore, swiftly advancing developments such as novel ISSB standards, enhancements in digital MRV (measurement, reporting, and verification) systems, and sector-specific net-zero initiatives—may not be entirely encapsu lated in the citation framework of the investigated period. Subsequent research could thus enhance this study through systematic literature reviews or meta-analyses within defined clusters (e.g., supply-chain carbon accounting, AI in emissions monitoring), integr ate supplementary databases and grey literature , and perform comparative case studies that link

the delineated intellectual landscape with tangible policy outcomes and corporate decarbonization efficacy.

4. CONCLUSIONS

This bibliometric analysis aimed to delineate and integrate the intellectual framework of research on carbon accounting and business sustainability from 2010 to 2025. The data indicates that the discipline has evolved around a fundamental set of concepts—carbon accounting, sustainable development, climate change, environmental impact, and greenhouse gas emissions—that constantly prevail in keyword networks and density visua lizations. These themes suggest that carbon acc ounting is now regarded not just as a technical reporting task, but as a strategic element of broader climate governance and sustainable development initiatives. Simultaneously, e merging subjects such as carbon neutrality, carbon economy, supply-chain emissions, energy efficiency, and artificial intelligence indicate a distinct transition towards decarbonization strategies, sector-specific applications, and digital tools that facilitate more detailed and proactive climate decision-making. The author, affiliation, and country collaboration maps collectively indicate that knowledge production in this field is geographically dispersed and inequitable. A limited number of nations—specifically the United Kingdom, United States, Australia, China, and Germany—serve as primary centers, whilst many developing and transitional economies engage through more substantial yet still modest cooperative connections. Author and institutional networks, however, remain notably fragmented, suggesting considerable potential to enhance cross-institutional and cross-regional collaborations, particularly across high-emission sectors and regions most susceptible to climate threats. The paper provides a systematic analysis of the evolution of carbon accounting scholarship in response to legislative changes, market forces, and technical advancements. The findings emphasize critical focus areas for practice, such as life-cycle carbon assessment, Scope 3 measurement, and the incorporation of digital technology in emissions monitoring. They highlight other intriguing directions for future study, including comparative analyses across sectors and jurisdictions, more profound theorization of carbon governance frameworks, and empirical assessments of the translation of developing tools and standards into tangible decarbonization results. This bibliometric mapping delineates the parameters of the subject, establishing a knowledge foundation that can facilitate more coordinated, theory-driven, and impact-focused research on carbon accounting and corporate sustainability.

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