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Shaping Corporate Sustainability Discourse: The Case of L'Oréal *

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Abstract

Sustainability has become a concern in the cosmetics industry, yet existing research focuses on technical aspects such as green chemistry and life-cycle impacts, leaving a gap in understanding how companies communicate and frame sustainability in their corporate discourse. Addressing this gap, this study investigates how a key player of the cosmetics industry, L'Oréal, articulates environmental sustainability and aligns its communication with the United Nations Sustainable Development Goals (SDGs), particularly SDGs 12, 13, 14 and 15. The research adopts a mixed-methods design, combining quantitative data from Refinitiv Eikon with qualitative text mining of L'Oréal's 2024 sustainability discourse through word frequency and n-grams analyses to identify dominant themes and semantic structures in corporate reporting. Findings show that L'Oréal's sustainability discourse is highly structured and governance-oriented by emphasizing policies. The study highlights how sustainability communication is strategically constructed, offering implications for improving transparency, accountability, and more comprehensive reporting in the cosmetics industry.

Keywords: Sustainability, SDG, cosmetics

Introduction

The production of manufactured goods impacts across environmental, social and economic dimensions (Bom *et al.*, 2019), starting from the design phase of the product throughout the selection of ingredients, manufacturing phase, packaging, transport and distribution, retail, consumer usage and disposal (Martins and Marto, 2023). Sustainability, as defined by the 1987 Brundtland report (United Nations, 1987), centers on "meeting the needs of current generations without compromising the future generation to meet their own needs. The concept has further extended to include environmental, social and economic impacts of individuals, companies and institutions (Ong *et al.*, 2024), forming a three-pillar model which marks the complexity of the multiple dimensions of sustainability (Elkington, 2004; Martins and Marto, 2023; Purvis *et al.*, 2019). Through sustainability reporting and specific targets, companies can demonstrate commitments, anticipate risks, and set objectives for future actions.

Within this context and the cosmetic industry's peak point (Alviri *et al.*, 2025), the concerns related to environmental impacts of cosmetics also increase. The cosmetic industry negatively impacts both the environment by deforestation, overexploitation of minerals, emissions of greenhouse gases, and the release of pollutants into the environment (Bom *et al.*, 2020; Cinelli *et al.*, 2019), as well as pollution coming from unrecyclable packaging materials. Mirroring the

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business models observed in the apparel industry, the concept of "fast beauty" is rising (Alviri *et al.*, 2025) as low-cost cosmetics with a high return due to low-costs.

Although sustainability in the cosmetics industry has attracted researchers' attention, most work to date reviews technical and scientific discourses on ingredients and technology development (Liu *et al.*, 2019; Pangestuti *et al.*, 2021), raw materials' circular economy (Lourenço-Lopes *et al.*, 2020; Panwar *et al.*, 2021) and green chemistry (Jiang *et al.*, 2021) or analyzes environmental harms associated with sourcing and product formulations (Tkaczyk *et al.*, 2020). What remains underexplored is how businesses publicly address these challenges: comparative analyses of corporate discourse, how the companies translate scientific and supply-chain concerns into their strategies, reporting and measurable commitments, and how they address the post-use phase which lies outside their direct control. In this case, leaders should create and apply a business model that is favorable for all stakeholders, creating economic value, and protecting the natural environment. This gap is critical as corporate discourse plays a key role in shaping stakeholder perceptions, accountability and sustainability governance. Considering this background, the present study aims to analyze how sustainability is constructed and communicated in the corporate discourse within the cosmetics industry, using the case of L'Oréal, with a particular focus on alignment with SDGs 12, 13, 14 and 15.

To achieve this aim, the study pursues the following objectives: (1) identify key sustainability themes in cosmetic industry's corporate reporting, (2) analyze how these themes are structured, prioritized and interconnected within corporate discourse using text-mining techniques, and (3) assess the relation with the mentioned SDGs.

The following section represents the literature review: discussing further the industry context and what are the hot spots of the industry, as well as understanding the SDGs from the industry's perspective, further the methodology of the paper is presented, followed by the results of L'Oréal's case study.

Literature Review

Cosmetic products are defined by the European Commission as "any substance or mixture intended to be placed in contact with the external parts of the human body […] or with the teeth and the mucous membranes of the oral cavity […] cleaning them, perfuming them, changing their appearance, protecting them, keeping them in good condition or correcting body odors" (European Commission, 2015).

Raw materials are central to cosmetic sustainability, often marketed as natural/organic. Although these categories differ, they are frequently grouped under the "sustainable" umbrella when they reflect ethical, social and environmental responsibility, benefiting both the consumer and the planet (Amberg and Fogarassy, 2019; Rachita Kapoor *et al.*, 2019). Sustainability should be embedded from the design phase onward. Demand for natural cosmetics continues to rise in Europe and it is expected to grow further (Statista, 2025), increasing researchers' interest (Rocca *et al.*, 2022). However, sustainability in cosmetics extends beyond natural or organic ingredients, encompassing broader environmental and social dimensions.

The cosmetics industry is configured as described below (Rocca *et al.*, 2023):

- Upstream activities: extraction, transport, refinement of raw materials, generation of electricity, production of auxiliary products, manufacturing of packaging;
- Core activities: transport of raw materials and packaging from suppliers to the main manufacturer of cosmetics, manufacturing cosmetic products, storage, cleaning and waste management, generation of electricity/production of fuels;
- Downstream activities: transportation to warehouses, consumer use (rinse-off), end-of-life processes of product/packaging.

Preserving natural resources has become central to sustainability discourse (Perret *et al.*, 2025) due to the fast environmental deterioration (Biswas and Roy, 2015). The cosmetic industry is forced to consider alternatives for ingredients as green consumerism demands, as well as because the supply of petrochemical materials supply is declining (Bom *et al.*, 2019). SDG 12 makes responsible production and consumption especially relevant, requiring prevention, reduction, recycling and reuse across the value chain. Key challenges include microplastics found in exfoliants and other products which persist in the environment, as well as unsustainable sourcing of ingredients such as palm oil (Russell, 2020) and mica, both that is linked to deforestation and other environmental harms.

Water is a key concern under SDG 14 (Life below water) both as a natural resource and as a pathway for marine pollution. Water is present throughout the cosmetic product life cycle, as the main formulation ingredient. Some of the observed sustainable strategies for diminishing water consumption (Bom *et al.*, 2019) may include use of different water sources, recycle and reuse production water, rainwater harvesting, waterless products, optimization of production and cleaning processes or treat and reuse of water (Martins and Marto, 2023). These strategies were observed in L'Oréal, Givaudan, Burt's Bees, Aveda and Amore Pacific (Bom *et al.*, 2019). Beyond water, biodiversity impacts linked to plants and animals derived ingredients fall under SDG 15 (Life on Land) (Bom *et al.*, 2019), with palm oil being a well-known example due to its ties to deforestation, species loss and climate impacts (Vijay *et al.*, 2016). Assessing the environmental footprint of other ingredients, including their sourcing and processing, remains an urgent need (Abrar *et al.*, 2025).

Energy use and waste management are the next major topic (Fischer and Huber, 2025). Companies increasingly adopt efficient technologies to cut water and energy consumption, emissions and waste, with many large brands such as L'Oréal, Aveda, Burt's Bees, Biolage, Shiseido and Lush shifting toward renewable energy and energy-efficient equipment (Martins and Marto, 2023). Distribution adds further challenges, as fossil fuel transport significantly increases carbon footprint, directly linking this stage to SDG 13 (Climate action) and the need to reduce emissions across all transport activities, from raw materials to post-use logistics (Suphasomboon and Vassanadumrongdee, 2023).

In the consumer phase, companies should consider multiple social variables of the population including habits and lifestyle, the type of product (rinse-off or leave-on), the amount, and frequency of use. The impact of this phase is highly dependent on the first phase, the design phase (Bom *et al.*, 2019), as well as the education provided to consumers. In this phase it is important to consider if the product goes down the drain as it may affect aquatic environment if non-sustainable ingredients are present (Anagnosti *et al.*, 2021; De *et al.*, 2023; Rochman *et al.*, 2015).

The last phase, post-use phase, considers the function of packaging a key element in the sustainability of cosmetic products, therefore initiatives such as Sustainable Packaging Initiative for Cosmetics (SPICE) represent a key partnership between companies and brands that aim to create methods and tools for more sustainable packaging in the industry. As plastic packaging is resistant and flexible, as well as cost-effective, plastic packaging is still preferable in the industry, yet it represents the number one enemy of the environment, polluting ecosystems, both land and marine, and threatening biodiversity (Cinelli *et al.*, 2019; Wakefield-Rann, 2017). Even in this case, there are multiple global initiatives to decrease plastic, one of them being The Ellen MacArthur Foundation and the Alliance to End Plastic Waste.

The post-use phase is the final phase of the product life cycle that should be considered by companies to create better, sustainable strategies that consider the triad of *reducing, recycling and reuse*: reducing the amount of packaging, reusing by refilling the packaging and recycling the packaging after use.

Sustainability has become a central concern throughout the whole value chain of the cosmetics industry, yet little is known about how companies publicly frame their responsibilities and solutions, therefore this study examines the case study of the largest cosmetics company's corporate discourse on environmental matters in order to understand the main reporting themes and therefore understand how big industry players construct and communicate their sustainability narrative.

Methodology

The paper aims to reveal sustainability themes and how they are priorities and observe what are the areas that the corporate discourse addresses. The findings will contribute to a company-level perspective that bridges technical studies with analyses of corporate accountability and stakeholder communication. The current paper employs a mixed-methods approach that integrates quantitative data analysis with qualitative text analysis.

The initial database was extracted in December 2025, from the Refinitiv Eikon platform. Companies were first screened within Refinitiv applying the keyword "Cosmetics" to the TRBC Activity Name filter which resulted in the companies categorized under the broader Activity Name "Cosmetics & Perfumes" within the "Personal Products"

industry. The data collected refers to the financial year 2024 and it represents company details such as: unique identifier, name, description, country of exchange, financial information in hundreds of EUR such as: revenue, total assets, gross margin, CSR strategy score which were used for contextual screening criteria, as well as the reporting status of all 17 SDGs, indicating whether the company does or does not report on the UN Goals, in order to create an understanding of the reporting of SDGs in public discourse. L'Oreal was chosen for the case study, as it represents one of the leaders in the industry, based on revenue of 434 million EUR, followed by Shiseido and Coty. To extract relevant content, the search term "environm*" was used. This approach allows for the inclusion of multiple lexical variations (e.g., "environment", "environmental"), thereby ensuring comprehensive coverage of environment-related discourse while avoiding the omission of relevant passages due to minor linguistic differences. The text sources analyzed consist of Universal Registration Document 2024 (L'Oreal, 2024a), Annual report 2024 (L'Oreal, 2024b), Environment policy, Responsible Water Use Policy, Forest Policy, Sustainable Land Use Policy, Environmental Product Design Policy (L'Oreal, 2020).

The "TidyText" version 0.4.2 (Silge *et al.*, 2016) package in R Studio (version 2024.12 and R version 4.4.2) was used for text mining together with data analysis methods providing insights on facts that could not be simply concluded on a reading basis (Ben-Dov and Feldman, 2009). In order to get suitable results and to prevent circularity and artificial inflation of term frequency, multiple processes took place such as: filtering out the stop-words, numbers and other words that were considered meaningless for the analysis, as previously mentioned the search word "environm*", generic and high-frequency terms such as "environmental" and "sustainability" were also removed, as their presence limits their analytical value in distinguishing specific thematic priorities. Additional exclusions included the company name (to avoid overrepresentation due to repetition) and terms such as "human" and "rights", which are more closely associated with the social dimensions of sustainability and fall outside the primary environmental focus of this study. These decisions were made to enhance the specificity and interpretability of the results by reducing noise and emphasizing substantively meaningful variance.

Results and discussions

The cosmetics industry is transforming (Zielińska-Chmielewska *et al.*, 2025), as a response to consumer's behavioral changes, and observes an increased emphasis on sustainability, transparency, and eco-friendliness (Hazra *et al.*, 2024).

The story of L'Oréal starts in 1909, when a French chemist has developed a hair dye and called it l'Auréale. L'Oréal is a French company, with 43.48 billion EUR in sales (L'Oreal, 2024b), proving a great presence on the market.

To achieve its strategy, the company has a great Research & Innovation network of hubs present in each strategic market, which further can be rolled out to other areas of the world thanks to L'Oréal's "Universalization". Sustainability is integrated by big companies in this industry, and we should consider all activities, L'Oréal being one of the examples. The company was recognized as a leader by the United Nations in 2018 (L'Oréal, 2018) for the program "L'Oréal For The Future – Sustainability Commitments for 2030" in which the company defined clear objectives around climate change, water consumption and respect of biodiversity.

Keyword frequencies identified in L'Oréal's report

L'Oréal has over 168,000 words of retrieved text. First understanding of how L'Oréal creates the environmental reporting base is observed through the single word frequency from the text retrieved for the reporting year of 2024, as presented in Figure 1. The x-axis which is labeled as "n" indicates the count of each word, while y-axis represents the words themselves. We took into consideration the first 10 words, by frequency.

The most frequent keyword is *water* and acts as a dominant theme in the company's reporting, signals not only material relevance but also strategic issue prioritization. Water stewardship is framed as both an operational concern and a reputational asset, aligning the company with global environmental priorities. This reflects a legitimacy strategy where firms emphasize salient issues to demonstrate responsibility. At the same time, the strong focus on water may also indicate selective disclosure, where certain measurable and communicable topics are foregrounded over more complex or less controllable impacts.

The term *policy* highlights the institutionalization of sustainability discourse. Rather than focusing primarily on outcomes, the company emphasizes governance frameworks, internal rules, and compliance structures. This aligns

with CSRD requirements and broader ESG expectations, but also reflects a symbolic legitimacy mechanism, where the presence of policies signals control and responsibility, even if their effectiveness is not equally evidenced. We can also observe *water* and *policy* together as there are multiple water policies that refer to: EHS policy for water management at operated sites, sustainable purchasing policy, research and innovation policy for developing water-efficient products.

Materials and *packaging* are both prominent keywords, having almost the same number of appearances, reinforcing circular economy narratives. However, their prominence also suggests a strategic focus on areas where the company can demonstrate tangible progress, such as packaging redesign or recycled inputs. This again reflects selective disclosure, privileging domains with clearer metrics and innovation potential over more diffuse environmental impacts. Studies of cosmetic companies emphasize the importance of material and packaging innovation to reduce lifecycle impacts and align with consumer and regulatory pressures for reduced plastic use and improved recyclability (Lim and Kwon, 2023).

Emissions and *impact* narratives both correspond with climate change mitigation subjects, L'Oréal setting one of the commitments for 2030 to decrease the greenhouse gas (GhG) emissions during transportation by 50% per finished product, relative to the base year 2016. To achieve this, the company has turned to green transportation, using sea and rail freight or trucks that were powered by liquified natural gas (LNG) and bicycles for short distances.

Suppliers and *products* point toward value chain considerations, but their framing emphasizes oversight and responsibility rather than dependency or risk exposure. This supports the interpretation that supply chain discourse often serves as a legitimizing narrative, projecting control over external actors while potentially obscuring areas where influence is limited (Thakur-Weigold and Miroudot, 2024).

Reduce as one of the 3Rs is commonly associated with measurable sustainability targets such as reducing emissions, reducing water consumption, or reducing packaging weight. Even though it appears less frequently than *water* or *materials*, its presence shows the shift from descriptive reporting to performance and outcome**-oriented** communication.

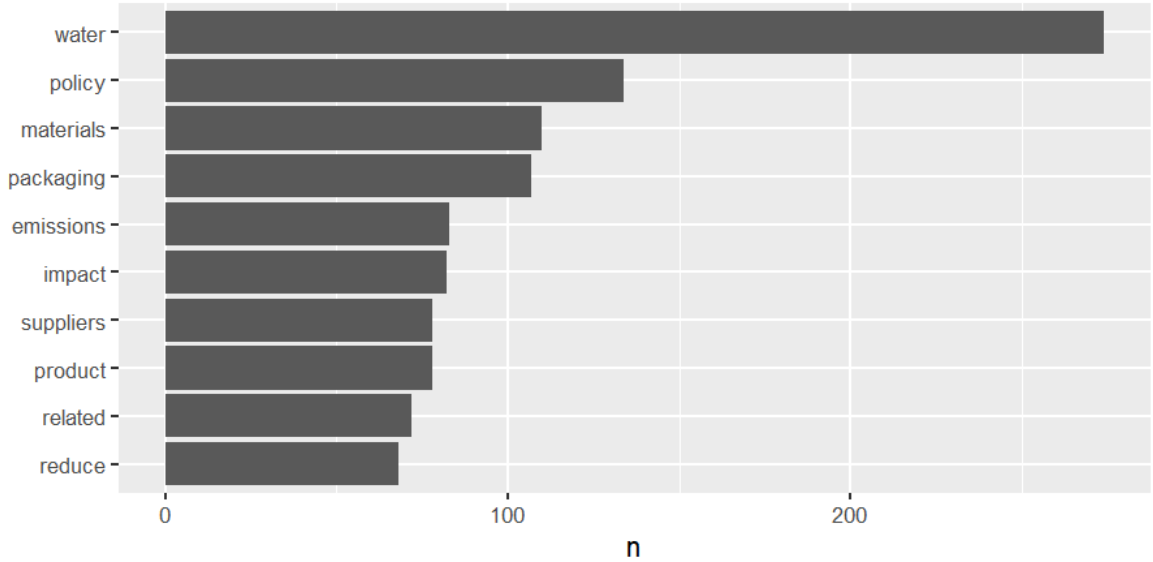

Figure 1. Word Frequency in L'Oréal's sustainability reporting of 2024

Source: Authors' research, generated with R Studio.
Note. n represents the number of appearances of the presented word in the analyzed text.

Bigram Network Analysis of Sustainability discourse in L'Oréal's report

The bigram plot in Figure 2 observes frequently co-occurring word pairs that, unlike single-word frequency, reveal semantic structures and sustainability concepts. Overall, the network is modular and weakly centralized, suggesting

that sustainability reporting is structured around several distinct thematic clusters rather than one single, unified narrative, concluding in the various forms reporting could take in the cosmetics industry.

Circular−economy, *innovation−research* and *action−plans* indicate the strategy long term vision of the company. *Circular−economy* reflects the alignment with EU and global sustainability frameworks. The *innovation−research* bigram is close to this one, suggesting that sustainability is present as a technological development subject. These three pairs reinforce the use of innovation in sustainability reporting as an opportunity for long-term competitiveness and capability-building.
Eco−design, *design−product* and *policy−EHS* reflect the procedural embedding of sustainability into internal systems. This supports the idea of "institutionalized sustainability," where legitimacy is achieved through standardized processes and internal controls rather than solely through outcomes. In contrast, the cluster around *climate-change, carbon-emissions*, and *emission-factors* appears relatively isolated. This suggests that climate is treated as a technically specialized domain, reinforcing a narrative of expertise and control.

Natural−ecosystems, *forest−related*, *biodiversity−loss* represents the biodiversity cluster which is notably detached from operational and product-related clusters. This supports the interpretation that biodiversity is communicated at a conceptual or risk level, rather than as an embedded operational priority.

The value chain and resource responsibility (*supply−chain/supply−chains*, *raw−materials*, *responsible−consumption*, *water−resources*, and *management−water)* emphasizes responsibility and stewardship. However, this framing also illustrates how companies may externalize environmental impacts while maintaining a narrative of oversight, a common legitimacy strategy in sustainability reporting.

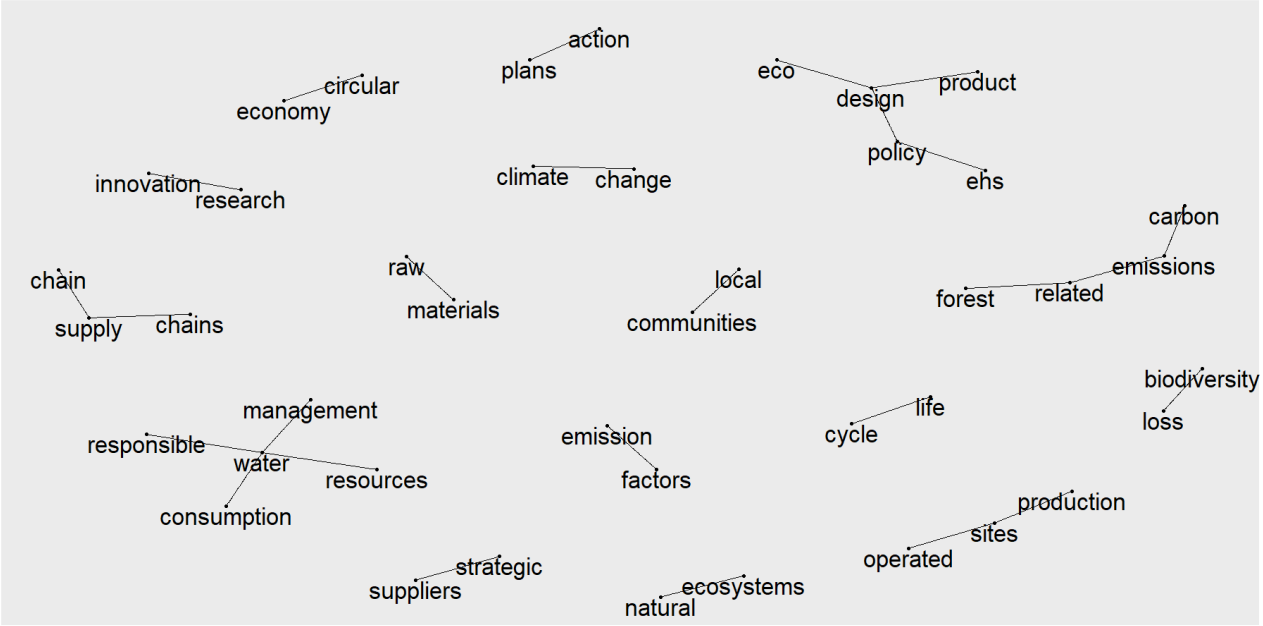

Figure 2. Words Bigram in L'Oréal sustainability reporting of 2024
Source: Authors' research, generated with R Studio.

Trigram Network Analysis of Sustainability discourse in L'Oréal's report

The trigram frequency plot in Figure 3 highlights how sustainability is operationalized within L'Oréal. The prominence of *product−design−policy* highlights how sustainability represents formal structures, supporting legitimacy through procedural integration. Similarly, *corporate−responsibility−officer* and related terms emphasize role-based accountability, which signals organizational commitment and control. Climate-related trigrams such as *climate−transition−plan* and *carbon−emissions−related* confirm that climate change is framed within strategic planning and governance frameworks, rather than operational transformation. Trigrams like *forest−related−raw* and

related-raw-materials reinforce a supply-chain risk framing, particularly around biodiversity and deforestation. This again reflects selective disclosure, where environmental issues are communicated as risks to be managed rather than impacts to be fundamentally reduced. Overall, the trigram analysis shows that sustainability is communicated through policies, roles, and formalized processes, which strengthens legitimacy but may also create a distance between discourse and measurable outcomes.

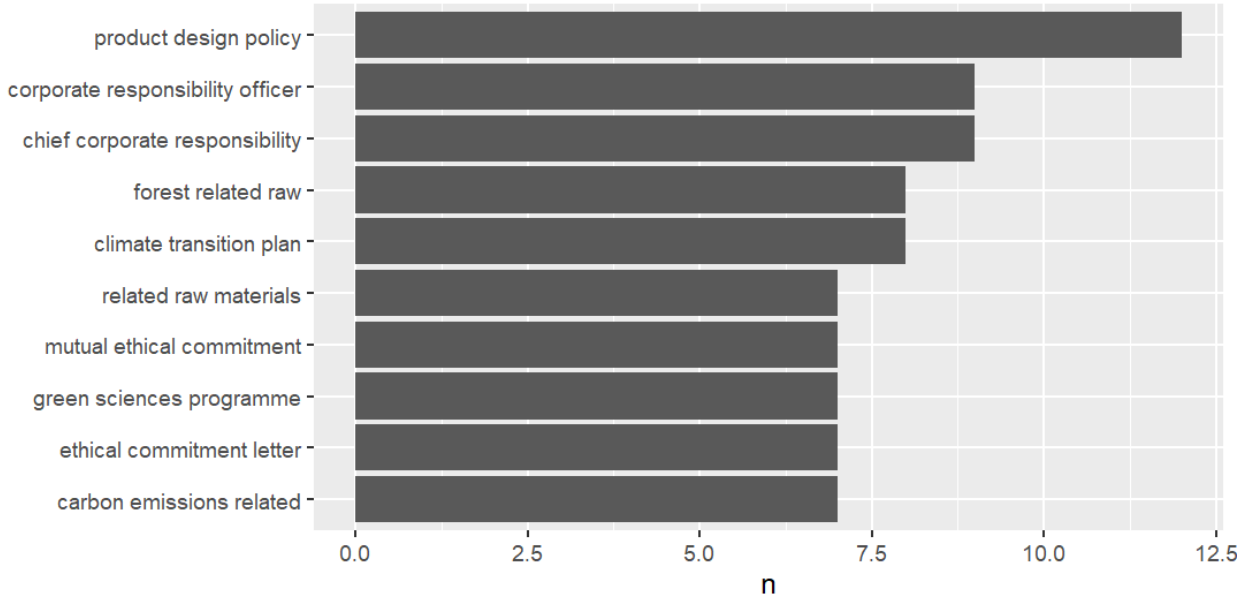

Figure 3. Word Trigram in L'Oréal sustainability reporting of 2024

Source: Authors' research, generated with R Studio.
Note. n represents the number of appearances of the presented word in the analyzed text.

SDG 12, 13, 14 and 15 in L'Oréal

L'Oréal's reporting on SDGs 12, 13, 14, and 15 reflects a structured and strategically curated sustainability narrative. The strong emphasis on materials, packaging, and product design supports SDG 12 and demonstrates a focus on areas where performance can be measured and communicated effectively. Climate-related discourse aligns with SDG 13, but it is reflected from a technical perspective. SDGs 14 and 15 are primarily addressed through supply chain and risk-related language, indicating that biodiversity and ecosystem impacts are acknowledged but not deeply operationalized. This reinforces the broader pattern of selective disclosure, where certain SDGs are integrated into core business processes.

Conclusion

The study examines sustainability discourse in one of the leaders in the cosmetics industry through a text-based analysis and a focus on SDG 12, 13, 14 and 15. The findings show that sustainability discourse is highly structured, emphasizing policies, management systems, and strategic frameworks rather than narrative or outcome-based reporting. Across the analyses, L'Oréal's discourse emphasizes domains where the company can demonstrate strong control, such as water stewardship, design, material sourcing, and policy frameworks, while more sensitive or less controllable areas, particularly post-use impacts, remain comparatively underdeveloped. The prominence of terms like water, materials, packaging, and policy reflects a narrative anchored in SDG 12, where water, materials, packaging, reduction, and product design are highlighted as the central role of circular economy. Similarly, climate-related language aligns with SDG 13 but it represents a distinct, measurable discourse focused on emissions, carbon management, and transition planning, indicating a strategic and quantitative treatment of climate issues. In contrast, SDGs 14 and 15 are primarily framed through supply-chain risks and biodiversity concerns, suggesting a more risk-based engagement with marine and terrestrial ecosystems, suggesting conceptual acknowledgment rather than operational depth.

The network analyses further show that L'Oréal's sustainability communication is divided rather than integrated: clusters around circular economy, innovation, climate governance, biodiversity, and supply-chain responsibility operate as distinct narratives. The findings highlight the need for companies to move beyond policy-driven communication toward more transparent, outcome-oriented reporting that captures the full picture of their contributions. Decision-makers should place greater emphasis on impacts and develop strategies that extend responsibility beyond their organizational discourse. Additionally, integrating currently fragmented sustainability themes with quantitative data could improve stakeholder trust, comparability, and alignment with evolving regulatory expectations.

From an academic perspective, this study contributes by bridging the gap between technical sustainability research and corporate communication analysis. It demonstrates the value of text-mining approaches in uncovering hidden structures within sustainability discourse and offers a replicable framework for future research. The findings create the possibility of comparative cross-company or cross-industry studies, as well as for integrating discourse analysis with performance-based sustainability metrics to better assess the consistency between what companies say and what they do.

Overall, the findings indicate that L'Oréal's sustainability discourse is not merely descriptive but strategically constructed to signal accountability, innovation, and alignment with global frameworks. Yet it also reveals gaps, most notably the limited attention to consumer use and end-of-life phases, also identified in the broader literature on cosmetic sustainability (Rocca *et al.*, 2022). By mapping these discursive patterns, this study contributes to a company-level perspective that bridges technical environmental assessments with analyses of corporate discourse, offering insight into how major industry actors frame their responsibilities. Future research could extend this work by comparing discourse across companies.

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