

ORIGINAL ARTICLE

Open Access



What is greenwashing – a scoping review of greenwashing definitions and development of the Need-for-Balance Model

Thomas Koch^{1*} and Nora Denner¹

Abstract

As organizations are under increasing pressure to demonstrate environmental responsibility, concerns about greenwashing have grown considerably. Despite its significance, there is no consensus on its definition, which complicates both research and mitigation efforts. To address this gap, we conducted a scoping review of 332 articles published across 174 journals, analyzing 646 definitions of greenwashing. While terminology varies, common themes emerge, and two main types of definitions can be distinguished: outcome-oriented and process-oriented definitions. Based on our findings, we define greenwashing as a discrepancy between environmental communication and actual environmental practices, whereby organizations portray themselves, their products/services, or their processes as greener than they are; this discrepancy arises through the communication of false, vague, irrelevant, or selective information. Furthermore, we propose the 'Need for Balance Model', which distinguishes between greenblushing/greenhushing, on the one hand, and greenwashing, on the other.

Keywords Greenwashing, Scoping review, Environmental communication, Greenblushing, Greenhushing

Introduction

The effects of climate change are increasingly visible, manifesting in the melting of polar ice caps and glaciers, rising sea levels, more frequent and severe extreme weather events, declining biodiversity, water shortages, and escalating social and political tensions (IPCC, 2022; NOAA, 2024; Qureshi et al., 2016; Wilkinson et al., 2009). Reducing greenhouse gas emissions and promoting renewable energy are among humanity's most pressing challenges, driven by the urgent need to mitigate climate change and its devastating impacts (Cook et al., 2013; NOAA, 2024). Organizations – particularly large

corporations and industries – are responsible for the majority of greenhouse gas emissions. According to the Carbon Majors Database (2024), more than 70% of global CO₂ emissions from 1854 to 2022 can be attributed to just 78 corporations and state-producing entities. Consequently, these organizations bear a significant responsibility to reduce their carbon footprint or compensate for their emissions.

In parallel, demand from stakeholders for accountability and transparency regarding environmental impact has increased (Zhang et al., 2018). This pressure compels organizations to adopt climate-friendly and sustainable practices (Haque & Islam, 2015). Growing consumer awareness of environmental issues influences purchasing decisions and brand loyalty, while investors increasingly incorporate environmental, social, and governance (ESG) criteria into their strategies. In response, many companies implement measures and communicate their

*Correspondence:

Thomas Koch
Thomas.Koch@uni-mainz.de

¹Department of Communication, Johannes Gutenberg University of Mainz, Mainz, Germany

environmental efforts, aiming to enhance their reputation and legitimacy (Baum, 2012; Berrone & Gomez-Mejia, 2009; Prakash, 2002; Wæraas & Ihlen, 2009). However, some organizations convey a false impression or provide misleading information about their initiatives. This “discrepancy between the green talk and green walk” (Walker & Wan, 2012, p. 231) is commonly referred to as greenwashing.

Although researchers share a common understanding of the general idea of greenwashing, its precise definition varies considerably across the literature (de Netto et al., 2020; Seele & Gatti, 2017). Such plurality is not unusual: scientific and societal concepts are often fluid and contested, and definitional diversity can be productive, reflecting disciplinary, cultural, and practical perspectives. At the same time, variation complicates systematic comparison across studies and the development of coherent mitigation strategies (Seele & Gatti, 2017). The aim of this paper is therefore not to resolve definitional debates but to provide a structured synthesis of how greenwashing has been defined and conceptualized across different research contexts. Building on this synthesis, we propose a clearer and more comprehensive academic definition of greenwashing. Furthermore, we introduce the ‘Need for Balance Model’, which highlights the necessity of aligning organizations’ environmental actions and communication.

The scope and consequences of greenwashing

Given the growing pressure on organizations to act sustainably, many are striving to communicate their environmental activities to strengthen legitimacy and improve reputation (Nyilasy et al., 2014; Vries et al., 2015). However, the pressure to appear sustainable can encourage organizations to publicize superficial or minor initiatives instead of undertaking substantial changes. This tendency is well illustrated by Baum (2012), who found that 75% of ads in British and American magazines featured at least one of the “seven sins of greenwashing” (Terra-Choice, 2009). Similarly, Kwon et al. (2024) showed that more than 70% of sustainability claims by leading global companies on social media were misleading. These findings indicate that greenwashing is widespread across industries and organization sizes, with both large multinational firms and small local businesses overstating their environmental efforts (Leonidou et al., 2011; Ruiz-Blanco et al., 2022).

The prevalence of greenwashing has significant consequences for consumers and society as a whole. At the individual level, greenwashing influences attitudes and behaviors in several ways. It can damage the reputation and credibility of organizations involved (Keilmann & Koch, 2024), making them appear unreliable and opportunistic (Walker & Wan, 2012). At the same time, it

fosters skepticism about sustainability claims and green products, undermining green trust and creating consumer confusion (Chen & Chang, 2013). This growing skepticism can affect purchasing decisions, potentially reducing sales of genuinely sustainable products (Matthes & Wonneberger, 2014; Szabo & Webster, 2021; Torelli et al., 2020; Zhang et al., 2018). At the societal level, greenwashing scandals erode public trust in environmental initiatives, fostering cynicism toward sustainability efforts (Carrington et al., 2014; Jahdi & Acikdilli, 2009). Such cynicism may also weaken governments’ willingness to enact or enforce strict environmental laws, ultimately undermining efforts to address climate change and other ecological challenges.

Definitions of Greenwashing – Challenges and conceptual gaps

Although the term “greenwashing” has been explored in research for over three decades and has generated thousands of papers in the last ten years (Montgomery et al., 2023), “no generally accepted definition of the term exists and the concept itself is ambiguously defined” (Seele & Gatti, 2017, p. 214). This observation by Seele and Gatti remains relevant eight years later. Importantly, the absence of a single, standardized definition should not be seen as a shortcoming of the field. On the contrary, it reflects the inherently contested, evolving, and context-dependent nature of greenwashing as a concept. Indeed, it may not even be desirable to establish one definitive definition. Precisely because definitional closure is unlikely, mapping the breadth of scholarly understandings becomes essential. This approach reveals the diverse perspectives behind the concept, clarifies overlaps and divergences, and offers a structured basis for further theoretical and practical debate. The diversity of definitions can be attributed to several factors, but we identify three central reasons for this variability.

First, the interdisciplinarity of the research area contributes significantly to the variety of definitions. The phenomenon is examined across diverse fields such as strategic communication, marketing, management, business ethics, environmental science, and law (Gatti et al., 2019; Lyon & Montgomery, 2015; Nemes et al., 2022). Each discipline emphasizes different aspects of greenwashing, including ethical implications, environmental impacts, strategic motives, regulatory concerns, and effects on reputation or behavior (Nemes et al., 2022). This interdisciplinary lens enriches the research by incorporating a broad range of methods, frameworks, and perspectives (Gatti et al., 2019; Vangeli et al., 2023). However, while this diversity enhances understanding, it also leads to fragmentation (Vangeli et al., 2023). When disciplines are loosely connected or operate in parallel,

conceptual confusion and inconsistency arise, making it difficult to achieve a unified definition.

Second, the complexity of greenwashing as a phenomenon contributes to definitional variation (Ruiz-Blanco et al., 2022). Definitions often emphasize different facets, which together create a multifaceted picture. Some see greenwashing as a deliberate strategic choice by organizations (e.g., Bowen & Aragon-Correa, 2014; Gregory, 2021; Nyilasy et al., 2012), while others acknowledge that it may also stem from “honest mistakes” or incomplete information (Nygaard & Silkoset, 2023, p. 3801; Seele & Gatti, 2017). There are also differences in how deception is framed: some highlight selective disclosure of positive information, while others stress omission of negative aspects or the use of vague, ambiguous language that misleads stakeholders (see overview in Lyon & Montgomery, 2015). The scope varies as well, with some definitions addressing greenwashing at the firm level and others at the product/service level (Delmas & Burbano, 2011; de Netto et al., 2020). This diversity underscores the importance of identifying common features and structures to enable clearer conceptualization.

Third, scholars approach definitions from two main perspectives: process-oriented and outcome-oriented. Process-oriented definitions specify what constitutes greenwashing as a practice, framing it as a deceptive behavior where organizations misrepresent their environmental efforts (Nyilasy et al., 2012). Outcome-oriented definitions, in contrast, emphasize the discrepancy between claims and actual practices (Ruiz-Blanco et al., 2022). This discrepancy is often described as symbolic versus substantive action (Walker & Wan, 2012), fake versus real behavior (Delmas & Burbano, 2011), or more directly, “what an organization claims to do in terms of protecting the environment and what the organization actually does in this respect” (Keilmann & Koch, 2024, p. 266). The challenge with both perspectives is that they rarely specify the direction of the discrepancy. Such misalignments can manifest in two ways: organizations may present themselves as greener than they are (greenwashing) or as less green than they are (greenblushing or greenhushing; Dias et al., 2025; Viererbl & Koch, 2022). A clearer definition should explicitly acknowledge and distinguish between these orientations to more accurately capture the phenomenon.

Aim of the study

The three factors discussed above contribute to a broad variety of definitions of greenwashing. This diversity not only complicates the understanding and study of the phenomenon but also underscores the need for a clearer conceptual framework. Our study addresses this issue by systematically examining the wide range of definitions and perspectives present in the literature.

Our first goal is to identify the common components of greenwashing definitions. To do this, we draw on the classic W-questions used to explore an unknown phenomenon: Who greenwashes? What is being greenwashed? To whom is the greenwashing directed? In what context does it occur? And how is it labeled? We therefore ask: What are the common components of greenwashing definitions in terms of subject (who), object (what), recipients (to whom), context (in which), and label (what) of greenwashing (RQ1)?

Second, given the two perspectives on greenwashing – process-oriented and outcome-oriented – we examine how these are reflected in existing definitions. Some focus explicitly on the discrepancy between what organizations do and what they say (“green talk and green walk”; Walker & Wan, 2012, p. 231), which can be seen as the outcome of greenwashing. Others emphasize the process, such as organizations misleading stakeholders, omitting negative environmental impacts, or highlighting only positive aspects. We therefore ask: How are process-oriented and outcome-oriented perspectives represented in definitions of greenwashing (RQ2)?

Finally, given the fragmentation of the research field and the complexity of greenwashing as a phenomenon, our aim is to develop a robust and comprehensive definition of greenwashing based on our analysis. By synthesizing the elements identified above, we strive to construct a definition that reflects the multifaceted nature of greenwashing.

Method

Tracking the rapidly expanding field of greenwashing research is challenging. Evidence syntheses therefore provide an important tool for navigating areas with a large number of primary studies (Paré et al., 2015). Scoping reviews offer an initial overview of the potential size and nature of the available literature (Arksey & O’Malley, 2005; Daudt et al., 2013). They aim to be as comprehensive as possible, mapping the extent, range, and nature of research activity (Arksey & O’Malley, 2005). Given that greenwashing has been examined through quantitative, qualitative, theoretical, and conceptual contributions, a scoping review is an appropriate method for investigating how the concept is defined (Tricco et al., 2018). For this review, we follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018).

Databases and search string

To capture the interdisciplinary nature of greenwashing research, we selected databases spanning the social sciences, economics, business, and communication instead of individual journals. This approach was chosen to avoid overrepresenting managerial perspectives and ensure

disciplinary diversity, as opposed to relying solely on business-focused collections. Following the recommendation to use at least two databases for review studies (Hiebl, 2023), we selected Communication Abstracts, ProQuest Social Sciences, EconLit, Business Source Premier (via EBSCOhost), and Web of Science. Since our focus is on the concept of greenwashing and its definitions, we used only the keyword “greenwashing” as the search string.

Database search

The literature search consisted of three phases: identification, initial screening, and secondary screening. At each stage, predefined inclusion and exclusion criteria were applied. A PRISMA flowchart illustrates the process (Fig. 1). The database search was conducted in December 2023.

During the first phase, the identification phase, automated filters were used. Publications were included if the search term appeared in the title, abstract, or keywords. This ensured that greenwashing was central to the study. This yielded 1,923 scientific articles. To ensure quality and comparability, we restricted the sample to peer-reviewed scientific journal articles published in English, which reduced the results to 913. We also removed

duplicates both automatically and manually, resulting in 541 articles. In the identification phase, 1,382 articles were removed (Fig. 2).

The remaining 541 articles were screened in the second phase for compliance with the inclusion criteria: the search term appears in the title, abstract, or keywords; the articles are peer-reviewed scientific journal articles published in English. This process removed 28 articles, leaving 513. Only a small number of the remaining articles were inaccessible ($n=24$). We then assessed the remaining articles for eligibility, excluding studies that did not provide a definition of greenwashing ($n=157$). After this secondary screening, 332 articles remained and were included in the scoping review.

Codebook and reliability test

To answer our research questions, we developed a codebook covering both formal categories (e.g., authors, institutional affiliation, country, year, and journal) and definition-related categories. For the latter, we included the subject (who greenwashes), object (what is being greenwashed), recipients (to whom it is directed), context (where it occurs), and label (how it is named). For example, in a definition where a firm misleads “consumers,” the recipient was coded as *consumers*, whereas if

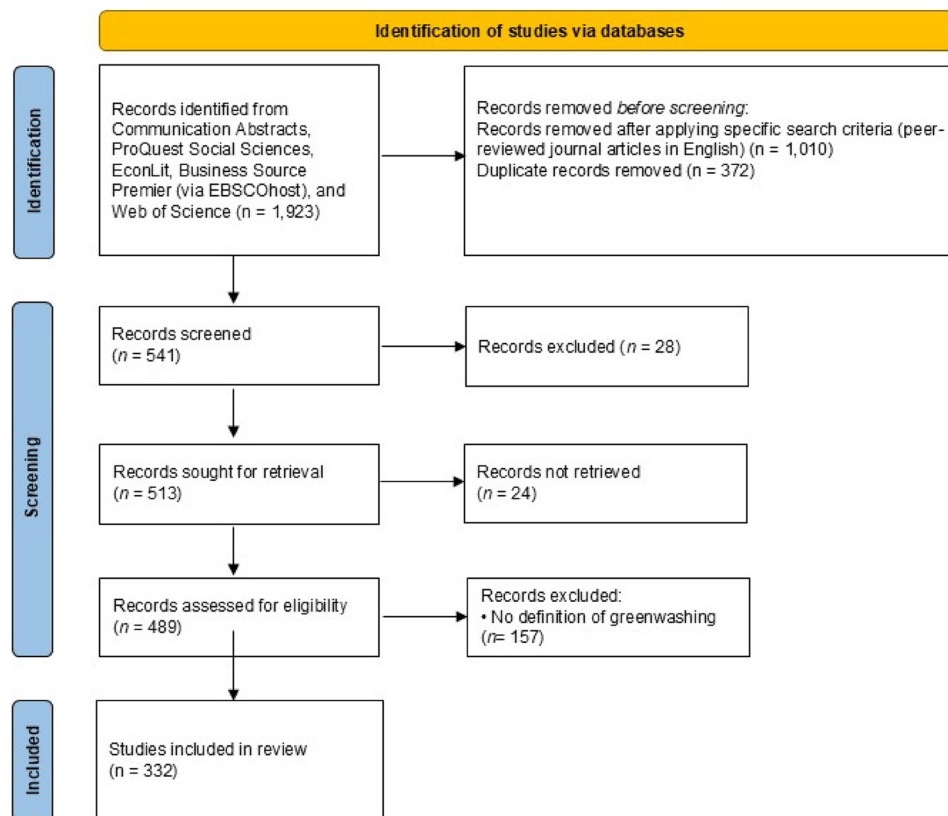


Fig. 1 PRISMA flow chart outlining the selection process of studies included in the scoping review, from initial identification to final inclusion. Note. Adapted from, “The PRISMA 2020 statement: An updated guideline for reporting systematic reviews” by Page et al. (2021). Copyright 2021 by the authors.

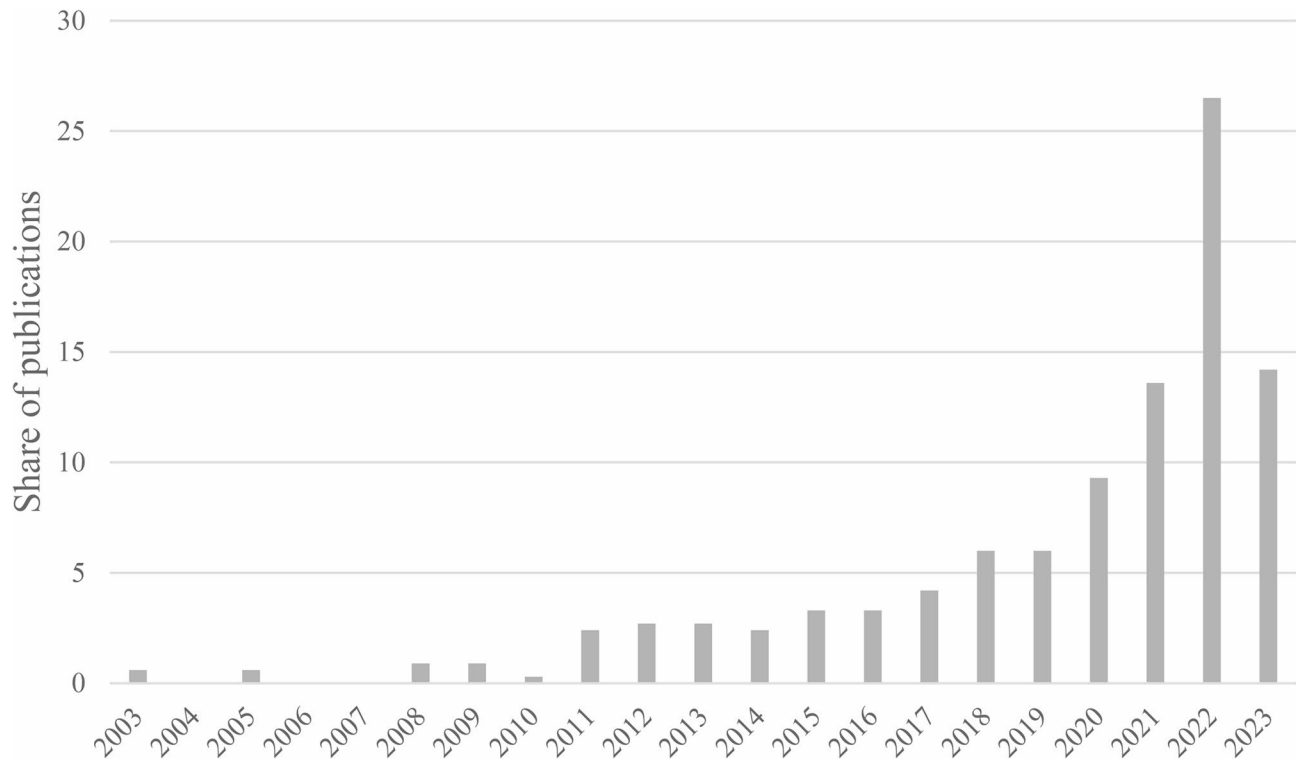


Fig. 2 Distribution of publications on greenwashing over time, illustrating growth trends across the reviewed periods. Note. $N = 332$.

the definition emphasized misleading “investors,” the recipient was coded as *investors*. Similarly, when greenwashing was described in the context of *advertising* or *CSR reports*, these were coded under context. We then inductively generated additional codes based on recurring elements in the extracted definitions, ensuring that all definitional aspects were captured.

A pilot coding was conducted to refine the instrument. Since our sample was analyzed using content analysis, we tested inter-coder reliability. We selected 30 randomly chosen articles ($\approx 10\%$ of the sample), which were coded twice by two experienced coders, three weeks apart. This procedure aligns with recommendations for reliability testing (Lombard et al., 2010; Neuendorf, 2002; O’Connor & Joffe, 2020). We used Krippendorff’s Alpha, as it applies across scale levels and accommodates missing values. Reliability values ranged from $\alpha = 0.72$ to 1.00 at the article level and from $\alpha = 0.80$ to 1.00 at the definition level (see Table 1). A coding example can be found in Table 2.

Sample

The final sample comprised 332 articles, published in 174 different journals. The highest share appeared in Sustainability (10.5%), followed by the Journal of Business Ethics (6.3%) and Business Strategy and the Environment (6.3%). Most journals were in business, management, and accounting (>60%), while about 10% belonged to

communication. Other disciplines, such as technology, natural sciences, psychology, or education, each represented 1% or less. This diversity underscores the interdisciplinary character of greenwashing research. The earliest article in the sample was published in 2003, and the most recent in 2023. More than 800 authors contributed to the articles, affiliated with institutions in 58 countries. Institutions from the USA (21.6%) and China (16.7%) were most represented (see Table 3). In total, we identified 646 definitions of greenwashing within the sample.

Results

Basic components of greenwashing definitions

Our first research question (RQ1) concerns the common components of greenwashing definitions. A key issue is whether definitions identify a responsible *subject engaging in greenwashing*. Our analysis shows that the majority of definitions (55.2%) specify at least one actor. Some refer broadly to organizations (10.8%), while others are more specific, mentioning companies (17.2%), firms (15.8%), or corporations (8.0%). Less frequently, definitions include enterprises, producers, brands, or even more specific entities such as property developers, banks, or oil majors. This suggests that any type of organization can potentially engage in greenwashing. Although other organizations, such as NGOs, universities, political parties, or associations, could also be implicated, they were not part of the analyzed definitions. A small fraction

Table 1 Results of the reliability test conducted to ensure consistency in the coding and categorization of greenwashing definitions across studies

| Category | Krippendorff's Alpha |
|---|----------------------|
| A1 Publication Year | α = 1.00 |
| A2 Volume | α = 1.00 |
| A3 Issue | α = 1.00 |
| A4 Author 1 | α = 0.97 |
| A5 Country of Author 1 | α = 0.80 |
| A6 Author 2 | α = 1.00 |
| A7 Country of Author 2 | α = 0.90 |
| A8 Author 3 | α = 1.00 |
| A9 Country of Author 3 | α = 0.80 |
| A10 Author 4 | α = 1.00 |
| A11 Country of Author 4 | α = 0.85 |
| A12 Author 5 | α = 1.00 |
| A13 Country of Author 5 | α = 0.72 |
| A14 Title | α = 1.00 |
| A15 Journal | α = 1.00 |
| A16 Keywords | α = 0.96 |
| D1 Subject of Greenwashing | α = 0.91 |
| D2 Object of Greenwashing | α = 0.88 |
| D3 Recipients | α = 0.90 |
| D4 Context | α = 0.93 |
| D5 Label | α = 0.84 |
| D6 Form of Communication | α = 0.86 |
| D7 Intentionality | α = 0.92 |
| D8a Presentation of Information: Deceptiveness | α = 0.93 |
| D8b Presentation of Information: Disclosure of Positive Information | α = 0.89 |
| D9 Discrepancy or Gap | α = 0.92 |
| D10 Intended Purpose | α = 0.92 |
| D11 Hidden Impact | α = 0.80 |
| D12 Assessment or Evaluation | α = 1.00 |
| D13 Accusation or Allegation | α = 1.00 |
| D14 Perception | α = 1.00 |
| D15 Domain | α = 0.83 |

n = 30 (articles), n = 38 (definitions)

of definitions (2.0%) extends beyond organizations to include countries, specific states, or individuals, such as managers or investment managers, as potential subjects.

Another important aspect is what is being greenwashed – *the object of greenwashing*. Our analysis indicates that 71.2% of definitions identify one or more objects. The literature distinguishes between two main categories: “firm level” and “product/service level” greenwashing (Delmas & Burbano, 2011; de Netto et al., 2020). Firm level greenwashing involves misleading claims about the environmental performance of an entire organization, whereas product/service level greenwashing focuses on specific products or services. Definitions in our sample address both levels. At the firm level, they commonly mention

Table 2 Coding of definitional elements

Example: “Greenwashing is defined as the act of misleading consumers regarding the environmental benefits of a product or service.”

| Main categories | |
|-------------------------------------|--|
| Subject (Who greenwashes) | - (other definitions contain e.g. “company or brown”) |
| Object (what is being greenwashed) | Product or service |
| Recipients (to whom it is directed) | Consumers |
| Context (where it occurs) | Environmental |
| Label (how it is named) | Act |
| Form of communication | - (other definitions contain e.g. “making claims”) |
| Gap | - (other definitions contain e.g., “promise more environmental benefit than they deliver”) |
| Intentionality | - (other definitions contain e.g., “deliberately”) |
| Presentation of information | Misleading |
| Intended purpose | - (other definitions contain e.g., “to create a good image”) |
| Hidden impact | - (other definitions contain e.g., “harmful for the environment”) |

companies (15.8%), organizations (7.6%), and firms (6.0%). At the product/service level, products (26.5%) and services (13.5%) are most frequently mentioned, with a few referring to specific items such as bonds, goods, programs, investments, projects, technologies, or brands (all under 3.0%). For conceptual clarity, we refer to these categories as organization level and product/service level greenwashing. Beyond these, definitions also highlight a third category, which we refer to as process level greenwashing, encompassing elements such as performance (20.4%), practices (19.0%), and actions (10.7%). More specific terms, like aims, content, goals, motivations, policies, impact, activities, and efforts, appear in fewer than 3.0% of definitions. Overall, definitions address greenwashing at the organization, product/service, and/or process level, using diverse terminology for each category.

Greenwashing is often directed at specific *recipients*. Our analysis shows that 34.4% of definitions explicitly mention recipients, most frequently consumers (19.7%) and stakeholders (6.8%). Other recipients include customers, employees, financial institutions, lenders, investors, and shareholders (each under 3.0%), as well as broader groups such as people, the public, society, or users (under 3.0%).

Definitions also vary in specifying the *context of greenwashing*. Different types of “washing” – greenwashing, bluewashing, pinkwashing, rainbowwashing – pertain to distinct areas. Our analysis shows that 86.2% of definitions specify the context, most commonly the environment (67.2%), followed by mentions of ‘green’ aspects or attributes (15.2%) and sustainability (11.6%). Other definitions mention ecological or eco-friendly contexts, or

Table 3 Number of affiliated institutions by country, representing the geographical distribution of authors contributing to the greenwashing literature

| Country | Number of institutions | % |
|-----------------|------------------------|------|
| USA | 189 | 21.6 |
| China | 146 | 16.7 |
| UK | 60 | 6.9 |
| Italy | 48 | 5.5 |
| Germany | 38 | 4.3 |
| Spain | 36 | 4.1 |
| Canada | 34 | 3.9 |
| Netherlands | 29 | 3.3 |
| India | 21 | 2.4 |
| France | 20 | 2.3 |
| Poland | 20 | 2.3 |
| Australia | 18 | 2.1 |
| Switzerland | 17 | 1.9 |
| Austria | 13 | 1.5 |
| Vietnam | 12 | 1.4 |
| Pakistan | 11 | 1.3 |
| Brazil | 10 | 1.1 |
| Hong Kong | 10 | 1.1 |
| Sweden | 10 | 1.1 |
| Türkiye | 9 | 1.0 |
| Norway | 8 | 0.9 |
| Romania | 8 | 0.9 |
| Taiwan | 8 | 0.9 |
| Finland | 6 | 0.7 |
| Japan | 6 | 0.7 |
| South Africa | 6 | 0.7 |
| Belgium | 5 | 0.6 |
| Indonesia | 5 | 0.6 |
| Portugal | 5 | 0.6 |
| Other Countries | 67 | 7.7 |
| Total | 875 | |

N=332 articles, up to six authors per article (up to six affiliations)

specific issues like climate and biodiversity. A few extend beyond environmental concerns, situating greenwashing in broader ESG (Environmental, Social, and Governance) frameworks. Notably, 13.8% of definitions do not specify a context, likely assuming that the term ‘greenwashing’ already contains ‘green’ and thus its environmental focus does not need to be explicitly stated.

Finally, definitions vary in how they *label greenwashing*. Our analysis reveals that 46.1% of definitions assign a label, though no consensus exists. The most common terms are act (8.4%), practice (7.9%), phenomenon (4.6%), behavior (4.5%), strategy (4.5%), and disinformation (3.6%). Less frequent labels (under 3.0%) include action, approach, attempt, concept, effort, fake news, gap, label, legitimation strategy, process, tactic, and umbrella term. This diversity highlights uncertainty regarding whether greenwashing should be understood as a concrete behavior (act, attempt, strategy) or a more abstract concept

(phenomenon, label, umbrella term). The remaining 53.9% of definitions describe greenwashing without a specific label.

The process of greenwashing in definitions

Our second research question (RQ2) examines how process-oriented and outcome-oriented perspectives are represented in definitions of greenwashing. We first present the results for the process-oriented perspective.

A majority of definitions (65.3%) describe greenwashing as a specific *form of communication*, though the terminology used varies widely. Common terms include information (18.0%), claims (17.3%), communication (17.0%), and advertising (6.0%). Less frequently used descriptors, each appearing in fewer than 3.0% of definitions, include promises, statements, promotion, dissemination, talk, pledges, publications, messages, and presentations.

An ongoing debate in the literature concerns whether greenwashing inherently requires *intentionality*. As Ruiz-Blanco et al. (2022) note, “The intentionality of the action is also important for the definition, and several authors talk about greenwashing only when a clear intention to mislead exists” (p. 4027; see also Bowen & Aragon-Correa, 2014; Nyilasy et al., 2012). Our analysis shows that 11.1% of definitions explicitly reference intentionality, with terms such as intentional (3.7%) and deliberate (5.3%) being most common. Less frequent terms include consciously, knowingly, and actively.

The next two categories concern the *presentation of information*. About 26.6% of definitions focus on the selective presentation of positive information, while 72.4% highlight some form of deceptiveness, employing nearly 100 distinct terms. Common descriptors include misleading (32.2%), false (11.3%), non-disclosure of negative/harmful information (11.3%), deceptive/deceiving (9.3%), and exaggerated/exaggeration (6.2%). Based on these categories, information in greenwashing definitions can be presented in four ways: (1) Accuracy of information: These terms describe information presented falsely, ranging from subtle distortions to outright falsehoods. Examples include exaggerated, overstated, diverted, misrepresented, inaccurate, false, and lying. (2) Clarity of information: Definitions suggest that greenwashing arises from the vague presentation of information. Terms such as vague, ambiguous, superficial, inaccurate, and incomplete highlight the imprecision often associated with green communication. (3) Relevance of information: Some definitions emphasize the use of irrelevant details. Terms such as irrelevant, unrelated, unimportant, trivial, or unsubstantiated are used to describe this strategy. (4) Transparency/Selective disclosure of information: Many definitions describe a transparency component, more precisely the selective presentation of information, where

positive aspects are emphasized while negative ones are concealed. Terms such as highlighting benefits (14.1%), positive communication, statements, or claims (12.8%) underscore this strategy, along with the deliberate omission of negative information.

Outcomes of greenwashing

Our analysis reveals that 38.9% of definitions focus on a *discrepancy or gap* between communicated claims and actual practices, either explicitly or implicitly. Explicit references to this gap appear in 16.4% of definitions, using terms such as decoupling, difference, discrepancy, divergence, gap, lack, separation, and descriptors like symbolic or symbol. Implicit descriptions of this gap are more common, appearing in 32.1% of definitions, which convey the discrepancy through grammatical constructions and expressions such as without, than, even, or but. For example, they may state there is a “commitment but no implementation,” describe products as “green even if they are not,” or companies that “promise more environmental benefit than they deliver.” Some definitions use verbs to indicate that communication “does not match an organization’s actual activities,” or that “advertising claims are not supported by operational practices.” Others employ subordinate clauses starting with when to explain the mismatch, for instance, “when arguably they are not,” “when, in reality, they are not,” “when in fact they are not,” “when they are really not,” or “when this is not the case.” Despite the variety of expressions, all consistently point to the central issue of a gap between what is communicated and what is actually done.

The *intended purpose of greenwashing* is mentioned in 38.4% of definitions, revealing a wide range of objectives. The most commonly cited purpose is for organizations to build a favorable image (15.8%). Other purposes include attracting more investments, alleviating external public pressures, appealing to green consumers, increasing sales, appearing more environmentally responsible, gaining a competitive advantage, convincing consumers, attracting investors, appearing greener, looking environmentally friendly, increasing market shares, creating a positive impression, expanding competitive position, influencing consumer choices, marketing purposes, improving reputation, boosting revenues, and releasing external pressure. This diverse set can be grouped into three main categories: The first focuses on financial and market outcomes, such as increasing sales, shares, investments, and influencing consumer decisions. The second centers on enhancing image and reputation, including attracting attention, improving reputation, and creating a positive impression. The third aims to make the organization appear more environmentally friendly and greener.

Furthermore, 9.8% of definitions mention the *hidden impacts of greenwashing*. These impacts are not limited

to one or a few main effects but encompass a variety of consequences, which can be grouped into three categories. Firstly, some definitions highlight environmental harm, noting that greenwashing can contribute to pollution, damage ecosystems, and allow real environmental problems to worsen. Secondly, others emphasize consumer-related impacts, such as confusion, skepticism, disappointment, and the erosion of trust and confidence in organizations. Thirdly, some definitions point to broader societal costs, noting that greenwashing can mislead people and impose social or economic burdens.

Less commonly mentioned aspects in definitions

We also examined whether definitions include an *assessment or evaluation of greenwashing*, such as considering it unfair or unethical. This aspect is rarely mentioned; only 4.2% of definitions provide such an assessment. Among these, greenwashing is described using terms like abuse or malpractice, and adjectives such as critical, nefarious, problematic, questionable, unethical, and unfair, all appearing in fewer than 3.0% of definitions. Overall, most definitions refrain from making such evaluative judgments.

Additionally, we investigated whether definitions suggest that an *accusation or allegation* must be made to identify greenwashing. This aspect is seldom addressed, with only 1.7% of definitions mentioning it. These definitions imply that an accusation or blame is necessary for identifying greenwashing, although this does not appear to be a central component of most definitions. As Seele and Gatti (2017, p. 248) note, “the need to include the accusation element in the definition of greenwashing [is emphasized] because greenwashing cannot be understood without its perception in the eye of the beholder.”

With regard to greenwashing as an accusation or allegation, we also explored whether it is characterized as a *perception*. This aspect appears in only 0.9% of definitions, describing it as a “perceived gap” or a phenomenon that exists in the eye of the beholder.

Finally, we examined whether definitions specify particular *domains* in which greenwashing occurs, such as marketing or advertising. Our findings reveal that 12.1% of definitions place greenwashing within such domains. Marketing is cited in 6.8% of definitions, advertising in 5.3%, and Public Relations and governance are mentioned occasionally.

Discussion

Towards a comprehensive definition of greenwashing

Regarding the first research question (RQ1), we investigated the common components of greenwashing definitions. The majority of definitions refer to at least one entity involved in greenwashing, most often for-profit organizations; references to countries or individuals are

rare, and non-profit organizations are not mentioned. The objects of greenwashing can be summarized in three categories: organization level, product/service level, and process level. Recipients of greenwashing – such as consumers, stakeholders, and other specific groups – are mentioned in roughly one-third of the definitions. The setting in which greenwashing occurs is included in most definitions; sometimes it is framed within the broader ESG context, but more often it is limited to environmental and sustainability concerns. A variety of labels are used for greenwashing, including act, practice, or phenomenon.

Overall, the analysis of the basic components of greenwashing definitions shows that, while most definitions share some common elements, a wide range of terminology is used. This illustrates the interdisciplinary and fragmented nature of the research field. Many definitions are highly specific, focusing narrowly on firms, corporations, or particular sectors such as property development, banking, or oil. This specificity extends to objects (products, services, bonds, goods, programs, investments, projects, technologies, brands, etc.) and domains such as marketing or advertising.

Regarding the second research question (RQ2), the analysis indicates that both process-oriented and outcome-oriented perspectives are represented in greenwashing definitions. A majority of definitions are process-oriented, emphasizing four mechanisms: Greenwashing occurs through the communication of false, vague, irrelevant, or selectively disclosed information. More than one-third of definitions focus on outcomes, highlighting a discrepancy, typically a gap between communication and actual environmental performance (Delmas & Burbano, 2011). Although terminology varies across definitions, they consistently revolve around the core concept of a mismatch between green communication and the actual green behavior that fails to align with it (Delmas & Burbano, 2011; Keilmann & Koch, 2024; Liu et al., 2023; Zhang et al., 2018).

Given that greenwashing can be understood both as a process and as an outcome, an effective definition should capture both dimensions. From the outcome perspective, it reflects a discrepancy between environmental communication and actual practices. These discrepancies can occur in two directions: organizations may present themselves as less environmentally friendly than they are (greenblushing or greenhushing; Dias et al., 2025; Viererbl & Koch, 2022), or as more environmentally friendly than they are, which constitutes greenwashing. A clear definition should distinguish between these directions. From the process perspective, prior research shows that greenwashing typically arises through four mechanisms: dissemination of false information, use of vague or ambiguous claims, selective disclosure of favorable

information, and emphasis on irrelevant aspects. Bringing these dimensions together, we propose the following definition: *Greenwashing refers to a discrepancy between environmental communication and actual environmental practices, whereby organizations portray themselves, their products/services, or their processes as greener than they are; this discrepancy arises through the communication of false, vague, irrelevant, or selective information.*

Towards a conceptual model

Based on our synthesis of definitions, we propose the 'Need for Balance Model' (Fig. 3). Organizations face demands from internal and external stakeholders for greater accountability regarding their environmental impacts (Haque & Islam, 2015; Zhang et al., 2018). These expectations create pressure not only to adopt environmentally friendly practices, such as climate-friendly or sustainable initiatives, but also to communicate these efforts. Organizations convey their environmental engagement to gain legitimacy, as stakeholder recognition is essential for relieving this pressure (Baum, 2012; Berrone & Gomez-Mejia, 2009; Prakash, 2002; Wæraas & Ihlen, 2009). However, environmental practices and communication strategies need to be balanced: what is done should be communicated accurately – nothing more, nothing less. When this alignment fails, an imbalance occurs, which can take two forms: organizations may present themselves as greener than they are (greenwashing) or as less green than they are (greenblushing/greenhushing). In line with our definition of greenwashing, we define greenblushing/greenhushing as a discrepancy between environmental communication and actual environmental practices, whereby organizations portray themselves, their products/services, or their processes as less green than they truly are; this discrepancy arises through the communication of false, vague, irrelevant, or selective information.

The model illustrates how stakeholder expectations and organizational responses interact to either create alignment or imbalance. Furthermore, it emphasizes the dynamic nature of this balance. Stakeholder pressure is ongoing, and both environmental practices and communication strategies can shift over time. Organizations must continually calibrate their actions and messages to ensure that communication accurately reflects their practices. Corrective measures may include adjusting communication strategies, enhancing transparency, or modifying practices to better meet environmental commitments.

The model also highlights a feedback loop between stakeholder expectations, organizational behavior, and the outcomes of imbalance. When greenwashing or greenblushing is detected by internal or external stakeholders, their reactions, or even the organization's

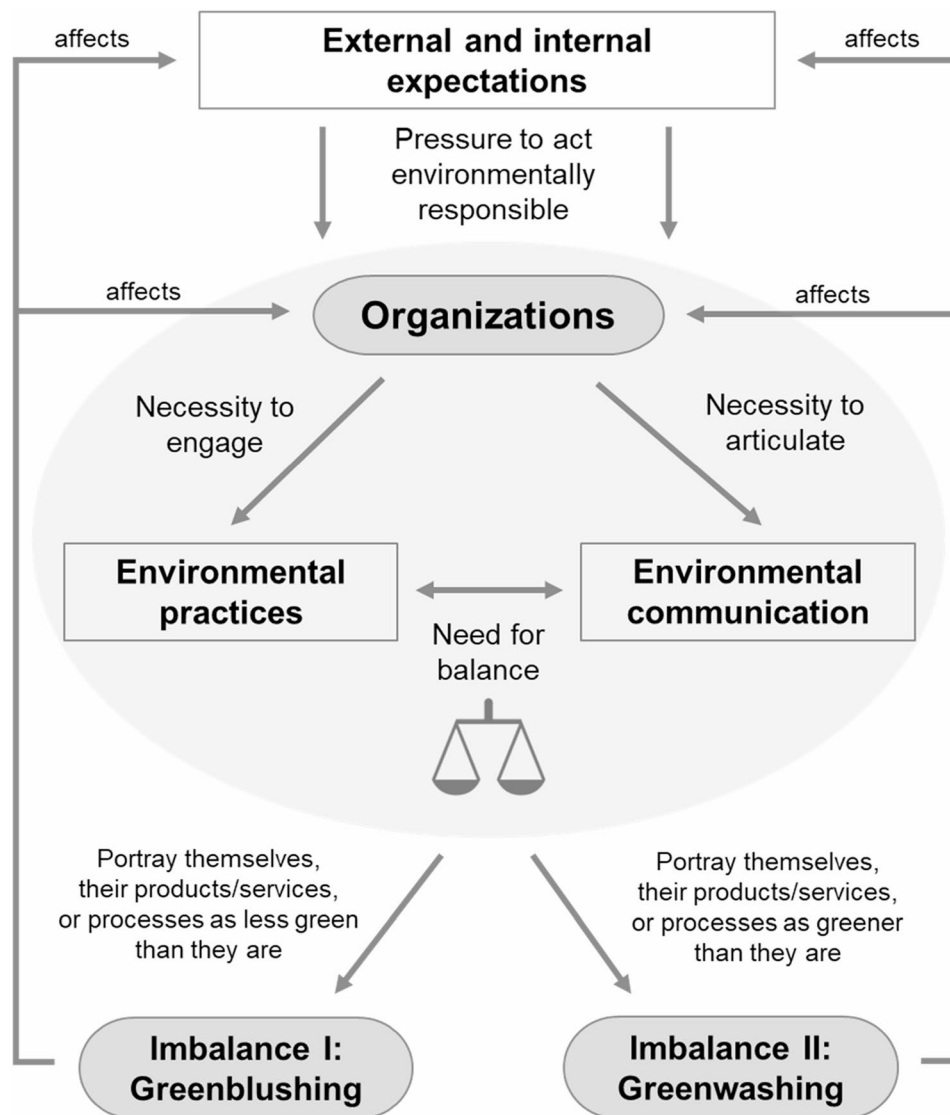


Fig. 3 Need for Balance Model. Note. Figure by author(s)

anticipation of such reactions, feed back into organizational decision-making. Stakeholders may respond with criticism, increased scrutiny, loss of trust, or in the case of greenblushing, disappointment that genuine efforts remain invisible. Anticipating or experiencing these reactions, organizations perceive renewed pressure to recalibrate their practices and communication in order to restore balance.

This loop not only influences organizational strategies – such as adjusting communication, enhancing transparency, or strengthening actual environmental practices – but also reshapes stakeholder expectations themselves. For example, if an organization is perceived as engaging in greenwashing, stakeholders may raise their demands for independent verification, stricter standards, or greater disclosure. Conversely, if greenblushing is identified, stakeholders may expect more visibility and transparency

around authentic efforts. In this way, the cycle becomes dynamic: reactions to organizational communication and practices reinforce or shift expectations, which in turn generate new pressures and shape subsequent organizational behavior.

Limitations and future research

Of course, this work has several limitations that should be noted. First, by using only explicitly mentioned definitions of greenwashing in the analyzed articles, some definitions may have been missed if they were not clearly labeled as such. Moreover, our search string focused exclusively on the term “greenwashing,” so related concepts such as “green sheen,” “virtue signaling,” or “symbolic CSR” were not captured; future studies could examine how these related terms are defined and used. Additionally, we were unable to access certain articles

despite extensive searches and contacting the corresponding authors. As only English-language articles were included, the sample is biased and does not capture definitions published in other languages. Moreover, our study focused exclusively on scientific definitions of greenwashing and did not examine definitions that emerge in real-world practice, such as those found in public discourse (e.g., Wikipedia), corporate communication, policy debates, or broader societal understandings. These perspectives also influence how greenwashing is framed and contested in practice, so their omission limits the practical scope of our findings. Future research should therefore incorporate these complementary sources to develop a more holistic understanding of the concept. Although our study included journals from a wide range of disciplines, we did not analyze or report differences in greenwashing definitions across these disciplinary boundaries. The diversity of journals, uneven representation of fields, and conceptual heterogeneity within broad categories make such comparisons challenging.

Future research could explicitly investigate cross-disciplinary variations by purposefully sampling journals from multiple domains, providing deeper insight into how greenwashing is conceptualized in different contexts. Such cross-disciplinary work could also help reconcile divergent definitions and foster a more cohesive understanding of greenwashing. By integrating insights from business, communication, environmental science, and policy studies, future research may contribute to definitions that are both conceptually robust and practically relevant, highlighting the forward-looking agenda of this field.

Implications

For practitioners, particularly in corporate communications, marketing, and sustainability management, the 'Need for Balance Model' underscores the importance of aligning environmental communications with actual practices to avoid the perception of greenwashing. In particular, it highlights the challenge of finding the right balance in communication: Organizations must present their environmental achievements accurately, avoiding both under-communication and overstatement. Achieving this balance requires careful assessment of internal practices, transparent reporting of environmental initiatives, and communication strategies that are sensitive to stakeholder expectations. Concretely, claims should be factually correct, contextualized, balanced, and proportionate to actual performance. Organizations should also ensure that communications are consistent across channels, clearly highlight both achievements and areas for improvement, and avoid selective emphasis that could mislead stakeholders. Regular monitoring and feedback mechanisms can help detect misalignments between

practices and messaging, allowing organizations to adjust either their actions or communications to maintain credibility and trust.

Organizations need to be aware that both exaggeration and omission of environmental efforts can undermine credibility, reduce stakeholder trust, and even invite regulatory scrutiny (Viererbl & Koch, 2022). This can be illustrated with two brief examples inspired by real-world cases. First, an automotive company may communicate its environmental initiatives very cautiously to avoid accusations of greenwashing. Although this defensive communication reduces the risk of overstatement, it also diminishes the potential positive effects of adequately communicating about corporate environmental initiatives. Second, a company producing bags from 100% ocean-recycled plastic may highlight the sustainability of their main material, yet other components, such as zippers or clasps, are made from conventional materials. Although technically accurate, this selective disclosure could be perceived as misleading and give rise to accusations of greenwashing. These examples illustrate the risks of both over- and under-communication, and how the guidelines outlined above can help organizations navigate between these extremes.

Finally, this paper highlights the growing demand for accountability and authenticity in sustainability efforts and offers practical insights for organizations to walk the fine line between promoting their green initiatives and avoiding misleading claims. By illustrating the mechanisms through which greenwashing and greenhushing/greenblushing can occur, the conceptual framework encourages organizations to adopt a proactive approach to sustainability communication. This involves not only improving environmental performance but also carefully crafting messages that reflect genuine achievements, contextualized for different stakeholder audiences.

Abbreviations

| | |
|------------------|--|
| RQ | Research question |
| PRISMA-ScR | Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews |
| CSR | Corporate Social Responsibility |
| ESG | Environmental, social, and governance |
| CO ₂ | Carbon dioxide |
| IPCC | Intergovernmental Panel on Climate Change |
| NOAA | National Oceanic and Atmospheric Administration |
| N | Sample size |
| p. | Page |
| α (Alpha) | Krippendorff's Alpha |

Acknowledgements

We would like to express our sincere gratitude to Carolin Hüter and Toni Kiening for their valuable assistance in the selection of articles and the coding process.

Authors' contributions

Both authors contributed equally to the conception, design, data collection, analysis, and writing of the manuscript. All authors read and approved the final manuscript.

Funding

Open Access funding enabled and organized by Projekt DEAL. Not applicable.

Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations**Competing interests**

The authors declare that they have no competing interests.

Received: 15 May 2025 / Accepted: 29 September 2025

Published online: 16 October 2025

References

- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory & Practice*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Baum, L. M. (2012). It's not easy being green ... or is it? A content analysis of environmental claims in magazine advertisements from the United States and United Kingdom. *Environmental Communication*, 6(4), 423–440. <https://doi.org/10.1080/17524032.2012.724022>
- Berrone, P., & Gomez-Mejia, L. R. (2009). Environmental performance and executive compensation: An integrated agency–institutional perspective. *Academy of Management Journal*, 52(1), 103–126. <https://doi.org/10.5465/amj.2009.36461950>
- Bowen, F., & Aragon-Correa, J. A. (2014). Greenwashing in corporate environmentalism research and practice: The importance of what we say and do. *Organization & Environment*, 27(2), 107–112. <https://doi.org/10.1177/1086026614537078>
- Carbon Majors Database. (2024). The Carbon Majors Database: Launch report. <http://carbonmajors.org/briefing/The-Carbon-Majors-Database-26913>
- Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2014). Lost in translation: Exploring the ethical consumer intention–behavior gap. *Journal of Business Research*, 67(1), 2759–2767. <https://doi.org/10.1016/j.jbusres.2012.09.022>
- Chen, Y. S., & Chang, C. H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics*, 114(3), 489–500. <https://doi.org/10.1007/s10551-012-1360-0>
- Cook, J., Nuccitelli, D., Green, S., Richardson, M., Winkler, B., Painting, R., Way, R., Jacobs, P., & Skuce, A. (2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. *Environmental Research Letters*, 8(2), Article 24024. <https://doi.org/10.1088/1748-9326/8/2/024024>
- Daudt, H. M., van Mossel, C., & Scott, S. J. (2013). Enhancing the scoping study methodology: A large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC Medical Research Methodology*, 13, Article 48. <https://doi.org/10.1186/1471-2288-13-48>
- de Netto, F., Sobral, S. V., Ribeiro, M. F. F., A. R. B., & Da Soares, G. R. L. (2020). Concepts and forms of green-washing: A systematic review. *Environmental Sciences Europe*, 32(1). <https://doi.org/10.1186/s12302-020-0300-3>
- de Vries, G., Terwel, B. W., Ellemers, N., & Daamen, D. D. L. (2015). Sustainability or profitability? How communicated motives for environmental policy affect public perceptions of corporate greenwashing. *Corporate Social Responsibility and Environmental Management*, 22(3), 142–154. <https://doi.org/10.1002/csr.1327>
- Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, 54(1), 64–87. <https://doi.org/10.1525/cmr.2011.54.1.64>
- Dias, L. P. C., Bagatini, F. Z., & Perin, M. G. (2025). Green under-communication: A systematic literature review on greenwashing. *ReMark: Revista Brasileira De Marketing*, 24(1), 387–414. <https://doi.org/10.5585/2025.26718>
- Gatti, L., Seele, P., & Rademacher, L. (2019). Grey zone in – greenwash out. A review of greenwashing research and implications for the voluntary-mandatory transition of CSR. *International Journal of Corporate Social Responsibility*, 4, Article 6. <https://doi.org/10.1186/s40991-019-0044-9>
- Gregory, R. P. (2021). When is greenwashing an easy fix? *Journal of Sustainable Finance & Investment*, 13(2), 919–942. <https://doi.org/10.1080/20430795.2021.1907091>
- Haque, S., & Islam, M. A. (2015). Stakeholder pressures on corporate climate change-related accountability and disclosures: Australian evidence. *Business and Politics*, 17(2), 355–390. <https://doi.org/10.1017/S136952580001674>
- Hiebl, M. R. W. (2023). Sample selection in systematic literature reviews of management research. *Organizational Research Methods*, 26(2), 229–261. <https://doi.org/10.1177/1094428120986851>
- IPCC. (2022). *Climate change 2022: Impacts, adaptation and vulnerability. Contribution of working group II to the sixth assessment report of the sixth assessment report of the intergovernmental panel on climate change*. Cambridge University Press. <https://doi.org/10.1017/9781009325844>
- Jahdi, K. S., & Acikdilli, G. (2009). Marketing communications and corporate social responsibility (CSR): Marriage of convenience or shotgun wedding? *Journal of Business Ethics*, 88(1), 103–113. <https://doi.org/10.1007/s10551-009-0113-1>
- Keilmann, J., & Koch, T. (2024). When environmental claims are empty promises: How greenwashing affects corporate reputation and credibility. *Environmental Communication*, 18(3), 266–284. <https://doi.org/10.1080/17524032.2023.2267782>
- Kwon, K., Lee, J., Wang, C., & Diwanji, V. (2024). From green advertising to greenwashing: Content analysis of global corporations' green advertising on social media. *International Journal of Advertising*, 43(1), 97–124. <https://doi.org/10.1080/02650487.2023.2208489>
- Leonidou, L. C., Leonidou, C. N., Paliawadana, D., & Hultman, M. (2011). Evaluating the green advertising practices of international firms: A trend analysis. *International Marketing Review*, 28(1), 6–33. <https://doi.org/10.1108/02651331111107080>
- Liu Y, Li W, Wang L, Meng Q. (2023). Why greenwashing occurs and what happens afterwards? a systematic literature review and futur research agenda. *Environmental Science and Pollution Research*, 30, 118102–118116. <https://doi.org/10.1007/s11356-023-30571-z>
- Lombard M, Snyder-Duch J, & Bracken CC. (2002). Content analysis in mass communication: assessment and reporting of intercoder reliability. *Human Communication Research*, 28(4), 587-604. <https://doi.org/10.1111/j.1468-2958.2002.tb00826.x>
- Lyon, T. P., & Montgomery, A. W. (2015). The means and end of greenwash. *Organization & Environment*, 28(2), 223–249. <https://doi.org/10.1177/1086026615575332>
- Matthes, J., & Wonneberger, A. (2014). The skeptical green consumer revisited: Testing the relationship between green consumerism and skepticism toward advertising. *Journal of Advertising*, 43(2), 115–127. <https://doi.org/10.1080/00913367.2013.834804>
- Montgomery, A. W., Lyon, T. P., & Barg, J. (2023). No end in sight? A greenwash review and research agenda. *Organization & Environment*. <https://doi.org/10.1177/10860266231168905>
- Nemes, N., Scanlan, S. J., Smith, P., Smith, T., Aronczyk, M., Hill, S., Lewis, S. L., Montgomery, A. W., Tubiello, F. N., & Stabinsky, D. (2022). An integrated framework to assess greenwashing. *Sustainability*, 14(8), Article 4431. <https://doi.org/10.3390/su14084431>
- Neuendorf KA. (2017). The content analysis guidebook (2nd ed.). *SAGE Publications*. <https://doi.org/10.4135/9781071802878>
- NOAA. (2024). *National Centers for Environmental Information, Monthly Global Climate Report for Annual 2023*. <https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202313>
- Nygaard, A., & Silkoset, R. (2023). Sustainable development and greenwashing: How blockchain technology information can empower green consumers. *Business Strategy and the Environment*, 32(6), 3801–3813. <https://doi.org/10.1002/bse.3338>
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2012). Greenwashing: A consumer perspective. *Economics & Sociology*, 5(2), 116–123.
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived greenwashing: The interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics*, 125(4), 693–707. <https://doi.org/10.1007/s10551-013-1944-3>
- O'Connor C, Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, 19, 1–13. <https://doi.org/10.1177/1609406919899220>
- Page MJ, McKenzie, JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, Moher D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>

- Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management*, 52(2), 183–199. <https://doi.org/10.1016/j.im.2014.08.008>
- Prakash, A. (2002). Green marketing, public policy and managerial strategies. *Business Strategy and the Environment*, 11(5), 285–297. <https://doi.org/10.1002/bse.338>
- Qureshi, M. I., Rasli, A. M., & Zaman, K. (2016). Energy crisis, greenhouse gas emissions and sectoral growth reforms: Repairing the fabricated mosaic. *Journal of Cleaner Production*, 112(5), 3657–3666. <https://doi.org/10.1016/j.jclepro.2015.08.017>
- Ruiz-Blanco, S., Romero, S., & Fernandez-Feijoo, B. (2022). Green, blue or black, but washing—What company characteristics determine greenwashing? *Environment, Development and Sustainability*, 24(3), 4024–4045. <https://doi.org/10.1007/s10668-021-01602-x>
- Seele, P., & Gatti, L. (2017). Greenwashing revisited: In search of a typology and accusation-based definition incorporating legitimacy strategies. *Business Strategy and the Environment*, 26(2), 239–252. <https://doi.org/10.1002/bse.1912>
- Szabo, S., & Webster, J. (2021). Perceived greenwashing: The effects of green marketing on environmental and product perceptions. *Journal of Business Ethics*, 171(4), 719–739. <https://doi.org/10.1007/s10551-020-04461-0>
- TerraChoice Environmental Marketing Inc. (2009). *The seven sins of greenwashing*. https://www.twosides.info/wp-content/uploads/2018/05/TerraChoice_The_Sins_of_Greenwashing_-_Home_and_Family_Edition_2010.pdf
- Torelli, R., Balluchi, F., & Lazzini, A. (2020). Greenwashing and environmental communication: Effects on stakeholders' perceptions. *Business Strategy and the Environment*, 29(2), 407–421. <https://doi.org/10.1002/bse.2373>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., & Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>
- Vangeli, A., Malecka, A., Mitreğa, M., & Pfajfar, G. (2023). From greenwashing to green B2B marketing: A systematic literature review. *Industrial Marketing Management*, 115, 281–299. <https://doi.org/10.1016/j.indmarman.2023.10.002>
- Viererbl, B., & Koch, T. (2022). The paradoxical effects of communicating CSR activities: Why CSR communication has both positive and negative effects on the perception of a company's social responsibility. *Public Relations Review*, 48(1), Article 102134. <https://doi.org/10.1016/j.pubrev.2021.102134>
- Wæraas, A., & Ihlen, Ø. (2009). Green legitimization: The construction of an environmental ethos. *International Journal of Organizational Analysis*, 17(2), 84–102. <https://doi.org/10.1108/19348830910948940>
- Walker, K., & Wan, F. (2012). The harm of symbolic actions and green-washing: Corporate actions and communications on environmental performance and their financial implications. *Journal of Business Ethics*, 109(2), 227–242. <https://doi.org/10.1007/s10551-011-1122-4>
- Wilkinson, P., Smith, K. R., Davies, M., Adair, H., Armstrong, B. G., Barrett, M., Bruce, N., Haines, A., Hamilton, I., Oreszczyn, T., Ridley, I., Tonne, C., & Chalabi, Z. (2009). Public health benefits of strategies to reduce greenhouse-gas emissions: Household energy. *The Lancet*, 374(9705), 1917–1929. [https://doi.org/10.1016/S0140-6736\(09\)61713-X](https://doi.org/10.1016/S0140-6736(09)61713-X)
- Zhang, L., Li, D., Cao, C., & Huang, S. (2018). The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern. *Journal of Cleaner Production*, 187, 740–750. <https://doi.org/10.1016/j.jclepro.2018.03.201>

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Thomas Koch Thomas Koch is a full professor of communication with a focus on strategic and persuasive communication at the department of communication at Johannes Gutenberg University Mainz (since October 2015). He completed his undergraduate studies in Media and Communication, Psychology, and Law at Friedrich-Schiller-University Jena (2000–2005), earned a PhD in Communication Science from Friedrich-Alexander-University Erlangen-Nuremberg, where he also worked as a research associate from 2006 to 2009. From 2009 to 2015, he worked as Post-Doc at the Department of Communication Science and Media Research at Ludwig-Maximilians-University Munich.

Nora Denner Nora Denner, PhD, is a research associate with a focus on Strategic Communication at the Department of Communication at Johannes Gutenberg University of Mainz, Germany (since 2016). She earned her M.A. in Communication Studies from Ludwig Maximilians University Munich, Germany (2013–2016) and her B.A. in Communication Studies with a minor in Literary Studies from the University of Erfurt, Germany (2009–2013).