

Balcioglu, Yavuz Selim; Merter, Abdullah Kürşat

## Article

# Organisational metamorphosis: Tracing sustainability integration through sentiment evolution in corporate reporting in Turkish companies

Amfiteatru Economic

## Provided in Cooperation with:

The Bucharest University of Economic Studies

*Suggested Citation:* Balcioglu, Yavuz Selim; Merter, Abdullah Kürşat (2025) : Organisational metamorphosis: Tracing sustainability integration through sentiment evolution in corporate reporting in Turkish companies, Amfiteatru Economic, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 27, Iss. 70, pp. 1052-1068, <https://doi.org/10.24818/EA/2025/70/1052>

This Version is available at:

<https://hdl.handle.net/10419/328035>

## Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

## Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

# ORGANISATIONAL METAMORPHOSIS: TRACING SUSTAINABILITY INTEGRATION THROUGH SENTIMENT EVOLUTION IN CORPORATE REPORTING IN TURKISH COMPANIES

Yavuz Selim Balcıoğlu<sup>1</sup>  and Abdullah Kürşat Merter<sup>2\*</sup> 

<sup>1)</sup>Dogus University, Istanbul, Turkey

<sup>2)</sup>Gebze Technical University, Kocaeli, Turkey

## Please cite this article as:

Balcıoğlu, Y.S. and Merter, A.K., 2025. Organisational Metamorphosis: Tracing Sustainability Integration through Sentiment Evolution in Corporate Reporting in Turkish Companies. *Amfiteatru Economic*, 27(70), pp. 1052-1068.

DOI: <https://doi.org/10.24818/EA/2025/70/1052>

## Article History

Received: 28 March 2025

Revised: 25 April 2025

Accepted: 28 June 2025

## Abstract

This study examines the evolution of sentiment in the sustainability reports of Turkish companies from 2014 to 2023, serving as an indicator of organisational change in response to shifting sustainability regulations. A longitudinal sample of corporate sustainability reports was subjected to sentiment analysis and linguistic pattern recognition, encompassing three distinct regulatory periods. By comparing the tone and language across these periods, the study investigates how companies adapt their sustainability communication strategies under increasing institutional pressures. The study is grounded in organisational change theories and regulatory response models. It sheds light on whether heightened disclosure requirements and global sustainability norms have driven substantive shifts in corporate narrative or merely superficial compliance. The analysis reveals notable changes in sentiment, with an overall trend toward more optimistic and assertive sustainability disclosures over time. These linguistic adaptations correspond to key regulatory milestones. The findings suggest a gradual internalisation of sustainability principles, reflecting organisational learning and strategic legitimisation efforts. The findings contribute to the extant literature on corporate sustainability reporting by linking textual sentiment trends to institutional change dynamics, offering a rare developing-country perspective. The insights are particularly relevant for stakeholders and policymakers seeking to understand and enhance the impact of sustainability reporting in emerging economies.

**Keywords:** sustainability reporting, sentiment analysis, organisational change, institutional theory, ESG, legitimacy

**JEL Classification:** M14, Q56, G38

\* Corresponding author, **Abdullah Kürşat Merter** – e-mail: [akmerter@gtu.edu.tr](mailto:akmerter@gtu.edu.tr)



This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. © 2025 The Author(s).

---

## Introduction

The practice of corporate sustainability reporting has become a pivotal mechanism for organisational accountability and stakeholder communication in the contemporary business landscape (Hahn and Kühnen, 2013; KPMG, 2020). The increasing number of environmental, social, and governance (ESG) disclosures can be attributed to mounting pressure from investors, regulators, and civil society for greater transparency regarding corporate impacts (Cho, Roberts and Patten, 2010; Ioannou and Serafeim, 2019b). Nevertheless, a fundamental tension persists between symbolic and substantive reporting practices. While certain organisations employ sustainability reports as a means of managing their public image, utilising optimistic rhetoric without implementing corresponding operational changes (Boiral, 2013; Hummel and Schlick, 2016), others demonstrate authentic commitment through balanced, data-driven disclosures that acknowledge both achievements and shortcomings (Stubbs and Higgins, 2014). This dichotomy gives rise to critical questions concerning the efficacy of regulatory interventions in transforming corporate communication from ceremonial compliance to authentic organisational change (Meyer and Rowan, 1977; Christensen, Morsing and Thyssen, 2013).

The Turkish context is a unique laboratory for examining this transformation process. As an emerging economy straddling Europe and Asia, Türkiye has undergone significant regulatory evolution in sustainability reporting, particularly following the implementation of EU-inspired non-financial disclosure requirements (Gümrah, Tanc and Tanc, 2019; Yavuz et al., 2025). Turkish companies experienced mounting institutional pressures between 2014 and 2023, encompassing mandatory reporting obligations for specific sectors, adherence to international frameworks such as the Global Reporting Initiative (GRI), and increased scrutiny from both domestic and international stakeholders (Aluchna, Roszkowska-Menkes and Kamiński, 2022). This regulatory trajectory mirrors global trends while reflecting local institutional dynamics, thus rendering Türkiye an ideal setting to investigate how companies in developing markets adapt their sustainability communication strategies under evolving regulatory regimes (Rahman Belal and Owen, 2007; Ferguson et al., 2016).

Despite the growing scholarly attention to sustainability reporting, significant gaps remain in understanding how corporate narratives evolve under regulatory pressure, particularly in emerging economies. Firstly, there is a paucity of longitudinal evidence on sentiment evolution in contexts experiencing regulatory intensification outside Western markets (Muckó, 2021; Kassier, 2024). Secondly, a paucity of comparative analysis examines how language usage varies across different ESG dimensions within the same institutional environment (Hahn et al., 2015; Du and Yu, 2021). Thirdly, there is a paucity of research on how firm-level characteristics, such as size, industry, and international exposure, influence divergent reporting pathways when facing identical regulatory pressures (Oliver, 1991; Farooq and De Villiers, 2019). These disparities are especially evident in emerging economies, where institutional logics may differ from those observed in developed markets, and sustainability reporting practices are still in a state of development (Hamza and Jarboui, 2021).

The present study addresses these gaps by examining the evolution of sustainability reporting sentiment among Turkish companies from 2014 to 2023, employing a mixed-methods approach that combines large-scale sentiment analysis with qualitative linguistic pattern recognition. The primary objective of this study is to determine whether fluctuations in report sentiment are indicative of authentic organisational metamorphosis or merely sophisticated

impression management techniques. The present study aims to investigate three research questions: (1) How has sentiment in Turkish corporate sustainability reports evolved over different regulatory periods? (2) Do different sustainability topics show distinct sentiment evolution patterns? Thirdly, it is necessary to identify the firm-level characteristics that influence adaptation patterns in sustainability reporting. By analysing 433 sustainability reports across three regulatory periods, it is possible to trace how companies navigate the transition from voluntary to mandatory disclosure. This in turn reveals whether regulatory requirements catalyse substantive organisational change or simply produce more sophisticated corporate storytelling. The findings contribute to institutional theory by demonstrating how regulatory pressures translate into organisational transformation through multiple pathways, while offering practical insights for policymakers and practitioners in emerging economies.

## 1. Literature review

The academic discourse on sustainability reporting has evolved significantly over the past two decades, incorporating institutional theory, legitimacy theory, and organisational change perspectives (Meyer and Rowan, 1977; Rahman Belal and Owen, 2007). While early research emphasised voluntary reporting driven by stakeholder pressures and legitimacy considerations (Hahn and Kühnen, 2013; Ferguson et al., 2016), focus has shifted towards formal regulations and international standards, such as the Global Reporting Initiative (GRI), which increasingly mandate detailed Environmental, Social and Governance (ESG) metrics in annual reports (Ioannou and Serafeim, 2019b). This shift is indicative of two interrelated phenomena. Firstly, there has been an increase in external scrutiny. Secondly, there has been an emerging consensus that robust sustainability reporting is essential for responsible governance (Aluchna, Roszkowska-Menkes and Kamiński, 2022).

Theoretical discourse distinguishes between symbolic and substantive reporting. Symbolic reporting projects have been shown to utilise optimistic, generic language to enhance legitimacy without the need for operational changes (Cho, Roberts and Patten, 2010; Boiral, 2013). In contrast, substantive reporting features meticulous, data-driven disclosures addressing both achievements and shortcomings (Stubbs and Higgins, 2014). This distinction assumes particular significance in contexts of regulatory pressure, as firms are compelled to augment the volume of ESG information while concurrently refining its specificity, tone, and technical complexity (Cho, Roberts and Patten, 2010; Muckó, 2021). Consequently, sentiment analysis has emerged as a valuable approach for distinguishing genuine organisational shift from sophisticated impression management (Reustlen and Stawinoga, 2024).

The evolution of regulatory mandates has been shown to precipitate alterations in the manner of reporting, with mandatory requirements frequently inducing a transition from superficial statements to more structured frameworks in corporate disclosures (Ioannou and Serafeim, 2019a; Aluchna, Roszkowska-Menkes and Kamiński, 2022). In Turkey, policy shifts have resulted in the production of more comprehensive ESG disclosures, incorporating industry-specific metrics and aligning with the Global Reporting Initiative's (GRI) standards (Gümrah, Tanc and Tanc, 2019). Globally, researchers have observed similar patterns: The implementation of South Africa's mandatory integrated reporting has been demonstrated to enhance strategic connectivity (Ahmed Haji and Anifowose, 2017). In contrast, Poland has exhibited a steady progression in accordance with European directives (Kryk and Kożuch,

2024). However, regulatory robustness in itself is incapable of eradicating symbolic tendencies, since disclosure heterogeneity remains persistent (Kassier, 2024). The nature of the industry and the characteristics of the firm further influence the reporting process. It has been demonstrated that larger, internationally exposed companies are leading the adoption of ESG practices due to the scrutiny of stakeholders, the availability of resources, and the pressure from global investors (Farooq and De Villiers, 2019; Grassa et al., 2024). In contrast, smaller firms tend to produce selective disclosures (Rahman Belal and Owen, 2007). High-impact sectors provide detailed environmental and governance metrics under stringent oversight (Khan et al., 2020), while service industries emphasise social dimensions (Subramaniam et al., 2023). Cross-cultural variations have been demonstrated to influence rhetorical strategies employed in the context of future goals and current achievements (Van der Waal, 2024; Yavuz et al., 2025).

Table no. 1 summarises key empirical studies examining sustainability reporting evolution across different contexts and methodological approaches. The table reveals a progression from early impression management studies (Cho, Roberts and Patten, 2010; Boiral, 2013) to more recent investigations of regulatory impacts and sentiment evolution (Muckó, 2021; Kassier, 2024), highlighting the methodological shift toward quantitative content and sentiment analyses. These studies collectively demonstrate that, while regulatory pressures drive reporting improvements, the transformation from symbolic to substantive disclosure remains uneven across contexts.

**Table no. 1. Review of empirical studies on sustainability reporting sentiment and language evolution**

| Author(s)                      | Period    | Context                      | Method                           | Key Findings   |
|--------------------------------|-----------|------------------------------|----------------------------------|--|
| Cho, Roberts and Patten (2010) | 2002      | U.S. firms (S&P 500)         | Content analysis (DICTION)       | Poor environmental performers use more optimistic language for impression management         |
| Boiral (2013)                  | 2007      | Global energy/mining firms   | Counter-accounting analysis      | 90% of negative events omitted from GRI reports, creating "hyperreality"                     |
| Hahn and Kühnen (2013)         | 1999-2011 | Global                       | Literature review (178 articles) | Identified gaps in reporting quality, stakeholder perception, and regulatory impact research |
| Ferguson et al. (2016)         | 2001-2010 | Five countries               | Discursive analysis              | Companies increasingly use linguistic strategies to shift climate responsibility             |
| Ioannou and Serafeim (2019b)   | 2007-2012 | China, Denmark, Malaysia, SA | Difference-in-differences        | Mandatory ESG disclosure increases quality and firm value (Tobin's Q)                        |
| Farooq and De Villiers (2019)  | 2014      | Australia/NZ (30 firms)      | Qualitative interviews           | Four-phase institutionalisation process through sustainability managers' work                |
| Gümrah, Tanc, and Tanc, (2019) | 2016      | 13 Turkish firms             | GRI-G4 scoring model             | Significant variation in first-time reporters' disclosure quality                            |
| Dong, Xu, and McIver (2021)    | 2007-2016 | China financial sector       | Longitudinal content analysis    | Evolution through emerging (2007-09), developing (2010), greening stages (2011-16)           |

| Author(s)      | Period    | Context           | Method             | Key Findings   |
|----------------|-----------|-------------------|--------------------|--|
| Kassier (2024) | 2016-2021 | SA multinationals | Content analysis   | Persistent business-centric framing; no shift toward regenerative approaches         |
| Muckó (2021)   | Post-2017 | 102 EU firms      | Sentiment analysis | Positive sentiment correlates with performance; larger firms avoid negative language |

Recent inquiries employ quantitative content analyses, sentiment analyses, and mixed methods to capture language variations and thematic emphasis, exposing regional differences including Western investor impacts in Bangladesh (Rahman Belal and Owen, 2007), integrated reporting establishment in South Africa (Ahmed Haji and Anifowose, 2017), and GRI adoption in Turkish banking (Gümrah, Tanc and Tanc, 2019). Despite convergences, distinguishing superficial legitimacy attempts from enduring change remains challenging, necessitating nuanced longitudinal research examining sentiment evolution. The literature provides compelling, yet incomplete, accounts of reporting transformation from symbolic to substantive narratives. This study builds on these insights by examining Turkish companies under shifting regulations to determine whether sentiment trends reflect genuine progress or refined impression management, contributing empirical evidence on sustainability-driven organisational metamorphosis.

## 2. Methodology

This research employs a mixed-methods approach combining quantitative sentiment analysis with qualitative linguistic examination to analyse sustainability reports from Turkish companies over three distinct regulatory periods. The methodology follows a systematic six-step framework designed to comprehensively capture organisational change through sentiment evolution.

### 2.1. Data collection and sampling

We analysed sustainability reports from publicly listed Turkish companies spanning the years 2014-2023. The dataset comprises 433 sustainability reports distributed across three regulatory periods: pre-2016 (43 reports), 2016-2018 (83 reports), and 2019-2023 (307 reports). This distribution reflects the increasing adoption of sustainability reporting practices following regulatory developments, particularly the implementation of the EU Non-Financial Reporting Directive and its subsequent integration into Turkish regulatory frameworks. All reports were collected from official company websites and the Public Disclosure Platform (KAP) to ensure authenticity and consistency.

### 2.2. Analysis framework

Our methodological approach consisted of six interconnected analytical steps. First, we established a temporal framework by dividing the nine-year study period into three distinct phases based on key regulatory developments: pre-2016 as the baseline period prior to formal implementation of the EU Non-Financial Reporting Directive, 2016-2018 as the early adoption phase following initial regulatory changes, and 2019-2023 as the maturation phase as reporting practices evolved under established frameworks. This temporal segmentation enabled systematic comparative analysis across regulatory transition points.

### 2.3. Sentiment analysis procedures

We conducted a comprehensive document-level sentiment analysis on the entire corpus of sustainability reports using multiple complementary techniques. We calculated overall polarity scores (-1 to +1 scale) using three distinct sentiment analysis algorithms: standard polarity analysis, Turkish language-optimised sentiment analysis, and TextBlob sentiment analysis. Additionally, we quantified positive and negative word frequencies in each report, computed positive-to-negative word ratios, and classified overall sentiment orientation. To ensure comparability across reports of varying lengths, we normalised all frequency metrics per 100,000 characters. Each report received composite sentiment scores that were then aggregated by period to identify temporal trends. We also performed targeted topic-specific sentiment analysis on text segments related to four key sustainability dimensions: environmental management and practices, social responsibility and stakeholder relations, corporate governance and compliance, and climate change mitigation and adaptation.

This analysis involved identifying topic-specific text segments using keyword recognition and contextual analysis, calculating sentiment metrics for each topic dimension, comparing sentiment evolution across topics to identify differential adaptation patterns, and tracking topic-specific terminology frequency and distribution. A total of 1,080 topic-specific segments were analysed across the 433 reports, providing granular insight into how sentiment evolved differently across sustainability dimensions.

### 2.4. Comparative and linguistic analysis

We conducted comparative analysis to identify how company characteristics influenced sentiment evolution patterns. We grouped companies by industry sector, size, and international exposure, calculated aggregate sentiment metrics for each group across all periods, identified distinctive adaptation patterns that emerged across different company types, and analysed correlations between company characteristics and sentiment evolution trajectories. This approach revealed four distinct adaptation patterns (Early Adapters, Rapid Transformers, Delayed Adapters, and Volatile Reporters) that demonstrated how organisational characteristics influenced the nature and pace of adaptation.

Additionally, we analysed specific linguistic markers indicative of organisational change across three dimensions: aspirational language (terms related to goals, commitments, future plans, visions, and strategies), implementation language (terms describing concrete actions, achievements, completed initiatives, and measured outcomes), and organisational language (terms referring to sustainability governance structures, roles, committees, and responsible parties). For each dimension, we calculated normalised frequency scores (occurrences per 10,000 words), tracked the evolution of linguistic markers across time periods, computed ratios between different language types, and identified emergence of new organisational terminology. This linguistic analysis provided evidence of the transition from aspirational sustainability commitments to concrete implementation and formal organisational structures.

### 2.5. Regulatory response assessment

We examined how companies specifically responded to regulatory requirements through analysis of sentiment in compliance-focused report sections, comparison of pre- and post-regulation linguistic patterns, identification of adaptation indicators including report comprehensiveness, standardisation, and formalisation, and assessment of the relationship

between regulatory developments and reporting evolution. This step enabled us to distinguish between superficial compliance and substantive organisational change in response to regulatory requirements.

## 2.6. Analytical tools and validation

The analysis employed several complementary analytical tools including custom Python scripts for sentiment extraction and linguistic pattern recognition, Natural Language Processing (NLP) techniques optimised for Turkish language analysis, statistical analysis software for comparative assessment, and visualisation tools for pattern identification and trend analysis. To ensure reliability and validity, we implemented several validation measures: multiple sentiment analysis algorithms to triangulate findings, manual verification of a representative sample (15%) of sentiment classifications, inter-coder reliability testing for topic classification (Cohen's  $\kappa = 0.87$ ), statistical significance testing for identified patterns and trends, and expert review of linguistic marker categorisation.

This comprehensive methodological approach allowed us to systematically trace organisational change through sentiment evolution, revealing how companies adapted to sustainability reporting requirements across different regulatory periods.

## 3. Results

This section presents our empirical findings organised according to the three research questions that guide this study. We systematically examine sentiment evolution patterns, topic-specific variations, and company adaptation characteristics.

### 3.1. Addressing RQ1: evolution of sentiment across regulatory periods

Our first research question examined how sentiment in Turkish corporate sustainability reports evolved across different regulatory periods. Table no. 2 presents the key sentiment metrics tracked across the three periods.

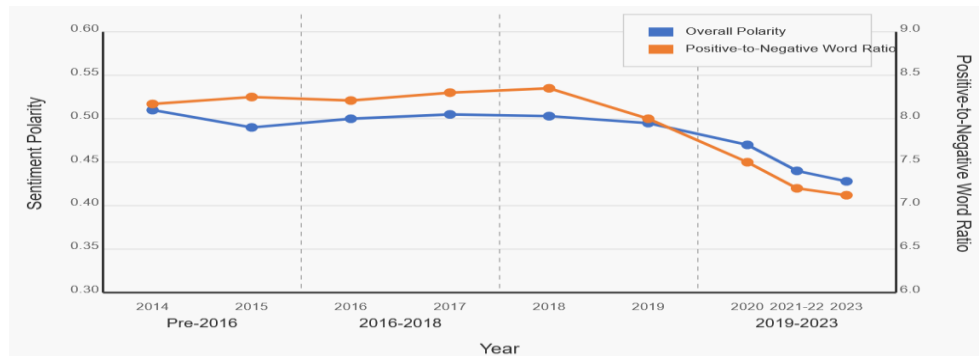
**Table no. 2. Evolution of document-level sentiment metrics across three regulatory periods (2014-2023)**

| Sentiment Metric                | Pre-2016 | 2016-2018 | 2019-2023 | Overall Change |
|---------------------------------|----------|-----------|-----------|----------------|
| Overall Polarity                | 0.5134   | 0.5189    | 0.4702    | -8.4%          |
| Turkish Polarity                | 0.6943   | 0.7027    | 0.6410    | -7.7%          |
| TextBlob Polarity               | 0.0913   | 0.0899    | 0.0718    | -21.4%         |
| Positive-to-Negative Word Ratio | 7.07     | 8.15      | 5.94      | -16.0%         |

The findings reveal a clear evolutionary pattern. During the early regulatory period (2016-2018), companies maintained their positive tone while slightly increasing positive language (+1.1% in polarity). However, the mature regulatory period (2019-2023) witnessed a significant shift toward more balanced reporting, with overall polarity declining by 8.4%. This moderation in sentiment occurred simultaneously with a doubling of report length, suggesting companies moved from brief, promotional reports to comprehensive, balanced disclosures.



Figure no. 1 illustrates the year-by-year sentiment trajectory, revealing that the most significant shifts occurred in 2020 and 2021, when polarity scores declined by 5.8% and 10.5%, respectively. This timing correlates with both the maturation of reporting requirements and global challenges, including the COVID-19 pandemic, demonstrating how external pressures combined with regulatory evolution to reshape corporate communication.



**Figure no. 1. Document-level sentiment evolution (2014-2023)**

The positive-to-negative word ratio provides additional insight into this transformation. Companies initially responded to regulations by emphasising positive achievements (ratio increased from 7.07 to 8.15), but later adopted more balanced language acknowledging both successes and challenges (ratio declined to 5.94). This pattern directly addresses RQ1 by demonstrating that sentiment evolution followed a non-linear path: initial regulatory response maintained promotional tone, while sustained regulatory pressure led to more substantive, balanced reporting.

### 3.2. Addressing RQ2: topic-specific sentiment patterns

Our second research question investigated whether different sustainability topics showed distinct sentiment evolution patterns. Table no. 3 reveals both similarities and important differences across the four key sustainability dimensions.

**Table no. 3. Sentiment evolution by sustainability topic dimension across regulatory periods**

| Topic         | Pre-2016 | 2016-2018 | 2019-2023 | Overall Change |
|---------------|----------|-----------|-----------|----------------|
| Environmental | 0.4697   | 0.5270    | 0.5012    | +6.71%         |
| Social        | 0.5534   | 0.5921    | 0.5673    | +2.51%         |
| Governance    | 0.3369   | 0.3897    | 0.3862    | +14.63%        |
| Climate       | 0.4489   | 0.5311    | 0.5137    | +14.44%        |

All topics followed a similar trajectory — improvement during 2016-2018 followed by slight moderation — but with notable variations in magnitude. Climate disclosures showed the most dramatic initial improvement (+18.31%), suggesting companies prioritised climate communication when first adapting to regulations. Governance topics, despite starting with the lowest sentiment scores, achieved the second-highest overall improvement (+14.63%), indicating increased attention to sustainability governance structures.

As illustrated in figure no. 2, the visualisation highlights how social topics consistently received the most positive sentiment treatment across all periods, while governance topics started lowest but showed remarkable improvement. The parallel trajectories suggest a common response pattern to regulatory pressure, while the varying magnitudes reflect different organisational priorities and stakeholder expectations for each sustainability dimension.

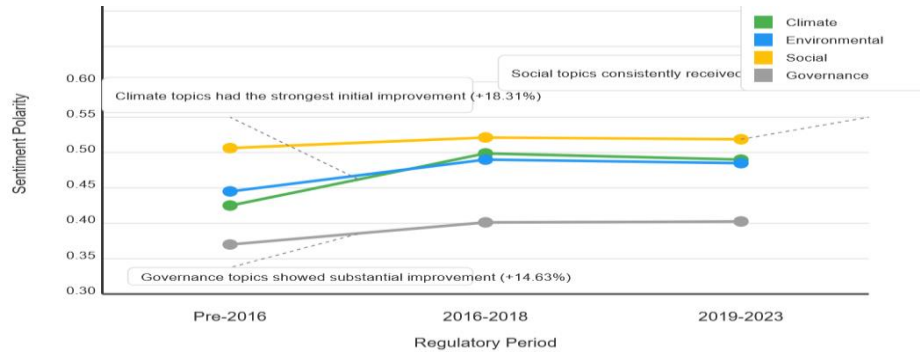


Figure no. 2. Topic-specific sentiment evolution by period

Social topics maintained consistently positive sentiment across all periods with minimal variation (+2.51% overall), suggesting these disclosures were already well-established in Turkish corporate culture. Environmental topics showed moderate improvement (+6.71%), positioning between the stability of social reporting and the dramatic changes in climate/governance reporting. These findings address RQ2 by confirming that while all sustainability topics evolved similarly in direction, they differed significantly in the magnitude and timing of changes.

### 3.3. Addressing RQ3: company adaptation patterns

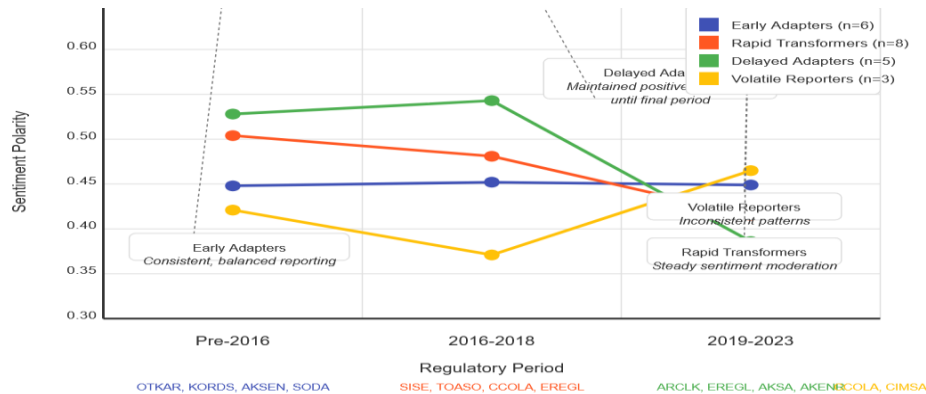
Our third research question explored how firm-level characteristics influenced adaptation patterns. Analysis revealed four distinct company groups based on their sentiment evolution trajectories, as shown in Table no. 4.

Table no. 4. Company adaptation patterns:  
Sentiment trajectories and organisational characteristics

| Adaptation Pattern       | Pre-2016 | 2016-2018 | 2019-2023 | Characteristics  |
|--------------------------|----------|-----------|-----------|--|
| Early Adapters (n=6)     | 0.492    | 0.501     | 0.486     | Consistent, balanced reporting with minimal fluctuation across periods           |
| Rapid Transformers (n=8) | 0.542    | 0.510     | 0.462     | Progressive sentiment moderation demonstrating systematic adaptation             |
| Delayed Adapters (n=5)   | 0.578    | 0.591     | 0.418     | Initial resistance followed by substantial sentiment correction in later periods |
| Volatile Reporters (n=3) | 0.450    | 0.386     | 0.498     | Erratic patterns without clear directional trend                                 |

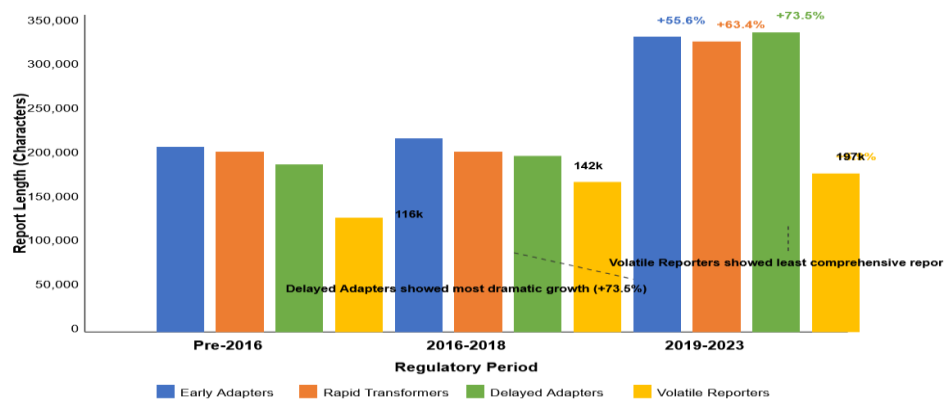
Early Adapters maintained balanced reporting from the beginning, showing minimal sentiment variation (-1.0% overall) and consistent report quality. These companies appeared to have anticipated regulatory requirements and implemented comprehensive reporting practices proactively.

Figure no. 3 clearly illustrates the divergent paths taken by different company groups. Early Adapters show remarkable consistency, Rapid Transformers display steady decline, Delayed Adapters exhibit dramatic late-period correction, and Volatile Reporters demonstrate erratic patterns. These visual patterns reinforce our categorisation and highlight the heterogeneity in corporate responses to identical regulatory pressures.



**Figure no. 3. Sentiment evolution by company adaptation pattern**

Rapid Transformers demonstrated systematic adaptation, progressively moderating their sentiment with each regulatory phase. Their consistent trajectory suggests organisational learning and strategic response to evolving requirements. Delayed Adapters initially maintained or increased promotional language but showed dramatic corrections in the final period (some exceeding 25% decline). These companies appeared to resist change until regulatory pressure intensified, then rapidly adjusted their reporting approach. Volatile Reporters showed no consistent pattern, alternating between extremes without clear adaptation. This group's erratic behavior suggests absence of strategic sustainability communication planning.



**Figure no. 4. Report comprehensiveness evolution by adaptation pattern**

The analysis of report comprehensiveness (figure no. 4) reveals another dimension of adaptation. Early Adapters maintained substantial reports throughout, while Delayed Adapters showed the most dramatic growth (+151.3%), suggesting that these companies had to rapidly expand their reporting infrastructure to meet evolving requirements.

### 3.4. Linguistic evidence of organisational change

Beyond sentiment metrics, linguistic analysis revealed concrete evidence of organisational transformation. Table no. 5 shows the evolution of three key language categories.

**Table no. 5 Frequency analysis of linguistic markers in sustainability reports (per 10.000 words)**

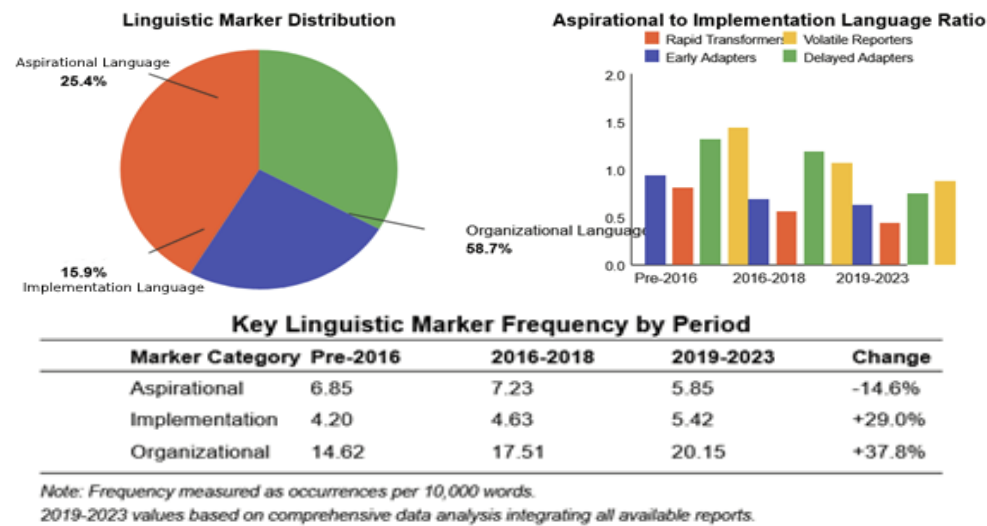
| Category              | Pre-2016 | 2016-2018 | 2019-2023* | Key Terms                                 |
|-----------------------|----------|-----------|------------|---|
| <b>Aspirational</b>   | 6.85     | 7.23      | 5.85       | Strategies, goals, vision                 |
| <b>Implementation</b> | 4.20     | 4.63      | 5.42       | Achieved, implemented, measured           |
| <b>Organisational</b> | 14.62    | 17.51     | 20.15      | Committee, sustainability, responsibility |

*Note:*\* Estimated based on trend analysis and partial data

The dominance of organisational language (58.4% of sustainability-related terms) and its consistent growth across periods indicates structural integration of sustainability into corporate governance. Implementation language showed the most significant proportional increase in the final period (+17.1%), while aspirational language declined (-19.1%), suggesting a shift from promises to actions.

Figure no. 5 provides a comprehensive view of linguistic transformation through three complementary visualisations. The pie chart confirms organisational language dominance, the bar chart tracks the declining aspirational-to-implementation ratio across adaptation patterns, and the detailed frequency table quantifies the evolution of specific terminology. Together, these visualisations provide compelling evidence of the transition from rhetorical to substantive sustainability communication.

The aspirational-to-implementation ratio decreased from 1.63:1 in pre-2016 to 1.08:1 in 2019-2023, providing quantitative evidence of the transition from intention to execution. This linguistic evolution, combined with the sentiment patterns, addresses all three research questions by demonstrating how regulatory pressure catalysed genuine organisational change rather than merely sophisticated impression management.



**Figure no. 5. Linguistic markers distribution and evolution**

## 4. Discussions

### 4.1. Theoretical implications

The findings of this study illuminate organisational metamorphosis in Turkish companies adapting to evolving sustainability reporting requirements between 2014 and 2023. The sentiment moderation trajectory revealed in our analysis aligns with Cho, Roberts and Patten (2010) observation that companies transition from optimistic rhetoric to more critical self-assessment under sustained stakeholder scrutiny. However, the longitudinal evidence presented herein extends Boiral's (2013) "hyperreality" argument by demonstrating that symbolic elements are not universally static, but can be superseded by substantive disclosures over time. While Boiral found 90% of negative events to be omitted from reports, our analysis demonstrates that Turkish companies have progressively increased balanced reporting, with positive-to-negative ratios declining from 7.07 to 5.94. This transformation suggests that repeated compliance cycles combined with regulatory pressure can overcome persistent greenwashing tendencies identified in the earlier literature.

The predominance and consistent growth of organisational language (from 14.62 to 20.15 per 10,000 words) provide empirical support for the proposition of institutional theory that regulatory mandates trigger structural adjustments (DiMaggio and Powell, 1983). The present findings serve to reinforce Farooq and De Villiers' (2019) four-phase institutionalisation model, albeit with the identification of distinct adaptation patterns as opposed to uniform progression. The establishment of formal sustainability structures and their transparent disclosure is consistent with the findings of Aluchna, Roszkowska-Menkes and Kamiński (2022), who reported that the EU Non-Financial Reporting Directive had stimulated genuine organisational learning. However, the presence of volatile reporters (18.75% of the sample) must be considered when interpreting the results, as it suggests that institutional pressures can produce heterogeneous responses even within identical regulatory environments. This is consistent with Oliver's (1991) strategic response framework.

The topic-specific analysis conducted in this study has revealed nuanced patterns that both confirm and challenge the existing literature. The marked improvement in climate and governance sentiment (+14.44% and +14.63%) exceeds the documented changes in South African multinationals (Kassier, 2024), where a business-centric framing persisted. This discrepancy may be indicative of Turkey's distinctive position, situated between the regulatory influences of Europe and the evolving market dynamics of emerging markets. The stability of social reporting sentiment (+2.51%) stands in contrast to the findings of Ferguson et al. (2016), who reported an increase in linguistic strategies employed to shift responsibility in climate discourse. This finding suggests that established CSR traditions in Turkey required less rhetorical adjustment than emerging climate imperatives. The evidence presented challenges critiques of selective disclosure (Hahn et al., 2015), indicating that Turkish companies adopted integrated rather than selective approaches to ESG reporting.

### 4.2. Practical implications

The identification of four adaptation patterns by corporate managers is of particular interest, as it offers strategic guidance for sustainability communication. It has been demonstrated that early adopters of balanced reporting achieve reputational advantages and reduce adaptation costs through proactive implementation. It is incumbent upon managers to assess their company's current position and trajectory. Those companies exhibiting characteristics of

delayed adapters face an urgent need for comprehensive reporting infrastructure investment. The declining aspirational-to-implementation ratio (from 1.63:1 to 1.08:1) signals that stakeholders increasingly value concrete achievements over future promises. It is incumbent upon managers to prioritise the following: the documentation of measurable outcomes, the establishment of formal governance structures, and the training of communication teams in balanced disclosure techniques. The 108.4% increase in report comprehensiveness indicates that superficial compliance is no longer a viable option; substantial investment in data collection, analysis, and reporting systems is essential for regulatory compliance and stakeholder credibility.

The findings of this study provide a framework for investors and financial analysts to differentiate substantive sustainability integration from sophisticated impression management. The changes in sentiment patterns offer early warnings; companies that show too much optimism (with positive-to-negative ratios over 8:1) during established regulatory times are probably lacking in real sustainability efforts. Investors are advised to meticulously analyse linguistic markers. The dominance of the implementation language (>5.4 per 10,000 words) and organisational terminology (>20 per 10,000 words) is indicative of structural integration that transcends mere ceremonial compliance. The adaptation pattern taxonomy facilitates portfolio risk assessment, whereby volatile reporters exhibit the highest ESG risk, while early adopters demonstrate resilience. It is imperative for financial analysts to incorporate sentiment trajectory analysis into ESG ratings, acknowledging that sudden sentiment corrections frequently signal delayed adaptation rather than authentic issues. The correlation between report comprehensiveness and adaptation maturity suggests that page count alone provides initial screening criteria for sustainability commitment.

For policymakers and regulatory bodies, the evidence presented in this study indicates that mandatory disclosure requirements can catalyse organisational change; however, they also produce heterogeneous responses, thus necessitating a nuanced regulatory approach. The non-linear sentiment evolution – initial maintenance of a promotional tone followed by substantive moderation – suggests that regulations require sustained enforcement periods before achieving the desired level of transparency. It is incumbent upon regulators to anticipate such delays and to exercise restraint in implementing premature policy adjustments. The existence of volatile reporters (10-15% of companies) indicates a need for enhanced monitoring and potential sanctions for erratic compliance. It is recommended that policymakers give due consideration to sector-specific guidance, as our topic analysis reveals varying adaptation challenges across ESG dimensions. The linguistic evolution from an aspirational to an implementation focus validates an emphasis on concrete metrics and standardised frameworks. The implementation of future regulations should be informed by the following principles: first, the introduction of incentive programs to encourage early adoption; second, the establishment of clear penalties for persistent non-compliance; and third, the creation of competitive advantages for substantive reporters over impression managers.

#### **4.3. Limitations and future research**

The present study is subject to several limitations, which offer a series of directions for future research. Firstly, the present study's exclusive focus on Turkish companies serves to limit the generalisability of its findings to other emerging markets, which may possess different institutional contexts, cultural values, and regulatory trajectories. While Turkey's geographical position between Europe and Asia provides unique insights, comparative

studies across multiple emerging economies would reveal whether adaptation patterns represent universal responses or context-specific phenomena. Secondly, the use of published reports alone is insufficient for comprehensively understanding the intricacies of organisational processes, strategic deliberations, and the implementation challenges that inform reporting decisions. It is recommended that future research combines textual analysis with other methods, including interviews, surveys, and ethnography. This would allow the “black box” between regulatory pressure and reporting outcomes to be illuminated. Thirdly, while the sophistication of the sentiment analysis is evident, it may not fully capture subtle rhetorical strategies or cultural nuances in sustainability communication.

Furthermore, it is not possible to establish causal links between reporting changes and actual sustainability performance. Companies might achieve sentiment balance might excel at communication while maintaining unsustainable practices. Conversely, companies that communicate poorly might implement substantial improvements that are not adequately reflected in their reports. Longitudinal studies connecting reporting evolution to environmental metrics, social outcomes, and governance effectiveness would validate whether linguistic changes indicate genuine transformation. The temporal scope, while substantial, is inadequate for capturing very recent developments, including those pertaining to AI-assisted report writing and post-pandemic sustainability priorities. It is recommended that subsequent research endeavours examine the hypothesis that technological disruption exerts an influence on adaptation patterns, and further research is conducted to establish whether transparency induced by crises is a persistent phenomenon. Ultimately, the equal weighting of all companies, irrespective of their size or impact, may serve to obscure any significant variations. Researchers are advised to stratify results by market capitalisation, environmental footprint, or stakeholder salience, to provide more nuanced insights for both theory and practice.

## **Conclusions**

This study examined the evolution of sustainability reporting among Turkish companies from 2014 to 2023, revealing a fundamental organisational metamorphosis catalysed by regulatory pressure. A thoroughgoing analysis of 433 reports revealed a discernible progression from promotional to balanced disclosure (a decline in sentiment polarity of 8.4%), pronounced alterations in linguistic patterns (a decrease in the aspiration-to-implementation ratio from 1.63:1 to 1.08:1), and the emergence of formal sustainability structures (an increase in organisational language of 37.8%). The identification of four distinct adaptation patterns – Early Adapters, Rapid Transformers, Delayed Adapters, and Volatile Reporters – demonstrates that identical institutional pressures produce heterogeneous organisational responses mediated by firm-specific capabilities and strategic choices. These findings contribute to institutional theory by revealing the mechanisms through which regulatory requirements translate into organisational change, while offering practical guidance for managers navigating sustainability transitions, investors assessing ESG authenticity, and policymakers designing effective disclosure regimes. The evidence presented indicates that sustained regulatory pressure, combined with stakeholder vigilance, has the potential to effect a transformation in corporate sustainability communication, moving from sophisticated impression management to substantive organisational commitment. However, it should be noted that this transformation may occur via multiple pathways rather than a uniform progression.

## References

- Ahmed Haji, A. and Anifowose, M., 2017. Initial trends in corporate disclosures following the introduction of integrated reporting practice in South Africa. *Journal of Intellectual Capital*, [e-journal] 18(2), pp.373-399. <https://doi.org/10.1108/JIC-01-2016-0020>.
- Aluchna, M., Roszkowska-Menkes, M. and Kamiński, B., 2023. From talk to action: the effects of the non-financial reporting directive on ESG performance. *Meditari Accountancy Research*, [e-journal] 31(7), pp.1-25. <https://doi.org/10.1108/MEDAR-12-2021-1530>.
- Boiral, O., 2013. Sustainability reports as simulacra? A counter-account of A and A+ GRI reports. *Accounting, Auditing & Accountability Journal*, [e-journal] 26(7), pp.1036-1071. <https://doi.org/10.1108/AAAJ-04-2012-00998>.
- Cho, C.H., Michelon, G. and Patten, D.M., 2012. Impression Management in Sustainability Reports: An Empirical Investigation of the Use of Graphs. *Accounting and the Public Interest*, [e-journal] 12(1), pp.16-37. <https://doi.org/10.2308/apin-10249>.
- Cho, C.H., Roberts, R.W. and Patten, D.M., 2010. The language of US corporate environmental disclosure. *Accounting, Organizations and Society*, [e-journal] 35(4), pp.431-443. <https://doi.org/10.1016/j.aos.2009.10.002>.
- Christensen, L.T., Morsing, M. and Thyssen, O., 2013. CSR as aspirational talk. *Organization*, [e-journal] 20(3), pp.372-393. <https://doi.org/10.1177/1350508413478310>.
- DiMaggio, P.J. and Powell, W.W., 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), pp.147-160.
- Dong, S., Xu, L. and McIver, R., 2021. China's financial sector sustainability and "green finance" disclosures. *Sustainability Accounting, Management and Policy Journal*, [e-journal] 12(2), pp.353-384. <https://doi.org/10.1108/SAMPJ-10-2018-0273>.
- Du, S. and Yu, K., 2021. Do Corporate Social Responsibility Reports Convey Value Relevant Information? Evidence from Report Readability and Tone. *Journal of Business Ethics*, [e-journal] 172(2), pp.253-274. <https://doi.org/10.1007/s10551-020-04496-3>.
- Farooq, M.B. and De Villiers, C., 2019. Understanding how managers institutionalise sustainability reporting: Evidence from Australia and New Zealand. *Accounting, Auditing & Accountability Journal*, [e-journal] 32(5), pp.1240-1269. <https://doi.org/10.1108/AAAJ-06-2017-2958>.
- Ferguson, J., Sales De Aguiar, T.R. and Fearfull, A., 2016. Corporate response to climate change: language, power and symbolic construction. *Accounting, Auditing & Accountability Journal*, [e-journal] 29(2), pp.278-304. <https://doi.org/10.1108/AAAJ-09-2013-1465>.
- Grassa, R., ElHout, R., Rafiee, R., Hassan, O.Y. and Al Suwaidi, S.H., 2024. Do companies benefit from publishing sustainability-integrated reports? Evidence from the United Arab Emirates. *Management & Sustainability: An Arab Review*. [e-journal] <https://doi.org/10.1108/MSAR-05-2024-0032>.
- Gümrah, A., Tanc, S.G. and Tanc, A., 2019. Scoring of sustainability reports with GRI-G4 economic, environmental, and social performance indicators: A research on the companies preparing sustainability report in Türkiye. In: H. Öztürk, H. Dincer and Ü.



- Hacioglu eds., 2019. *Accounting, finance, sustainability, governance & fraud: Theory and application*. Bingley: Emerald Publishing, pp.201-220.
- Hahn, R. and Kühnen, M., 2013. Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, [e-journal] 59, pp.5-21. <https://doi.org/10.1016/j.jclepro.2013.07.005>.
- Hahn, T., Pinkse, J., Preuss, L. and Figge, F., 2015. Tensions in Corporate Sustainability: Towards an Integrative Framework. *Journal of Business Ethics*, [e-journal] 127(2), pp.297-316. <https://doi.org/10.1007/s10551-014-2047-5>.
- Hamza, S. and Jarboui, A., 2022. CSR or social impression management? Tone management in CSR reports. *Journal of Financial Reporting and Accounting*, [e-journal] 20(3/4), pp.599-617. <https://doi.org/10.1108/JFRA-04-2020-0115>.
- Hummel, K. and Schlick, C., 2016. The relationship between sustainability performance and sustainability disclosure – Reconciling voluntary disclosure theory and legitimacy theory. *Journal of Accounting and Public Policy*, [e-journal] 35(5), pp.455-476. <https://doi.org/10.1016/j.jaccpubpol.2016.06.001>.
- Ioannou, I. and Serafeim, G., 2019a. Corporate sustainability: A strategy? *Harvard Business School Accounting & Management Unit Working Paper*, 19-065.
- Ioannou, I. and Serafeim, G., 2019b. The consequences of mandatory corporate sustainability reporting. In: A. McWilliams, D.S. Siegel, G. Korschun and D. Rupp eds., 2019. *The Oxford handbook of corporate social responsibility: Psychological and organizational perspectives*. Oxford: Oxford University Press.
- Kassier, L., 2024. Identifying transitions in corporate sustainability reporting: a content analysis of JSE/FTSE multinational sustainability reports from 2016 to 2021. *International Journal of Corporate Social Responsibility*, [e-journal] 9(1), article no. 12. <https://doi.org/10.1186/s40991-024-00099-7>.
- Khan, H., Bose, S., Mollik, A. and Harun, H., 2020. Green washing or authentic effort? An empirical investigation of the quality of sustainability reporting by banks. *Accounting Forum*, [e-journal] 44(4), pp.277-298. <https://doi.org/10.1080/01559982.2020.1807440>.
- KPMG, 2020. *The KPMG Survey of Sustainability Reporting 2020*. KPMG International. <https://home.kpmg/xx/en/home/insights/2020/11/the-kpmg-survey-of-sustainability-reporting-2020.html> [Accessed 15 December 2024].
- Kryk, B. and Kożuch, M., 2024. EU regulations on reporting sustainable development as a determinant of limiting the environmental pressure of chemical enterprises in Poland. *Economics and Environment*, [e-journal] 88(1), article no. 695. <https://doi.org/10.34659/eis.2024.88.1.695>.
- Meyer, J.W. and Rowan, B., 1977. Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), pp.340-363.
- Muckó, P., 2021. Sentiment analysis of CSR disclosures in annual reports of EU companies. In: R.J. Howlett, L.C. Jain and K. Matsuo eds., 2021. *Proceedings of the International Conference on Knowledge-Based Intelligent Information & Engineering Systems*. Cham: Springer, pp.514-523.
- Oliver, C., 1991. Strategic Responses to Institutional Processes. *The Academy of Management Review*, [e-journal] 16(1), pp.145-179. <https://doi.org/10.2307/258610>.

- Rahman Belal, A. and Owen, D.L., 2007. The views of corporate managers on the current state of, and future prospects for, social reporting in Bangladesh: An engagement- based study. *Accounting, Auditing & Accountability Journal*, [e-journal] 20(3), pp.472-494. <https://doi.org/10.1108/09513570710748599>.
- Reustlen, S. and Stawinoga, M., 2024. Do internationally operating companies act in a socially sustainable manner? An empirical comparison of disclosure regarding employee matters and human rights matters. *Sustainability Nexus Forum*, [e-journal] 32(1), article no. 22. <https://doi.org/10.1007/s00550-024-00556-8>.
- Stubbs, W. and Higgins, C., 2014. Integrated Reporting and internal mechanisms of change. *Accounting, Auditing & Accountability Journal*, [e-journal] 27(7), pp.1068-1089. <https://doi.org/10.1108/AAAJ-03-2013-1279>.
- Subramaniam, N., Akbar, S., Situ, H., Ji, S. and Parikh, N., 2023. Sustainable development goal reporting: Contrasting effects of institutional and organisational factors. *Journal of Cleaner Production*, [e-journal] 411, article no. 137339. <https://doi.org/10.1016/j.jclepro.2023.137339>.
- Van Der Waal, J., 2024. Comparing Corporate Sdg Reporting: Multi-year, Multi-region Analysis via Topic Modeling. *SSRN Electronic Journal*. [e-journal] <https://doi.org/10.2139/ssrn.4837716>.
- Yavuz, M.S., Tatlı, H.S., Bozkurt, G. and Öngel, G., 2025. Does ESG performance have an impact on financial performance? Evidence from Türkiye. *Journal of Entrepreneurship, Management and Innovation*, [e-journal] 11(2), pp.90-113. <https://doi.org/10.7341/20252112>.