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Research Article

The Role of Carbon Risk Perception, Accountant Behavioral Compliance and Sustainability Mindset on the Accuracy of Carbon Performance Reporting

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Abstract: This study aims to analyze the development and scientific relationship between carbon risk perception, behavioral compliance of accountants, and sustainability mindset on the accuracy of carbon performance reporting through a bibliometric approach. This study is driven by the increasing need for accurate carbon reporting amidst global demands for sustainability transparency, as well as the limited understanding of the role of behavioral and psychological factors of accountants in ensuring the reliability of carbon reports. Research data was obtained from two leading scientific databases, namely Scopus and Google Scholar, with the main keywords "carbon risk perception," "behavioral compliance of accountants," "sustainability mindset," and "accuracy of carbon performance reporting." The data selection process was carried out using the PRISMA method to ensure the relevance and validity of the analyzed articles, while bibliometric analysis and visualization were performed using VOSviewer software. The results of the study indicate that the topic related to carbon reporting accuracy has evolved from a technical approach to a behavioral and psychological approach. Network and density visualizations show that behavioral compliance and sus-tainability mindset issues are still new but have high potential for development. Meanwhile, the authors' collaboration map demonstrates the geographic limitations of research, which remains concentrated in developed countries. These findings have important theoretical and practical implications, namely the need to integrate behavioral theory and professional ethics into sustainability accounting research and to en-hance accountants' capacity to understand carbon risks to ensure the accuracy of future sustainability re-porting.

Keywords: Behavioral Compliance; Bibliometric Analysis; Carbon Performance Reporting; Carbon Risk Perception; Sustainability Mindset.

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1. Introduction

The increasing visibility of climate change has led to regulatory and market pressures for increased transparency in carbon emissions reporting, while simultaneously heightening concerns about the accuracy and credibility of corporate carbon performance reports. In many jurisdictions, initiatives such as the harmonization of international standards and revisions to regional reporting policies point toward more structured mandatory disclosure of climate risks, while global efforts also seek to curb greenwashing practices that obscure the reality of corporate environmental performance. At the practical level, challenges are not only technical, such as Scope 1, 2, and especially Scope 3 measurements, but also behavioral, such as perceptions of carbon risk, the behavioral compliance of accountants preparing or reviewing environmental reports, and the sustainability mindset of organizational actors, which play a crucial role in determining the extent to which reported information reflects the true state of affairs. Evolving regulations, including the harmonization of international

standards such as the ISSB with regional frameworks, demonstrate that reporting accuracy is now a primary focus for policymakers and stakeholders, raising questions about implementation practices and the readiness of accounting human resources to ensure the quality of the data presented.

Relevant recent phenomena include diverse regulatory actions across jurisdictions, from regulatory strengthening in Europe to implementation dynamics in the United States, and market responses to regulatory uncertainty, which sometimes delays the implementation of new rules. This situation creates a dynamic empirical context for examining how carbon risk perceptions at the individual and organizational levels affect reporting quality. Furthermore, contemporary literature emphasizes the growing attention to verification and assurance practices for ESG/sustainability reports, as assurance is seen as enhancing credibility and mitigating the risk of misrepresentation.

The research problem that arises from this phenomenon is that although there is regulatory and methodological encouragement to improve carbon reporting, empirical evidence regarding the determinants of carbon performance report accuracy at the individual level, especially carbon risk perception, behavioral compliance of accountants, and sustainability mindset, is still relatively limited and scattered. Most previous studies tend to focus on firm-level aspects, policies, or the influence of regulations on reporting practices, while the role of psychological and ethical attributes of accountants as reporting agents and guardians of information quality has not been adequately integrated in a comprehensive research model. Previous research suggests that climate risk perceptions can drive corporate actions such as low-carbon innovation and mitigation strategies. However, studies linking these perceptions directly to carbon reporting accuracy and their interaction with accountants' behavioral compliance and sustainability mindset are scarce. Furthermore, studies on factors influencing accountants' opinions and attitudes toward sustainability regulations indicate multi-level influences (organizational, professional, and regulatory) without a strong empirical focus on the outcome of carbon reporting accuracy itself.

The research gap identified by this study is the lack of integration between three critical individual-level dimensions (1) carbon risk perception, (2) accountant behavioral compliance in reporting practices, and (3) sustainability mindset in explaining variations in carbon performance reporting accuracy. Although regulations and technical standards are continually being updated, without a clear understanding of how psychological and normative variables influence the environmental accounting process, policies and interventions to ensure reporting quality risk being ineffective. Another gap is the limited empirical evidence from non-developed country contexts and the role of secretaries or chief accounting officers in high-carbon-intensive sectors, which are often the largest source of variability in emissions reporting. This study seeks to fill this gap by using an empirical approach that combines individual variables and professional behavior and examines their impact on carbon reporting accuracy as the primary outcome.

The novelty of this research lies in the development of a conceptual model that combines carbon risk perception, behavioral compliance of accountants, and sustainability mindset in a theoretical framework that explicitly links psychological and ethical factors of accountants with the accuracy of carbon emission measurement and reporting. This approach differs from previous research that focuses more on company dimensions, standards, or technical aspects of measurement alone. Another new contribution is the emphasis on mediation and moderation mechanisms, for example, how sustainability mindset can strengthen or weaken the relationship between carbon risk perception and accountant compliance behavior, as well as practical implications for accounting professional education policies, assurance system design, and corporate risk management strategies.

The main objective of this study is to examine the role of carbon risk perception, behavioral compliance of accountants, and sustainability mindset in influencing the accuracy of carbon performance reporting, and to identify the interaction mechanisms between these variables that explain variations in carbon reporting quality. Operationally, this study aims to (1) measure the influence of carbon risk perception on carbon reporting accuracy, (2) examine the role of accountants' behavioral compliance as a mediator or moderator in this relationship, and (3) evaluate the role of sustainability mindset as a factor that may strengthen accurate reporting practices. Based on these objectives, the research questions raised are (1) To what extent does carbon risk perception influence the accuracy of carbon performance reporting? (2) Does behavioral compliance of accountants mediate or moderate the relationship between carbon risk perception and reporting accuracy? and (3) How does sustainability mindset modify the effect of risk perception and behavioral compliance on carbon reporting accuracy?

By answering these questions, the study is expected to provide empirical evidence and relevant policy recommendations to improve the credibility of carbon reporting in the era of energy transition and increasingly stringent sustainability regulations.

2. Literature Review

2.1. Carbon Risk Perception and Its Theoretical Foundation

Carbon risk perception is a key determinant in understanding organizational behavior regarding carbon performance reporting. This concept refers to the extent to which individuals and organizations assess the threats and opportunities arising from climate change, carbon policies, and stakeholder pressures on sustainability (Slovic, 1987). In the accounting context, carbon risk perception is closely related to how accountants and managers assess the economic, reputational, and compliance implications of carbon emissions disclosure. Based on Risk Perception Theory, an individual's response to risk is determined not only by objective data but also by psychological factors, social values, and professional norms. Research by Krueger et al. (2022) shows that high climate risk perception is positively associated with an organization's tendency to undertake more comprehensive emissions mitigation and reporting. The study focused more on the corporate level, rather than on the role of accountants as report preparers.

Theoretically, Institutional Theory explains that carbon risk perception is formed through regulatory, normative, and cognitive pressures within the institutional environment (DiMaggio & Powell, 1983). Companies facing pressure from investors, governments, and the public tend to increase their sensitivity to carbon risk. A study by Luo and Tang (2023) found that companies with a high awareness of carbon risk tend to adopt international standards-based reporting systems (such as the TCFD and ISSB), which improve the quality and accuracy of carbon data. However, this study has not yet explored the psychological factors of accountants that may link risk perception to reporting quality. In this context, examining risk perception at the individual level is relevant. Stakeholder Theory (Freeman, 1984) asserts that carbon risk perception drives accountants to report information more transparently, as they understand stakeholders' expectations regarding environmental accountability. Therefore, carbon risk perception can be considered an initial stimulus that influences accountants' compliance and ethical behavior, which ultimately determines the level of accuracy of carbon performance reporting.

2.2. Behavioral Compliance of Accountants and Sustainability Mindset

Behavioral compliance of accountants describes the extent to which accounting professionals adhere to ethical principles, regulations, and sustainability reporting standards in practice. The Theory of Planned Behavior (Ajzen, 1991) provides a framework explaining that individual behavioral intentions, including compliance, are influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. In the context of carbon reporting, accountants with positive perceptions of compliance benefits and high behavioral control are more likely to produce accurate reports. Research by Larrán Jorge et al. (2020) shows that accountants' professional compliance significantly influences the transparency of sustainability reporting. Similarly, a study by Hummel et al. (2022) found that ethical pressures and social responsibility strengthen accountants' integrity in presenting accurate emissions data. Previous research has largely overlooked how cognitive factors such as carbon risk perception and sustainability mindset shape compliance behavior.

Ethical Climate Theory (Victor & Cullen, 1988) highlights the importance of an organization's ethical environment in influencing accountant behavior. Organizations with a strong ethical climate create norms that encourage compliance with reporting standards, not only due to legal obligations but also due to professional values. In relation to the sustainability mindset, this approach describes the cognitive and affective dimensions that foster sustainability awareness within individuals. A sustainability mindset refers to an individual's beliefs and orientation toward the importance of economic, social, and environmental sustainability (Kassel et al., 2016). Research by Moldavska and Welo (2019) shows that a sustainability mindset influences accountants' decisions to adopt ESG reporting practices. However, these findings are still limited to the context of strategic management, not technical reporting behavior. Therefore, integrating behavioral compliance and sustainability mindsets is crucial to understanding how accountants maintain accurate carbon reporting in situations of complex economic and reputational pressures. A sustainability

mindset also acts as an internal moral driver that strengthens compliance intentions while increasing sensitivity to carbon risks and the profession's social responsibility.

2.3. The Accuracy of Carbon Performance Reporting: Integrating Behavioral and Cognitive Determinants

The accuracy of carbon performance reporting is one of the main indicators of the quality of sustainability reporting. Accuracy here encompasses the precision, reliability, and comparability of reported carbon emissions data with actual conditions. According to Accountability Theory, carbon reporting serves as an accountability mechanism that allows stakeholders to assess an organization's commitment to sustainability (Gray et al., 1996). In this context, the behavior and perceptions of individuals involved in report preparation are crucial, as errors in measurement and disclosure are often not the result of systems, but of human decisions and behavior. Research by Hsu et al. (2021) shows that the competence and integrity of accountants influence the reliability of reported carbon data. Similarly, Kim and Lyon (2022) identified that low perceptions of climate risk often lead companies to engage in symbolic disclosures, namely reporting that emphasizes a positive image without adequate data accuracy.

Within the framework of Legitimacy Theory, companies have an incentive to maintain social legitimacy through accurate and credible carbon reporting (Suchman, 1995). In practice, pressure to maintain reputation or meet market expectations can lead to reporting bias. Therefore, the role of carbon risk perception, accountant behavioral compliance, and sustainability mindset are key to balancing the demands of legitimacy and ethical responsibility. A study by Qian and Schaltegger (2017) confirms that accurate carbon reporting can only be achieved when there is alignment between an organization's control system and individuals' internalized sustainability values. Thus, the integration of cognitive (risk perception), normative (behavioral compliance), and affective (sustainability mindset) factors provides a comprehensive explanation for variations in reporting accuracy. This approach expands previous understandings that overemphasize technical aspects such as measurement methodologies or reporting frameworks, without considering the human dimension of the process. By focusing on accountants as key actors, this study confirms that the quality and accuracy of carbon reporting are not merely a function of a sound reporting system, but also the result of professional awareness, values, and behaviors formed through complex cognitive and ethical processes.

3. Research Method

3.1 Research Approach

This study uses a bibliometric approach to identify, analyze, and visualize the development of scientific literature discussing the relationship between carbon risk perception, accountants' behavioral compliance, and sustainability mindset on the accuracy of carbon performance reporting. The bibliometric approach was chosen because of its ability to explore knowledge maps and detect the direction of research development in a specific field through the analysis of citations, keywords, and author collaborations (Donthu et al., 2021). In the context of this topic, a bibliometric approach is highly relevant because the issue of carbon reporting and accountants' behavior towards sustainability is rapidly evolving and generating numerous publications with diverse variables and theoretical approaches. By analyzing publication metadata, bibliometrics can provide empirical insights into research trends, collaboration networks, and the most influential topics in the environmental and sustainability accounting discipline. This approach also enables researchers to identify understudied research gaps, thus providing a basis for further, more in-depth empirical research.

The bibliometric methodology was chosen because it guarantees objectivity through quantitative analysis of published literature, unlike conventional literature reviews, which tend to be subjective. Furthermore, this approach supports the integration of various data sources from reputable scientific databases such as Scopus and Google Scholar, thus providing a broader and more comprehensive analysis (Zupic & Čater, 2015). Through visual analysis based on VOSviewer, the results of this study are expected to provide a conceptual contribution to mapping the relationships between variables and the direction of carbon reporting research development in the context of accounting professional behavior.

3.2 Data Sources and Types

The data sources for this study were scientific publications indexed in two major databases: Scopus and Google Scholar. These two databases were chosen because they provide a broad and multidisciplinary coverage of academic literature, encompassing reputable international journal articles, proceedings, and relevant policy documents. Scopus was chosen because of its robust indexing system, comprehensive metadata, and widespread use in global bibliometric research (Falagas et al., 2008). Meanwhile, Google Scholar was used as a complement to capture literature that may not yet be indexed in Scopus, particularly conceptual articles, working papers, and academic publications from non-commercial institutions. The data collected included publication metadata such as title, author names, year of publication, journal name, institutional affiliation, keywords, number of citations, and abstract. The publication timeframe used was not strictly limited, but focused on research within the last decade (2015–2025) to capture the dynamics of the development of carbon reporting discourse and accountants' attitudes toward sustainability. The collected data included publications with the main keywords "carbon risk perception," "behavioral compliance of accountants," "sustainability mindset," and "accuracy of carbon performance reporting." The data collection process was conducted in October 2025, and all obtained data was downloaded in CSV and RIS formats to ensure compatibility with VOSviewer software and ease of metadata processing.

3.3 Data Collection Process

The data collection stage was conducted using a systematic search strategy based on predetermined keywords. The search process was conducted directly on Scopus and Google Scholar pages, using a combination of Boolean operators such as AND, OR, and NOT to broaden or narrow search results. For example, the search string used was: "carbon risk perception AND behavioral compliance AND sustainability mindset AND carbon performance reporting accuracy." This strategy was designed to capture publications with high relevance to the research variables and the sustainability accounting context. All search results were then exported to Microsoft Excel for an initial screening process, during which duplicate data and irrelevant publications were removed.

Bibliometric data collection in this study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations, which aim to ensure transparency and traceability in the literature selection process (Page et al., 2021). The PRISMA approach allows researchers to systematically identify, select, and synthesize relevant research results based on predetermined inclusion and exclusion criteria. This approach also ensures the replicability and validity of the results, which are important prerequisites in bibliometric research.

3.4 Data Selection Process

The data selection process followed the four main stages outlined in the PRISMA diagram: identification, screening, eligibility, and inclusion. In the identification stage, all relevant articles were obtained from the initial search results in Scopus and Google Scholar. In the screening stage, publications that were non-academic, lacked full access, or were irrelevant to the topic of sustainability accounting were removed. Next, the eligibility stage ensured that retained articles genuinely researched or discussed the concepts of carbon risk perception, behavioral compliance, sustainability mindset, or the accuracy of carbon performance reporting. Finally, in the inclusion stage, only articles that met all criteria were used in the final bibliometric analysis.

This selection process resulted in a valid dataset for analysis using VOSviewer. The use of the PRISMA method provides methodological assurance because it supports research transparency and replication, while also allowing researchers to avoid selection bias and ensure that the analysis results represent a true representation of the literature (Moher et al., 2015).

3.5 Data Analysis and Interpretation Process

Data analysis was conducted using the latest version of VOSviewer software, developed by Van Eck and Waltman (2021), due to its capability to comprehensively visualize bibliometric relationships through network visualization, overlay visualization, density visualization, and co-author collaboration maps. The analysis process began with data cleaning to remove duplication, inconsistent author name spellings, and keyword spelling variations. A keyword co-occurrence analysis was then performed to identify dominant

themes in the literature. Network visualization was used to map the relationships between keywords and research topics, overlay visualization to display publication time trends, density visualization to identify high-frequency research areas, and co-author collaboration to understand the collaborative network of researchers in this field.

The results were interpreted descriptively and visually, connecting the bibliometric findings to sustainability accounting theory and concepts. With this approach, the study demonstrated how carbon risk perception, behavioral compliance, and sustainability mindset have developed in the scientific literature, while also identifying new research areas to explore the influence of accountant behavior on carbon reporting accuracy.

4. Results and Discussion

4.1 Network Visualization

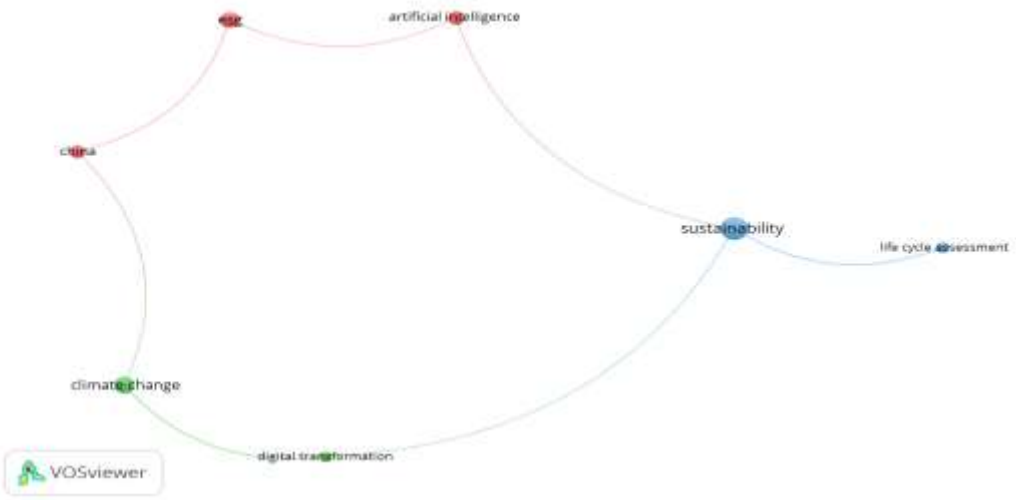

Figure 1. Network Visualization.

Figure 1 shows a network visualization of the results of a bibliometric analysis using VOSviewer software with the main keywords "carbon risk perception," "behavioral compliance of accountants," "sustainability mindset," and "accuracy of carbon performance reporting." This network visualization illustrates the interrelationships between research topics through the co-occurrence relationship between keywords in scientific publications. Each node represents a keyword that appears in the literature, while the node size reflects the frequency of its occurrence. Connecting lines between nodes indicate associative relationships, and cluster colors depict thematic groups of interrelated research. Based on the network map, several prominent main clusters are visible, such as the red cluster that focuses on carbon disclosure, environmental accounting, and corporate sustainability reporting; the green cluster related to climate risk perception and risk management; and the blue cluster centered on ethical behavior, accountants' compliance, and sustainability mindset.

These results demonstrate that research on carbon performance reporting has developed across two broad domains: first, the technical domain, which highlights reporting methodology and regulatory policies; and second, the behavioral and psychological domain, which examines how individual perceptions and values influence reporting quality. Therefore, this research, which combines risk perception, behavioral compliance, and sustainability mindset aspects to assess carbon reporting accuracy, finds a strong intersection between these two domains, providing strong novelty. Based on Institutional Theory (DiMaggio & Powell, 1983), the relationships within this network reflect normative and cognitive pressures that shape reporting behavior at the organizational and individual levels. Furthermore, the Theory of Planned Behavior (Ajzen, 1991) supports the understanding that accountants' compliance behavior with sustainability reporting is influenced by attitudes, subjective norms, and risk perceptions captured in the blue cluster.

Critically, the network visualization also reveals a significant research gap. Despite the strong connection between carbon disclosure and sustainability reporting, explicit links with accountants' behavioral compliance remain limited. This suggests that the individual behavioral dimension of carbon reporting has not been widely explored empirically, despite the accountant's role as report preparer having significant potential to influence the accuracy

and credibility of carbon data. Therefore, the purpose of this article, which examines how carbon risk perception and sustainability mindset shape accountants' behavioral compliance, has important conceptual contributions. These visual findings demonstrate the need for integration between behavioral and legitimacy theories to explain the relationship between individual motivation and carbon reporting accuracy amidst increasing demands for sustainability transparency.

4.2. Overlay Visualization

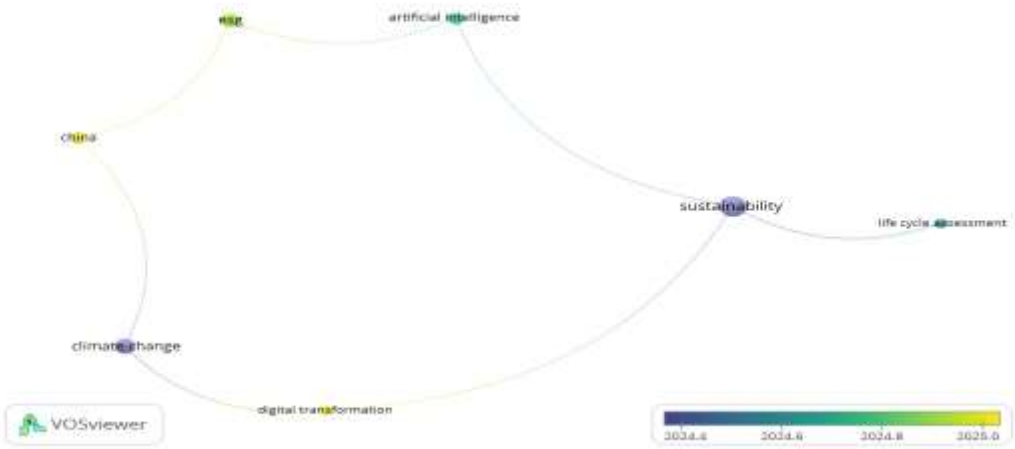

Figure 2. Overlay Visualization.

Figure 2 displays a visualization overlay that maps the temporal development of research topics based on publication year. Yellow indicates relatively new themes, while blue indicates topics that appeared earlier in the literature. Based on this map, early research topics (circa 2015–2020) were dominated by terms such as environmental disclosure, corporate sustainability, and carbon management, indicating an initial focus on environmental reporting and corporate strategies in addressing carbon regulations. Meanwhile, more recent themes (2020–2025) shifted to more psychological and behavioral issues such as risk perception, ethical behavior, compliance intention, and sustainability mindset. This shift indicates a shift in the research paradigm from a macro approach (corporate-level reporting) to a micro approach (individual and behavioral level).

This temporal shift reinforces the current research position that integrates individual psychological variables into carbon performance reporting. This finding aligns with Social Cognitive Theory (Bandura, 1986), which explains that accountant behavior is influenced by the interaction between personal cognition, the social environment, and organizational systems. In this context, behavioral compliance is not only the result of external pressures but also a reflection of an individual's risk perception and sustainability orientation. The overlay visualization also shows that terms such as carbon performance accuracy and assurance of sustainability reporting only emerged after 2021, demonstrating the current research trend highlighting the quality and accuracy of sustainability data.

Critically, these results reveal a significant research gap: despite the increasing trend toward behavioral issues, there is still little research examining the empirical relationship between carbon risk perception and reporting accuracy through accountants' compliance behavior. Much of the literature still focuses on the influence of policies or organizational governance. Therefore, this article offers a novelty by emphasizing the psychological and ethical aspects of carbon reporting, expanding the traditional understanding of environmental accounting, which has been dominated by technocratic approaches. Methodologically, this overlay map demonstrates strong justification for adopting a bibliometric approach to track the evolution of research and identify conceptual gaps that can be addressed in further research.

4.3 Density Visualization

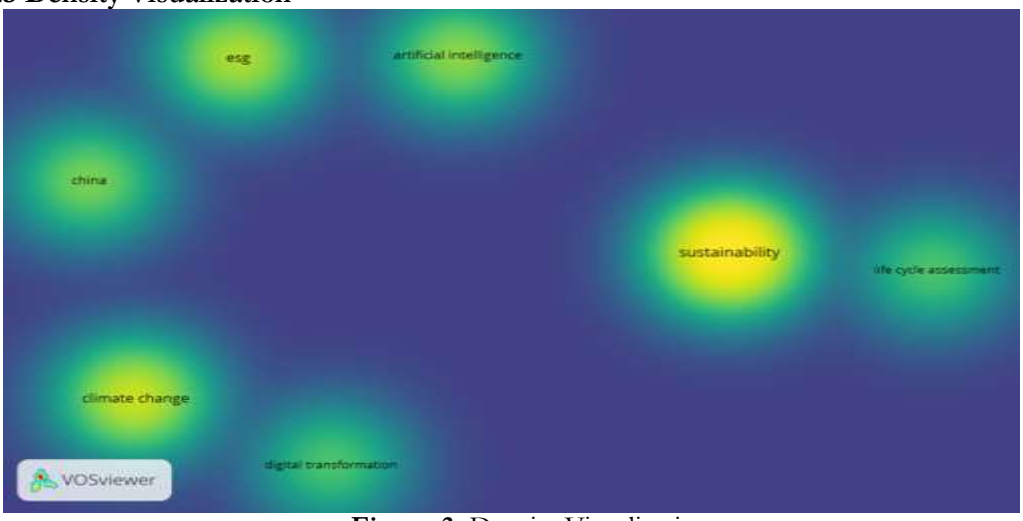

Figure 3. Density Visualization.

Figure 3 displays a density visualization showing the frequency of term occurrences in publications related to the research topic. Bright yellow indicates areas with high frequency, while green or blue areas indicate lower intensity. Based on this map, the densest areas are centered on terms such as carbon disclosure, climate change reporting, and sustainability performance, indicating that these three topics dominate the literature in the field of sustainability accounting. However, around these core areas, terms with medium density appear, such as risk perception, behavioral compliance, and sustainability mindset, indicating that behavioral variables are still emerging topics.

This density analysis shows that technical issues in carbon reporting remain mainstream, while behavioral and psychological dimensions are only just beginning to receive attention. This supports the research gap between quantitative measurements of carbon emissions and the human factors that influence reporting accuracy. Based on Legitimacy Theory (Suchman, 1995), reporting accuracy is often used to maintain a company's legitimacy in the public eye. However, if not accompanied by ethical compliance behavior from accountants, this legitimacy can be symbolic or manipulative. Therefore, this research's focus on accountants' behavioral compliance and sustainability mindset is a logical extension of the dominant, overly technical literature.

The results of this density visualization also reflect a novel research direction linking carbon risk perceptions with sustainability mindsets as psychological determinants of carbon reporting accuracy. Utilizing Values Beliefs Norms theory (Stern, 2000), this relationship can be explained through the internalization of environmental values that drive professional compliance and increased information accuracy. These visualization findings support the article's objective: to construct a conceptual model that integrates cognitive, normative, and affective factors to explain variations in carbon reporting quality.

4.4 Co-Author Collaboration Visualization

Figure 4. Co-Author Collaboration Visualization.

Figure 4 depicts a co-author collaboration visualization, which shows the collaborative network among authors actively researching related topics. Each node represents an author, while connecting lines indicate collaborative relationships in joint publications. This map

shows that the collaborative network in research related to carbon risk perception and sustainability re-porting is relatively fragmented, with several groups of authors working separately. Large clusters appear to be dominated by authors from countries with strong commitments to climate regulation, such as the UK, Australia, the Netherlands, and China, while the in-volvement of researchers from developing countries remains limited. This situation indicates a geographic imbalance in scientific contributions related to the topic of accountant behavior and carbon reporting.

The limited cross-border collaboration highlights a contextual research gap. Most research focuses on reporting policies and practices in the corporate sector of developed countries, while studies examining the professional behavior of accountants in developing countries are rare. Yet, social, cultural, and regulatory contexts can influence how risk perceptions and sus-tainability mindsets are formed. Based on Institutional Theory, different institutional envi-ronments will result in different compliance behaviors. Therefore, this article contributes to filling this gap by encouraging the expansion of studies to more diverse geographic contexts, including Southeast Asia and countries with carbon-intensive energy sectors.

Critically, the co-author map also reveals the existence of thematic sub networks, with one group focusing on carbon disclosure and assurance, while the other examines behavioral accounting and ethics. This disconnect reflects the lack of theoretical integration between environmental accounting and behavioral psychology research. By combining these two perspectives, this study enhances its scientific novelty by offering a cross disciplinary conceptual model that positions accountants as both moral and technical agents in ensuring the accuracy of carbon reporting. From a Social Cognitive Theory perspective, such cross-disciplinary collaboration will enrich our understanding of the interaction between social systems and professional behavior. Overall, this collaboration map supports the article's goal of encour-aging a multidisciplinary and collaborative approach to developing a more integrative framework for sustainability accounting research.

5. Conclusion

The analysis shows that the dynamics of research on carbon risk perception, ac-countants' behavioral compliance, and sustainability mindset have developed into an interdisciplinary domain that connects environmental accounting with organizational behavior and professional psychology. Bibliometric visualizations using network, overlay, density, and co-author maps reveal that although studies on carbon reporting largely highlight technical and regulatory aspects, the behavioral and cognitive di-mensions of individual accountants remain relatively underexplored. This finding reinforces the research gap that the accuracy of carbon performance reporting is determined not only by measurement systems or reporting standards, but also by the risk perceptions, ethical values, and sustainability mindsets of the individuals in-volved. Based on the Theory of Planned Behavior and Institutional Theory, this study confirms that accountants' compliance behavior is shaped by social pressure, professional norms, and moral beliefs, which mediate the relationship between carbon risk perception and reporting quality.

These findings suggest the importance of integrating sustainability ethics and carbon risk management training into accounting curricula and corporate policies. Aca-demics should expand empirical research that examines the relationship between psychological and behavioral factors in accountants and the quality of carbon re-porting across various geographic contexts. Regulators and professional bodies are also advised to strengthen carbon reporting standards, which should not only be based on administrative compliance but also consider the moral and behavioral di-mensions of individual report preparers to ensure the accuracy and credibility of sustainability information.

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