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Corporate Citizenship Sustainability Reporting Model Based on Adherence to Stakeholder Norms in the Capital Market

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Abstract

This study presented a corporate-citizen sustainability reporting model grounded in stakeholder collective norms in the capital market. This research adopted a mixed-methods approach. Initially, in the qualitative phase, the study employed Grounded Theory to identify the emerging aspects of the core phenomenon under investigation. Then, the Delphi method was used to ensure the reliability of the data derived from the interview tool. In the quantitative phase, fuzzy linguistic scales were used to identify the most central and explainable domains of corporate citizenship sustainability reporting within the capital market. The time period of the current study should be considered 2023 to 2024 for data collection. In the qualitative phase, 14 experts and scholars from the accounting community were selected based on their expertise and participated. Through interviews and three rounds of coding, a multidimensional model was developed for corporate citizenship sustainability reporting. In the quantitative phase, 25 financial managers and accounting heads from selected companies in the capital market participated in the fuzzy Todim process based on matrix checklist tools. The results of the qualitative section suggest that a framework for the development of corporate citizenship sustainability reporting serves as a basis for adherence to stakeholder norms in the capital market. The findings of the quantitative phase revealed that the "human resource disclosure enhancement functions" component had the most influential coefficient on adherence to information disclosure in corporate citizenship sustainability reporting, aligning with the inclusive normativity of stakeholders, especially internal stakeholders within companies. The contribution of this study was rooted in the theoretical views of accounting knowledge. This study focused on corporate sustainability reporting as a corporate citizen, seeking to streamline accounting procedures to strengthen stakeholders' perceptions of facts by making the effectiveness of disclosed information more persuasive. Given the limited attention to this matter in prior research, this study sought to expand accounting knowledge to enhance responsible accounting functions in the social context.

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1. Introduction

The quality of financial reporting is considered a tool at companies' disposal in the capital market, through which they aim to reduce the gap between shareholders and companies by providing transparent reports, particularly in the presence of agency conflicts (Wang and Hussin, 2024). In conditions marked by imbalances and conflicting interests, corporate behavior norms tend to change due to weaknesses in corporate governance. The absence of responsible and committed norms leads to increased conflicts between companies and their stakeholders, while adherence to ethical and social standards diminishes (Sunder, 2016). In such conditions, disruptions, conflicts, instability of norms, and, in some cases, normlessness intensify the pressure on companies to be accountable to social expectations and compel them to emphasize the quality of financial reporting. Quality in information disclosure can facilitate social and economic development, enabling a stable capital market free from tensions and distortions. In addition, social and economic planning and progress are enhanced in alignment with stakeholder expectations (Battiston and Gamba, 2016). Conflicts that arise from agency costs and reflect the difference between the company's approach to respecting stakeholders' rights and the priority interests of power holders (Mrabure and Abhulimhen-Iyoha, 2020). Furthermore, due to market inefficiencies, stakeholder accountability standards may be distorted, which, in turn, can lead to tension-generating behaviors such as herding (Bhutto et al., 2025).

Thus, the shift in the approach to organizational citizenship within the framework of contemporary management theories has led to a more coherent alignment between information disclosure functions and social expectations because corporate citizenship sustainability reporting, as a theory derived from the concept of organizational citizenship behavior, strengthens processes related to accountability and responsibility towards stakeholders within the company. The development of investment opportunities in the capital market is also facilitated by fostering trust (Sharif Khafari et al., 2023). In other words, corporate citizenship reporting is considered a symbol of humanitarian strategies that enhance companies' corporate social responsibility capabilities (Kazempour and Rahimian, 2018). In addition, a sustainable society, a healthy environmental ecosystem, and transparent corporate governance are established, ensuring the protection of the interests of both representative groups—i.e., the company and its stakeholders—within a framework that safeguards pluralistic (collectivist) interests (Hejazi and Abouhamzeh, 2014). An issue of concern for this study is the potential to achieve greater information balance in the capital markets of developing countries such as Iran through value-based normative frameworks that respect shareholder rights.

The corporate citizenship sustainability reporting approach offers a novel interpretation of corporate social responsibility concepts, expanding them into broader dimensions while considering the diverse interests of various stakeholder groups. This concept, which stems from the respect for shareholder rights, indicates a level of responsibility on the part of companies to reduce the agency cost gap (DesJardine et al., 2023). In a specific sense, this approach can be defined as the company's adherence to a set of behaviors intended to demonstrate greater legitimacy than competitors (Schlegelmilch et al., 2025). A review of related studies, such as Quick and Inwinkl (2020), Azizan et al. (2018), Ashesh and Thiruvengadam (2017), and Palacios (2004), highlights the importance of this research. These studies have indicated that the pressures arising from pursuing external stakeholders' rights, driven by the dysfunctional performance of companies in information disclosure and financial reporting at the capital market level, may encourage companies to meet a broader range of stakeholder expectations within their economic, legal, ethical, and discretionary responsibilities in disclosing information. As a result, greater integration and balance are fostered in the distribution of symmetrical details, elevating decision-making based on market knowledge and

insight. Consequently, the groundwork for sustainable financial reporting may be laid by addressing the dimensions of corporate citizenship reporting.

Developing sustainability reporting standards, which currently include 36 standards across four sections—fundamental concepts, economy, environment, and social issues—has been based on corporate citizenship. These standards were initially developed in advanced countries according to their political, economic, social, and cultural systems (Rahmani et al., 2023). In other words, the theoretical framework of sustainability reporting standards has been shaped around a liberal democratic system moving toward global order (Fateri et al., 2023). However, the need to develop and design a model and theoretical framework that takes these differences into account becomes increasingly apparent, as the legal, political, and social status of companies, like those of citizens, varies across countries, including in the Islamic Republic of Iran, with its distinct systems. In addition, the participants and stakeholders in civil, political, social, and economic processes vary across these countries. Liberal countries generally emphasize transparency and standardized reporting frameworks (like GRI or SASB) for corporate citizenship, often driven by stakeholder pressure and regulatory requirements. CSR disclosures in Iran, however, are less formalized, often voluntary, and may focus on philanthropic activities rather than comprehensive environmental, social, and governance (ESG) disclosures. There is also less external pressure for robust reporting in Iran compared to liberal democracies. Therefore, the design of this model further emphasizes the significance of this research.

From the perspective of the research literature, corporate citizenship is an interdisciplinary topic. Numerous articles have been published in various academic journals, including those focused on ethics, political science, management, economics, environmental studies, social responsibility, environmental sustainability, and accounting. In terms of timeline, corporate citizenship was first introduced in 1969 and became a serious discussion area after the corporate scandals of companies like Enron and WorldCom in 2004. The discussions during these years were primarily theoretical, and they laid the foundational principles and theoretical framework for sustainability reporting in the accounting field (Rostami and Kurdistani, 2020). There has been little extensive research on corporate citizenship in domestic studies, mainly in accounting. Most research has focused on descriptive studies, the topic's importance, and its various dimensions. Therefore, a significant gap exists in the investigation of corporate citizenship dimensions in sustainability reporting.

Therefore, during the interviews, a conceptual model is presented and applied to Iranian capital market companies, with the reliability of the identified axes measured through the fuzzy Delphi process. TODIM's fuzzy process is used for this purpose. The rest of the paper is outlined as shown in Figure 1.

2. Theoretical foundations

Corporate citizenship consistently evokes the idea that a business unit, like any other member of society, is a committed citizen adhering to social values (Ampofo and Barkhi, 2024). The organization promotes ethical values, thereby enhancing accountability, trust, and assurance in the community (Hejazi and Abouhamzeh, 2014). On the one hand, corporate citizenship seeks to promote ethical values within its structures through its organizational culture. On the other hand, it acts responsibly with respect to social values such as environmental protection and the safeguarding of shareholder rights (Mahmoudkhani et al., 2021). Matten et al. (2003), in their comprehensive conceptualization of corporate citizenship, emphasized the following three concepts according to Figure 2:

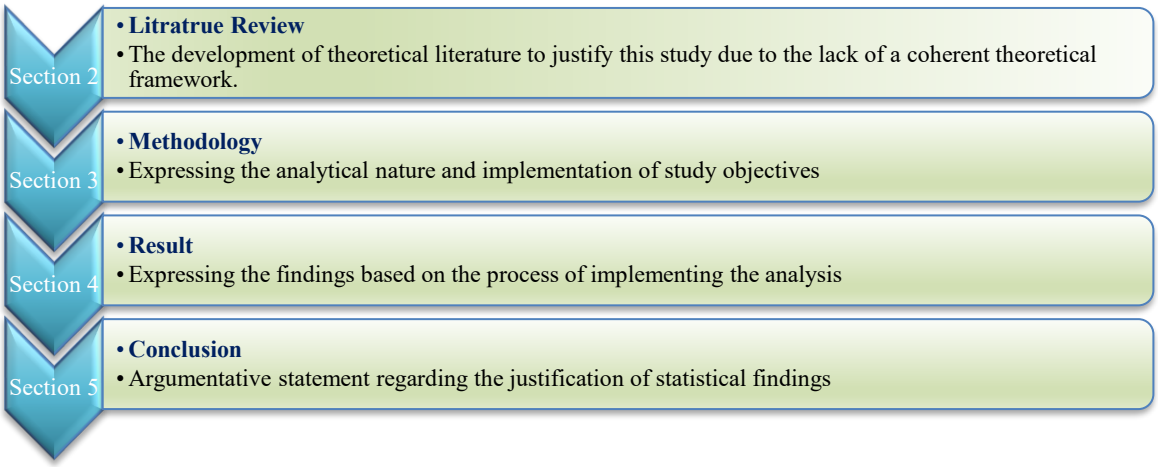

Figure 1. Outline of the paper

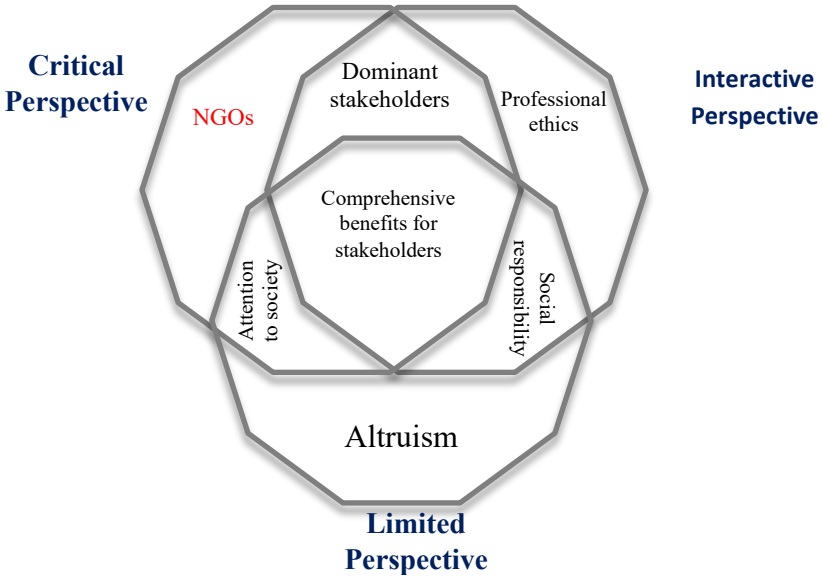

Figure 2. Dimensions of corporate citizenship

In a narrow sense, corporate citizenship refers to a company's altruism toward society, social investment, and the social responsibilities assigned to it by the community (Hejazi and Hayati, 2017). In this view, companies' role is seen merely as symbolic support for society's philanthropic and ethical values. In other words, corporate citizenship is defined based on humanitarian actions, charitable contributions, and other initiatives carried out for the benefit of society (Gulati and Diwan, 2024). Therefore, corporate citizenship is an optional activity beyond what is typically expected of a business entity (Ogola and Mària, 2020). This perspective tends to present a concept of corporate citizenship in which humanitarian activities are viewed as a strategic corporate approach (Seydabadi et al., 2025). By fostering a sustainable society, a healthy environment, and transparent political spaces, corporate citizenship can lay the groundwork for profitable business activities, thereby ensuring company benefits (Windsor, 2001).

In the balanced view, a new concept of corporate social responsibility (economic, legal, ethical, and discretionary responsibilities) is presented, emphasizing a pragmatic commitment to society's

ethical domains. In this perspective, the company merely avoids crossing social principles' boundaries and aligns itself with society's normative values (Ghorbaniyan et al., 2024). Therefore, the company seeks to implement different approaches to social responsibility based on established priorities and requirements and, on a broader scale, with a deeper understanding of stakeholder interests (Kruggel et al., 2020).

From a critical perspective, companies go beyond institutions and the potential absence of regulations, acting as critics by shaping ethical values in society. They aim to fill regulatory gaps and promote voluntary behaviors to enhance accountability towards stakeholders, building trust and confidence. According to this perspective, business entities, like all governmental institutions, must be accountable for citizens' expectations. A lack of laws should not be an excuse for indifference toward citizens' interests (Carini et al., 2021).

Understanding this concept in the corporate sector gradually led to the emergence of a functional approach to financial reporting, which emphasizes adherence to professional ethics in protecting stakeholder rights. From a critical perspective, the corporate citizenship concept does not explicitly refer to the duty of accountability and reporting (Carroll, 1998). The development of corporate citizenship reporting could play a significant role in filling the sustainability gap and protecting stakeholder and community interests (Setayesh and Mohammadian, 2011). Therefore, various theorists, such as Andersen and Johansen (2021), Carini et al. (2021), and Shinkle and Spencer (2012), have sought to make economic actors more accountable and responsible as committed citizens within society by combining political, economic, and cultural theories. The significant aspect of yjos matter is that the public sector, institutions, and the non-governmental sector, through NGOs, have not been able to develop the legal frameworks to promote the cultural values of citizenship, given the limited scope of corporate citizenship. The focus on theories derived from the core concept of corporate citizenship aims to attract stakeholder knowledge and integrate it with the company's social responsibilities for greater sustainability (Cha et al., 2023)

In other words, although the concept of corporate citizenship is significant, given the limited institutional capabilities in the upper echelons of business entities, there is a need for more significant interaction between companies and stakeholders to promote ethical behavior in financial reporting (Rego et al., 2010). Therefore, the social role of business entities in accountability, as a public benefit in society, is defined within the framework of corporate citizenship reporting. In this form of reporting, institutional pressures, aligned with stakeholder values, may lead to transparent financial reporting norms within companies. Carini et al. (2021) provided the following framework for the sustainability of corporate citizenship reporting:

According to Figure 3, the interaction between institutional pressures and stakeholder values shapes social responsibility, leading to corporate citizenship reporting. In this approach, the macrostructure of companies' social nature is reorganized to foster voluntary behaviors in information disclosure within the financial reporting framework. Within this systemic framework, the corporate citizenship approach strengthens the sustainability of companies' self-disclosure behaviors by promoting ethical values and achieving an optimal level of sustainable institutional and social norms in corporate citizenship reporting (Carroll, 2016). On the other hand, Filizöz and Fişne (2011), in another classification, divide corporate citizenship reporting into the following four dimensions:

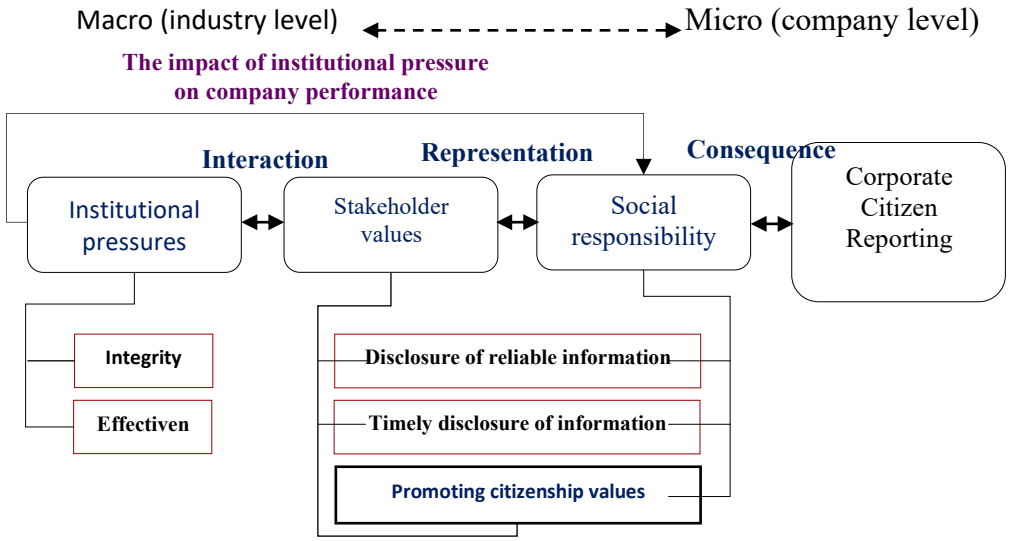

Figure 3. The proportion of institutional pressures to stakeholder pressures, like corporate citizenship reporting

Figure 4. Dimensions of corporate citizenship reporting

According to this model in Figure 4, the economic citizen, as the first dimension, refers to the role of business in generating economic benefits within society. In this role, companies should consider activities that benefit the overall economy. Therefore, in contrast to traditional theories, this approach does not focus solely on profit-making and wealth creation for owners or shareholders, but instead seeks to achieve an equal level of economic efficiency for society (Hejazi and Abouhamzeh, 2014). The legal citizen highlights that companies should comply with established laws and regulations and fulfill their legal obligations. Therefore, companies' most essential legal responsibility is to undertake economic missions mandated by law as legal citizens. Any deviation from legal responsibility can disrupt the balance of the corporate citizenship reporting approach. Although it is difficult to provide a precise definition due to the ethical citizen approach's broad conceptual scope, it encourages companies to go beyond legal obligations by

adhering to standards and addressing legal deficiencies through transparent reporting to stakeholders (Carroll, 2016). Finally, voluntary citizenship refers to companies' voluntary functions in financial reporting, often categorized as humanitarian. The reason for using the term "voluntary citizen" is the lack of obligation to fully disclose information in areas such as carbon emissions, legal issues, and other dimensions of company reporting. Adherence to these areas depends on the company's perspectives and the level of social responsibility regarding humanitarian and voluntary actions (Rego et al., 2010). In addition, these dimensions can vary depending on the objectives and social contexts in which companies operate. Focusing on the relevant practices related to companies' functions in their social environment is essential to implement them effectively (Rafay and Siddiqui, 2025).

On the other hand, Lamberton (2005), in alignment with the sustainability reporting guidelines of the *Global Reporting Initiative (GRI)*, proposed a framework based on two axes: the functions of reporting regarding focus on disclosure (vertical) and the users of information in terms of being internal or external (horizontal). This framework aims to outline justifications that could potentially assist accounting in contributing to sustainability (Figure 5).

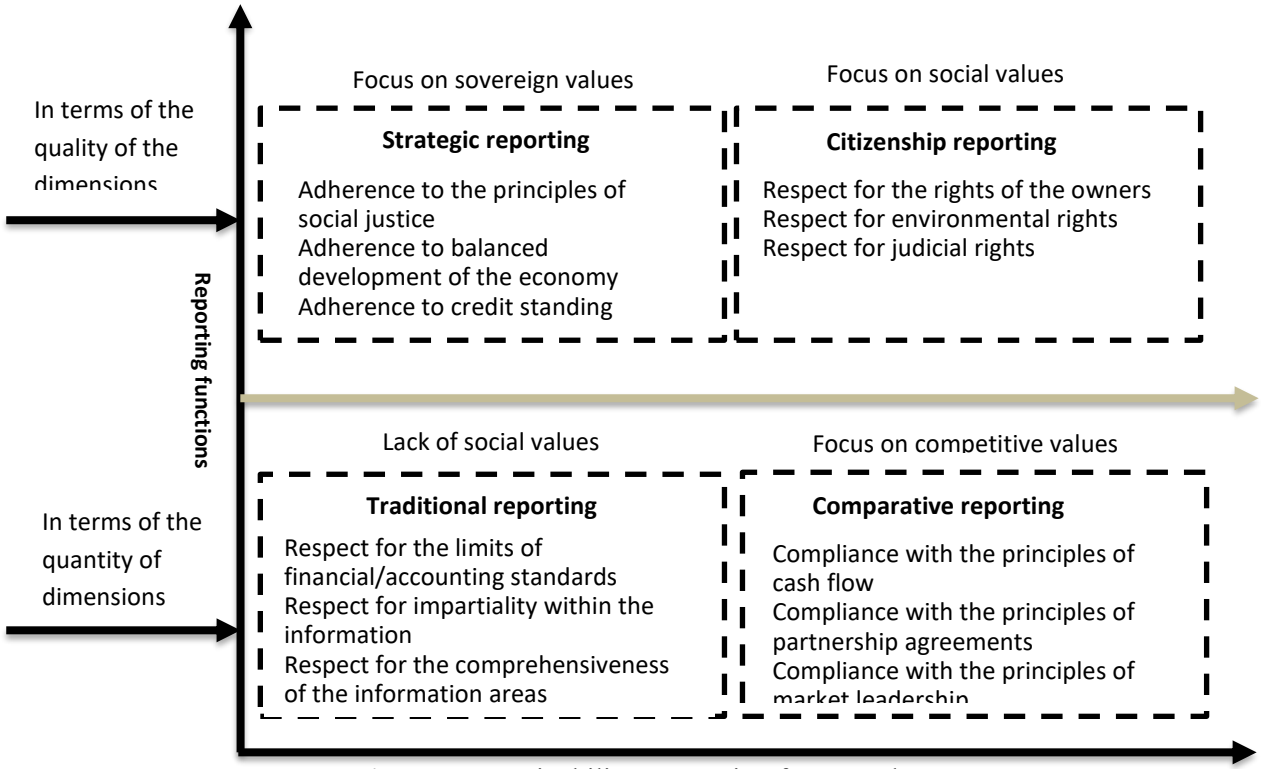

Figure 5. Sustainability accounting framework

As shown in Figure 5, the intersection of qualitative reporting functions with a focus on external users leads to the desired reporting method, which is citizenship reporting. This approach, which heralds social values, can assist accounting in achieving sustainability by upholding stakeholder, environmental, and legal rights. On the other hand, the intersection of qualitative reporting functions with a focus on internal users suggests that sustainability can be achieved through strategic reporting, adhering to strategic guidelines, and fostering balanced development while maintaining creditworthiness (Ghorbanzadeh, 2024). Additionally, the intersection of quantitative reporting functions, focusing on external users, proposes competitive reporting to achieve sustainability. Finally, the intersection of quantitative reporting functions with a focus on internal

users suggests that companies typically pursue traditional reporting methods, which generally fail to achieve sustainability values while being comprehensive and inclusive in principle (Katona, 2024).

Thus, based on the discussed theoretical foundations and identified research gap regarding the absence of a reference framework for corporate citizenship sustainability reporting, research questions can be posed in line with the study's objectives regarding methodology and analytical implementation:

- *Research Question 1:* What are the core areas of corporate citizenship sustainability reporting within the capital market?
- *Research Question 2:* What is the most significant area that can explain corporate citizenship sustainability reporting within the capital market?

The first research question is addressed through coding in Grounded Theory Analysis and Glaser's approach. In contrast, the second research question is examined in pairwise comparison and expanded evaluation matrices.

2.1. Literature review

Carini et al. (2021) completed a study entitled "Global Sustainability and Corporate Citizenship Requirements." The findings suggested that self-regulation is a criterion for assessing adherence to sustainability standards, which can strengthen strategic legitimacy and lead to outcomes such as maintaining an inclusive identity and respecting stakeholder rights, thereby laying the groundwork for corporate citizenship. Caputo et al. (2022) conducted a study entitled "Enhancing Environmental Information Transparency through Corporate Citizenship Sustainability Reporting." The findings showed that corporate governance and reporting characteristics influence environmental transparency. Moreover, the findings showed that building obstacles to environmental information disclosure can significantly influence the management of stakeholder opinions about the company's strategic decisions, while negatively influencing the relationship between businesses and stakeholders inside the corporate citizenship framework. Bracci et al. (2023) in "Understanding Citizen-Centric Financial Reporting: Evaluating the Views of Standard Setters" investigated how standard setters grasp changing values and expectations of stakeholders and are accountable for promoting corporate citizenship in financial reporting. The findings confirmed that developing citizen participation frameworks can help identify their expectations from municipal functions and provide inclusive local reports for stakeholders, particularly in disclosing financial and non-financial data. Granados-Sanchez (2023) carried out a study titled "Providing a sustainable citizenship framework: exploring a critical realist approach" to reflect the sustainable citizenship approach from the perspective of critical realism. The goal of the sustainable citizenship approach is to bridge the gap between the realities of pragmatist approaches that require societies to focus on the theoretical foundation of citizenship to achieve sustainability. Kashanipour et al. (2020) published a study titled "Foresight of Sustainability Reporting Using Scenario Writing Approach." Finally, based on the experts' opinions, four scenarios for the future of sustainability reporting were developed, with specific recommendations for each scenario. Setayesh and Mohammadian (2011) investigated "Value Creation through Corporate Citizenship Reporting in Banks." The findings revealed that corporate citizenship reporting positively and significantly impacts value creation within banks. This result indicated that the value of corporate citizenship reporting increases as banks disclose more indicators. Banks can influence their value creation, reduce capital costs, lower agency costs, increase liquidity, and improve financial performance and the quality of financial reporting by providing corporate citizenship reports and disclosing both financial and non-financial indicators. In turn, this leads to an increase in the bank's overall value and a greater market share. Abedi et al. (2025) conducted a study titled "Designing a corporate citizenship financial reporting

model to satisfy stakeholder information needs effectively." The results of the axial coding revealed causal conditions with 19 core concepts under four paradigm codes, contextual conditions with 26 core concepts under four paradigm codes, intervening conditions with 19 core concepts under four paradigm codes, strategic conditions with 35 core concepts under three paradigm codes, consequential conditions with 16 core concepts within three paradigm codes, and central conditions with 12 core concepts within three paradigm codes. These form the foundation of the model. The validation results also indicated that the developed model possesses the necessary credibility.

A review of the presented empirical literature confirms the originality of this paper, as no previous studies have focused on developing a corporate citizenship sustainability reporting model at the capital market level. This study significantly contributes to expanding the knowledge base in this area of financial reporting functions designed to meet citizens' expectations.

3. Research Methodology

Given the lack of a cohesive framework for understanding the dimensions of corporate citizenship sustainability reporting, this study can be categorized as developmental research in terms of its outcome. From a goal-oriented perspective, this study is exploratory, aiming to identify emerging aspects of the core phenomenon within the study context that were previously overlooked through interviews with active scholars in the field. Ultimately, this study should be considered a mixed-methods study, consistent with both inductive and deductive reasoning. The development of corporate citizenship sustainability reporting is implemented in the qualitative phase of the study through Grounded Theory analysis. This analysis contributes to conceptualizing the identified dimensions of the core phenomenon into a multidimensional model. The approach used in the Grounded Theory modeling is based on the emerging or unfolding approach of Glaser (1992), which involves three stages of coding: open, axial, and selective during expert interviews to identify the dimensions of corporate citizenship sustainability reporting. In the next step of the qualitative phase, the Delphi method is applied to validate the reliability of the identified core dimensions. Finally, in the quantitative phase, following a deductive approach, paired-comparison matrices are used to determine the most central dimension of corporate citizenship sustainability reporting within the context of the study.

3.1. Participants of the study

Given the nature of data collection in the qualitative section, the participants in this part of the study are academic-level accounting experts and specialists. These individuals, considered knowledgeable and experienced in accounting practices, information disclosure, and reporting, were selected through theoretical and snowball sampling. In the qualitative phase, to conduct interviews, efforts were made to consider participants' expertise based on their educational backgrounds in reporting and sustainability, as well as their research experience in these areas. The individuals who could provide a broader understanding of the phenomenon under investigation during the interviews, due to their knowledge and cognitive awareness, were invited. After the interviews began, the first three interviewees were selected, and additional participants were identified through a snowball sampling process based on the aforementioned criteria. A total of 14 interviews were conducted, as theoretical saturation was used as the basis for ending interviews in this type of research. Then, the participation of these experts (14 people) is used to verify reliability through the Delphi process. In the quantitative phase of the present study, financial managers and accounting heads of selected companies in the capital market were identified through the gatekeeper technique and invited to complete matrix checklists. The gatekeeper technique was used to select participants

who could contribute to data collection aligned with the study's objectives based on their experience and sufficient knowledge. The sample selection process focused on the nature of homogeneous sampling and the participants' availability. Based on similar research by Hasani Moghadam et al. (2023), Narkhede et al. (2017), and Mhatre et al. (2017), which determined the optimal participation range for matrix analysis processes (15-30 individuals), a total of 25 informed individuals were selected.

3.2. Data collection and analysis

In line with the methodology outlined, the qualitative phase of the study aims to identify the areas for developing corporate citizenship sustainability reporting through Grounded Theory. Because the phenomenon under investigation is relatively new in financial reporting, the open (in-depth) interview technique was used for the initial interview with experts, allowing coding at the end of each interview, categorizing the open codes, and connecting them to axial codes. The goal was to identify conceptual themes and core components, thereby clarifying the broader aspects of the phenomenon through categorization. Once the foundational categories were established through the coding process, the interviewees used the semi-structured interview technique to achieve theoretical saturation, ensuring balanced development of the themes and components. The data were collected organically within the phenomenon under study. As such, specific interview questions were not predetermined for all interviews. Instead, the questions were selected based on the interviewees' levels of expertise and their responses in real time. This approach ensured that the sentences articulated during the interviews were not left without a deep understanding by the interviewees. Thus, the research question design process followed a "Turn and Turn" approach, commonly referred to as the "U" method (Scheibelhofer, 2023). This method was adopted to ensure the flow of questions and responses that reflect the evolving understanding of the experts, contributing to a dynamic and comprehensive data collection.

Once the dimensions related to the phenomenon under investigation were identified, the fuzzy Delphi method was employed to assess the reliability of the core components identified in the qualitative phase, enabling generalization of the findings to the context of companies in the capital market. Given the nature of the quantitative analysis, which focuses on the Interpretive Ranking Process, the fuzzy Delphi process can be more effective at homogenizing data for quantitative evaluations. Due to its reliance on fuzzy linguistic scales, this process holds high validity for generalizing the identified criteria to the study context. Therefore, fuzzy analysis was employed to ensure reliability, given the potential dispersion in theoretical perceptions of the dimensions identified in the qualitative phase. In this analysis, the Triangular Fuzzy Number (TFN) scale, which incorporates linguistic criteria, was used to effectively capture variations in expert judgment.

Finally, data were collected through scoring checklists and paired comparisons after validating the reliability of the dimensions through a fuzzy Delphi analysis, and assigning specific codes to each core component confirmed in the previous stage. This process gathers the necessary data from the participants in the quantitative phase to perform the fuzzy Todim process. This analysis method, based on a Multi-Criteria Decision-Making (MCDM) framework, aims to identify the most influential decision-making criterion within a value perspective. As shown in relation (1), the goal is to determine the most significant dimension by evaluating its impact against the decision-making criteria defined in the study.

As shown in Figure 6, the value axis, which is positioned between cost-benefit considerations, acts as a vector that distinguishes the boundary between more influential and less influential criteria in a value-based process, which can be expressed in the following relationship:

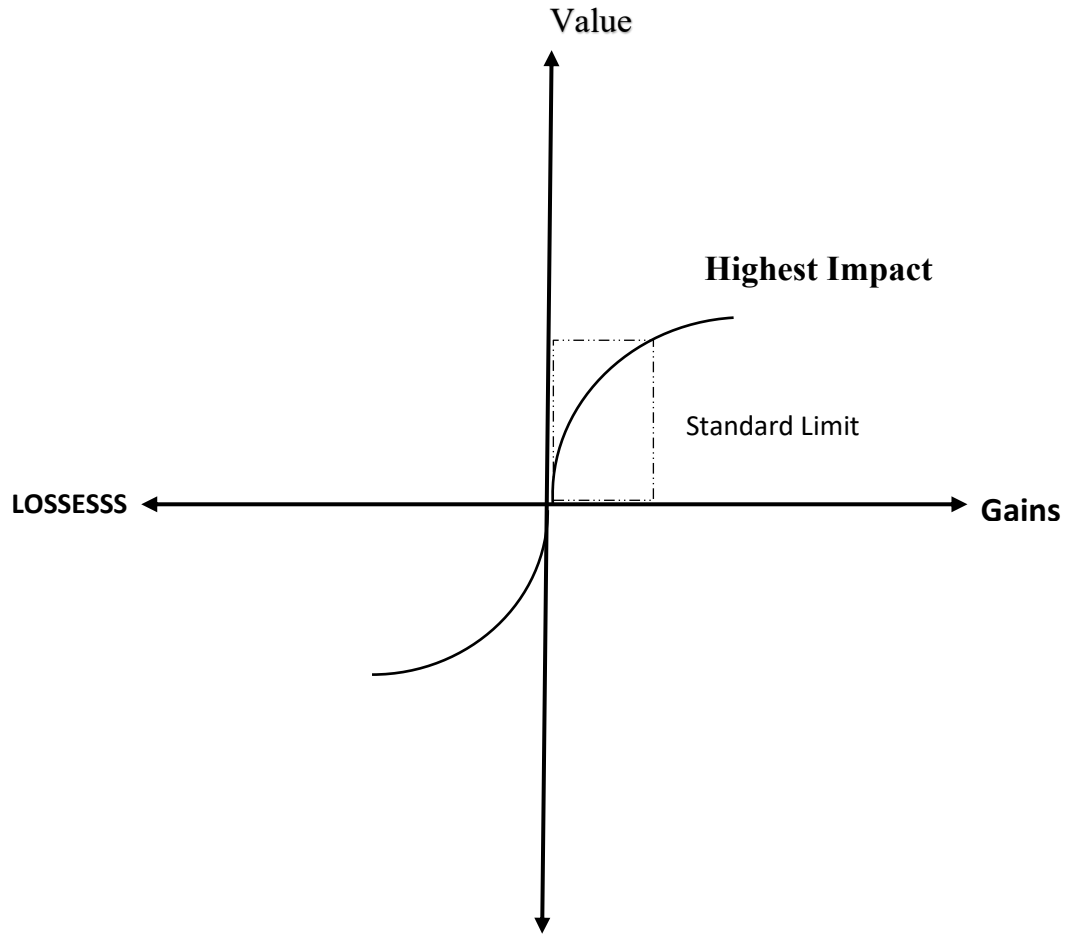

Figure 6. Multi-criteria decision-making protocol based on fuzzy implementation of Todim

$$\vartheta(x) = \begin{cases} x^{a} if x > 0 \\ -\theta(x)^{\beta} if x < 0 \end{cases} \quad (1)$$

In this context, "a" and "β" represent the parameters associated with cost (loss) and benefit (profit), respectively. The parameter "θ" indicates the characteristic of the degree of deviation toward loss relative to profit. Regarding risk aversion in the loss region, "θ < 1". Therefore, this diagram can represent a prospect value function with both convex and concave segments in the shape of an "S," which can be evaluated in a multi-criteria decision-making context. In this process, the aim is to select the criteria with the highest desirability by determining matrix weights.

4. Research findings

Through the combined data collection and analytical implementation process, the first part of the research findings, from a qualitative perspective, aimed to categorize the themes, components, and categories of the phenomenon under investigation using Glaser's approach in the Grounded Theory process. To better understand the findings in this section, the identified themes, components, and categories influencing the development of corporate citizenship sustainability reporting are presented below.

A) First category: adherence to human resource rights

Since the core phenomenon of this study is based on the corporate citizenship approach, interview questions were designed to cover aspects of sustainability reporting as perceived by experts. The results identified 84 open codes for combining themes and components within this category. Of these 84 open codes, 49 were related to the "Disclosure Functions for Human Resource Effectiveness" component, and 35 to the "Disclosure Functions for Human Resource Enhancement" component. These components are further elaborated in the sections below with their identified themes.

Disclosure functions for human resource effectiveness

This component of financial reporting emphasizes the qualitative aspects of human resource performance, seeking to identify actions taken by human resources to stimulate incentives for higher returns for the company. To determine a company's sustainability, one must identify the gap between its current state and the desired sustainable state. As mentioned, 49 open codes were identified in the formation of this component, and their conceptual themes are presented below:

- Disclosure of the ratio of company value-added to investment in human resources
- Disclosure of the ratio of innovation and inventions to total human resources
- Disclosure of the human resource productivity ratio
- Disclosure of the ratio of professional human resources to total human resources
- Disclosure of the ratio of professional human resources to company value-added

Disclosure functions for human resource enhancement

In this component, financial reporting focuses on the qualitative aspects of human resource performance and aims to disclose the practical capabilities of human resources through training and fair compensation. The goal is to examine how companies, considering the costs and benefits of human resource development, can achieve a more sustainable level of competitive performance. As mentioned, 35 open codes were identified in the formation of this component, and their conceptual themes are presented below:

- Disclosure of the ratio of human resource rewards to the reduction of unit costs
- Disclosure of the ratio of incentive allocation to the reduction of unit costs
- Disclosure of the ratio of training costs to total salary and wage costs
- Disclosure of the ratio of training costs to operational expenses
- Disclosure of the ratio of human resource rewards to human resource retention costs

Thus, the Adherence to Human Resource Rights category consists of two central components and 10 conceptual themes, as illustrated in Figure 7.

B) Second category: adherence to institutional rights

In the identification of this category, which consisted of a total of 109 open codes, the following key components emerged:

- Disclosure functions for corporate governance (39 open codes)
- Disclosure functions for the effectiveness of information systems (36 open codes)
- Disclosure functions for legal/Judicial legitimacy (34 open codes)

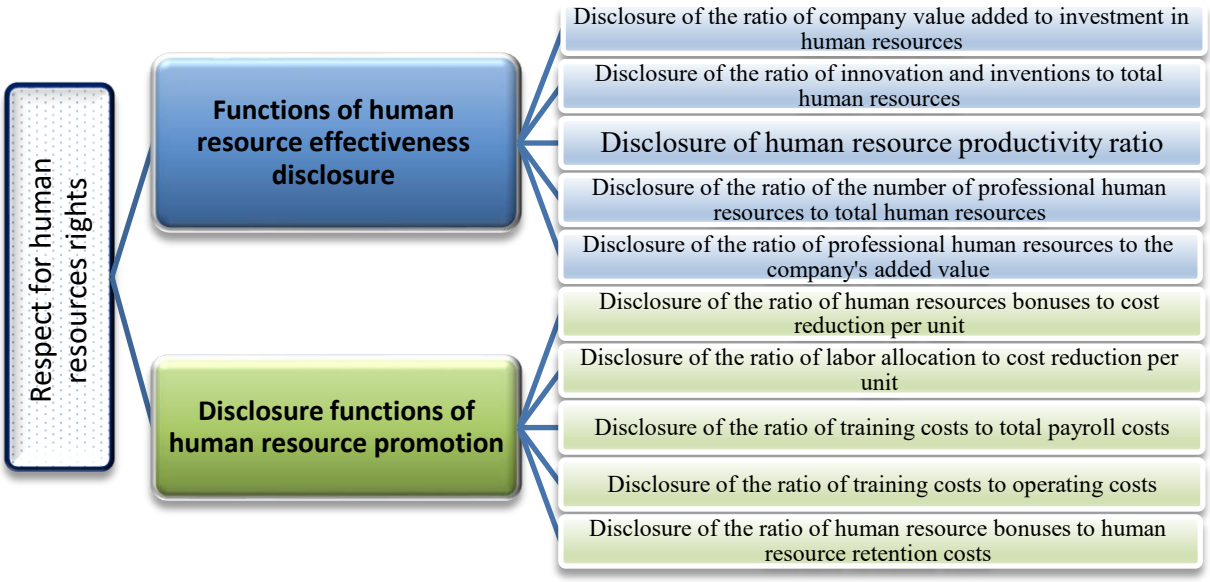

Figure 7. Dimensions related to the category of respecting human resources rights

Disclosure functions for corporate governance

In this component, financial reporting aims to disclose the composition of the board of directors and the ratios that can contribute to effective oversight of institutional rights, thereby fostering a corporate citizenship approach to achieving higher sustainability within companies. Therefore, a total of 5 conceptual themes were recognized as follows, with 39 open codes identified in this key component:

- Disclosure of the ratio of professional board members to total board members
- Disclosure of board member compensation relative to legal damages from lawsuits
- Disclosure of the ratio of non-executive board members to total board members
- Disclosure of the ratio of CEO tenure to the number of legal cases
- Disclosure of the ratio of professional executive managers to all appointed managers

Disclosure functions for the effectiveness of information systems

In this component, financial reporting focuses on disclosing the level of investment in information systems and the potential returns achievable through structural monitoring, both inside and outside the company, to enhance corporate citizenship effectiveness and achieve higher sustainability. Therefore, with 36 open codes identified in this key component, a total of 5 conceptual themes were recognized as disclosure of:

- Risk details through management accounting information systems
- Institutional guidelines for the development of information rights
- The return on operational transaction system performance in information transparency
- The return on investment in information systems relative to the shareholder opportunity cost
- Investments made in cloud accounting infrastructure development

Disclosure functions for legal/Judicial legitimacy

In this component, financial reporting aims to disclose companies' operational capacities in terms of legal claims and auditors' reports, which can serve as a basis for evaluating corporate responsibility in effectively balancing adherence to corporate citizenship values to achieve higher

sustainability for companies. Therefore, with 34 open codes identified in this key component, a total of 6 conceptual themes were recognized as disclosure of:

- The number and outcomes of the company's legal case files
- Financial misconduct reports
- The results of legal risk assessments
- Auditors' reports
- Internal control reports based on organizational health levels
- Reports related to tax exemptions

Thus, the adherence to institutional rights category consists of three key components and 16 conceptual themes (Figure 8).

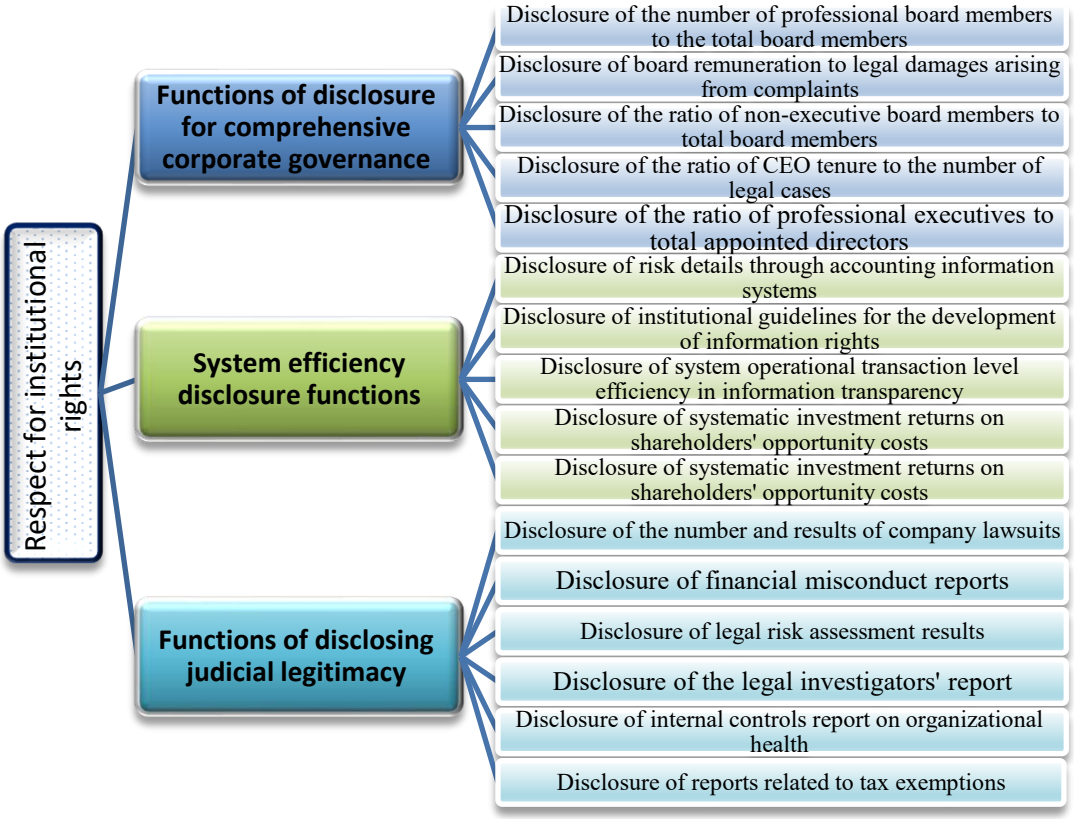

Figure 8. Dimensions related to the category of respecting institutional rights

B) Second category: adherence to social rights

In identifying this category, which consisted of a total of 94 open codes, the following central components emerged: "disclosure functions for protecting shareholders' interests" with 35 open codes; "disclosure functions for protecting environmental resources" with 34 open codes; and "disclosure functions for energy accountability" with 25 open codes.

Disclosure functions for protecting shareholders' interests

In this component, financial reporting seeks to disclose companies' operational capabilities in protecting shareholders' interests, aiming to determine how competitive mechanisms can help meet shareholders' expectations from a corporate citizenship perspective and contribute to higher company sustainability. Thus, with 35 open codes created in this central component, six conceptual

themes were identified as disclosure of:

- Transactions with related parties
- Major customers' information
- Internal control weaknesses
- Information related to managerial ownership percentage
- Executive compensation
- Percentage of free-floating shares

Disclosure functions for protecting environmental resources

In this component, financial reporting focuses on effective mechanisms for disclosing environmental information as one of the key pillars of social values in the sustainable development of companies from the perspective of corporate citizenship. Companies can gain a competitive advantage by disclosing environmental costs and other voluntary aspects. Therefore, with 34 open codes created in this central component, five conceptual themes were identified as disclosure of:

- Environmental pollution costs
- Carbon emissions from production lines
- The ratio of waste recycling to operational profit
- Results from product life cycle assessments
- The ratio of waste recycling to overhead production costs

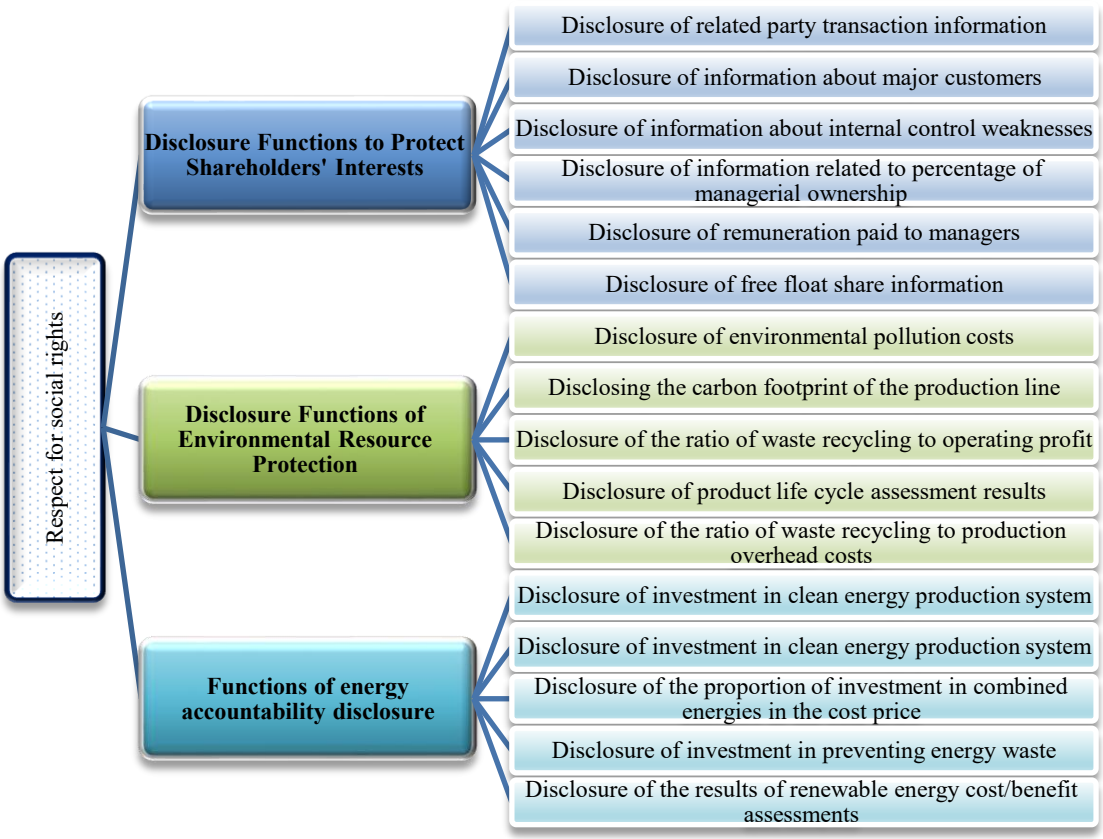

Figure 9. Dimensions related to the category of respecting social rights

Table 1. Breakdown of codes generated from conducted interviews

Identified Categories	Identified Components	Themes	Open Codes	Frequency Percentage
Adherence to Human Rights	Disclosure Functions: Human Resource Effectiveness	5	49	17.07%
	Disclosure Functions: Human Resource Promotion	5	35	12.19%
	Disclosure Functions: Comprehensive Corporate Governance	5	39	13.58%
Adherence to Institutional Rights	Disclosure Functions: Efficiency of Information Systems	5	36	12.54%
	Disclosure Functions: Legal/Judicial Legitimacy	6	34	11.84%
	Disclosure Functions: Protection of Shareholders' Interests	6	35	12.19%
Adherence to Social Rights	Disclosure Functions: Environmental Protection	5	34	11.84%
	Disclosure Functions: Energy Accountability	5	25	8.75%
Column Total	Eight Identified Components	42	287	100%

Disclosure functions for energy accountability

In this component, financial reporting seeks to disclose strategies for transitioning to renewable energy to assess the feasibility of achieving sustainable development from the corporate citizenship approach. Companies that leverage opportunities to move toward clean energy have a competitive edge in achieving sustainability. Therefore, with 25 open codes created in this central component, five conceptual themes were identified as disclosure of:

- Investments in production and assembly systems based on clean energy
- Research and development investments for utilizing renewable energy
- The ratio of investment in hybrid energy sources to the product cost price
- Investments in preventing energy wastage, such as heating systems and compressed air systems
- Results from cost/benefit evaluations of renewable energy

Thus, the category of adherence to social rights consists of three central components and 16 conceptual themes, as illustrated in Figure 9.

Based on the information presented in Table 1, among the total 287 initial open codes, corporate citizenship sustainability reporting, as an emerging phenomenon, can be examined across three categories, eight components, and 42 conceptual themes. Therefore, in the following section, Figure 10 presents the study's conceptual framework for categorizing the concepts and sub-classifications derived from the interviews.

In the following, a fuzzy Delphi analysis should be utilized to assess the reliability of the core components. Delphi analysis serves as a link between qualitative and quantitative analysis by evaluating the reliability of the model's dimensions and facilitating the conceptualization of the model’s components using the research tools used in the target population in the quantitative section. In this study, fuzzy Delphi analysis has been employed to assess the reliability of the core components of the proposed model. The triangular fuzzy number (TFN) scale, which includes a five-point linguistic scale according to Table 2, should be used to perform fuzzy Delphi analysis.

Figure 10. Theoretical framework for the development of sustainable corporate citizenship reporting

Table 2. Triangular Fuzzy Number scale

	Linguistic Scale	1	3	5	7	9
	Linguistic Phrases	Very Low	Low	Medium	High	Very High
Fuzzy Numbers	(U)	3	5	7	9	10
	(M)	1	3	5	7	7
	(L)	0	1	3	5	9

Based on the expanded fuzzy numbers, at this stage, fuzzy Delphi checklists with five options should be distributed among the experts to calculate the fuzzy average. For this purpose, the experts' opinions should be aggregated to compute the fuzzy average. The fuzzy average is calculated using the formula in Equation (2).

$$F_{AGR} = \left[min(i)\left\{\frac{\sum m}{n}\right\}, max(u)\right] \quad (2)$$

In Equation (1), n represents the aggregation of the experts' opinions; i is the minimum of the experts' opinions; m denotes the average of the experts' opinions; and u is the maximum. Then, the fuzzy defuzzification of the average expert opinions should be performed. Typically, the aggregation of triangular fuzzy numbers can be converted to a precise value of the best defuzzified fuzzy average. Therefore, according to Equations (3) to (5), the average of the triangular fuzzy

numbers is defuzzified as follows:

$$F_{AVG} = (L_{ik}, M_{ik}, U_{ik}) \quad (3)$$

$$X_m^n = \frac{(L_{ik}, M_{ik}, U_{ik})}{n} \quad (4)$$

$$Crisp\ Number = Z^* \Rightarrow (X_{max}^1, X_{max}^2, \cdots, X_{max}^k) \quad (5)$$

In these equations, k represents the number of core components, and $Z^\wedge$ is the squared value of the defuzzified average. Additionally, u^{ij}, m^{ij}, and l^{ij} refer to the maximum, most probable, and minimum evaluation values for the k-th criterion, respectively. The threshold for this analysis is set at 0.7, as determined by Sahoo and Thakur (2024). Therefore, a defuzzified value of 0.7 or higher is considered the acceptance threshold for the identified dimensions in this study. In other words, any defuzzified value greater than 0.7 is acceptable, while scores below 0.7 are deemed as rejection criteria.

Table 3. Reliability obtained from Fuzzy Delphi analysis

Result	Defuzzified Average Value	*Fuzzy mean*			Components
		l	***m***	***u***	
Confirmed	0.790	0.760	0.810	0.870	Disclosure Functions: Human Resource Effectiveness
Confirmed	0.720	0.680	0.750	0.820	Disclosure Functions: Human Resource Promotion
Confirmed	0.800	0.740	0.830	0.900	Disclosure Functions: Comprehensive Corporate Governance
Confirmed	0.770	0.740	0.790	0.850	Disclosure Functions: Information Systems Efficiency
Confirmed	0.800	0.750	0.830	0.900	Disclosure Functions: Legal/Judicial Legitimacy
Confirmed	0.820	0.750	0.840	0.910	Disclosure Functions: Protection of Shareholders' Interests
Confirmed	0.760	0.730	0.780	0.840	Disclosure Functions: Environmental Protection
Confirmed	0.810	0.780	0.830	0.890	Disclosure Functions: Energy Accountability

According to Table 3, all identified core components achieve the desired level of desirability, scoring above 0.7 in the fuzzy Delphi analysis, and can therefore be extended to matrix processes.

Next, the TODIM fuzzy analysis determines the most desirable axis of corporate citizenship sustainability reporting. Thus, pairwise comparisons are made by placing each confirmed component from the qualitative section in row i and column j to examine whether there is a direct, inverse, or mutual effect between the matrix dimensions.

Table 4. Linguistic scales based on pairwise relations

Linguistic Variables	Very High Impact	High Impact	Low Impact	Very Low Impact	No Impact
Fuzzy Values	(8, 9, 9)	(6, 7, 8)	(4, 5, 6)	(2, 3, 4)	(1, 1, 1)

In Table 4, for each research proposition, a five-point scale ranging from "Very High Impact" to "No Impact" was used in the questionnaire. For each of these, fuzzy sets with fuzzy membership functions were defined (Tesfamariam and Sadiq, 2006). Accordingly, these numbers are commonly used in fuzzy controller applications, such as decision-making, to select the best solution. Mathematical models are presented to extend the initial definitions of fuzzy numbers.

Step 1: Designing Fuzzy Linguistic Criteria

Based on the criteria established in the qualitative section, this step prioritizes the components of corporate citizenship sustainability reporting. These criteria should be organized to eliminate uncertainty according to the linguistic criteria provided in Table 4. After collecting the questionnaires, each linguistic term is assigned its corresponding value, as shown in Table 4.

Step 2: Providing matrix checklists to participants

In this step, each participant is asked to specify the impact of each dimension on the other dimensions through pairwise comparisons. The symbol $\tilde{o}_{ij} = (l_{ij} \cdot m_{iy} \cdot u_{ij})$ represents the respondent's opinion regarding the impact of the identified dimension on the others. In other words, the effect of the column dimension *i* on the row dimension *j* is examined.

Step 3: Initial decision matrix

The initial decision matrix $\tilde{o}$ is derived from the simple average of the opinions of all participants who evaluated the checklists and is calculated using Equation (6), where $\tilde{o}_{ij} = (l_{ij} \cdot m_{iy} \cdot u_{ij})$ represents the sum of the triangular fuzzy dimensions.

$$\tilde{o} = \begin{bmatrix} \tilde{o}_{11} & \cdots & \tilde{o}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{o}_{m1} & \cdots & \tilde{o}_{mn} \end{bmatrix} \cdot \tilde{o}_{ij} = \frac{1}{P} \times \sum_{P=1}^{P} \tilde{\alpha}_{ij}^{P} \quad (6)$$

Step 4: Calculating the normalized matrix (z̃)

The sum of the values of each criterion must be divided by the sum of all the components (column elements) to normalize the matrix of the identified dimensions. Therefore, Equations (7) to (9) are used to determine the normalized matrix.

$$\tilde{Z}_h = {}^{1}/_{K} \times \tilde{O}_h; \quad h = l.m.u \quad (7)$$

$$K = \max_{1 \le i \le n} \left(\sum_{j=1}^{n} U_{ij} \right) \quad (8)$$

$$\tilde{Z} = \begin{bmatrix} \tilde{Z}_{11} & \cdots & \tilde{Z}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{Z}_{m1} & \cdots & \tilde{Z}_{mn} \end{bmatrix} \quad (9)$$

Step 5: Calculating the matrix (ṽ)

Since three-component linguistic criteria and triangular fuzzy numbers are used for this analysis, the elements of each three-component item in the normalized matrix are separated to determine three matrices: $\tilde{Z}_l$, $\tilde{Z}_m$, and $\tilde{Z}_u$. Then, for each matrix, the fuzzy limits $(l''_{ij}; m''_{ij}; u''_{ij})$ are calculated using Equations (10) to (12).

$$l''_{ij} = \tilde{Z}_l \times \left(I - \tilde{Z}_l\right)^{-1} \quad (10)$$

$$m''_{ij} = \tilde{Z}_m \times \left(I - \tilde{Z}_m\right)^{-1} \quad (11)$$

$$u''_{ij} = \tilde{Z}_u \times \left(I - \tilde{Z}_u\right)^{-1} \quad (12)$$

After these relationships, each lower, middle, and upper fuzzy limit should be combined to calculate the matrix $\tilde{v}$. In other words, the elements of the matrices $(l''_{ij}; m''_{ij}; u''_{ij})$ form the first, second, and third components of the elements of the matrix $\tilde{v}$, as specified in Equation (13).

$$\tilde{v} = \begin{bmatrix} \tilde{v}_{11} & \cdots & \tilde{v}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{v}_{m1} & \cdots & \tilde{v}_{mn} \end{bmatrix} \quad (13)$$

Step 6: Converting fuzzy Numbers to non-fuzzy numbers

In this step, the fuzzy numbers should be converted to non-fuzzy numbers according to Equation (14), where *m* and *u* are each element's first, second, and third components.

$$V = \frac{(l+4_m+u)}{6} \quad (14)$$

Step 7: Assessing $D_i - R_i$ and $D_i + R_i$ for optimal utility optimization

In this step, the values of *D* and *R* for each factor are obtained by summing the rows and columns of the defuzzified matrix. Then, based on the $D_i - R_i$ and $D_i + R_i$ elements, the intensity of influence and responsiveness in each element is calculated, forming the basis for decision-making. Finally, the weight of each criterion, based on its importance in achieving optimization, is incorporated into the TODIM analysis process (Table 5). Based on the analytical sequences, the multi-criteria decision-making (MCDM) process is determined under the value model presented in Figure 1. This process uses the combination of weights through the DEMATEL technique to select the most critical criterion in the qualitative phase.

Table 5. Fuzzy TODIM Inference for Determining the Importance of Initial Criteria

F_n	⋯	F_2	F_1	
W_m	⋯	W_2	W_1	W_F
P_{1m}	⋯	P_{12}	P_{11}	E_1
P_{2m}	⋯	P_{22}	P_{21}	E_2
⋮	⋮	⋮	⋮	⋮
P_{nm}	⋯	P_{n2}	P_{n1}	E_n

In this matrix, *m* criteria $(F_1, \cdots F_m)$ and *n* options $(E_1, \cdots E_n)$ are available, such that P_{ij} represents the score assigned to the *i*-th option based on the *j*-th criterion ($F = 1, \cdots, m$). Additionally, W_F is the weight of the importance of criterion *F*. The fuzzy TODIM inference process can be executed in three steps, as shown in Equations (10) to (12).

Step 1: If P_{ij} and P_{ji} are the total scores assigned to the research options based on the components ($j = 1, \cdots, m$), the relative difference $(P_{ij} - P_{ji})$ of the identified criteria must first be calculated. Therefore, according to Equation (10), $\varphi_F = (E_i, E_j)$ should be calculated.

$$\varphi_F = (E_i, E_j) = \begin{cases} \sqrt{w_F \times (P_{ij} - P_{ji})}, (P_{ij} - P_{ji}) > 0 \\ 0, \quad (P_{ij} - P_{ji}) = 0 \\ \frac{-1}{\theta}\sqrt{\frac{-(P_{ij} - P_{ji})}{w_F}}, (P_{ij} - P_{ji}) < 0 \end{cases} \quad (15)$$

Therefore, θ should be considered a reduction factor.

Step 2) In this step, the degree of dominance of the option E_i over option $\delta(E_i, E_j)$ should be calculated based on Equation (16).

$$\delta(E_i, E_j) = \sum_{F=1}^{m} \varphi_F = (E_i, E_j), \forall (i, j), i \neq j \quad (16)$$

Step 3) Finally, the final weights for each identified criterion should be calculated by expanding Equation (17) in the following order.

$$w_j = \frac{\delta(E_j)}{\sum_{j=1}^{n} \delta(E_j)} \quad (17)$$

Therefore, weighting is based on the criteria for sustainable reporting to determine the most critical dimension in professional functions. As explained earlier, comparing the requirements must first be carried out using the five verbal expressions in Table 5 to form a fuzzy matrix. As observed,

the fuzzy pairwise comparison matrix for each corporate citizen's sustainable reporting dimension is determined according to Table 6. Subsequently, using the fuzzy DEMATEL algorithm, the relative difference between the rows and columns must be calculated to determine the optimization of each identified dimension. In this matrix, as previously explained, $\tilde{x}_{ij} = (l_{ij}, m_{ij}, u_{ij})$ are triangular fuzzy numbers, and $\tilde{x}_{ii} = (i = 1,2,3, \dots, n)$ is considered a fuzzy number (0,0,0). The arithmetic mean is taken from them to incorporate the opinions of all experts, according to Equation (18).

$$\tilde{z} = \frac{\tilde{x}^1 \oplus \tilde{x}^2 \oplus \tilde{x}^3 \oplus \dots \oplus x^p}{p} \quad (18)$$

In this formula, p represents the number of experts, and $\tilde{x}^1$ ،$\tilde{x}^2$،$\tilde{x}^p$ are the pairwise comparison matrices of research participants. $\tilde{z}$ is a triangular fuzzy number represented as $\tilde{z}_{ij} = (l'_{ij}, m'_{ij}, u'_{ij})$. Table 6 shows the average of the pairwise comparisons:

Table 6. Direct fuzzy matrix between dimensions

	J1			J2			J3			J4			J5			J6			J7			J7		
	l	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*
J1	0.00	0.00	0.00	0.41	0.55	0.79	0.62	0.82	0.95	0.39	0.51	0.78	0.59	0.74	0.95	0.79	0.94	1.00	0.49	0.58	0.72	0.53	0.64	0.81
J2	0.60	0.83	1.00	0.00	0.00	0.00	0.46	0.59	0.70	0.78	0.91	1.00	0.52	0.63	0.81	0.63	0.81	0.96	0.63	0.87	0.97	0.63	0.87	0.97
J3	0.62	0.82	0.95	0.36	0.52	0.68	0.00	0.00	0.00	0.59	0.74	0.95	0.77	1.00	1.00	0.72	0.89	1.00	0.75	0.97	1.00	0.53	0.64	0.78
J4	0.83	0.97	1.00	0.74	0.89	0.93	0.52	0.73	0.92	0.00	0.00	0.00	0.34	0.49	0.69	0.63	0.88	1.00	0.61	0.85	1.00	0.61	0.85	1.00
J5	0.78	0.91	0.97	0.32	0.45	0.66	0.29	0.43	0.64	0.44	0.58	0.89	0.00	0.00	0.00	0.61	0.89	1.00	0.54	0.79	0.83	0.37	0.51	0.69
J6	0.32	0.48	0.63	0.64	0.82	1.00	0.66	0.87	0.95	0.25	0.49	0.63	0.57	0.78	0.92	0.00	0.00	0.00	0.65	0.76	0.89	0.47	0.63	0.76
J7	0.69	0.86	1.00	0.33	0.48	0.66	0.36	0.50	0.68	0.47	0.61	0.78	0.31	0.46	0.61	0.38	0.59	0.87	0.00	0.00	0.00	0.55	0.76	1.00
J8	0.65	0.76	0.89	0.37	0.51	0.67	0.58	0.73	0.83	0.60	0.85	0.95	0.59	0.79	0.91	0.45	0.60	0.74	0.43	0.55	0.63	0.00	0.00	0.00

Equations (19 and (20) normalize the obtained matrix (Table 7).

$$\tilde{H}_{ij} = \frac{\tilde{z}_{ij}}{r} = \left(\frac{l'_{ij}}{r}, \frac{m'_{ij}}{r}, \frac{u'_{ij}}{r}\right) = (l''_{ij}, m''_{ij}, u''_{ij}) \quad (19)$$

Where r is obtained from the following relationship:

$$r = \max_{1 \le i \le n}\left(\sum_{j=1}^{n} u_{ij}\right) \quad (20)$$

The next step is to obtain the sum of the rows and columns of the matrix "$\tilde{T}$". The row and column sums are calculated according to relations (21) and (22).

$$\tilde{D} = (\tilde{D}_i)_{n\times 1} = [\sum_{j=1}^{n} \tilde{T}_{ij}]_{n\times 1} \quad (21)$$

$$\tilde{R} = (\tilde{R}_i)_{1\times n} = [\sum_{i=1}^{n} \tilde{T}_{ij}]_{1\times n} \quad (22)$$

$\tilde{D}$ and $\tilde{R}$ are, respectively, the $n\times 1$ and $1\times n$ matrices. The next step is determining the importance of the dimensions $(\tilde{D}_i + \tilde{R}_i)$ and the relationship between the criteria $(\tilde{D}_i - \tilde{R}_i)$. If $\tilde{D}_i -$

$\widetilde{R}_i > 0$, the corresponding criterion is considered influential, and if $\widetilde{D}_i - \widetilde{R}_i < 0$, the corresponding criterion is considered responsive. Table 8 shows $\widetilde{D}_i + \widetilde{R}_i$ and $\widetilde{D}_i - \widetilde{R}_i$.

Table 7. Normalized relationship matrix of research criteria

	J1			J2			J3			J4			J5			J6			J7			J7		
	l	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*	*l*	*m*	*u*
J1	0.00	0.00	0.00	0.041	0.097	0.110	0.094	0.102	0.120	0.101	0.108	0.133	0.075	0.092	0.113	0.045	0.094	0.10	0.073	0.118	0.126	0.089	0.113	0.128
J2	0.084	0.163	0.144	0.00	0.00	0.00	0.044	0.101	0.121	0.076	0.119	0.132	0.117	0.125	0.131	0.085	0.106	0.125	0.063	0.095	0.104	0.095	0.109	0.111
J3	0.103	0.113	0.142	0.056	0.113	0.128	0.00	0.00	0.00	0.042	0.087	0.112	0.127	0.129	0.136	0.085	0.116	0.131	0.074	0.095	0.143	0.087	0.13	0.11
J4	0.087	0.099	0.125	0.044	0.088	0.114	0.070	0.097	0.115	0.00	0.00	0.00	0.076	0.101	0.125	0.098	0.102	0.128	0.087	0.101	0.125	0.098	0.110	0.123
J5	0.060	0.090	0.100	0.055	0.096	0.105	0.103	0.115	0.136	0.083	0.098	0.118	0.00	0.00	0.00	0.112	0.134	0.155	0.074	0.103	0.134	0.103	0.111	0.112
J6	0.080	0.092	0.116	0.076	0.106	0.112	0.110	0.130	0.151	0.085	0.095	03.117	0.085	0.097	0.103	0.00	0.00	0.00	0.056	0.111	0.134	0.063	0.107	0.123
J7	0.070	0.103	0.120	0.081	0.091	0.115	0.044	0.088	0.114	0.075	0.108	0.125	0.041	0.083	0.112	0.094	0.141	0.159	0.00	0.00	0.00	0.109	0.111	0.137
J8	0.062	0.095	0.103	0.076	0.110	0.117	0.074	0.103	0.134	0.085	0.116	0.131	0.054	0.099	0.125	0.086	0.119	0.134	0.041	0.097	0.110	0.00	0.00	0.00

Table 8. Importance and impact of dimensions

		J	$\widetilde{D}$	$\widetilde{R}$	$\widetilde{D}_i + \widetilde{R}_i$	$\widetilde{D}_i - \widetilde{R}_i$	Result
Research dimensions	Disclosure of Human Resources Effectiveness	J1	4.995	5.569	10.564	-0.574	Cause
	Disclosure of Human Resources Promotion	J2	4.779	6.726	11.505	-1.947	Cause
	Disclosure of Corporate Governance	J3	4.892	3.182	8.074	1.710	Effect
	Disclosure of Information Systems Efficiency	J4	7.001	5.298	12.299	1.703	Effect
	Disclosure of Legal/ Judicial Legitimacy	J5	6.605	7.191	13.796	-0.586	Cause
	Disclosure of Shareholders' Interests Protection	J6	5.816	4.099	9.915	1.717	Effect
	Disclosure of Environmental Resource Protection	J7	5.119	3.219	8.338	1.900	Effect
	Disclosure of Energy Responsibility	J8	6.229	4.111	10.340	2.118	Effect

According to Table 8, $\widetilde{D}_i + \widetilde{R}_i$ represents the sum of the influences a factor receives from other factors and the influences it exerts on different factors. In essence, $\widetilde{D}_i + \widetilde{R}_i$ is the total of both the impact and the receptivity of each factor to others. On the other hand, $\widetilde{D}_i - \widetilde{R}_i$is the difference between the influences a factor exerts on others and the influences it receives from others. Precisely, $\widetilde{D}_i - \widetilde{R}_i$ reflects the net impact a factor has on other factors. If the net influence of a factor is positive, it is considered influential; if negative, it is considered receptive. The higher the value of

$\widetilde{D}_i + \widetilde{R}_i$, the more important the factor is considered. Based on the results, the "disclosure of human resources promotion" function is considered the essential dimension among those identified in the qualitative phase of the study. This dimension could lead to greater adherence to collective disclosure norms among stakeholders in the capital market. Following this, the fuzzy TODEM inference was applied to determine the importance of the primary criteria, as shown in Table 9, based on the participants' perspectives.

Table 9. Fuzzy TODEM inference based on research criteria

			J1	J2	J3	J4	J5	J6	J7	J8
		W_{rc}	592.0	674.0	582.0	516.0	579.0	481.0	415.0	505.0
Research dimensions	Disclosure of Human Resources Effectiveness	J1	1.000	5.809	3.271	3.176	4.093	2.143	1.382	3.001
	Disclosure of Human Resources Promotion	J2	0.645	1.000	3.767	3.345	4.003	2.365	1.222	3.155
	Disclosure of Corporate Governance	J3	0.476	0.421	1.000	3.056	4.128	2.113	1.548	2.888
	Disclosure of Information Systems Efficiency	J4	0.316	0.313	0.326	1.000	3.967	2.710	2.054	3.164
	Disclosure of Legal/ Judicial Legitimacy	J5	0.481	0.409	0.398	0.423	1.000	4.746	3.112	2.545
	Disclosure of Shareholders' Interests Protection	J6	0.308	0.311	0.305	0.346	0.341	1.000	1.643	2.328
	Disclosure of Environmental Resource Protection	J7	0.219	0.205	0.219	0.227	0.294	0.212	1.000	3.356
	Disclosure of Energy Responsibility	J8	0.449	0.389	0.351	0.339	0.291	0.301	0.194	1.000
	Rating		2nd	1st	3rd	4th	3rd	6th	7th	5th

Then, a decision matrix is formed to combine the weights of each criterion based on the results obtained from the DEMATEL algorithm (Table 10). In the above matrix, the value W_{rc} should be determined by dividing the initial weight of each criterion, as determined by DEMATEL, into the initial decision matrix Todim according to Equation (23).

$$W_{rc} = \frac{W_i}{\text{Max } W_i} \quad (23)$$

Table 10. Initial TODIM decision matrix

			J1	J2	J3	J4	J5	J6	J7	J8
		W_{rc}	592.0	674.0	582.0	516.0	579.0	481.0	415.0	505.0
Research dimensions	Disclosure of Human Resources Effectiveness	J1	00.1	061.0	056.0	042.0	055.0	033.0	023.0	039.0
	Disclosure of Human Resources Promotion	J2	031.0	00.1	059.0	048.0	59.0	043.0	029.0	040.0
	Disclosure of Corporate Governance	J3	029.0	043.0	00.1	041.0	042.0	037.0	025.0	039.0
	Disclosure of Information Systems Efficiency	J4	019.0	021.0	018.0	00.1	038.0	035.0	028.0	033.0
	Disclosure of Legal/ Judicial Legitimacy	J5	020.0	024.0	020.0	021.0	00.1	040.0	037.0	042.0
	Disclosure of Shareholders' Interests Protection	J6	030.0	027.0	033.0	021.0	036.0	00.1	038.0	040.0
	Disclosure of Environmental Resource Protection	J7	033.0	019.0	030.0	029.0	018.0	029.0	00.1	029.0
	Disclosure of Energy Responsibility	J8	019.0	021.0	016.0	012.0	016.0	011.0	009.0	00.1
	Rating		2nd	1st	3rd	4th	3rd	6th	7th	5th

The percentage weights for each identified criterion were determined during the defuzzification process of the TODIM method. The component of disclosure functions related to Human Resource Promotion ("J2") has a more influential pivotal coefficient in adhering to the disclosure of information based on corporate citizenship sustainability reporting, in line with the inclusive normativity of stakeholders, particularly internal stakeholders within companies.

5. Discussion and conclusion

This research presents a corporate citizenship sustainability reporting model based on adherence to collective stakeholder norms in the capital market. This study, grounded in the theoretical gap in corporate citizenship sustainability reporting frameworks, aimed to evaluate the normativity of collective stakeholder interests in the capital market through a qualitative grounded theory analysis and to identify core components relevant to the study. Therefore, based on the grounded theory process and interviews with scholars and experts, 287 initial open codes were analyzed, identifying three categories, eight components, and 42 conceptual themes as the grounds for developing corporate citizenship sustainability reporting. These criteria were presented as a theoretical framework to address the research question, in line with the findings from the first part of the study. Subsequently, the TODIM fuzzy process was applied in the quantitative phase of the study to address the second research question regarding the identification of the most central aspect of corporate citizenship sustainability reporting in the capital market. The eight core dimensions were evaluated through pairwise comparisons based on fuzzy linguistic scales during this analysis. The results revealed that the disclosure function component related to Human Resource Promotion emerged as the most central factor in adhering to the inclusive normativity of stakeholders, which is often overlooked in reporting practices. This factor could significantly enhance the transparency of companies' financial information disclosures.

In interpreting this result, the theory of corporate citizenship, grounded in a network of stakeholders, holds companies responsible for developing norms to preserve internal values and promote external values, thereby enabling legitimate accountability to stakeholders' needs. Human resources are prepared to enhance service quality for stakeholders through synergistic incentives within the organization, allowing the companies to develop competitive, social, and environmental values that convince direct and indirect stakeholders. Regarding financial reporting, the combination of this strategic thinking within companies is more complex than purely managerial processes based on qualitative tools because disclosing company performance in line with corporate citizenship lacks a consistent, measurable criterion and framework. In categorizing the operational pillars of such disclosure, attention must be paid to sustainable development as a mechanism that promotes the sequence of social, economic, and environmental standards. In other words, the development of corporate citizenship sustainability reporting enables companies to voluntarily disclose a wide range of financial and non-financial performance data, thereby enhancing decision-making power over financial statement comparability in the capital market. This process enables companies to maintain their operations by meeting shareholder expectations, which serves as the basis for achieving higher credit ratings and a competitive position, thus paving the way for sustainable development. In this context, the most strategic criterion for developing such a phenomenon within the capital market companies' ecosystem is the human resource promotion disclosure component. By understanding the value of human resources, this criterion suggests that companies must create equal opportunities to enhance human resource capabilities and capacities, thus improving the company’s technical performance in achieving sustainability through the integration of financial and non-financial reporting. Specifically, companies must provide fair

compensation to human resources and create opportunities based on individual and team performance evaluations. The results of these evaluations, focusing on cost reduction, should be communicated to human resources. The company's sustainability can be improved through an interactive, competitive environment enabled by training and information sharing. Such capacity to stimulate human resource perceptions will lead to effective performance outcomes, and companies that disclose the level of innovation and individual initiatives will contribute to greater dynamism in sustainability reporting. In line with the results, it is essential to note that, given the novelty of combining corporate citizenship with sustainability reporting, this study does not closely resemble previous research in its analysis and methodology. However, the results align somewhat with studies such as Granados-Sanchez (2023), Bracci et al. (2023), and Caputo et al. (2022). Therefore, in a general conclusion, the similarity of the findings obtained from the mentioned research can be considered in the functions of the human resources and judicial legitimacy areas, while the difference of these findings from the mentioned research is in the environmental approaches and the energy field as most of the past research looks at environmental and energy issues as a new part of social responsibility reports that is important.

Based on the results, it is recommended that companies move toward sustainable development through corporate citizenship reporting. There is an increasing need to strengthen the norms surrounding the accounting value of human resources. In addition to enhancing the perceived support for human resources, this area can improve companies' sustainability through financial reporting by disclosing their training-related functions and evaluating their technical outcomes, allowing higher-level institutions and even financial decision-makers to conduct more integrated assessments of companies. On the other hand, policymakers and standard-setting bodies are advised to develop standard checklists for sustainability reporting, adopting a more inclusive approach that extends beyond social, economic, and environmental issues in evaluating this matter. For example, evaluation criteria should consider human resource development to achieve a more comprehensive level of accountability to stakeholder needs in the long term.

Like research based on data collected through interviews, this study faces the intrinsic limitation of potentially not covering all aspects of the core phenomenon. Furthermore, the low number of participants in the quantitative phase of the study could be considered another limitation. Although this limited number of participants is justifiable according to the fuzzy analysis guidelines, the limitation lies in the generalizability of these analyses beyond this context. Therefore, to solve this problem in future research, by changing the nature of the quantitative phase implementation analysis method, we can move towards analyses such as partial least squares (PLS), which examines the impact of corporate citizenship reporting on the protection of shareholder rights with a larger number of participants.

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