

Content Word Analysis of SDG Business Reports to Examine SDG Focus Across Sectors

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Abstract

This study aims to explore the common content words found in annual business reports related to Sustainable Development Goals (SDGs) from seven sectors, using a corpus-based method to identify frequent content words and examine the SDG focus of each business sector. The study collected 33 reports from each sector, totaling 231 reports spanning the years 2019 to 2022. A corpus-based approach was applied, using AntConc software to identify the top 100 most frequent words in each sector. After extracting the content words, including nouns, verbs, and adjectives, these were compared with SDG-related keywords obtained from academic sources from the websites of three universities: the University of Toronto, Universiti Kebangsaan Malaysia (UKM), and the University of Auckland. This comparison allowed for identifying frequent content words related to SDGs, implying the SDG focus for each business sector. The findings indicate that across all seven sectors, seven content words related to SDGs were commonly found: business, management, sustainability, report, development, health, and risk. When identifying the content words related to SDG keywords for each business sector—excluding the words found across all sectors and those not aligned with SDGs—it was observed that the highest proportion of content words in business reports, excluding the resources and real estate sectors, aligned with SDG 9 (Industry, Innovation, and Infrastructure). In contrast, the resources and real estate sectors aligned more closely with SDG 11 (Sustainable Cities and Communities). The study suggests that while most business sectors focus on innovation and infrastructure, sectors such as resources and real estate place more emphasis on urban sustainability and development. These insights offer a clearer understanding of how businesses across various industries prioritize different SDGs based on their operational contexts.

Keywords: business report, content words, corpus-based analysis, SDGs

1. Introduction

The Sustainable Development Goals (SDGs) have become essential for businesses aiming to embrace ethical and sustainable practices. Numerous companies are including SDG-related content in their reports to show how their actions support sustainability goals, as they play a significant role in the global effort to achieve these objectives (Tsalis et al., 2020).

Business reports, particularly annual ones, are essential tools for communicating a company's progress toward sustainability. Analyzing the language used in these reports can help us comprehend which SDGs different industries prioritize and how these priorities differ across sectors (Whittingham et al., 2022). Examining the content words, such as nouns, verbs, and adjectives, offers a systematic approach to exploring the primary themes businesses emphasize in their reporting. The SDGs were established by the United Nations to tackle significant global social, economic, and environmental challenges (Botchway & Bradley, 2023). As businesses increasingly acknowledge the importance of aligning their operations

with these goals, it is crucial to investigate how different industries prioritize specific SDGs and how this is reflected in their corporate communications (Khalid et al., 2020). In recent years, corporate sustainability reporting has gained traction, with many companies publishing annual reports detailing their efforts toward achieving the SDGs. These reports serve as valuable sources of information, providing insights into how businesses interpret and apply sustainable development principles within their industries (Awuah, 2023). While numerous studies have concentrated on corporate sustainability reporting, there is still a need to comprehend how different business sectors interact with and prioritize SDGs in their reports.

This study addresses this gap by utilizing a corpus-based analysis of reports from seven sectors: agriculture and food, technology, resources, finance, services, consumer products, and real estate and construction. By applying corpus linguistics techniques, this research introduces a new approach to understanding how businesses concentrate on specific SDGs. By identifying frequently used content words and comparing them to SDG-related keywords, this study offers a quantitative basis for examining sustainability efforts across industries. This method allows for a detailed comparison between sectors, potentially revealing trends and priorities unique to each industry. The study aims to investigate the most common content words found in business reports from these key sectors and determine their SDG focus by comparing the words with academic SDG-related keywords. As businesses worldwide increasingly align their operations with the SDGs, this research aims to identify which SDG-related content words are frequently used and how different sectors emphasize specific SDGs. While existing literature has emphasized the crucial role businesses play in achieving the SDGs by 2030 (Helfaya & Aboud, 2023), there is limited research using corpus analysis to examine SDG focus. This study aims to bridge that gap and contribute to the broader understanding of how industries report on and engage with sustainable development goals.

1.1 Research Objective

The study aims to identify the most common SDG-related content words in each sector, compare the SDG focus across different industries, and determine sector-specific priorities in relation to SDGs.

2. Methodology

This study used a quantitative, corpus-based approach to analyze how businesses from seven different sectors include Sustainable Development Goals (SDGs) in their annual reports. The research was designed to compare frequently used words across these sectors and see how they align with SDG-related terms.

2.1 Data Collection

The research focuses on analyzing annual reports from seven different business sectors: Agriculture and Food, Technology, Resources, Finance, Services, Consumer Products, Real Estate and Construction. A total of 231 reports were examined, with 33 reports from each sector, encompassing the period from 2019 to 2022. This provided the study with a comprehensive and current dataset to utilize. In order to identify relevant SDG keywords, the research utilized academic materials from three universities: University of Toronto, Universiti Kebangsaan Malaysia (UKM), University of Auckland. These sources were selected to ensure a broad and inclusive compilation of keywords associated with the SDGs

2.2 Data Analysis

The analysis involved several key steps as follows.

1. Separate corpora were created for each sector using the collected reports.
2. The AntConc software was utilized to identify the top 100 most frequently used words for each sector.
3. Nouns, verbs, and adjectives (content words) were selected from the list of 100 words, while function words like "the" or "and" were excluded.
4. A comparison was made between the selected content words and the SDG-related keywords from academic sources to establish direct links to the SDGs.
5. Common content words appearing in all seven sectors were recorded for cross-sector comparison.
6. After eliminating common words and those unrelated to SDGs, the remaining content words were analyzed to determine the SDG focus for each sector.
7. The percentage of content words aligned with each SDG was calculated for every sector to identify the SDGs prioritized by each sector.

The findings were interpreted by first identifying the most frequently used words in each sector. Then, the common content words related to the SDGs were analyzed, and the SDG focus across different sectors was determined. Using corpus linguistics techniques allowed for accurate comparisons of SDG priorities between sectors. Additionally, comparing the content words with SDG-related keywords from academic sources ensured that the analysis aligned with recognized SDG concepts and terminology.

3. Results

Across all seven sectors, seven content words related to SDGs were found: *business, management, sustainability, report, development, health, and risk*. Additionally, two common words (*company* and *employee*) appeared across all sectors but were not included in SDG-related keyword lists. Table 1 below shows the most frequent content words found in annual business reports across seven different sectors.

Table 1: Content Words by Business Sector

Sector	Common Words
Agriculture & Food	water, food, global, products, communities, emissions, waste, climate, data, support, human, energy, year, rights, social, operations, chain, world, project, value
Technology	emissions, environmental, products, energy, data, social, global, corporate, chain, information, supply, safety, water, technology, rights, activities, governance, support, human, product
Resources	energy, water, safety, corporate, committee, system, community, social, gas, rights, plant, emissions, oil, environment, electricity, financial, process, carbon
Finance	bank, financial, data, governance, climate, performance, social, services, corporate, energy, investment, support, human, operations, policy, emissions
Services	emissions, project, performance, safety, activities, waste, data, year, training, energy, water, operations, supply, global, human, support, community, corporate
Consumer Products	products, water, global, year, work, chain, data, climate, materials, impact, program, support, human, financial, safety, energy, rights, emissions
Real Estate & Construction	safety, water, project, waste, energy, environment, system, year, human, community, data, governance, products, corporate, total, operations, plant, projects
Sector	Common Words

The key findings indicate that across sectors, there is a strong focus on environmental and operational sustainability. Words like *water*, *energy*, *emissions*, and *safety* are common across industries such as Agriculture & Food, Technology, Resources, and Real Estate & Construction, reflecting a shared emphasis on resource management and environmental impact. Additionally, terms like *corporate*, *governance*, and *support* highlight a consistent focus on organizational responsibility and community engagement across sectors.

Table 2: Percentage of SDG-related Content Words by Business Sector

SDG	Agriculture & Food	Technology	Resources	Finance	Services	Consumer Products	Real Estate & Construction
1	30.0	25.0	22.2	21.7	32.0	32.0	20.0
2	40.0	46.4	40.7	26.1	48.0	40.0	33.3
3	40.0	35.7	25.9	21.7	40.0	40.0	23.3
4	25.0	57.1	33.3	26.1	28.0	36.0	33.3
5	25.0	57.1	40.7	30.4	40.0	52.0	33.3
6	15.0	39.3	29.6	17.4	36.0	24.0	26.7
7	25.0	50.0	37.0	30.4	32.0	28.0	26.7
8	40.0	46.4	48.1	47.8	52.0	56.0	46.7
9	45.0	75.0	44.4	65.2	72.0	68.0	53.3
10	15.0	32.1	18.5	26.1	12.0	32.0	20.0
11	40.0	64.3	55.6	39.1	48.0	40.0	53.3
12	35.0	67.9	33.3	34.8	40.0	48.0	40.0
13	30.0	42.9	25.9	43.5	36.0	36.0	13.3
14	30.0	50.0	37.0	21.7	40.0	32.0	26.7
15	30.0	57.1	37.0	30.4	44.0	28.0	30.0
16	5.0	35.7	25.9	21.7	16.0	20.0	30.0
17	25.0	25.0	11.1	21.7	20.0	16.0	23.3

The data analysis indicates that SDG 9 (Industry, Innovation, and Infrastructure) was highly significant across multiple sectors, with Technology (75%), Services (72%), Finance (65.2%), and Consumer Products (68%) demonstrating a strong focus on innovation and infrastructure. SDG 11 (Sustainable Cities and Communities) garnered considerable interest in fields like Resources (55.6%) and Real Estate & Construction (53.3%), pointing to a concentration on urban sustainability. SDG 8, which focuses on Decent Work and Economic Growth, was a major priority in all industries, especially in Consumer Products (56%) and Services (52%). Additionally, there were also priorities specific to different sectors, such as focusing on SDG 2 (Zero Hunger) in Agriculture and Food, and SDG 13 (Climate Action) in Finance.

4. Discussion

The strong focus on SDG 9 (Industry, Innovation, and Infrastructure) is evident in Technology (75%) and Finance (65.2%), highlighting the significance of promoting sustainable development through innovation and infrastructure. According to Rosati and Faria (2019), prior studies also back up this discovery, as they highlighted the frequent reference to this objective in corporate sustainability reports. These sectors recognize that sustained viability depends on investing in both innovation and infrastructure.

Industries like Resources and Real Estate & Construction give importance to SDG 11 (Sustainable Cities and Communities) due to their large presence in urban areas (Ngansakul et al., 2023). With the continuous global urbanization, these sectors are dedicated to reducing their environmental footprint and advocating for sustainable urban growth, aligning with the United Nations' focus on responsibly managing urban expansion to protect both communities and the environment.

SDG 8 (Decent Work and Economic Growth) is emphasized in every sector, showing a broad commitment to promoting economic sustainability and supporting just labor practices. Moreover, some industries prioritize particular SDG goals that match their main activities, such as the Agriculture and Food sector's dedication to SDG 2 (Zero Hunger) and the Finance sector's focus on SDG 13 (Climate Action). This will help these sectors make a more impactful contribution to the overall accomplishment of the SDGs by focusing on goals that are directly related to their industries.

5. Conclusion

To summarize, this study offers understanding on how different sectors discuss the SDGs in their publications. While there are shared priorities, individual industries emphasize specific objectives, highlighting the necessity for tailored sustainability plans. It is essential to acknowledge these differences as we near the 2030 SDG goal. Working together across different industries and utilizing specific strategies for each sector will be essential in achieving global sustainability goals.

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