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# Do Sustainable Companies Care About Climate Risks? Content Analysis of Disclosures of Companies Listed on ISE B3

## Empresas sustentáveis se preocupam com os riscos climáticos? Análise do conteúdo das divulgações das empresas listadas no ISE B3

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## RESUMO

Este trabalho visa identificar como foram apresentados os discursos sobre os riscos climáticos pelas empresas consideradas sustentáveis e listadas no ISE B3, por meio da análise de conteúdo de seus relatórios corporativos e de sustentabilidade. O estudo utiliza a teoria da legitimidade para analisar como essas organizações buscam legitimar suas ações ambientais junto aos *stakeholders*. A pesquisa adota uma abordagem qualitativa, por meio da análise de conteúdo dos relatórios corporativos das empresas pertencentes ao Índice de Sustentabilidade Empresarial (ISE) da B3, no período de 2019 a 2023, com o auxílio do software ATLAS.ti® para a codificação das documentações. Foram examinados 129 relatórios corporativos, dos quais emergiram 3.009 citações durante a etapa de análise, gerando 3.541 aplicações aos códigos estabelecidos com base no *Task Force on Climate-related Financial Disclosures* (TCFD). Constatou-se que as empresas adotaram e divulgaram todos os quatro pilares recomendados pelo TCFD: Governança, Estratégia, Gestão de Riscos e Métricas e Metas. Os resultados indicam que o segmento de negócio não impacta o nível de divulgação dos dados climáticos. Os achados desta pesquisa contribuem para o avanço do debate acadêmico sobre os riscos climáticos e a sustentabilidade nas empresas, além de ampliar o conhecimento do mercado de capitais brasileiro sobre esses riscos, ao destacar questões emergentes, pouco exploradas e sugerir novos caminhos de investigação. Ademais, ao utilizar as recomendações do TCFD, que serviram de base para a construção das normas IFRS S, o estudo também antecipa reflexões sobre o grau de aderência das companhias a esse novo padrão internacional de divulgação.
**Palavras-chave:** Riscos Climáticos, ISE, Análise de Conteúdo, Teoria da Legitimidade.

## *ABSTRACT*

This study aims to identify how climate risk discourses were presented by companies considered sustainable and listed on the ISE B3, through a content analysis of their corporate and sustainability reports. The study uses legitimacy theory to analyze how these organizations seek to legitimize their environmental actions among stakeholders. The research adopts a qualitative approach, analyzing the content of corporate reports of companies listed on the B3 Corporate Sustainability Index (ISE) from 2019 to 2023, using ATLAS.ti® software to code the documents. A total of 129 corporate reports were examined, from which 3,009 citations emerged during the analysis stage, generating 3,541 applications to the codes established based on the Task Force on Climate-related Financial Disclosures (TCFD). It was found that the companies adopted and disclosed all four pillars recommended by the TCFD: Governance, Strategy, Risk Management, and Metrics and Targets. The results indicate that the business segment does not impact the level of climate data disclosure. The findings of this research contribute to the advancement of the academic debate on climate risks and sustainability in companies, in addition to expanding the Brazilian capital market's knowledge of these risks

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by highlighting emerging, underexplored issues and suggesting new avenues for research. Furthermore, by utilizing the TCFD recommendations, which served as the basis for developing IFRS S standards, the study also anticipates reflections on the degree of companies' adherence to this new international disclosure standard.

**Keywords:** Climate Risks, ISE, Content Analysis, Legitimacy Theory.

## 1. INTRODUCTION

Sustainability has become an increasingly prominent topic in the business, academic, and social spheres, and in this context, the term ESG (Environmental, Social, and Corporate Governance) has emerged, referring to the performance of these three spheres in business decision-making (Zhao *et al.*, 2018). Current investigations show that there is great concern about the subject, and it is now considered essential for risk analysis and investment decision-making, generating a great challenge in the business sector (Auer; Schumacher, 2016; Dyck *et al.*, 2019; Amel-Zadeh; Serafeim, 2018; Giese *et al.*, 2021).

Brazilian companies are applying ESG criteria more frequently, which enhances competitiveness within the sector and indicates greater solidity, lower costs, better reputation, and greater resilience to uncertainties and vulnerabilities (Barros; Martins, 2021; Gomes; Vasconcelos, 2021). Bertão (2022) notes the growing number of web searches on this topic, which increased by 150% between 2021 and 2022 compared with the previous period.

Following the growing demand for sustainability transparency, the ISSB published the IFRS S1 and IFRS S2 standards in 2023, which seek to unify corporate reporting practices by establishing global parameters for the disclosure of sustainability information and climate-related risks and opportunities. These standards aim to provide useful information to investors and other stakeholders, strengthening the comparability and relevance of the reports. These regulations use the TCFD (Task Force on Climate-related Financial Disclosures) as a reference, created by the *Financial Stability Board* in 2015, which established recommendations for the disclosure of risks and opportunities related to climate change.

Nationally, some indices that track B3's publicly traded companies (Brasil, Bolsa and Balcão) stand out to support investors with information related to sustainability, among them the Corporate Sustainability Index (ISE B3), composed of companies committed to corporate sustainability, and in addition to consolidating itself as an important reference in socially responsible investments in Brazil, the ISE B3 stands out for its historical performance superior to the other B3 indexes, also acting as an inducer of good practices in the corporate environment (B3, n.d; ISEB3, n.d.), therefore, the companies owned by it are considered sustainable and a standard of green investments.

The ISE presents itself as a reference for investment in socially responsible companies in Brazil and encourages good business practices, with a relevant historical track record since 2005. In 2023, the theoretical portfolio of the ISE index comprised 66 companies recognized for their business sustainability and use of ESG practices (Cunha; Samánez, 2012; Sobrosa Neto *et al.*, 2020; Possebon *et al.*, 2024; Silva; Mascena, 2024).

Researchers in Brazil have been studying the companies belonging to the ISE, such as Sobrosa Neto *et al.* (2020), who researched the economic and financial performance of the Brazilian companies that are part of the ISE portfolio in relation to the other companies in the Ibovespa, between the years 2014 and 2018, identifying a neutral relationship between financial performance and sustainable development. Possebon *et al.* (2024), in turn, reveal significant connections between high ESG scores and lower cost of capital, as well as better operational performance. Silva and Mascena (2024) analyzed the relationships between the environmental, social, and governance dimensions and the financial performance of companies listed on the ISE, and found a positive and significant relationship between the social dimension and ROE. One of the challenges in sustainability studies is determining how involved a company is with green causes, or whether it is just using this theme to gain the benefits that come from supporting such causes, a phenomenon known as *greenwashing*. *Greenwashing* is a practice used in company communications, especially to customers. In the practice of *greenwashing*, companies or products are presented in such a way as to appear environmentally friendly without actually being (Andreoli; Costa; Prearo, 2022).

The reason companies engage in greenwashing to appear more sustainable can be explained by Legitimacy Theory. According to the theory, companies conduct their activities in accordance with society's expectations, voluntarily disclosing information in this regard (Sahib; Malik, 2023). However, as the decision to disclose environmental information before IFRS S1 and S2 was elective, managers had a margin for the choice of published information, which can generate greenwashing (Ramalho; Silva; Garcia, 2023).

Rossoni and Rossoni (2023) highlight the importance of the topic, noting that disclosures of climate risks have gained prominence. In addition, they say that companies that communicate their climate risk indicators clearly establish better communication with their stakeholders. Zanoni and Takahashi (2023) also reinforce the importance of studying sustainability disclosures. This demonstrates the importance of studying how companies communicate information to stakeholders.

In this context, the present research aims to contribute to studies on corporate sustainability, sustainability standards, *greenwashing*, and climate risk management, answering the following question: How do companies consider sustainable discourse in relation to their disclosures about climate risks? As its main objective, the research seeks to identify how companies considered sustainable and listed on the ISE B3 present discourses on climate risks.

This research is justified by the relevance of the socio-environmental theme in the business context, whether due to climate change, the impact of organizational activities on the environment and society, or the visibility they bring to companies by being in line with environmental practices, in addition to making interested parties aware of the relevance of this theme (Faria; Andrade; Gomes, 2018; Rosa; Silva, 2019; Jesus; Silveira; Nogueira, 2023). In addition, as the IFRS S standards were developed based on the TCFD's recommendations, the study contributes by anticipating and measuring companies' adherence to these standards, thereby expanding their practical and academic relevance. In addition, it elucidates for researchers and stakeholders how companies in the main reference index for investments in ESG stocks in Brazil have made disclosures on climate risks.

## 2. LITERATURE REVIEW

### 2.1 Climate Risks and Accounting

Research on climate change began in the last century, but has gained prominence in the last three decades

by the efforts of academia and society in relation to this theme (Rossoni; Rossoni, 2023). One of the main milestones in this area was the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992 (Rio 92). It signed the United Nations Framework Convention on Climate Change (UNFCCC), which aims to control greenhouse gas concentrations to avoid dangerous interference with the climate (Brasil, n.d.).

This convention defines climate change as "a change in climate that is attributed, directly or indirectly, to human activity that modifies the composition of the global atmosphere and that adds to the natural climate variability observed over comparable periods of time" (United Nations, 1992, p. 3).

Thus, in the business context, climate change affects the continuity of organizations in the market, and such impacts occur both in the supply of inputs used in production and in the preferences and behaviors of consumers in relation to goods and services (Faria; Andrade; Gomes, 2020). Given these perspectives, Ferreira (2022, p. 26) states that climate risks "are potential risks generated by the effect of climate change, such as droughts, landslides, and floods, on global financial stability." Sardeiro and Bilhim (2021) highlight that climate risks entail broad consequences across social, economic, and environmental dimensions globally. The risk associated with climate change involves uncertainties about the future and demands profound transformations in society's way of life. It is a theme that poses ethical challenges and requires changes in attitude, especially in coordinating international efforts aimed at the common good (Sardeiro; Bilhim, 2021).

However, the process of disclosing these risks is complex, since it requires the identification of information capable of meeting the interests of *stakeholders*, especially considering the positive relationship between disclosure and organizational performance (Faria; Andrade; Gomes, 2020). To assist in identifying climate risks, the Task Force on Climate-related Financial Disclosures (TCFD), whose name in Portuguese means "Task Force on Climate-related Financial Disclosures," released climate disclosure recommendations that list climate risks and their potential financial impacts.

For the TCFD (2017), risks related to climate change can be classified into Transition Risks, which are risks to the transition from a low-carbon economy, and Physical Risks, which can be driven by both extreme and one-off (acute) weather events, and gradual and persistent changes in weather patterns over time (chronic) (TCFD, 2017). As well as risks, the TCFD (2017) also lists opportunities, which are actions to mitigate and adapt to climate change, which would vary according to the type of company, market, and region where they operate.

At the same time, accounting and sustainability converge in several aspects, with the main objective of faithfully demonstrating to *stakeholders* and other users of business reports how companies are dealing with social and environmental issues, especially in this transition stage between the non-mandatory nature of these statements and the entry into force of international sustainability standards.

Mobus already stated in 2005 that environmental disclosures alter the dynamics of legitimacy by incorporating substantive information, connecting financial reports to environmental performance, expanding public interest, and reinforcing their relevance in the face of the growing concern of investors and regulators about business impacts (Mobus, 2005).

From this perspective, Sardeiro and Souza (2021) present an overview of national and international standards that impact environmental issues, including standards that indirectly address environmental aspects, such as intangible asset standards or estimation policies. Expanding this discussion, the *International Sustainability Standards Board* (ISSB) published the new sustainability standards, IFRS S1 and S2, in June 2023, which establish a standardized language for disclosing the impact of climate risks and opportunities on a company's prospects (IFRS, 2023).

These standards mark the beginning of global standardization on sustainability and climate, as IFRS itself (2023, p. 1) informs: the "standards create a common language to disclose the effect of climate-related risks and opportunities on a company's prospects", and "both fully incorporate the recommendations of the *Task Force on Climate-related Financial Disclosures* (TCFD)".

IFRS S1 introduces a set of disclosure requirements that aim to enable companies to inform investors about the sustainability-related risks and opportunities they face in the short, medium, and long term, and their effects on the company's operations and value. In addition, IFRS S2 establishes specific guidelines for climate-related disclosures, allowing for analysis of the effects of climate change on the organization, including physical, transition, and climate-related opportunity risks (IFRS, 2023; EY, 2023).

The *International Sustainability Standards Board* (ISSB) was created to establish global sustainability standards, promote a balance between qualitative and quantitative information, and draw significantly on the TCFD's recommendations (Mantovani, 2025). The ISSB S2 standard, which addresses climate disclosures, follows the TCFD framework, covering physical and transition risks and requiring companies to disclose climate risks and opportunities, sharing the same pillars: Governance, Strategy, Risk Management, and Metrics and Targets (IFRS, 2023).

Thus, it can be concluded that accounting and sustainability are intrinsically related and play complementary roles in promoting more responsible and transparent practices in organizations.

## 2.2 Theory of Legitimacy

Legitimacy can be defined as "a generalized perception or assumption that an entity's actions are desirable, adequate, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). In other words, legitimacy is the social acceptance of something considered good or reasonable. In this work, succinctly, he refers to companies with a good reputation and credibility in the market.

From this perspective, Dowling and Pfeffer (1975) provide the context of organizational legitimacy and its relation to organizational behavior. The authors indicate that companies seek a balance among actions that are economically viable, lawful, and legitimate in the eyes of society and its users of information. To achieve these objectives, companies develop various legitimizing behaviors, such as the use of other legitimate organizations, public persons, and environments that contribute to their legitimate actions (Dowling; Pfeffer, 1975).

As Suchman (1995) states, the public and its opinion underlie organizational legitimacy, either by strengthening reputation or by providing financial support. As organizations gain social acceptance, they evolve from the process of legitimization to consolidated legitimacy. From this point on, their efforts are directed both to maintaining this legitimacy and to its eventual recovery, if

it is compromised (Bueren; Gubiani; Soares, 2013). Suchman (1995) also presents a typology of legitimacy, including pragmatic, moral, and cognitive legitimacy.

Pragmatic legitimacy relates to the public's interests in relation to the organization; morality concerns the social "value judgment" about whether the organization promotes well-being; while cognitive legitimacy reflects the unconscious and overt acceptance that the organization is appropriate. The three typologies of legitimacy coexist and "involve a generalized perception or assumption that organizational activities are desirable, adequate or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchmann, 1995, p. 577).

In addition, Dowling and Pfeffer (1975, p. 133) indicate that "as regulated organizations are more heavily dependent on environmental acceptance for their economic well-being, they engage more in activities of alignment with their environment." In this way, companies, especially those listed on the stock exchange, try to be increasingly accepted by their communities.

In this context, Mobus (2005) notes that the accounting literature explores legitimacy as a strategic issue, in which managers work to meet public-interest expectations and ensure their organizational legitimacy. In the context of sustainability, the author says that, for many organizations, environmental performance is a central element of their legitimacy (Mobus, 2005).

Considering these indications, it can be concluded that accounting, as a science that mainly studies organizations, and the theory of legitimacy, as a principle that explains the reasons why companies make certain disclosures, are allies in the identification of the statements that institutions make about sustainability and, in the context of this dissertation, specifically disclosures about the climate risks faced by them.

## 2.3 Related Studies

The existing literature has extensively explored the topic of sustainability and accounting reporting, making it a relevant area of study in accounting science. As can be seen in research such as that of Momo, Araujo and Behr (2018), who studied content analysis through the frequency counting of words in titles and abstracts of articles published at the EnANPAD congress in the line of Accounting and Sustainability in the period from 2010 to 2016, reaching the conclusion that there is a focus on topics of measurement and dissemination of actions related to sustainability in publications of this period, reinforcing the relevance of the theme, transparency and disclosure of information as elements that can be incorporated into the organizational culture.

On the other hand, the lack of regulation poses a challenge for this research field, as evidenced by Garcia *et al.* (2015). The authors focused on a specific type of document, the sustainability report (SR), to investigate the accuracy of the economic indicators of the GRI standard, which presented a medium or low degree of accuracy for all 23 companies analyzed, because, as the companies were still beginning to adopt integrated reporting, which is also voluntary, they had only the RS for the period analyzed.

Regarding research on climate risks, Krueger, Sautner, and Starks (2020) surveyed institutional investors between 2017 and 2018 in order to understand how they consider climate risks in their investment decisions. Respondents believed that there are financial implications of these risks, but that the most common reasons for incorporating them into their decisions include the preservation of image, ethical or legal aspects, and the conviction that climate risks impact the risk and return on investments. Thus, it can be seen that real investors are already considering this type of risk when diversifying their portfolios, indicating that the theme is currently highly relevant to *stakeholders*. With the same focus, Faria, Andrade, and Gomes (2018) developed a survey of managers and experts on climate change. Converging with Krueger, Sautner, and Starks (2020), they indicated that climate change disclosure is part of business strategies to meet the pressures of stakeholders who have already realized the impact of extreme weather events.

In addition, the authors note the importance of the participation of companies "in the ISE, as an initiative to disseminate sustainability", as this "was considered another determining factor because it contributes to the expansion of transparency for stakeholders" (Faria; Andrade; Gomes, 2018, p. 180), an index that is a global reference in management and governance indicators, in addition to being in continuous improvement (Camacho; Albuquerque; Carvalho, 2023), helping, once again, in the delimitation of the focus companies of this study.

More recent studies, such as the *EY Global Climate Action* Barometer (2024), analyzed about 1,400 companies worldwide and concluded that companies are reporting, but with a lack of urgency. In this sense, it is clear that both companies and *stakeholders* recognize climate risks. However, there is still no balance, as investors are looking for more "sustainable" companies, as noted by Krueger, Sautner, and Starks (2020) and Faria, Andrade, and Gomes (2018). However, companies are not yet financially prepared for such changes (EY, 2024).

## 3. METHODOLOGICAL PROCEDURES

The objective of this research is to identify the disclosures of climate risks made by companies considered sustainable in their corporate reports, using the B3 Business Sustainability Index (ISE) to classify them. To conduct this research, a qualitative approach was adopted, as described below.

The first phase was the identification of the companies that made up the ISE on the B3 stock exchange website between 2015 and 2023, since in 2015 the Paris Agreement was signed, marking the global commitment to addressing climate change, allowing analysis of the permanence of companies in it. Subsequently, the research collected accounting reports and other disclosures made by the companies on their own websites, which classifies the present research as descriptive and documentary. As described by Rover and Borba (2007, p. 4), "documentary research is justified to the extent that the researcher can organize the information that is dispersed in a document, attributing new importance as a source of consultation".

The initial sample was limited to companies that remained in the ISE for all nine years, that is, from 2015 to 2023, resulting in a final sample of 19 companies. However, because the climate risks of financial companies tend to be idiosyncratic, it was decided to exclude them from the study's final sample, as well as the company Engie, which submitted documentation in image format every year, making it impossible to use these materials in ATLAS.ti® application. As some companies, such as Natura, also did not have all years of disclosure, we chose to analyze the last five years of these disclosures to allow for better comparison.

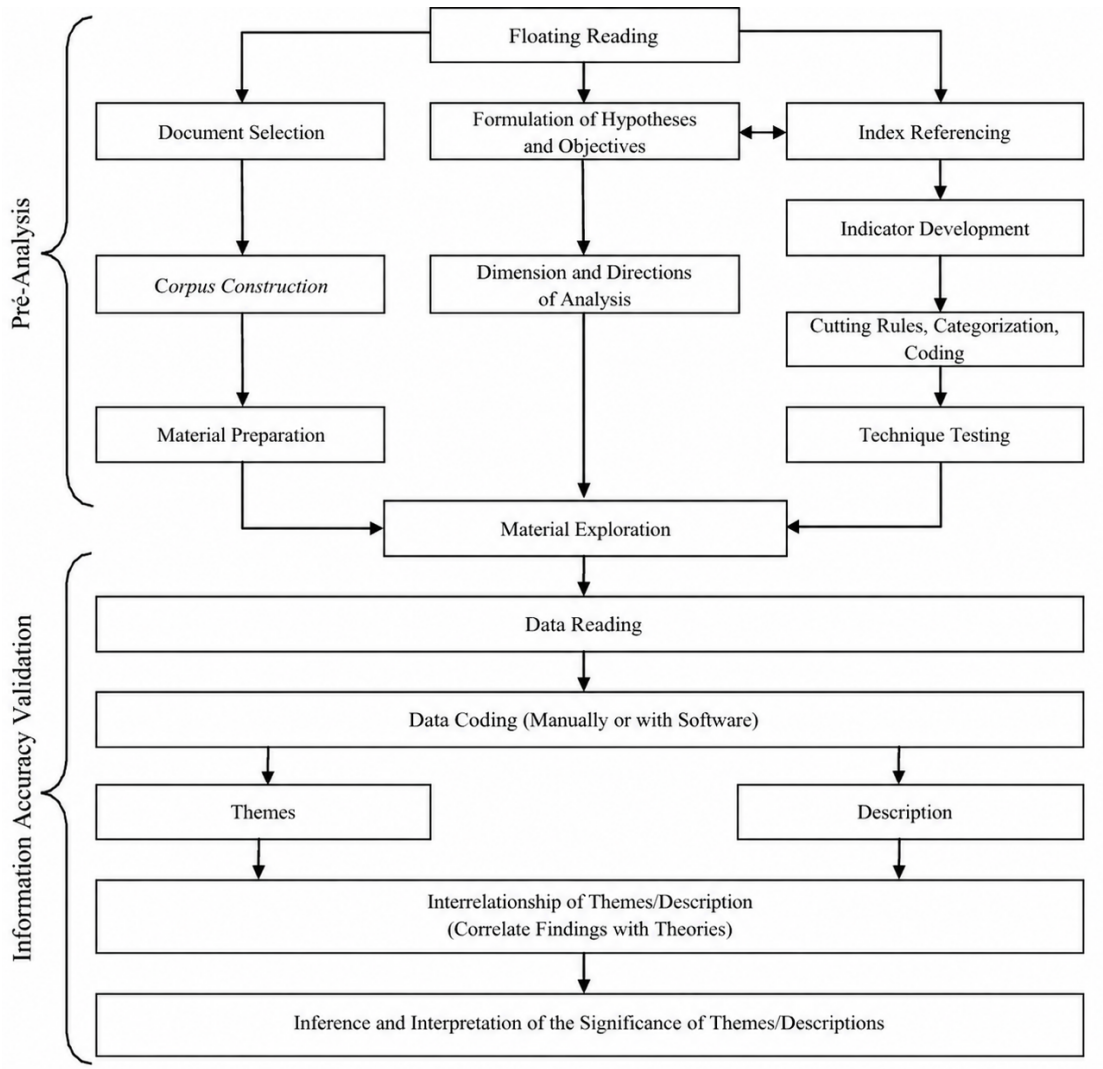
The final sample consisted of: AES Brasil Energia (formerly AES Tietê); CCR; Cemig; COPEL; Ecohighways; Fleury; Klabin; Lojas Renner; Natura; Telefonica; Tim; and Weg. The reports used in content analysis were: Management Reports; Disclosure release; Sustainability Reports; Integrated Reporting; ESG performance report; Climate-related Financial Disclosures Report (TCFD); Emissions Inventory; ESG Report; Green Bonds Report; Climate Action Plan; Annual Report on Socio-Environmental and Economic-Financial Responsibility; and Social, Environmental and Climate Risk and Opportunity Reports (GRSAC). It was decided not to use the financial statements in the analysis because they provide very limited data on sustainability and climate risks.

The form of analysis used in this work was Content Analysis, with references to the works of Laurence Bardin (originally published in 1977) and Creswell (2010). For the author, the organization of data analysis in this method is carried out through three stages: "pre-analysis, exploration of the material, and treatment of results, inference and interpretation" (Bardin, 2021, p. 121), while Creswell (2010) does not distinguish between stages, but It places a greater emphasis on the data analysis steps.

As stated by Mozzato and Grzybovski (2011), content analysis is widely recognized as a qualitative technique pertinent to organizational studies, contributing significantly to the improvement of the quality of qualitative research in the field of administration, in its various areas, and the present research is aimed at expanding the application of the use of these studies in the field of accounting sciences.

In this way, it is verified that these two authors present a theoretical-methodological framework for conducting qualitative research in content analysis. Bardin (2021) places greater emphasis on the pre-analysis stage, as he considers it a fundamental moment, and in fact, it is; the better planned the research is, the more balanced the realization and analysis of the data can be. On the other hand, Creswell (2010) emphasizes the stages of execution and interpretation, as they are unquestionably the most important stage since they materialize his work. In view of this, the most appropriate model for this research is the one that strikes a balance between the two authors' approaches. Thus, the research was designed to integrate these perspectives and was conducted with the utmost methodological rigor, as shown in Figure 1 below.

**Figure 1** – Phases of Content Analysis in Search




Source: Prepared by the author based on Bardin (2021, p. 128) and Creswell (2010, p. 218).

As for Coding and Categorization, fundamental steps for content analysis, they had the theme as the unit of analysis and were elaborated based on the guidelines of the TCFD of 2017, the norm in force during the years of analysis of climate disclosures, the following Table 1 was prepared to guide the codification of the current research.

**Table 1** – Category and Coding

| CATEGORY | CODING | DESCRIPTION |
|---|---|---|
| 1. Governance | 1.1 Company governance over risks | How the Board supervises; Role of management in risk assessment and management; Processes and frequency with which board/management members are informed about issues related to climate change, and how the goals are monitored. |
| | 1.2 Governance of the company on opportunities | |
| 2. Strategy | 2.1 Real impacts | Processes used to determine which risks and opportunities may have a material financial impact on the organization; how these issues affect the business; how they would be affected, and what they would change in a 2°C or lower scenario |
| | 2.2 Potential risks | |
| | 2.3 Potential opportunities | |
| | 2.4 Strategy and planning financial | How climate change issues enter your financial planning process, the periods used, and how these risks and opportunities are prioritized. |
| 3. Risk Management | 3.1 Risk identification and assessment process | How organizations determine the relevance of climate-related risks to other risks. |
| | 3.2 Risk management process | How they make decisions to mitigate, transfer, accept, or control such risks; Processes to prioritize climate-related risks |
| 4. Metrics and Targets | 4.1 Risk assessment metrics | Metrics used to measure and manage risks and opportunities related to climate change; History of metrics; describe whether and how related performance metrics are incorporated into compensation policies; Domestic carbon prices; Revenue from products and services designed for a low-carbon economy. |
| | 4.2 Risk management metrics | |
| | 4.3 Greenhouse gas (GHG) emissions | Scope 1, Scope 2 and, where applicable, Scope 3 greenhouse gas emissions, and the risks related to them. |
| | 4.4 Risk assessment targets | Key climate-related objectives, such as those related to GHG emissions, water use, energy use, etc., in accordance with forecasts for regulatory requirements, market constraints; financial or efficiency objectives, financial loss tolerances, avoided GHG emissions throughout the product lifecycle, or net revenue targets for products and services designed for a low-carbon economy. |
| | 4.5 Risk management targets | |

Source: Prepared by the author based on TCFD (2017).

The encodings were performed using ATLAS.ti® application, selected for its ability to facilitate the organization and analysis of data in a systematic and efficient way, indicated by Creswell (2010) for its ability to organize files of various formats and encoding, notes, and results, and by Mozzato and Grzybovski (2011) for its ability to plan projects.

As delimitations of the research, we have the time interval analyzed, as well as the focus group of the study, ISEB3 companies, in addition to the limitations of access to the companies' corporate documents, since, as there is no mandatory date for publication, some documents may not have been published, especially those from the last year of the sampling interval. As it is an interpretative research (Creswell, 2010), the author's unconscious biases may influence the execution of the activities, so they will be reviewed and guided by the responsible teachers.

## 4. RESULTS

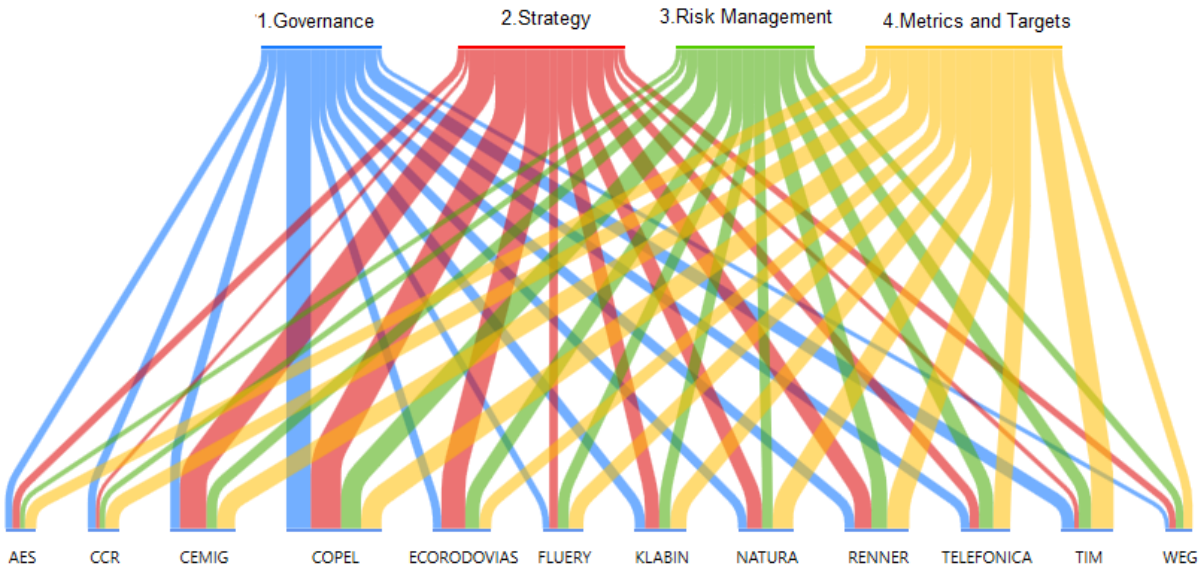
Manual coding enabled verification of category occurrence across the 129 documents analyzed, resulting in 3,009 citations during analysis and 3,541 code applications. In general, companies have adopted and disclosed all four pillars recommended by the TCFD, represented here by the categories: Governance, Strategy, Risk Management and Metrics and Targets .

The most frequent category was Metrics and Targets (989 occurrences), indicating that companies focused a large part of their reports on how they would act (targets) and how they did in that given year (metrics and GHG emissions). The second most evident category was "2. Strategy" (839 occurrences). This category, unlike the others, was shown to be well diversified, demonstrating that institutions distinguished TCFD requests more clearly, focusing mainly on climate risks but with little emphasis on climate opportunities. In turn, the category "3. Risk Management" (695 occurrences) was mostly filled with statements about how organizations treated their risks, but without detailing the processes used to identify and assess existing climate risks. And, the category "1. Governance", which presents 605 occurrences, in which companies reported more broadly their risks and opportunities addressed by the companies' governance, agrees with the findings of Mantovani (2025), organizations are in the initial phase of implementing climate governance information.

### 4.1 Analysis of results by company

The results of the analysis by company indicated that Copel disclosed the most data, with 472 citations in total. This is also a result of its number of reports, 23, higher than that of the other companies, while AES was the one that disclosed the least, with 158 citations. Figure 2 illustrates this relationship using a Sankey graph.

**Figure 2 1** – Sankey chart of category frequency by companies.




**Source:** Survey data. Prepared with the help of the ATLAS.ti® software.

Analyzing Figure 2, it can be concluded that the segment does not impact the level of disclosure of climate data, as companies in the same segment did not disclose in the same proportion, as in the cases of Ecorodovias and CCR, in the highway exploration sector and Copel and AES, in the Energy sector, even if these companies follow the Task Force, the lack of regulation/obligation can be pointed out as a reason for this situation, as pointed out by Garcia *et al*. (2015) regarding the lack of information disclosed and the consequent difficulty in intrasectoral comparison. In addition, some segments have only

one company as a representative in the period analyzed, which makes the comparative analysis biased, as is the case with Natura, the only one in the beauty sector, or Fleury, in the health sector. Meanwhile, the Telecommunications sector, represented by Telefónica and Tim, showed a balance in the number of citations and focused on metrics and targets, and risk management, while saying little about its strategies, especially Tim, which was one of the least publicized in this category. Together with it in this regard is CCR, which released only 23 and 19 codifications, respectively, on its Strategies.

By examining in greater depth the category "2. Strategy", both companies disclosed more their strategies and financial planning, code 2.4, Telefónica with seventeen citations emphasizes its instructions for the use of water and energy in addition to low-carbon purchases (2019), including the "issuance of R$3.5 billion in *Sustainability-Linked Bonds* (SLBs) linked to the achievement of carbon and racial diversity goals" (Integrated Telephone Report, 2022) until the creation of a specific plan for climate action in 2023.

At the same time, in 2019, Tim reported on its efforts to combat climate change through legal compliance, energy efficiency, the use of renewable energy sources, and the optimization of resources through network sharing. It disclosed its strategies for preserving the Amazon Rainforest in 2021, in 2022, it also issued a Sustainability–Linked Bonds of 1.6 billion reais, and in 2023, it stated four times throughout its integrated report that its tactic was focused on reducing and using renewable energy sources.

In the opposite direction, the disclosures in the category "4. Metrics and Targets" are the most disclosed by these companies, with 85 records for Telefónica and 112 for Tim. Both focused on metrics, that is, historical and present data, Telefónica disclosed more about its Greenhouse Gas (GHG) emissions, while Tim directed greater efforts to its other segments, such as electricity, waste and water.

In short, the telephony sector is represented in the ISE by two of the largest companies in its segment, both of which are converging on their disclosures, providing more detail on their metrics and targets, and offering little detail on their strategies to combat climate risks.

In the set of analyses, the electric energy generating, transmitting, and distributing companies (Cemig, Copel) and the highway operating companies (Ecorodovias) tend to disclose more information about their strategies related to climate risks, since, as they use a lot of the environment, they mainly disclose the risks and opportunities they have due to this exploitation. striving to be more legitimate in the view of investors, who, as exposed by Krueger, Sautner and Starks (2020) and Faria, Andrade and Gomes (2018) these agents already consider this aspect in their investment intentions.

Equally positively, companies in the cosmetics/personal care (Natura), clothing retail (Renner), and telecommunications (Telefônica and Tim) sectors demonstrate an approach focused on disclosing their metrics and targets, highlighting their historical data, current status, GHG emissions, and future objectives with established deadlines.

Another analysis that can be carried out on companies is the word count for each code. Although the unit of analysis is the theme as a whole, the number of words within each of these themes is important to understand if companies are giving more or less emphasis on each of the codes and, consequently, their categories.

Code 3.2, risk management, is the one with the most words, totaling more than 93.8 thousand, indicating that companies are focused on highlighting the way they treat their risks to information users, aiming to demonstrate that they are not aware of the more legitimate. This practice is part of the concept of pragmatic legitimacy, described by Suchman (1995), which is characterized by actions that aim to directly meet public expectations, such as constructing a more sensitive institutional image committed to social values.

The analysis of the categories by year indicates growing adherence to the TCFD recommendations, demonstrating how aware and engaged companies are with this topic. In line with Mobus (2005), environmental performance is a component of organizational legitimacy. And also with what Momo, Araújo and Behr (2018) and Sobrosa Neto *et al.* (2020) inform, by highlighting that climate disclosures have gained more prominence in several areas, noting the effort of companies, considered sustainable by the Brazilian stock exchange, to be more transparent and to become increasingly legitimate for their stakeholders and the society in which they operate and prepare for the IFRS S1 and S2 global sustainability standards already in force, correlated to them, in Brazil, are called CBPS 01 and CBPS 02, which came into force as of the fiscal year started on January 1, 2024, by the Brazilian Committee on Sustainability Pronouncements (CBPS).

Finally, the results presented provide important subsidies for the understanding of Climate Risks in companies listed in the Corporate Sustainability Index, indicating that such organizations are in convergence with the TCFD, in line with the findings of Mantovani (2025), disclosing all the pillars presented by this standard, in addition to confirming what is proposed by the Theory of Legitimacy (Dowling; Pfeffer, 1975; Suchman, 1995) that companies disclose information in order to positively impact their organizational life. However, disagreeing with the concept of *greenwashing* (Andreoli; Costa; Prearo, 2022), considering that companies started to disclose different information related to sustainability and climate over the years analyzed, it is observed that such disclosures became progressively more robust.

## 5. FINAL CONSIDERATIONS

In recent decades, environmental issues have come to occupy an increasingly central space in social and corporate discussions, however, companies may only be practicing *greenwashing*, by emphasizing sustainable actions without effective support in a legitimate concern for society (Ramalho; Silva; Garcia, 2023). There is also a continuous increase in academic investigations related to sustainability (Sobrosa Neto *et al.*, 2020), however, there is a gap when addressing climate risks in the context of companies.

In view of this study opportunity and in the light of the theory of legitimacy, it was sought to identify how the contents of the discourses on climate risks were presented by companies considered sustainable and listed in the ISE B3, through the content analysis of their corporate and sustainability reports, finding that the companies adopted and have disclosed all four of the TCFD's recommended pillars (governance, strategy, risk management, and metrics and targets), which also underpin IFRS S1 and S2.

The results show that the disclosure of climate information has

increased over the five years of the study, demonstrating how much companies are aware of and engaged with this topic. However, two codes were not widely used: 4.2 Risk management metrics and 4.4 Risk assessment targets, indicating that organizations tend not to disclose their risk management approaches and their targets for identifying and mapping climate risks. In line with Mantovani (2025), organizations are in the initial phase of implementing climate governance information, although they have already made efforts to mitigate impacts and adopt positive practices for nature, as Governance content has increased exponentially over the years studied.

It is found that the business segment does not affect the level of disclosure of climate data, as companies in the same segment did not disclose at the same proportion, and that there is little basis for sectoral comparison due to the diversification of companies belonging to the ISE. However, the telephony sector is represented in the ISE by two of the largest companies in its segment, both of which are convergent in their disclosures, provide more information about their metrics and targets, and offer little detail on their strategies to combat climate risks.

In short, electricity-generating, transmitting, and distributing companies and highway operators tend to disclose more information about their strategies related to climate risks, because, as they use a lot of the environment, they mainly disclose the risks and opportunities they have due to this exploitation, striving to be more legitimate in the view of investors. in accordance with Krueger, Sautner, and Starks (2020) and Faria, Andrade, and Gomes (2018). At the same time, companies in the cosmetics/personal care, apparel retail, and telecommunications sectors adopt an approach focused on demonstrating their metrics and targets, highlighting their historical data, current status, GHG emissions, and future objectives with established deadlines.

In addition, the textual dimension of the disclosures is observed, considering the volume of words used, it is concluded that code 3.2, Risk Management, presents the most risks, totaling more than 93.8 thousand, indicating that companies are focused on endorsing how they treat their risks to information users, aiming to demonstrate greater legitimacy. This practice is part of the concept of pragmatic legitimacy, described by Suchman (1995), which is characterized by actions that aim to directly meet public expectations, such as constructing a more sensitive institutional image committed to social values.

It is worth noting that the choice was made because the TCFD guidelines are widely adopted by companies, which already have consolidated experience with their use. In addition, as IFRS S was built on the basis of these recommendations, the analysis allowed us to observe in parallel the degree of adherence to the new standards. In this way, the study contributes both to evaluating current practice and to anticipating convergence to IFRS S. In this sense, the findings also advance the academic debate on climate risks and sustainability in companies by deepening understanding of climate disclosure mechanisms and their relationship to the search for organizational legitimacy.

They also reveal dimensions that are still underexplored in the literature on climate disclosure, so the research helps fill an existing empirical gap. In the social sphere, it reveals that some companies go beyond greenwashing, implementing authentic sustainable practices that deliver concrete benefits to the environment and the community. In addition, it is noted that such actions are associated with the search for legitimacy in the public eye, which reinforces the importance of active societal demand. By highlighting the influence of *stakeholders* and public exposure on environmental dissemination strategies, this research contributes to the theoretical deepening of the relationships between sustainability, reputation, and legitimacy. With this, the development of new explanatory models and research that explore subjective dimensions of socio-environmental management is stimulated.

As limitations, the five-year time frame and the limited number of companies analyzed stand out. Thus, it is suggested that future research expand the sample, compare regulated and non-regulated sectors, verify adherence to SASB standards, and explore stakeholders' perceptions of the credibility of these disclosures.

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