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Greenwashing Index

A comparative research of greenwashing practices in Portugal, Italy, Germany and Croatia

contextos

YOUTH POWER Germany

PANNONIA CONSULTING

Document Information

Project: GreenGuard - Mobilizing Digital Solutions for Genuine Environmental Progress

Project Coordinator: Contextos - Cooperativa para o Desenvolvimento e Coesão Social, CRL (Portugal)

Deliverable: WP2 - A2.2. Research activities and analysis: Greenwashing Index

Output Leader: Istituto ad ordinamento universitario Scuola Superiore Carolina Albasio (Italy)

Contributing Beneficiaries: Contextos - Cooperativa para o Desenvolvimento e Coesão Social, CRL; Youth Power Germany EV (Germany); Pannonia Consulting D.O.O. (Croatia)

Document History

Date	Version Nr	Deliverable Version and Changes
20-12-2024	v.01	1st Version

DOI: 10.5281/zenodo.15592402

***A*cknowledgement & Disclaimer**

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Additionally, the authors clarify that the case studies included in this document are based on desk research using publicly available third-party publications to test a potential greenwashing index. All references used in the desk research are listed in the bibliography. The authors of this publication disclaim any responsibility for the content of these sources and acknowledge that the sustainability efforts evaluations may not be fully comprehensive due to limitations in the available information.

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I. Introduction

This publication research was developed as part of the project GreenGuard - Mobilizing Digital Solutions for Genuine Environmental Progress, co-financed by Erasmus+ Cooperation Partnerships in Youth, coordinated by Contextos - Cooperativa para o Desenvolvimento e Coesão Social, CRL (Portugal), in partnership with Istituto ad ordinamento universitario Scuola Superiore Carolina Albasio (Italy), Youth Power Germany EV (Germany) and Pannonia Consulting D.O.O. (Croatia).

GreenGuard project (2024-2026) aims at contributing to counteract greenwashing by investigating greenwashing practices in partner countries, raise public awareness to the topic, develop prevention guidelines, empower youth and organizations through educational programs, and design user-friendly tech solutions to support better informed environmental choices by consumers.

This publication - Greenwashing Index: A comparative research of greenwashing practices in Portugal, Italy, Germany and Croatia is the first publication of GreenGuard project and aims to offer country-specific research of greenwashing practices in the four partner countries - Portugal, Italy, Germany and Croatia - as a cornerstone for the project and to serve as a resource for youth workers, NGO's, activists, scholars, policymakers, and others. It also offers a set of guidelines towards more sustainable practices. Guidelines towards more sustainable practices will be further expanded on the second publication of the project targeting more specifically NGO's: Guidelines for organizations working with young individuals to transition towards more sustainable practices.

The document begins by introducing the concept of greenwashing and contextualizing its prevalence and significance. The research is divided into two main parts:

- Greenwashing Index Research: Case Study Analysis
- Greenwashing and Youth: Survey Analysis

In the first part, a set of exemplificative case studies from each country is presented to test the application of a proposed Greenwashing Index scale developed during this project. In the second part, the results of the youth surveys conducted in the scope of the research are presented and compared across the four countries.

The document concludes with key takeaways from the research and a set of guidelines for preventing greenwashing.

II. Concepts and Contextualization

Greenwashing is a deceptive practice wherein companies falsely portray their products or activities as environmentally friendly or sustainable (Chudinovskikh et al., 2024). Companies engage in greenwashing to create a false impression of environmental consciousness, often exaggerating or misrepresenting their eco-friendly efforts. This misleading tactic has become increasingly present in today's market and negatively impacts consumer choices and the environment and society at large.

One common strategy involves using vague terms such as "eco-friendly" or "natural" without providing any concrete evidence to substantiate these claims (Edwards, 2024; CarbonBetter, 2024). This lack of clarity often confuses consumers who are attempting to make environmentally responsible purchasing decisions. Another method is using evocative imagery that implies sustainability, such as nature scenes or green colors, to suggest that a product is environmentally safe: such an approach can mask the company's harmful environmental practices, a tactic known as "greenlighting". For example, a firm may heavily promote its recyclable packaging while failing to address larger, more significant issues like pollution from its manufacturing processes (CarbonBetter, 2024). Companies may also employ fake certifications or misleading labels to falsely assure consumers of their environmental claims. These unverified claims undermine trust in legitimate eco-certifications and make it harder for consumers to distinguish truly sustainable products from those only posing as such (Investopedia, 2024). Some companies may engage in "greenhushing," where they deliberately downplay their sustainability efforts to avoid scrutiny, which also prevents transparency and informed consumer choices (CarbonBetter, 2024). These deceptive practices have serious consequences, including loss of consumer trust and potential lawsuits for false advertising. Responsible companies, on the other hand, provide verifiable data and certifications from credible third-party organizations to substantiate their environmental claims, offering consumers the transparency they need to make informed decisions (Edwards, 2024).

By raising awareness about greenwashing, this study aims to empower youth workers and stakeholders to make more informed decisions, protect consumers and promote genuine environmental responsibility, and hold companies accountable for their environmental claims and actions. By educating young people and stakeholders about the tactics of greenwashing, the study seeks to foster a more discerning audience that can critically assess corporate claims. This

knowledge empowers consumers to make informed decisions, ensuring that their purchasing habits genuinely support sustainability efforts rather than contributing to environmental harm through misguided trust in false claims. protecting consumers goes beyond just awareness. It involves providing them with the tools and resources to identify authentic environmental initiatives from deceptive marketing. By doing so, the study advocates for a consumer culture that holds companies accountable for their environmental claims. This accountability is key to fostering genuine environmental responsibility, pushing companies to move beyond superficial efforts and adopt substantive changes that align with global sustainability goals.

The following sections lay out a case study and survey-based research for partner countries Croatia, Germany, Italy and Portugal of greenwashing tactics and prevalence and its impact on the psychological and behavioral impact of greenwashing on youth.

III. Greenwashing Index Research

Case Study Analysis

III.Greenwashing Index Research: Case Study Analysis

According to Yin (2009, p. 18), a **Case Study** is an empirical inquiry that delves into a phenomenon within its real-life context. This research method involves a comprehensive examination of a subject and utilizes multiple data collection methods to achieve an in-depth understanding. It is essential to clarify that a case study is not merely a data collection method; rather, it represents a research strategy or design focused on studying a specific social unit. The object of the case studies analyzed in this report is the practice of greenwashing.

3.1. Greenwashing Indicators

The following indicators will be used to evaluate the prevalence and quality of the companies analyzed for this report.

1. **Clarity of Claims**: Are the environmental claims specific and measurable?
2. **Third-Party Certifications**: Do you know what eco-certifications are? How frequently are they used?
3. **Alignment with Business Practices**: Do sustainability claims match overall behaviour and outputs?
4. **Transparency**: Are detailed, verifiable information on environmental impact provided?
5. **Consistency**: Are sustainability efforts consistent across all activities of the case study in object?
6. **Lifecycle Consideration**: If products are present, is the full product or service lifecycle considered in the sustainability claims?

3.2. Indicator Evaluation Guidelines

Each indicator will be evaluated according to the guidelines herein described:

1. Clarity of Claims: Are the environmental claims specific and measurable?

To assess the clarity and measurability of environmental claims, you should:

- ✓ Review project documents, focusing on how environmental impacts are described, especially in terms of targets or metrics.

- ✓ Look for clear, quantitative goals, such as carbon reduction or energy savings, which are concrete and measurable.
- ✓ Evaluate whether the terms used are vague (e.g., “eco-friendly” or “green”) or precise (e.g., “reduce emissions by 20%”).

Score Explanation: Clarity of Claims

Low	Medium	High
Claims are vague, lack quantifiable targets, or rely on general statements without concrete goals.	Some claims are measurable, but others remain too broad or lack specific metrics.	Claims are specific, with clear, measurable goals and detailed explanations.

2. Third-Party Certifications: Do you know what eco-certifications are? How frequently are they used?

To investigate eco-certifications:

- ✓ Search for third-party certifications like ISO 14001, Fair Trade, or EU Ecolabel within the project’s documentation, focusing on work packages and outputs.
- ✓ Identify how these certifications are used, including whether they apply to products, services, or processes.
- ✓ Review the partner organizations’ use of eco-certifications, ensuring they follow established standards.

Score Explanation: Third-Party Certifications

Low	Medium	High
No mention of third-party eco-certifications, or certifications used are not relevant to environmental practices.	Some certifications are present but not widespread or integrated into multiple aspects of the project.	Consistent use of relevant and internationally recognized eco-certifications across multiple partners and project outputs.

3. Alignment with Business Practices: Do sustainability claims match overall operations?

To verify this:

- ✓ Analyze whether sustainability efforts, such as energy reduction or waste management, align with the operational practices of the project partners. For example, check the consistency of claims in procurement, digital tool development, and event organization with sustainability goals.
- ✓ Investigate if partners adopt sustainable business practices in logistics, resource use, or digital platform design.

Score explanation: Alignment with Business Practices

Low	Medium	High
Environmental claims contradict operational practices, or sustainability is not integrated into daily operations.	Some aspects of the project align with sustainability claims, but not comprehensively across all activities.	All operations, from project management to activity implementation, consistently reflect the sustainability claims.

4. Transparency: Are detailed, verifiable information on environmental impact provided?

To research this:

- ✓ Look for publicly accessible documents or detailed reports within the application that quantify the project's environmental impact, such as life-cycle assessments or sustainability reports.
- ✓ Verify if the project regularly updates stakeholders about progress on environmental goals, offering transparent and data-backed assessments.

Score Explanation: Transparency

Low	Medium	High
Limited or no detailed, verifiable information is available regarding the project's environmental impact.	Some detailed information is provided, but not all claims are supported by verifiable data.	The project provides thorough and verifiable information, with regular updates and transparent reporting.

5. **Consistency: Are sustainability efforts consistent across all activities of the case study in object?**

For this question:

- ✓ Review the activities of the case study in object, ensuring that sustainability goals are embedded in every phase - management, education, digital tools, and local engagements.
- ✓ Assess whether sustainability practices (e.g., green materials, low-carbon transportation) are applied consistently in different geographical locations and activities.

Score Explanation: Consistency

Low	Medium	High
Sustainability efforts are sporadic and inconsistent across various activities or countries.	Some activities incorporate sustainability, but others do not fully reflect the project's goals.	Sustainability is consistently applied across all activities, with clear guidelines followed by all partners.

6. **Lifecycle Consideration: If products are present, is the full product lifecycle considered in the sustainability claims?**

To evaluate lifecycle considerations:

- ✓ Look at the development of products or services (e.g., digital platforms, toolkits) within the project, focusing on whether their entire lifecycle—from raw material sourcing to end-of-life disposal—is considered.
- ✓ Examine how waste and energy use are minimized, and whether recyclability, reuse, or resource efficiency are emphasized in design and implementation.

Score Explanation: Lifecycle Consideration

Low	Medium	High
The product lifecycle is not considered, and sustainability claims do not address the entire chain of production and disposal.	Some aspects of the lifecycle are considered, but not comprehensively.	The full lifecycle, from design to disposal, is thoroughly addressed with sustainability measures at every stage.

3.3. Case Studies

3.3.1. Croatia Case Studies

Croatia Case Study 1: INA

Greenwashing in the Croatian Energy Sector

Summary	INA, the largest energy company in Croatia, launched a marketing campaign promoting "environmental protection" through billboards and advertising materials displayed across the country. Their messages, such as "Making the Croatia green together!", garnered significant attention but were criticized for lacking concrete environmental protection measures. Despite promotional activities, INA has faced environmental scandals, including pollution incidents in Sisak and accusations of inadequate environmental management, leading to accusations of greenwashing.
Description	INA, Croatia's largest oil and energy company, has attempted to position itself as an environmentally responsible organization through various marketing efforts. One of the most notable campaigns included billboards displayed across the country with slogans like "Let's protect the environment together" and "Making Croatia Green." These campaigns featured images of pristine nature and wildlife, giving the impression that the company was deeply committed to environmental stewardship. However, this outward portrayal of eco-responsibility starkly contrasts with INA's actual business practices, raising significant concerns about greenwashing. While the company projected an image of environmental concern, it has been involved in numerous incidents that suggest otherwise. One of the most prominent examples is the ecological disaster at the INA refinery in Sisak, where oil spills and improper waste management led to severe environmental damage. This incident not only caused significant pollution but also raised questions about the company's commitment to sustainability and environmental responsibility. The Sisak refinery, along with other

	controversies surrounding the company, has fueled accusations that INA's green marketing claims are largely superficial. In addition to the environmental scandals, INA has been criticized for the lack of transparency in its operations. The company has not provided clear and verifiable data on how it is mitigating its environmental impact, nor has it offered detailed reports on its efforts to reduce emissions or implement cleaner technologies. While the company claims to use sustainable practices, such as promoting recycling and energy efficiency, these claims are often vague and unsupported by concrete evidence or measurable goals. Furthermore, INA's sustainability initiatives appear inconsistent with its core business model, which relies heavily on fossil fuel extraction and refining. This fundamental reliance on non-renewable energy sources directly contradicts the company's public messaging about environmental protection. Although the company highlights certain green initiatives, such as its recycling programs, these efforts seem insufficient when compared to the overall environmental footprint of its operations. INA's marketing campaigns appear to be more focused on creating a favorable public image rather than implementing meaningful environmental practices. The gap between their sustainability claims and actual practices has led to widespread criticism and accusations of greenwashing, as the company continues to engage in activities that significantly contribute to environmental degradation.
SDG(s) under consideration	Relevant SDGs for this case study include **SDG 12: Responsible Consumption and Production and SDG 13: Climate Action**. INA's sustainability claims, particularly their focus on environmental protection, align with these global goals. However, their actual practices, including reliance on fossil fuels and environmental incidents like oil spills, conflict with these targets, highlighting the inconsistency between their marketing and operational activities.

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

INA's environmental claims, while promoting various green initiatives such as the Green Belt project, often lack detailed measurable outcomes. Their claims focus on general sustainability goals, but these are not always backed by specific data or progress reports that can be externally validated. This lack of clarity is a recurring issue in many corporate sustainability claims, and INA's lack of specific goals for carbon reduction or investment shifts toward green energy raises concerns about the transparency of their environmental efforts.

2. Third-Party Certifications

INA's environmental efforts are not significantly supported by recognized third-party certifications. Although they follow some reporting guidelines like the Global Reporting Initiative (GRI), the lack of independent certification raises doubts about the legitimacy of their sustainability claims. INA has ISO 14001:2015 certification, which demonstrates that they meet international standards for environmental management systems. However, even though this certification verifies that they have procedures in place to manage environmental impacts, it does not necessarily reflect their overall environmental performance, especially considering their continued investments in fossil fuels. INA's certifications are valuable, but they are not sufficient to shield the company from criticisms related to greenwashing

3. Alignment with Business Practices

Reports indicate a stark disconnect between INA's sustainability claims and their business practices, as the majority of their capital expenditure is directed toward fossil fuels rather than renewable energy. In 2022, only 7.3% of their investment was allocated to green energy, while 92.7% funded traditional fossil fuel activities. There is a significant misalignment between INA's environmental messaging and their business practices. The company continues to heavily invest in fossil fuels, with over 90% of their investments dedicated to oil and gas, while only a small portion is channeled into green energy initiatives. This disproportionate focus on fossil fuels is a clear indicator that INA's green claims do not align with their core business operations. Many organizations, including Greenpeace, have criticized this imbalance, labeling INA's sustainability efforts as insufficient and largely superficial.

4. Transparency

While INA publishes some environmental and sustainability reports, watchdog organizations like Greenpeace argue that these reports often omit crucial details about the company's environmental impact, making it difficult to assess their true progress. While INA publishes sustainability reports and provides some information on their environmental impact, watchdog organizations have noted that the data is often incomplete or difficult to verify. Their reports do not consistently provide detailed information about the broader impact of their fossil fuel operations. Transparency is a key issue for INA, and their lack of detailed, third-party-verified data on their sustainability efforts weakens the credibility of their environmental claims.

5. Consistency

The inconsistency in INA's approach is evident. While they promote small-scale green projects, their overall business model remains heavily reliant on fossil fuels, further supporting the greenwashing allegations. INA's environmental efforts, such as the Green Belt project, represent isolated initiatives that do not reflect the company's overall approach to sustainability. While promoting green projects, they simultaneously continue major investments in oil and gas extraction, which creates a contradiction between their public sustainability image and their actual business focus. This inconsistency is a common greenwashing tactic where companies highlight small green initiatives while ignoring the broader environmental damage caused by their main activities.

6. Lifecycle Consideration

There is limited evidence to suggest that INA considers the full lifecycle of its fossil fuel products in its sustainability plans. Most of their green efforts appear isolated and do not address the broader environmental impact of their operations. INA does not appear to fully consider the lifecycle of their products when making sustainability claims. Their operations primarily revolve around the extraction and refining of fossil fuels, which have significant environmental impacts at every stage of their lifecycle. Despite having an ISO 14001 certification, the company's broader environmental footprint, including emissions from the use of their products, is not adequately addressed in their sustainability efforts. This lack of comprehensive lifecycle consideration weakens the credibility of their environmental claims.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims: Low

INA's environmental claims, while highlighting projects like the Green Belt, lack concrete, measurable targets. Their sustainability goals remain vague, with few specific commitments regarding emission reductions or renewable energy investments. Without clear metrics or timelines, the company's green initiatives are hard to verify, making it difficult to assess their real impact on the environment.

2. Third-Party Certifications: Medium

INA holds an ISO 14001:2015 certification, which reflects a commitment to managing their environmental impact. However, while this certification verifies that they follow environmental management systems, it does not necessarily mean they are reducing their overall environmental footprint, especially given their continued investment in fossil fuels. Although ISO 14001 is a credible certification, its effectiveness in addressing INA's larger sustainability issues remains questionable.

3. Alignment with Business Practices: Low

Despite promoting sustainability projects, over 90% of INA's investments are directed toward fossil fuel extraction and processing, which is in direct conflict with their sustainability messaging. The small percentage of investments in renewable energy or other green initiatives highlights a significant gap between their claims and their actual business practices.

4. Transparency: Low

While INA publishes sustainability reports, these reports lack sufficient detail and verifiable data on their environmental impact. Watchdog organizations have criticized the company for providing incomplete information, making it difficult for stakeholders to assess the true scope of their sustainability efforts. The lack of clear, accessible, and comprehensive environmental data reflects poorly on INA's transparency.

5. Consistency: Low

INA's sustainability efforts are inconsistent. Although they promote green initiatives, the majority of their resources continue to be allocated to fossil fuel operations. This stark contrast between their public messaging and their business focus undermines their claims of being an environmentally responsible organization.

6. Lifecycle Consideration: Low

INA does not appear to fully account for the lifecycle of its products in its sustainability efforts. Their primary business—fossil fuel extraction—has significant environmental impacts, and INA's initiatives fail to address emissions from the entire product lifecycle, including the use and disposal of their fuels. This omission weakens their overall sustainability strategy.

Average Score: Low

INA scores low across most indicators, with only a moderate score for third-party certifications due to their ISO 14001 certification. However, their lack of transparency, misalignment between business practices and environmental claims, and failure to provide measurable sustainability goals significantly reduce their credibility in terms of authentic sustainability efforts. The company's overall reliance on fossil fuels and insufficient investments in renewable energy make their sustainability efforts largely superficial, supporting accusations of greenwashing.

Croatia Case Study 2: HEP

Misleading Renewable Energy Claims

Summary	Hrvatska elektroprivreda (HEP) is Croatia's national energy provider, responsible for the production, transmission, and distribution of electricity. The company has made strong public commitments to renewable energy, with projects such as the Korlat Wind Power Plant and several solar power installations across Croatia. HEP aims to increase its share of energy from renewable sources by 50% by 2030. Despite these goals, a significant portion of its energy portfolio remains reliant on fossil fuels, including natural gas and coal. HEP's renewable energy claims are often vague, lacking transparency about the proportion of renewable energy in its total output. This has led to concerns about greenwashing, as the company

	markets itself as a green energy leader while still heavily reliant on non-renewable resources.
Description	Hrvatska elektroprivreda (HEP) is Croatia's national electricity provider, founded in 1899, and has since been the dominant player in the country's energy market. HEP is responsible for producing, transmitting, and distributing electricity across Croatia. As part of the European Union's push towards renewable energy, HEP has launched various renewable energy projects, including solar and wind power plants, while also investing in hydropower. HEP's flagship renewable energy project is the Korlat Wind Power Plant, which was commissioned in 2021 with a capacity of 58 MW. Alongside wind power, the company has expanded into solar energy with plants such as Kaštelir 1 and 2 and Vis Solar Power Plant, contributing to HEP's goal of increasing renewable energy production by 50% by 2030. HEP also operates several hydroelectric power plants, which account for a large portion of Croatia's renewable energy. Despite these developments, HEP's overall energy production remains heavily reliant on fossil fuels, particularly natural gas and coal. While HEP has embraced renewable energy projects, its progress has been slower than anticipated. The company's total energy portfolio still includes a significant percentage of non-renewable sources, which undermines its claims of leadership in green energy. Additionally, obtaining permits for renewable energy projects in Croatia has proven to be a challenge, leading to delays in the completion of key projects. Stakeholders involved in HEP's renewable energy initiatives include the Croatian government, the EU, local municipalities, and international investors. Through these partnerships, HEP has been able to secure funding for renewable energy projects, but its heavy reliance on non-renewable sources continues to create a gap between its sustainability goals and actual performance. Despite significant investment in green energy infrastructure, HEP has faced criticism for exaggerating its renewable energy contributions while continuing to operate fossil-fuel-based power plants. Moreover, HEP's reporting on its energy mix lacks transparency, with limited information provided on how much of its total energy comes from renewable sources. The company's marketing heavily emphasizes its

	commitment to renewable energy, but it does not provide a clear breakdown of the actual share of renewables in its total production, leading to accusations of greenwashing. As Croatia seeks to meet EU climate targets, HEP must address these issues to ensure that its renewable energy claims align with its actual energy production.
SDG(s) under consideration	SDG 7: Affordable and Clean Energy SDG 13: Climate Action

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

HEP's renewable energy claims are broad and lack specific data on how much of their total energy comes from renewable sources. This lack of clarity diminishes the trustworthiness of their environmental messaging. HEP's renewable energy claims lack clarity and specificity, often using broad terms such as "green energy" or "renewable sources" without providing concrete data on how much of their total energy production actually comes from these sources. The company promotes several renewable projects like the Korlat Wind Power Plant and solar installations such as Vis Solar Power Plant, yet it does not consistently break down the percentage of renewable energy in its overall production mix. The absence of specific, measurable targets further reduces the transparency of HEP's green energy claims. Clearer communication about the exact share of renewables in their energy portfolio, along with measurable goals for future increases, would significantly enhance the credibility and clarity of their sustainability claims. According to the report on the structure of electricity for 2022 from HEP, the share of energy sources in electricity production is as follows: coal accounts for approximately 23% of the total electricity generation, while natural gas contributes around 42.64%. Additionally, nuclear energy represents about 14% of the overall energy mix.

On the other hand, the share from renewable sources is notable but lower compared to fossil fuels. Renewable energy sources, which include solar, wind, hydro, and biomass, constitute a smaller portion of the energy mix. Specifically, hydroelectric power plays a significant role, with HEP reporting that it generated approximately 2.695 million MWh from its hydroelectric plants, highlighting their contribution to sustainable energy production.

This analysis underscores the ongoing reliance on fossil fuels in Croatia's energy landscape, particularly natural gas, while also indicating a commitment to increasing the share of renewables in the future. The balance between these energy sources is crucial for transitioning to a more sustainable energy system, as emphasized by various reports and regulatory frameworks aimed at promoting renewable energy usage

2. Third-Party Certifications

The company does not have certifications that verify its renewable energy contributions, further weakening its sustainability claims. HEP's green energy claims are not backed by sufficient third-party certifications, which raises concerns about the authenticity of their sustainability initiatives. While the company has made investments in renewable energy infrastructure, there is no independent certification verifying the extent of HEP's contributions to renewable energy. Given the global shift towards transparency in sustainability, third-party validation could provide significant credibility to HEP's green energy efforts. Certifications related to renewable energy contributions, carbon reductions, or lifecycle analysis would be valuable in substantiating their claims.

3. Alignment with Business Practices

Despite investing in renewable energy, HEP's reliance on fossil fuels significantly undermines its green energy claims, leading to a misalignment between its practices and marketing. There is a notable misalignment between HEP's sustainability claims and its actual business practices. Despite the company's investments in renewable energy projects, such as the Korlat Wind Power Plant and various solar plants, HEP continues to rely heavily on fossil fuels, particularly natural gas and coal, for a significant portion of its energy production. This reliance on non-renewable sources contradicts the company's claims of leadership in renewable energy. The gap between HEP's green energy marketing and its continued use of fossil fuels suggests that its sustainability strategy is not fully integrated into its core operations.

4. Transparency

HEP provides limited transparency in its reporting, making it difficult for stakeholders to verify the company's actual renewable energy contributions. This lack of accessible data is a major weakness. HEP's transparency in reporting on its renewable energy contributions is limited. The

company publishes reports and updates on its renewable energy projects but does not provide clear, accessible information on how much of its overall energy production is from renewable versus non-renewable sources. This lack of transparency makes it difficult for consumers and stakeholders to assess HEP's actual progress towards becoming a more sustainable energy provider. A more detailed breakdown of the company's energy mix, including clear data on the contribution of each type of energy source, would greatly improve HEP's transparency.

5. Consistency

The company's claims of leading Croatia's green energy transition are inconsistent with its actual energy portfolio, which still includes a large proportion of non-renewable sources. There is significant inconsistency between HEP's marketing as a leader in renewable energy and its actual operations. While the company actively promotes its renewable projects, its energy portfolio is still dominated by fossil fuels. This inconsistency undermines the company's sustainability claims and raises concerns about greenwashing. To improve consistency, HEP would need to align its messaging with its operational reality, clearly stating both the challenges and successes of its renewable energy transition.

6. Lifecycle Consideration

HEP does not fully address the lifecycle impacts of its energy production, particularly the environmental costs associated with its continued reliance on fossil fuels. While the company has made significant investments in renewable energy, these projects do not yet offset the carbon emissions and environmental damage caused by its fossil fuel-based power plants. A comprehensive lifecycle approach that includes strategies for reducing the environmental impact of its non-renewable energy sources would be necessary to substantiate its claims of leadership in green energy.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims

HEP has made strong claims about its transition to renewable energy, but the details of these claims are often vague. The company frequently uses terms like "green energy" and "renewable sources" without providing specific, measurable data on the proportion of its total energy that comes from these sources. The lack of clarity makes it difficult for consumers to understand how much of HEP's energy is genuinely renewable versus non-renewable. A clearer breakdown of the energy mix, specifying the percentage of renewable energy used, would significantly improve the clarity of HEP's claims.

Evaluation: Low

2. Third-Party Certifications

HEP's claims about renewable energy are not supported by third-party certifications that verify its contributions to green energy. While the company has made investments in renewable projects, such as wind and solar power plants, the absence of certifications from recognized environmental bodies weakens the credibility of its green claims. Securing third-party certifications related to renewable energy usage and sustainability practices would provide greater validation for HEP's claims and enhance consumer trust.

Evaluation: Low

3. Alignment with Business Practices:

HEP's business practices still heavily rely on non-renewable energy sources, such as natural gas and coal, which contradict the company's claims of leading Croatia's green energy transition. While HEP has launched significant renewable energy projects, the proportion of energy derived from fossil fuels remains substantial. This misalignment between the company's practices and its marketing reduces the effectiveness and credibility of its sustainability efforts.

Evaluation: Low

4. Transparency:

HEP has been criticized for a lack of transparency in its reporting on renewable energy. While the company frequently promotes its renewable projects, such as the Korlat Wind Power Plant and various solar installations, it does not provide a clear breakdown of how much of its total energy comes from renewable sources. This lack of detailed, accessible information on the energy mix makes it difficult for consumers and stakeholders to evaluate the company's actual contributions to sustainability.

Evaluation: Low

5. Consistency:

There is a significant inconsistency between HEP's claims of leadership in renewable energy and its continued reliance on fossil fuels. While the company markets itself as a key player in the renewable energy sector, its overall energy mix suggests that non-renewable sources still dominate. This inconsistency undermines the company's green energy messaging and raises concerns about potential greenwashing.

Evaluation: Low

6. Lifecycle Consideration:

HEP's approach to sustainability does not fully consider the lifecycle impacts of its energy production. The company's renewable energy projects are a positive step, but they are offset by the continued operation of fossil fuel-based power plants. A full lifecycle approach would require HEP to address the environmental impact of its entire energy portfolio, including emissions from non-renewable sources

Evaluation: Low

Overall Score: Low

HEP's sustainability claims are undermined by a lack of clarity, third-party certifications, and consistency between its marketing and actual business practices. The company's heavy reliance on fossil fuels contradicts its claims of being a leader in renewable energy, and the absence of transparency and a full lifecycle approach further weakens the authenticity of its green energy

initiatives. As a result, HEP's efforts to position itself as a sustainable energy provider fall short, earning low evaluations across multiple sustainability indicators.

3.3.2. Germany Case Studies

Germany Case Study 1: Volkswagen (Post-Dieselgate)

Volkswagen Green Claims Post-Dieselgate

Summary	Volkswagen, after the Dieselgate scandal, has publicly committed to becoming a leader in electric mobility and carbon neutrality by 2050. The company has introduced its ID series of electric vehicles, claiming to significantly reduce carbon emissions and transition towards greener production. However, Volkswagen still produces internal combustion engine vehicles and has faced criticism for its slow progress in fully committing to sustainable practices. While the company promotes its shift to electric vehicles, concerns about its overall environmental transparency and continued reliance on fossil fuel-related practices persist. Volkswagen aims to balance profitability with environmental responsibility, but inconsistencies in its green claims raise questions about the authenticity of its long-term sustainability goals.
Description	Volkswagen, a global automotive giant, faced a major public relations crisis in 2015 when it was discovered that the company had installed defeat devices in millions of its diesel vehicles to cheat emissions tests. The "Dieselgate" scandal had severe financial and reputational repercussions for Volkswagen, leading to billions in fines and settlements. In response, Volkswagen announced a bold shift in strategy, positioning itself as a leader in electric mobility with plans to reduce its carbon footprint and become carbon neutral by 2050. To achieve these goals, Volkswagen launched its "ID" series of electric vehicles, including models like the ID.3 and ID.4, aimed at making electric mobility more accessible to consumers. The company pledged to electrify

	over 50% of its vehicle lineup by 2030 and invested heavily in research and development for electric and autonomous driving technologies. Volkswagen also invested in charging infrastructure across Europe and partnered with energy companies to ensure that renewable energy would power electric vehicles. However, critics argue that Volkswagen's green efforts are undermined by its continued production of traditional internal combustion engine (ICE) vehicles. While electric vehicles are a central part of Volkswagen's strategy, they only represent a portion of the company's total output. Furthermore, the environmental cost of producing electric vehicles, particularly the extraction of raw materials for batteries, raises concerns about the overall sustainability of Volkswagen's green claims. Another issue is Volkswagen's supply chain. Despite efforts to decarbonize its production processes, the company remains reliant on fossil fuels, and many of its suppliers do not meet stringent environmental standards. Stakeholders, including environmental groups, have accused Volkswagen of greenwashing—promoting its electric vehicle initiatives while continuing to operate in ways that are inconsistent with its public sustainability goals. Volkswagen's strategy includes partnerships with governments and institutions to promote electric mobility, and the company has participated in several global sustainability forums. Yet, the company's ongoing production of high-emission vehicles and its role in global pollution raise significant questions about the authenticity of its environmental commitments. The company's progress is noteworthy, but its dual approach to sustainability—balancing electric vehicle production with traditional manufacturing—has left many skeptical of its long-term environmental impact.
SDG(s) under consideration	SDG 13: Climate Action SDG 9: Industry, Innovation, and Infrastructure

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

The company's claims about achieving carbon neutrality are measurable, but there is a lack of clarity regarding specific milestones. The focus is mainly on electric vehicles, but there's less information on how they plan to reduce the overall carbon footprint of manufacturing.

Volkswagen has made clear and public claims about its transition to electric mobility and carbon neutrality by 2050. The company has committed to electrifying 50% of its vehicle lineup by 2030, with a significant investment in electric vehicle infrastructure and battery production. However, while Volkswagen's overall goals are measurable, many of the intermediate targets are vague. The company has not provided a detailed timeline for the reduction of internal combustion engine production and how it will address the environmental impact of the materials used in its electric vehicles, particularly batteries. While there are measurable outcomes associated with the electric vehicle strategy, the broader sustainability claims lack specificity.

2. Third-Party Certifications

Volkswagen references certain certifications related to carbon reduction, but the absence of detailed reports raises questions about their credibility.

Volkswagen participates in several certification programs, including ISO 14001 for environmental management. The company has also worked with external auditors to ensure that its sustainability reports meet recognized global standards. However, many of the company's certifications focus on individual aspects of production, such as emissions reductions in certain plants, rather than providing a comprehensive certification for the entire production process. Additionally, Volkswagen has not yet received any major third-party certifications specifically for its electric vehicles or its broader sustainability claims. The presence of third-party verification is a positive sign, but the lack of holistic certifications limits the credibility of some claims.

3. Alignment with Business Practices

There is some alignment between sustainability claims and business operations, but the company's continued reliance on fossil fuels creates inconsistencies.

Volkswagen's sustainability claims are partially aligned with its business practices. On one hand, the company is investing heavily in electric vehicles and promoting itself as a leader in green mobility. On the other hand, Volkswagen continues to manufacture and sell traditional internal combustion engine vehicles at a significant scale. This dual approach creates inconsistencies between the company's green marketing and its actual environmental impact. Furthermore, the environmental cost of producing electric vehicles, especially the extraction of materials for batteries, has not been fully addressed by Volkswagen. While there is alignment in the electric vehicle segment, the company's overall practices still reflect a reliance on fossil fuel technology.

4. Transparency

Volkswagen provides periodic updates on its progress, but some reports lack sufficient detail, making it hard for stakeholders to fully understand the environmental impact.

Volkswagen provides regular updates on its sustainability initiatives, including detailed reports on its progress towards electric mobility and carbon neutrality. These reports include emissions data and goals for future reductions, which are available to the public. However, some aspects of Volkswagen's sustainability efforts, such as the environmental impact of its supply chain, are less transparent. The company has faced criticism for not providing enough detail on how it will manage the environmental impact of electric vehicle production and the disposal of batteries. While Volkswagen is relatively transparent about its emissions reductions, the lack of comprehensive reporting on other sustainability aspects raises questions about its overall transparency.

5. Consistency

Efforts appear inconsistent. While promoting EVs, the company continues activities that contribute significantly to carbon emissions.

Volkswagen's sustainability efforts are inconsistent across different segments of its business. The company has made significant progress in the electric vehicle space, with clear goals and measurable outcomes. However, it continues to produce high-emission vehicles, and its supply chain relies on practices that are not always aligned with its sustainability claims. This inconsistency undermines Volkswagen's overall green strategy, as the company's green efforts

are largely concentrated in its electric vehicle division, while other parts of its business continue to contribute to environmental degradation.

6. Lifecycle Consideration

Partial consideration—there is a focus on EVs and recycling, but broader lifecycle concerns are not fully addressed.

Volkswagen's electric vehicle strategy includes consideration for the full lifecycle of its products, from production to disposal. The company has invested in battery recycling technology and aims to reduce the environmental impact of its electric vehicles over their entire lifespan. However, the extraction of raw materials for batteries and the disposal of electric vehicles remain significant environmental challenges that Volkswagen has not fully addressed. While the company has made strides in considering the lifecycle of its electric vehicles, its broader product lineup, including traditional vehicles, does not reflect the same level of lifecycle sustainability.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims: Medium

Volkswagen's claims about its electric vehicle transition and carbon neutrality are specific and measurable. However, there are gaps in detail regarding how the company plans to achieve these targets, particularly around the reduction of traditional vehicle production and the environmental impact of EV batteries. The overall clarity of the company's green messaging is decent but lacks the specificity needed to fully convince stakeholders.

2. Third-Party Certifications: Medium

While Volkswagen has some third-party certifications, these are mostly focused on individual aspects of production, such as ISO certifications for environmental management. The company lacks comprehensive certifications that validate the sustainability of its electric vehicle production or its broader sustainability claims, leading to a medium score.

3. Alignment with Business Practices: Medium

Volkswagen's electric vehicle investments are substantial, but the company continues to manufacture traditional combustion engine vehicles. This creates an inconsistency between its green marketing and business operations. While Volkswagen's electric vehicle strategy aligns with its sustainability claims, the continued reliance on fossil fuels and ICE vehicles limits the alignment of its overall practices.

4. Transparency: Medium

Volkswagen is relatively transparent about its sustainability initiatives, providing emissions data and regular updates. However, the lack of detailed information about the environmental impact of its supply chain and electric vehicle production prevents the company from scoring higher. There is transparency in emissions reporting, but gaps in broader reporting about sustainability efforts.

5. Consistency: Medium

Volkswagen's sustainability efforts are somewhat inconsistent. While the company is committed to electrification, it still produces high-emission vehicles and hasn't fully addressed the environmental impact of its broader operations. The company's green efforts are mainly concentrated in its electric vehicle division, leading to a medium score for consistency.

6. Lifecycle Consideration: Medium

Volkswagen's electric vehicle strategy includes lifecycle considerations, such as battery recycling, but there are concerns about the environmental impact of raw material extraction for batteries. While the company is taking steps to consider the full lifecycle of its EVs, its traditional vehicle production does not reflect the same level of sustainability, resulting in a medium score.

Total Score: Medium

Volkswagen's overall sustainability efforts are commendable in the electric vehicle segment, but inconsistencies in other areas of its business, such as traditional vehicle production and lack of comprehensive third-party certifications, lead to a medium score for the organization's authenticity in sustainability.

Germany Case Study 2: H&M (Fashion Industry)

H&M's Conscious Collection Greenwashing

Summary	H&M's "Conscious Collection" is marketed as an eco-friendly clothing line aimed at promoting sustainability in the fashion industry. The company claims to use sustainable materials such as organic cotton and recycled polyester in this collection. However, critics argue that H&M's fast fashion model, which promotes overconsumption and mass production, contradicts its green marketing claims. Investigations have shown that only a small percentage of the collection's materials are actually sustainable, and many of the environmental claims lack transparency and clarity. Despite its sustainability messaging, H&M's overall business practices continue to contribute to the environmental harm caused by fast fashion, leading to accusations of greenwashing.
Description	H&M, one of the largest fast fashion retailers in the world, has been at the forefront of sustainability marketing within the fashion industry. The company launched its "Conscious Collection" in 2010, claiming to offer more sustainable clothing options made from eco-friendly materials like organic cotton, recycled polyester, and Tencel. The goal of the Conscious Collection was to respond to growing consumer demand for environmentally responsible products, as concerns about the environmental impact of fast fashion—such as waste, overproduction, and pollution—grew. Despite the initial praise for this initiative, several investigations and reports have revealed that the Conscious Collection's sustainability claims are largely superficial. A study by the Changing Markets Foundation found that the materials used in the Conscious Collection were not as sustainable as advertised, with only a small percentage of the garments truly meeting sustainability criteria. Furthermore, H&M's business model, which relies on mass production and quick turnover of low-cost clothing, directly contradicts the principles of sustainability. The company has been accused of producing far more clothing than the market demands, contributing to overconsumption and textile waste.

	H&M has implemented several initiatives aimed at reducing its environmental impact, such as garment recycling programs and commitments to use 100% recycled or sustainably sourced materials by 2030. The company has also published sustainability reports outlining its goals to reduce carbon emissions and water usage in its supply chain. However, critics argue that these initiatives are not enough to offset the massive environmental footprint of fast fashion, and that H&M's marketing of the Conscious Collection constitutes greenwashing—using sustainability as a marketing tool without making meaningful changes to its core business practices. Stakeholders, including environmental activists and consumer rights organizations, have called for greater transparency from H&M regarding the true environmental impact of its operations. While the company has taken steps to improve sustainability, its reliance on overproduction and low-cost labor remains a significant barrier to achieving genuine environmental progress. H&M's green marketing efforts highlight the tension between its commitment to sustainability and the realities of its fast fashion business model, raising concerns about the authenticity of its sustainability initiatives.
SDG(s) under consideration	SDG 12: Responsible Consumption and Production SDG 8: Decent Work and Economic Growth

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

The sustainability claims for the Conscious Collection lack precision, with vague descriptions such as "better for the environment" and minimal quantifiable goals.

H&M's claims about its Conscious Collection are vague, with general statements about the use of "sustainable" materials like organic cotton and recycled polyester. While the company highlights its goal to use 100% recycled or sustainably sourced materials by 2030, it provides little concrete evidence or measurable outcomes related to how these goals will be achieved. The Conscious Collection's marketing uses terms like "better for the environment" without specifying how the collection actually reduces environmental impact compared to other products. This lack of

specificity in H&M's sustainability claims contributes to confusion about the real benefits of its products.

2. Third-Party Certifications

Limited certifications are present, and they are not applied consistently across the full range of products.

H&M uses a few third-party certifications to validate its sustainability claims, such as the Global Organic Textile Standard (GOTS) for some of its organic cotton products. However, these certifications are not consistently applied across all of the Conscious Collection's items. Furthermore, there have been reports that some of the materials used in the collection do not meet the high sustainability standards that H&M claims. The company has not obtained comprehensive certifications that cover the entire lifecycle of its products, limiting the effectiveness of its third-party validation efforts.

3. Alignment with Business Practices

The fast fashion model contradicts sustainability claims, as overproduction and waste generation are fundamental issues that remain unaddressed.

H&M's fast fashion business model is fundamentally misaligned with its sustainability claims. The company produces large volumes of low-cost clothing, encouraging overconsumption and contributing to textile waste. While H&M markets the Conscious Collection as a sustainable option, its overall business practices contradict the principles of sustainability. The rapid production cycle and the emphasis on cheap, disposable fashion create significant environmental and social costs that H&M's sustainability initiatives do little to address. The misalignment between the company's business model and its green claims is a major weakness in its sustainability strategy.

4. Transparency

There is some transparency about material sourcing, but overall information on sustainability efforts is minimal.

H&M publishes annual sustainability reports outlining its environmental goals and progress. These reports include data on material sourcing and emissions reductions. However, critics argue

that the company is not fully transparent about the environmental impact of its fast fashion model, particularly regarding the waste generated by overproduction. The Conscious Collection, while promoted as sustainable, lacks detailed information on the environmental footprint of its materials and production processes. H&M's transparency efforts are focused more on marketing than providing clear, comprehensive data on the real impact of its sustainability efforts.

5. Consistency

Efforts are inconsistent—while promoting the Conscious Collection, the company continues practices that contribute to environmental degradation

H&M's sustainability efforts are inconsistent across its product lines. The Conscious Collection is marketed as a sustainable option, but it represents only a small portion of the company's total output. The vast majority of H&M's products are produced using traditional, environmentally harmful practices. Additionally, the company's reliance on low-cost labor in developing countries raises ethical concerns about the social sustainability of its operations. H&M's sustainability efforts appear to be concentrated in its marketing rather than in meaningful changes to its overall business practices.

6. Lifecycle Considerations

Little consideration for the full lifecycle of products is given, especially regarding the waste generated by fast fashion.

H&M's Conscious Collection does not fully consider the lifecycle of its products. While the company promotes the use of recycled materials, it has not addressed the environmental impact of its products after they leave the store. The fast fashion model encourages consumers to buy and dispose of clothing quickly, contributing to landfill waste. H&M has introduced recycling programs, but these initiatives do little to offset the overall environmental impact of its business model. The company's focus on the use of recycled materials in the Conscious Collection is not enough to address the broader lifecycle concerns of its products.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims: Low

H&M's sustainability claims, particularly regarding its Conscious Collection, are vague and lack specific, measurable goals. The company uses general terms like "sustainable" without clearly defining how its products are environmentally better than traditional fast fashion items. The lack of clarity in H&M's green messaging results in a low score.

2. Third-Party Certifications: Low

While H&M uses some certifications, such as the Global Organic Textile Standard (GOTS) for certain products, these certifications are inconsistently applied and do not cover the entire Conscious Collection. Furthermore, many of the materials used in the collection do not meet the high sustainability standards claimed. This lack of widespread, consistent certification leads to a low score.

3. Alignment with Business Practices: Low

H&M's fast fashion business model, which relies on overproduction and low-cost labor, is fundamentally misaligned with sustainability. The company's promotion of the Conscious Collection does little to offset the environmental impact of its overall operations. This misalignment between business practices and green claims results in a low score.

4. Transparency: Low

Although H&M publishes annual sustainability reports, there is limited transparency about the true environmental impact of its fast fashion model. The company's Conscious Collection lacks detailed information about the environmental footprint of its materials and production processes, resulting in a low score for transparency.

5. Consistency: Low

H&M's sustainability efforts are highly inconsistent. While the Conscious Collection is marketed as a green option, it represents only a small portion of the company's total output, and the

majority of its products are produced using traditional, environmentally harmful methods. This inconsistency leads to a low score for the company's overall sustainability efforts.

6. Lifecycle Consideration: Low

H&M has introduced recycling programs, but these initiatives do little to address the broader environmental impact of its fast fashion model. The company's focus on using recycled materials in the Conscious Collection does not fully consider the lifecycle of its products, particularly in terms of waste generation and disposal. This limited consideration results in a low score.

Total Score: Low

H&M's sustainability efforts are largely superficial, with vague claims, inconsistent certifications, and a fast fashion business model that contradicts genuine sustainability principles. As a result, the company receives a low score for the authenticity of its sustainability efforts.

Germany Case Study 3: RWE (Energy Sector)

RWE and Its Transition to Renewable Energy

Summary	RWE is one of Germany's largest energy companies, which has promoted itself as transitioning to renewable energy, investing in wind and solar projects. Despite these efforts, RWE continues to rely heavily on coal-fired power plants, making it one of Europe's largest carbon emitters. While the company has committed to phasing out coal by the late 2030s, its sustainability claims are criticized for not fully aligning with its ongoing reliance on fossil fuels. The dual approach of promoting renewable energy while continuing significant coal operations has led to accusations of greenwashing. RWE's green claims focus heavily on future commitments rather than current, substantial shifts towards sustainability.
Description	RWE, one of the largest energy companies in Germany, has a long history in the coal industry, making it a major player in Europe's energy sector. However, as environmental concerns about fossil fuels have grown, RWE has shifted its focus towards renewable energy sources such as wind, solar, and hydroelectric power. The company has pledged to phase out coal by 2038 and to significantly reduce

	its carbon emissions as part of Germany's national effort to transition to cleaner energy sources. RWE's renewable energy initiatives include investments in wind farms across Europe, solar power plants, and research into new energy storage technologies. The company has also taken steps to decarbonize its operations by reducing emissions from its existing coal plants and working on carbon capture technologies. Additionally, RWE has partnered with governments and environmental organizations to promote the use of renewable energy in industrial and residential sectors. Despite these efforts, RWE remains one of Europe's largest carbon emitters, due to its ongoing reliance on coal. Critics argue that the company's continued operation of coal-fired power plants undermines its green credentials. While RWE has made progress in transitioning to renewables, its reliance on coal to generate electricity has slowed the company's shift towards sustainable energy. Environmental groups have accused RWE of greenwashing—claiming to be an environmentally responsible company while continuing to contribute to significant carbon emissions. RWE has faced considerable public pressure to accelerate its coal phase-out, particularly as Germany aims to meet its climate targets under the Paris Agreement. Stakeholders, including environmental activists and local communities affected by coal mining, have called on the company to take more decisive action to reduce its environmental impact. While RWE has invested heavily in renewable energy, its ongoing coal operations raise questions about the authenticity of its sustainability commitments and whether the company is moving fast enough to meet global climate goals.
SDG(s) under consideration	SDG 7: Affordable and Clean Energy SDG 13: Climate Action

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

RWE's claims about renewable energy investments are clear, but they lack concrete timelines for phasing out coal.

RWE has made clear public statements about its commitment to renewable energy, including plans to phase out coal by 2038 and invest heavily in wind, solar, and hydroelectric power. The company's sustainability goals are ambitious and measurable, with specific targets for emissions reductions and renewable energy capacity. However, there are concerns about the long timeframe for phasing out coal and whether RWE will meet its interim targets. While the company's renewable energy claims are clear, its ongoing reliance on coal raises questions about how quickly it will transition to a more sustainable energy model.

2. Third-Party Certifications

Certifications related to renewable energy projects are used, but they do not apply to coal activities.

RWE has received certifications for its renewable energy projects, particularly in the wind and solar sectors. These certifications, such as those from the Renewable Energy Guarantees of Origin (REGO), validate RWE's investments in clean energy. However, the company has not received comprehensive sustainability certifications for its overall operations, particularly regarding its coal activities. While RWE's renewable energy projects are certified, its continued reliance on fossil fuels limits the effectiveness of these certifications in validating its broader sustainability claims.

3. Alignment with Business Practices

Significant misalignment exists between renewable energy investments and the continued reliance on coal.

RWE's business practices are only partially aligned with its sustainability claims. The company has made significant investments in renewable energy, but it continues to operate coal-fired power plants, which are among the largest carbon emitters in Europe. This dual approach—investing in renewables while maintaining a reliance on coal—creates a significant misalignment between RWE's green marketing and its actual environmental impact. While the company is making

progress in transitioning to renewable energy, its ongoing coal operations undermine its overall sustainability efforts.

4. Transparency

RWE provides regular updates on its renewable projects but downplays the ongoing use of coal.

RWE provides detailed reports on its renewable energy projects and emissions reductions, which are publicly available. The company regularly updates stakeholders on its progress towards phasing out coal and increasing its renewable energy capacity. However, there is less transparency regarding the environmental and social impacts of its coal operations. While RWE is transparent about its renewable energy efforts, the lack of comprehensive reporting on its fossil fuel activities raises concerns about the company's overall.

5. Consistency

Sustainability efforts are inconsistent across their activities, with a notable gap between green projects and coal operations.

RWE's sustainability efforts are highly inconsistent. While the company is heavily investing in renewable energy sources such as wind, solar, and hydropower, it simultaneously continues to rely on coal-fired power plants, which are some of the largest carbon emitters in Europe. This dual approach—investing in green energy while still relying on fossil fuels—creates significant inconsistencies in RWE's overall sustainability strategy. Critics argue that RWE's commitment to reducing carbon emissions is undermined by its slow pace in phasing out coal, leading to questions about how consistent the company's green claims are with its actual business practices.

6. Lifecycle Consideration

Partial consideration—renewable energy projects focus on sustainability, but coal activities remain environmentally damaging.

RWE's renewable energy projects demonstrate significant consideration for the lifecycle of their technologies, including wind turbines and solar panels, where sustainability is addressed from construction to decommissioning. However, RWE's coal operations have not fully addressed the lifecycle environmental impacts associated with fossil fuel extraction, energy production, and waste disposal, such as coal ash. While the company's renewable energy efforts take lifecycle

sustainability into account, its ongoing coal activities represent a major gap in lifecycle consideration.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims: Medium

RWE's claims about its transition to renewable energy are clear, with measurable goals such as phasing out coal by 2038 and increasing renewable energy capacity. However, the long timeframe for achieving these goals and the ongoing reliance on coal raises concerns about the pace of the transition. The company's renewable energy claims are clear, but the continued use of coal impacts the clarity of its overall sustainability message, leading to a medium score.

2. Third-Party Certifications: Medium

RWE has received certifications for its renewable energy projects, particularly in the wind and solar sectors. However, the company lacks comprehensive certifications that cover its overall operations, particularly in relation to its coal activities. The certifications for renewable projects are positive, but the absence of broader certification limits the score.

3. Alignment with Business Practices: Low

RWE's business practices are misaligned with its sustainability claims, as the company continues to operate coal-fired power plants while promoting its renewable energy investments. This dual approach creates a significant gap between its green marketing and its environmental impact. The ongoing reliance on coal results in a low score for alignment.

4. Transparency: Medium

RWE is transparent about its renewable energy projects, regularly reporting on progress and emissions reductions. However, there is less transparency about the environmental and social impacts of its coal operations. While the company is open about its renewable energy efforts, the lack of comprehensive reporting on fossil fuel activities limits the transparency score.

5. Consistency: Low

RWE's sustainability efforts are inconsistent, with significant investments in renewables counterbalanced by its continued reliance on coal. The company's dual approach undermines the consistency of its sustainability strategy, resulting in a low score for consistency.

6. Lifecycle Consideration: Medium

RWE's renewable energy projects include consideration for the lifecycle of their products, but the company's coal operations raise significant lifecycle concerns. While RWE is working to decarbonize its operations, the environmental impact of its coal plants has not been fully addressed. The lifecycle considerations for renewable projects are positive, but the ongoing use of coal limits the score.

Total Score: Medium

RWE's investment in renewable energy is significant, but its continued reliance on coal undermines the overall authenticity of its sustainability efforts. The company receives a medium score for its efforts, with notable achievements in renewables but significant challenges in phasing out fossil fuels.

3.3.3. Italy Case Studies

Regarding the Italy Case Studies, data collection was based on direct conversations and information gathered from the cases themselves, therefore, no additional bibliography was used for this specific 3.3.3. Case Studies section. The Case Studies are presented next.

Italy Case Study 1 - Centro Ricerche e Studi dei Laghi (CRSL)

Summary	CRSL (Centro Ricerche e Studi dei Laghi) is an academic spin-off and Technology Transfer Center registered with Italy's National Research Registry. Its mission centers on advancing research and innovation, supporting the Transition 5.0 plan, which prioritizes digital transformation and energy savings for Italian companies. CRSL offers consulting in ESG compliance, energy efficiency, and certification of research and development (R&D), innovation, and design. Additionally, it facilitates access to grants,

	especially under the National Recovery and Resilience Plan (PNRR), promoting sustainability through initiatives in energy management, ecological transition, and digitalization. Through a comprehensive approach combining technological innovation, ESG audits, and expert training, CRSL aims to support businesses in adopting sustainable practices while enhancing competitiveness and compliance with European standards. Their work spans collaborations with universities, public and private partners, and participation in large-scale European projects.
Description	**- Support for Transition 5.0**: CRSL plays a key role in the Italian Transition 5.0 plan, which advances the digital transformation of industries while promoting energy savings. CRSL facilitates access to Transition 5.0, supporting clients from the initial project phase through technical certifications required to verify energy savings. **- ESG Audits and Sustainability Consulting**: CRSL aids companies in meeting ESG requirements, essential for assessing sustainability performance. Through a comprehensive audit process, they help businesses align with global ESG standards, emphasizing transparency, risk management, and sustainable growth. The ESG audit includes a step-by-step approach that evaluates practices, adherence to standards, and identifies opportunities for improvement. **- Energy Services**, CRSL helps businesses adopt renewable energy solutions, such as photovoltaic systems, through access to incentives. CRSL assists clients in navigating regulatory requirements for energy efficiency, helping them qualify for favorable credits based on documented energy savings.
SDG(s) under consideration	SDG 3: Good Health and Well-being SDG 4: Quality Education SDG 8: Decent Work and Economic Growth SDG 9: Industry, Innovation, and Infrastructure SDG 12: Responsible Consumption and Production SDG 13: Climate Action SDG 17: Partnerships for the Goals

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

CRSL, inspired by the values of Corporate Social Responsibility (CSR), EU policies on CSR and sustainability, and the United Nations Sustainable Development Goals, adopts a series of CSR policies: work-life balance measures, income support initiatives, support for continuous training, health and welfare measures, and actions promoting equal opportunities and non-discrimination. In its activities related to Research, Innovation, and Technology Transfer 4.0, CRSL is committed to periodically updating its CSR standards and progressively expanding the range of concrete actions in this area. However, this is not measurable.

2. Third-Party Certifications

In the case of CRSL, third-party eco-certifications are not currently in use. Despite CRSL's alignment with sustainability principles through its services, such as energy audits and ESG consulting, the absence of formal certifications like ISO 14001 limits the verifiability of its environmental claims. While CRSL focuses on initiatives that promote energy efficiency and support the Transition 5.0 plan, integrating recognized eco-certifications into its operations would enhance its credibility and demonstrate a more robust commitment to sustainability. Furthermore, it would provide measurable benchmarks for evaluating the environmental impact of its activities, strengthening trust among clients and stakeholders. This lack of certification also affects the organization's ability to provide concrete evidence of compliance with established environmental standards.

3. Alignment with Business Practices

CRSL's sustainability claims are well-aligned with its overall behavior and outputs, reflecting a cohesive integration of environmental responsibility into its operations. The organization demonstrates this alignment through various measures, including its commitment to dematerialized administration, which reduces reliance on physical documents by leveraging digital alternatives, minimizing paper waste and contributing to resource conservation. CRSL has also implemented energy-efficient office practices, including the maximization of climate efficiency in its premises, which supports its efforts to reduce energy consumption and lower its carbon footprint. CRSL's alignment with sustainability claims is also evident in its support for the

Transition 5.0 plan, which prioritizes digital transformation and energy savings. Through its services, CRSL actively assists businesses in adopting renewable energy solutions, improving energy efficiency, and achieving compliance with Environmental, Social, and Governance (ESG) standards. This alignment is further strengthened by the development of environmentally neutral digital products, such as the InnoPeople app and the Gate5.0 app, which facilitate ESG performance monitoring. By embedding sustainability into the lifecycle of its digital tools and operational strategies, CRSL demonstrates a consistent and measurable commitment to its stated environmental goals. While there is room for improvement in areas such as third-party certification and quantifiable impact reporting, CRSL's operational practices are largely consistent with its sustainability claims, reinforcing its credibility as a responsible and environmentally conscious organization.

4. Transparency

CRSL operates primarily as a consultancy organization, which inherently has a relatively low direct environmental impact compared to industries involving manufacturing or resource extraction. Nevertheless, transparency in providing detailed and verifiable information regarding environmental impact is a critical component of establishing trust and credibility in sustainability claims. While CRSL emphasizes sustainability in its operations and services, the availability of publicly accessible, detailed reports quantifying its environmental performance is currently limited. Although CRSL's consultancy nature results in low environmental impact, the lack of detailed, quantifiable, and publicly verifiable information on its sustainability practices and their outcomes highlights an area for improvement. Greater transparency through regular publication of environmental performance data, adherence to recognized reporting standards, and stakeholder engagement would significantly bolster its standing as a leader in sustainable business practices.

5. Consistency

CRSL demonstrates consistent sustainability efforts across all activities, reflecting a unified approach to environmental responsibility. Its operations rely on dematerialized administration, reducing paper use through digital alternatives, and maximizing the climate efficiency of its office premises to lower energy consumption. The organization minimizes travel through smart working policies, significantly reducing its carbon footprint, and prioritizes recycling and waste

management to ensure responsible resource use. These internal practices align with CRSL's external services, such as developing environmentally neutral digital tools like the InnoPeople and Gate5.0 apps, which support ESG performance monitoring. By integrating sustainability principles into both its operations and offerings, CRSL exemplifies a coherent commitment to environmental responsibility, reinforcing the credibility of its sustainability claims and serving as a model for sustainable practices in consultancy.

6. Lifecycle Consideration

CRSL has developed digital products that demonstrate an awareness of lifecycle considerations, particularly in their potential for environmental neutrality. The InnoPeople app, for instance, is designed to function with minimal environmental impact, aligning with the organization's commitment to sustainability. Gate5.0 app serves as a tool for both CRSL's team and its clients to monitor ESG performance, facilitating transparency and accountability in sustainability practices. These products exemplify how CRSL integrates environmental responsibility into the digital tools it creates and promotes. While these tools are environmentally neutral in their operational use, there is limited evidence to suggest that a comprehensive lifecycle evaluation has been conducted for these products. Currently, the organization's digital tools reflect significant progress toward environmentally responsible innovation; however, a more detailed and systematic evaluation of their lifecycle impacts would reinforce CRSL's role as a leader in sustainable consultancy practices.

Italy Case Study 2 - Silaq

Summary	Silaq, established in 1986, specializes in consultancy, occupational health surveillance, and training in workplace safety, environmental management, and quality assurance. With over 35 years of experience, the company offers services tailored to clients' specific needs, including safety on construction sites, environmental services, and quality certifications. Silaq's mission is to foster a comprehensive safety culture by providing personalized solutions and leveraging advanced technologies. Their commitment to sustainability is evident in their focus on environmental services and the promotion of safe, healthy work environments. Operating through 18 branches across Italy and Switzerland, Silaq serves over 16,000 active clients, delivering more than

	19,000 technical consultancy services and training approximately 16,000 workers annually.
Description	Silaq's services are extensive and tailored to meet specific industry needs, covering three primary areas: **- Workplace Safety and Occupational Health Surveillance**: Silaq prioritizes creating safe workplaces by helping companies align with Italian and European Union regulations. This includes implementing training programs on occupational health, assessing worksite risks, developing safety protocols, and monitoring health standards. **- Environmental Management**: Emphasizing a green approach, Silaq supports companies in environmental sustainability by managing waste, controlling emissions, and implementing sustainable resource usage. They also assist clients in achieving environmental certifications like ISO 14001, essential for businesses committed to sustainability standards. - **Quality Assurance and Certification**: Silaq provides consultancy to help businesses achieve certifications such as ISO 9001 for quality management. They guide companies through procedural assessments, management system improvements, and compliance checks, which ensures that quality and sustainability are embedded in all operations. **- Sustainability Integration**: Silaq's approach to sustainability is rooted in education and practice. The organization integrates sustainability into its operations by developing training programs that teach clients about eco-friendly practices and sustainable resource management. Silaq's environmental services directly address sustainability, aiming to minimize the ecological impact of business activities through waste reduction, energy efficiency, and pollution control. This sustainable framework promotes a circular economy approach, particularly in construction and heavy industries where waste generation is significant. - **Training and Education as a Catalyst for Sustainability**: Silaq's training initiatives form a significant part of their impact, offering over 19,000 technical consultancies annually and training approximately 16,000 workers.

	These programs are designed to shift company cultures toward sustainability by educating employees on the importance of environmental stewardship and workplace safety. Through certifications, environmental consultancy, and occupational health standards, Silaq reinforces the importance of sustainable work practices at every organizational level. - **Commitment to Long-term Sustainability Goals**: Silaq's strategic vision includes continuously advancing sustainability within their operations and clients' practices. By emphasizing safety, quality, and eco-conscious management, Silaq helps build resilient, sustainable organizations capable of adapting to future environmental and regulatory challenges. Their commitment is evident in their investment in advanced technologies and development of in-depth safety protocols, ensuring a lasting positive impact on the environments in which they operate.
SDG(s) under consideration	SDG 3: Good Health and Well-being SDG 4: Quality Education SDG 8: Decent Work and Economic Growth SDG 9: Industry, Innovation, and Infrastructure SDG 12: Responsible Consumption and Production SDG 13: Climate Action SDG 17: Partnerships for the Goals

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

Silaq's environmental claims are present across its operations, particularly in its environmental management services and consultancy offerings. The organization emphasizes sustainability through waste management, emission control, and promoting sustainable resource usage. However, while these claims reflect a clear commitment to environmental responsibility, they are primarily qualitative rather than quantitative. For instance, Silaq provides services to help clients achieve environmental certifications like ISO 14001 and supports sustainable practices in industries with significant waste generation, such as construction. Yet, it does not specify

measurable targets or provide detailed metrics for its environmental claims. The lack of specific, quantifiable goals—such as defined reductions in waste, energy consumption, or carbon emissions—makes it challenging to evaluate the effectiveness or scale of its sustainability efforts. For example, Silaq's initiatives to reduce ecological impact through waste reduction and energy efficiency are noteworthy but would benefit from detailed benchmarks or percentages to illustrate the achieved or targeted environmental outcomes. While Silaq's environmental claims are clear in intent and aligned with its operational focus, they remain too broad and lack the specificity and measurability required to evaluate their success fully.

2. Third-Party Certifications

Silaq is involved in supporting clients to achieve various third-party environmental certifications, such as ISO 14001, which is a globally recognized standard for environmental management systems. This certification helps organizations demonstrate their commitment to environmental responsibility by systematically reducing waste, controlling emissions, and improving resource efficiency. While Silaq provides consultancy services to assist other businesses in obtaining such certifications, it does not appear to have implemented these certifications for its own operations. Incorporating recognized certifications into its processes would substantiate its environmental claims, increase transparency, and reinforce its role as a promoter of genuine sustainability practices.

3. Alignment with Business Practices

Silaq's sustainability claims are generally well-aligned with its business practices and outputs, showcasing a commitment to integrating environmental responsibility into its operations. The organization's focus on environmental management services highlights its efforts to help clients achieve sustainability goals, including waste management, emission control, and resource efficiency. These services align with Silaq's mission to foster a safety culture while addressing environmental concerns, ensuring that sustainability claims are reflected in its consultancy and operational practices. Internally, Silaq implements practices consistent with its sustainability goals, such as dematerialized administration that reduces paper usage by relying on digital documents. This approach minimizes waste and supports the organization's broader objective of resource conservation. Silaq's efforts to maximize office climate efficiency also demonstrate its

commitment to reducing energy consumption and carbon emissions. Additionally, its emphasis on minimizing travel, recycling, and adopting sustainable resource usage reinforces its alignment with environmentally responsible practices. However, while Silaq's sustainability practices align with its claims, the absence of measurable targets or third-party certifications within its internal operations limits the ability to fully verify the extent of this alignment. For example, while it provides consultancy to achieve ISO 14001 certifications for clients, there is no evidence that Silaq has adopted such certifications for its own operations.

4. Transparency

Silaq operates primarily as a consultancy organization, which inherently results in a low direct environmental impact compared to industries that involve manufacturing or high resource consumption. While this context mitigates the need for detailed environmental reporting in certain areas, transparency in providing verifiable information remains essential for validating sustainability claims and building trust with stakeholders. The organization emphasizes sustainability through its services, such as waste management, emission control, and resource efficiency, as well as by helping clients achieve certifications like ISO 14001. However, there is a noticeable absence of publicly accessible, detailed reports quantifying its environmental performance. For example, while Silaq implements sustainable practices such as dematerialized administration and office climate efficiency, no verifiable data or metrics, such as carbon footprint reduction figures or energy savings, are made available to support these claims. Silaq's environmental impact is inherently low, the lack of detailed, quantifiable, and publicly verifiable information limits the transparency of its sustainability efforts. By publishing regular reports on its environmental practices, providing measurable outcomes for its training programs, and conducting comprehensive sustainability audits, Silaq could significantly enhance its transparency and reinforce its commitment to environmental accountability.

5. Consistency

Silaq's sustainability efforts are consistent across its activities, showcasing a cohesive approach to integrating environmental responsibility into both its internal operations and the services it provides to clients. Internally, the organization has implemented several measures that align with its sustainability objectives. Dematerialized administration is a key feature of its approach, significantly reducing paper usage through reliance on digital documentation. This practice not

only minimizes waste but also supports broader resource conservation efforts, reinforcing Silaq's commitment to responsible consumption. Silaq prioritizes the climate efficiency of its office premises, employing strategies to optimize energy use and reduce its carbon footprint. This effort is complemented by policies aimed at minimizing travel, such as promoting virtual collaboration and remote work, which further reduce the environmental impact associated with traditional business practices. Recycling initiatives also play a central role in Silaq's operations, ensuring that waste is managed responsibly and resources are reused wherever possible.

The consistency of Silaq's sustainability efforts is also evident in its client-facing services. Through its environmental management consultancy, the organization helps businesses implement waste management strategies, control emissions, and adopt sustainable resource usage. These services align with Silaq's internal practices, demonstrating a unified application of sustainability principles across all facets of its operations. Furthermore, the training programs Silaq offers, which reach approximately 16,000 workers annually, consistently integrate sustainability education, fostering a culture of environmental stewardship among its clients.

6. Lifecycle Consideration

Silaq demonstrates an awareness of lifecycle considerations in its sustainability claims, particularly through its focus on environmental management and consultancy services. The organization supports its clients in adopting practices that align with sustainable lifecycle principles, such as waste management, emission control, and resource efficiency. These services address critical aspects of the lifecycle of products and processes in industries where waste generation and environmental impact are significant, such as construction and heavy industries. However, the evidence of lifecycle considerations in Silaq's internal operations and services is limited, as there is no indication of a comprehensive evaluation of the entire lifecycle of its products or services. For example, its consultancy and educational outputs do not appear to include assessments of raw material sourcing, energy usage during service delivery, or the end-of-life impact of the processes it helps manage. A more detailed examination of these stages would strengthen the alignment of its operations with lifecycle sustainability principles.

In its sustainability efforts, Silaq does emphasize approaches that indirectly consider lifecycle impacts, such as fostering a circular economy mindset and minimizing waste in industries with

high environmental footprints. By helping businesses implement standards like ISO 14001, Silaq facilitates lifecycle accountability for its clients, ensuring that environmental impacts are assessed and mitigated at various stages of production and service delivery. To enhance its lifecycle considerations, Silaq could adopt comprehensive lifecycle assessments for its own operations and services, providing a clearer picture of their environmental impacts from inception to completion.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

1. Clarity of Claims: Score: Medium

Silaq's claims about sustainability are present in its environmental management and quality assurance services, but they lack specificity. Although the organization supports sustainable practices such as waste management and emission controls, measurable targets (e.g., specific percentages or reductions) are not detailed. The claims are more qualitative than quantitative, leading to a medium score.

2. Third-Party Certifications: Score: Low

Despite the company's involvement in consultancy related to environmental certifications like ISO 14001, it does not appear to use eco-certifications itself. This lack of internal third-party certification undermines the credibility and verifiability of its sustainability claims.

3. Alignment with Business Practices: Score: Medium

While Silaq's sustainability claims are reflected in some aspects of its business operations, such as waste management and energy efficiency, the alignment is not comprehensive. Further information on how its consultancy and training operations integrate sustainability practices is needed for a high score.

4. Transparency: Score: Medium

Silaq reports a low environmental impact due to its consultancy nature but does not provide detailed or verifiable data to substantiate this claim. Publicly accessible environmental reports or quantifiable impact assessments are absent, limiting the transparency of its operations.

5. Consistency: Score: High

Silaq's sustainability measures, such as dematerialized administration, energy-efficient offices, minimal travel, and recycling practices, are consistently applied across its operations. This consistency demonstrates a strong commitment to embedding sustainability throughout the organization.

6. Lifecycle Consideration: Score: Medium

Although Silaq provides environmental management services and consultancy on sustainability, there is no indication that the entire lifecycle of products or services (including digital tools) is comprehensively evaluated. While some aspects are addressed, such as waste management, the approach is not fully holistic.

Sustainability Effort Ranking: Medium

Silaq's sustainability efforts show clear intent and some practical application, particularly in consistent operational practices. However, the absence of measurable claims, third-party certifications, and comprehensive lifecycle consideration limits its potential to achieve a high ranking. Improvements in these areas, combined with greater transparency, could significantly enhance its sustainability authenticity.

3.3.4. Portugal Case Studies

Portugal Case Study 1: Green Flying

Environmental Claims of European Airlines

Summary	European airlines, including the Portuguese TAP, Lufthansa Group, Groupe Air France, International Airlines Group/Vueling, and others, are stating to their consumers that the payment of extra credits can "offset", "neutralise", or "compensate" the CO2 emissions of a flight; that air travel can be "sustainable", "responsible" and "green"; and are charging clients more to contribute to the development of Sustainable Aviation Fuels (SAFs). Based on those claims, in 2023, BEUC (The European Consumer Organisation) and 23 member organisations filed a complaint accusing these airlines of

	greenwashing with potential misleading statements such as “fly more sustainably”, “offset your carbon emissions”, “reduce your footprint” and “Think Green Fly green”. In April 2024, the European Commission and consumer authorities flagged potential deceptive green claims by 20 airlines inviting them to bring their practices in line with EU consumer law. This is a situation in progress.
Description	European airlines, including the Portuguese TAP, Lufthansa Group, Groupe Air France, International Airlines Group/Vueling, and others, are claiming about reduction in emissions and their efforts to mitigate environmental impact. Companies are stating to their consumers that the payment of extra credits can “offset”, “neutralise”, or “compensate” the CO2 emissions of a flight; that air travel can be “sustainable”, “responsible” and “green”; and are charging clients more to contribute to the development of Sustainable Aviation Fuels (SAFs). BEUC (The European Consumer Organisation) and 23 of its member organisations launched in 2023 an EU-wide complaint against these 17 airlines for greenwashing.[1] Potentially misleading claims by the airlines includes statements such as “fly more sustainably”, “offset your carbon emissions”, “reduce your footprint” and “Think Green Fly green”. Following this 2023 alert from BEUC, in April 2024 the European Commission and EU consumer authorities (Network of Consumer Protection Cooperation - CPC - Authorities) have sent letters to 20 airlines identifying several types of potentially misleading green claims and inviting them to bring their practices in line with EU consumer law. This is a situation in progress.[2] According to the BEUC analysis “Targeted airlines & identified practices” (2023)[3] the green claims presented by the airlines are the following: **Lufthansa Group** - Lufthansa - “Green fares: fly more sustainably”; “Reduce and offset: Green Fares throughout Europe”; “Fly more sustainably: book our new Green Fares

[1] https://www.beuc.eu/press-releases/consumer-groups-launch-eu-wide-complaint-against-17-airlines-greenwashing

[2] https://ec.europa.eu/commission/presscorner/detail/en/ip_24_2322

[3] https://www.beuc.eu/sites/default/files/publications/BEUC-X-2023-086_Green_F-lying_Targeted_airlines_%26_identified_practices.pdf

for your next European flight! Travel more sustainably with our Economy Green and Business Green fares and enjoy Europe's wonderful destinations";

- Eurowings - "Fly more sustainably; "Let's make flying more sustainable together''; "You can offset your carbon emissions";

- Swiss - "Green Fares: Travel more sustainably in Europe with SWISS - We make more sustainable flying even easier by offering the Green Fares directly in the booking-process for all SWISS flights in Europe on SWISS Economy and SWISS Business";

- Brussels Airlines - "Green Fares - With the Green Fare more sustainable flying gets easier and is available for all customers on the Lufthansa Group owned booking channels, including brusselsairlines.com. The sustainable way to fly"

- Austrian - "Green Fares - Travel more sustainably throughout Europe now. Take advantage of our new Green Fares offer to make your own flights within Europe even more sustainable";

- Air Dolomiti - "Flying more sustainably gets easier than ever before with the Green fare that makes more sustainable travel possible".

Groupe Air France

- Air France - "Fly more responsibly";

- KLM - "Reduce your footprint"; "Restore forests to absorb X kg of your CO2 emissions"; "Contribute to Sustainable Aviation Fuels and reduce your CO2 Emissions by X kg".

International Airlines Group (IAG)

- Vueling - "For the planet for the people - did you know that your donation helps to reduce CO2 emissions".

Others

- TAP Portugal - "Carbon offset compensation"; "Offset your carbon emissions";

- Ryanair - "Compensate your estimated CO2 emissions";

- Wizz Air - "-33% CO2 Emissions"; "Low CO2 Emissions"; "care more";

	- Norwegian - “Towards more climate neutral aviation with CHOOOSE and Norwegian”; - Volotea - “Working together for cleaner travel”; “Participate in the offsetting of the CO2 emissions of your flight”; - SAS - “Add biofuel to reduce emissions”; “Adding biofuels reduces your environmental impact and accelerates sustainable travel”; - Air Baltic - “Green by nature”; “Think Green Fly green”; “Make a contribution to a sustainable future”; - Finnair - “Join our journey towards carbon neutrality”; “Offset your flights”; “Destination carbon neutrality”.
SDG(s) under consideration	SDG 7: Affordable and Clean Energy SDG 12: Responsible Consumption and Production SDG 13: Climate Action SDG 17: Partnerships for the Goals

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

According to BEUC (2023)[4] the environmental claims are misleading. Claims are considered non-specific and measurable as claims that paying extra credits can “offset”, “neutralise”, or “compensate” the CO2 emissions of a flight are factually incorrect as the actual climate benefits of offsetting activities are highly uncertain, while the harm caused by air travel’s CO2 emissions is certain. BEUC also points out that airlines are misleading consumers by charging extra for contributions to Sustainable Aviation Fuels (SAFs), which are not yet market-ready. Furthermore, recently adopted EU legislation sets very low targets for how much they should represent in aircrafts’ fuel mix, and SAFs are only predicted to be massively available beyond the end of the 2030s. In conclusion, the idea that air travel can be “sustainable,” “responsible,” or “green” is misleading, as none of the aviation industry’s current strategies can prevent greenhouse gas

[4] https://www.beuc.eu/press-releases/consumer-groups-launch-eu-wide-complaint-against-17-airlines-greenwashing

emissions. On the contrary, with air traffic expected to increase, emissions will continue to rise for years to come.

2. Third-Party Certifications

Considering the website Eco Label Index, the following certifications were identified for the aviation sector:

- Fly-360-Green (Third-Party Certification stated to be "developed by the World Green Aviation Council (WorldGAC) to provide airlines and aircraft operators a common framework for identifying and implementing practical and measurable processes, innovative practices, operations, and maintenance solutions");
- Flybe Aircraft Ecolabel (Non-Third-Party, Company Self Certification, stated as the "first airline in the world to introduce an aircraft eco-labelling scheme").

Currently, none of the certification websites listed on the Eco Label Index are available online. Additionally, no Eco-Certifications were identified on the websites of the aviation groups or companies.

3. Alignment with Business Practices

Considering that the core business of airlines is air travel itself, their sustainability claims regard that main service. To further contextualize air transport services, it is important to refer to the goals proposed by the International Air Transport Association (IATA) - trade association representing around 330 airlines and over 80% of global air traffic[5]; and by the International Civil Aviation Organization (ICAO) - United Nations agency which helps 193 countries to cooperate together in sharing their skies.[6]

IATA provides guidelines for European airlines, including its "Fly Net Zero CO2 Emissions by 2050" strategy, which outlines the path toward achieving net zero CO2 emissions by 2050. Currently, more than 50 airlines have made voluntary commitments to achieve net zero by 2050[7]. In the websites of the airlines' companies, we have identified sustainability commitments emanated from IATA. However, it's important to emphasize that these are commitments, not actions, and

[5] https://www.iata.org/en/about/

[6] https://www.icao.int/about-icao/Pages/default.aspx

[7] https://www.iata.org/en/programs/sustainability/ace/#tab-1

they are set for 2050. These efforts are still in development. Achieving net zero CO2 emissions will require the following combination os solutions proposed by IATA[8]:

- 65% Sustainable Aviation Fuel (SAF);
- 19% Offsets and carbon capture;
- 13% New technology, electric and hydrogen;
- 3% Infrastructure and operational efficiencies.

As referred by BEUC, Sustainable Aviation Fuels (SAFs) are not yet market-ready and in the future will only be able to represent a small percentage of the aircrafts' fuel mix. Regarding offsets and carbon capture, ICAO established a carbon scheme for international aviation - CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation), global market-based measure scheme to address CO2 emissions from international aviation. Under CORSIA, the airlines must purchase and cancel "emissions units" to offset the increase in CO2 emissions. In 2016, Governments adopted CORSIA, and from 1 January 2021, international flights have become subject to offsetting obligations. Nevertheless, offsetting is not intended to replace efforts to reduce the sector's carbon emissions through technology, operational and infrastructure advances[9]; and we must take in consideration this only enters the 19% of the solution proposed by IATA to achieve Net zero CO2 emissions by 2050. In fact, while carbon offsetting is part of the solution as it involves compensating for the CO2 emissions produced by one activity (such as air travel) by investing in projects that reduce or capture an equivalent amount of CO2 elsewhere (such as reforestation, renewable energy, or others), thus helping reducing overall emissions, it does not directly eliminate the CO2 emissions generated by the activity being offset and its effectiveness is highly debated. Reducing CO2 emissions at the source is deemed as the foundational solution.

Finally, new technology, including electric and hydrogen efforts for the future, such as the "Zero-Emission Aviation" initiative launched in 2022 by the European Commission to make hydrogen-powered and electric aircraft a reality[10], along with infrastructure improvements and operational

[8] https://www.iata.org/en/programs/sustainability/flynetzero/

[9] https://www.iata.org/en/programs/sustainability/corsia/, https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

[10] https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3854

efficiencies are also an important part of the solution in development. In general, airline sustainability still has a long way to go.

4. Transparency

The websites of aviation groups and companies include commitments to environmental responsibility, but no detailed, verifiable information on environmental impact could be easily found. Of the 17 companies mentioned by BEUC, Sustainability Reports were only found for AirBaltic (other reports may exist but were not easily accessible on the companies' websites).

The latest Sustainability and Annual Report by AirBaltic (2023)[11] presents interesting and transparent facts that could serve as a good practice for other airlines to adopt in terms of transparency and consumer information. We highlight the following data, including fuel consumption, SAFs, and CO2 emissions[12]:

- 44 113 flights performed (2022: 37 302)
- 177 789 tons of fuel consumed (2022: 134 041 tons)
- 7 615 tons of fuel containing SAF consumed (2022: 6 184 tons)
- 560 035 tons of flight CO2 emissions (Scope 1) (2022: 422 228 tons)

We can actually see an increase in all these, from 2022 to 2023. As the number of flights increase, fuel consumed and CO2 emissions also increase. To be referred that in 2023, the airline acquired seven new Airbus A220-300 aircraft and secured a contract with Airbus for thirty Airbus A220-300 aircraft, with purchase rights for an additional twenty. A young fleet leads to less fuel consumption and optimized operations, and this is expected to have positive impacts in the future. Other measures being applied are presented at the report.

5. Consistency

As referred, currently, the sustainability efforts are essentially commitments, with variable intentions, preparations and actions being undertaken by the different airline groups towards the future sustainability goals. For example, Lufthansa group has a website page dedicated to Climate & Environment,[13] AirFrance - Our Commitement to Environment, International Airlines Group

[11] https://company.airbaltic.com/en/esg#reportsAnchor

[12] https://assets.airbaltic.com/f/236210/x/99eab28c06/sustainability_report_2023-0503.pdf?_gl=1*6rf30r*_gcl_au*MjAzNTAwNzkyNS4xNzMzMDcxMjQ3

(that reunites Vueling, Ryanair, and others) presents a Sustainability roadmap and reports; a page referring to Sustainability was also possible to find in case of TAP Portugal, Wizz Air, SAS, and BalticAir, and others, but this kind of page was not always possible to find for all companies, when consulting the different websites. Nevertheless, we can consider sustainability intentions and efforts are present across the different airlines of the case study, directly or indirectly, considering IATA, CORSIA, and other common strategies and goals. Referring to other sustainability efforts, such as the use of electric support vehicles on land, or the reduction of paper consumption through solutions like mobile apps, electronic tickets, digital magazines, and others, although these measures are being applied by airlines and are indeed good practices, they are not considered to have a direct impact on the topic being studied regarding gas emissions from flights.

6. Lifecycle Consideration

Non-applicable as the case study presented focuses on a service.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

Although this analysis is subjective, and that additional information may exist that was not possible to find during the study, and that the realities of each of the airlines are different, making this analysis an average representation of them; the following is being considered for the testing purposes of the scoring system of the index:

1. Clarity of Claims: Low

Clarity of environmental claims is considered low, as the claims are non-specific and not measurable, namely with misleading assurances about Sustainable Aviation Fuels (SAFs) and carbon offsetting. The idea that air travel can be "sustainable," "responsible," or "green" is itself misleading, as none of the aviation industry's current strategies can in fact prevent greenhouse gas emissions. Furthermore, the problem is expected to worsen with increased air traffic and, consequently, a rise in emissions.

2. Third-Party Certifications: Low

Third-Party Certifications is considered low, as no Eco-Certifications for the topic of study were identified on the websites of the aviation groups or companies.

3. Alignment with Business Practices: Medium

Alignment with Business Practices is considered medium, due to the guidelines and commitments of the general aviation sector. Considering that over 50 airlines have made commitments to achieve net zero by 2050, the establishment of CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation), mandatory since 2021 for all international flights, and other initiatives, there is a general recognition of efforts in airline business practices, which is seen as positive. Nevertheless, these remain intentions and efforts in development, and airline sustainability still has a long way to go.

4. Transparency: Low

Transparency is considered low for the group of companies and airlines, as verifiable information on environmental impact was generally not found, except for AirBaltic (for which transparency is considered high). Other companies may have such information, but it might not be so visible or easy to find.

5. Consistency: Low

Sustainability commitments are present across the different airlines of the case study, directly or indirectly, considering IATA Fly Net Zero CO2 Emissions by 2050, CORSIA, and other common strategies and goals. Additionally, some airlines groups and companies present pages on their websites with this information. But all these efforts, although important, are still in development. Regarding to other sustainability efforts, such as use of electric support vehicles on land, reducing paper consumption, etc. they are not considered to have a direct impact on the topic being studied regarding gas emissions from flights. For these reasons, consistency in sustainability efforts in considered low.

Overall score: Low

Portugal Case Study 2: Delta Q Coffee Capsule eQo

Summary	The Grupo Nabeiro - Delta Cafés is a Portuguese group composed of different companies whose main focus is the commercialization of coffee. Delta Cafés was founded in 1961 and is one of the most renowned coffee brands in Portugal. The company has consistently emphasized its commitment to reducing the environmental impact of its operations and investing in innovative technologies. It has a sustainability strategy in place and has been ranked as the most responsible company in Portugal for the third consecutive year, leading all environmental, social, and governance (ESG) categories. In 2019, in the scope of its sustainability strategy, a new Delta Q coffee capsule, 100% organic and biodegradable was launched: Delta Q eQo.
Description	In May 2019, Delta Q revealed that it had succeeded in producing a capsule with 0% plastic, 0% aluminum, and 100% biodegradable, a capsule entirely made from plant-based fibers and biomaterials. According to Delta, the goal was to develop an ecologically responsible capsule.[14] Delta Q Coffee Capsule eQo capsule is considered to be a pioneering initiative in Portugal and was developed by the Nabeiro Group's Innovation Center in collaboration with external partners and national research centers such as Minho University in Portugal. As presented in Delta's website: it is made from BioPBS, a material of biological and vegetal base, composed of sugarcane, cassava, and corn. It is a capsule with 0% plastics, 0% microplastics, and 0% aluminum, and its shelf life is of 90 days due to its biodegradable nature. The coffee blend has triple sustainability certification and the packaging is made of fully recyclable certified cardboard.[15]
SDG(s) under consideration	SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land SDG 9: Industry, Innovation, and Infrastructure

[14] https://pt.mydeltaq.com/pt/pt/delta-q-eqo?srsltid=AfmBOoplUBWLfGSN-4oKfsNBYrVt5w5sO3IAcQJ4K0A7E3zbq8QfG5C3

[15] https://gruponabeiro.com/app/uploads/2020/05/Relatorio_Sustentabilidade_2018.pdf

- **Index Indicator description for case study at hand evaluation**

1. Clarity of Claims

According to Delta's website "all tests conducted by independent entities show that this capsule poses no environmental risk. 100% organic, it is made from BioPBS, a material of biological and plant-based origin, consisting of sugar cane, cassava, and corn" with Delta adding that "in other words, it contains zero plastics, zero microplastics, and zero aluminum".[16]

However, soon after its launchinh, in 2019, an article from the Portuguese newspaper Público[17], with statements by Quercus, Portuguese Non-Governmental Environmental Organization (NGO), warned that the new Delta capsules actually contain bioplastics and that those only degrade in industrial composting. The product was and still is presented by Delta as "0% plastic" and "100% biodegradable." The main component of the new capsules is BioPBS - that stands for Bio-based Polybutylene Succinate, which is part of the so-called bioplastics. Delta justifies the decision to use the term "0% plastic" due to the "common association of the word 'plastic' with materials derived from petroleum" and that the claim is intended to reinforce "the idea that this is not the same as other plastics derived from petroleum". In fact, Delta (2019) confirmed to Público[18] that the capsules are "biodegradable in a short period of time", however only in "specialized facilities that, at the moment, do not exist in Portugal".

Thus, the environmental claims are not entirely specific or measurable, as the term "100% biodegradable" is qualified by the need for industrial composting facilities, and the "0% plastic" claim is based on the absence of petrochemical-based plastics, without clearly stating in the communication used that BioPBS are part of the so-called bioplastics.

2. Third-Party Certifications

For a more comprehensive analysis, we can divide the eQo capsule product in 3 parts: the capsule, the blend of coffee, and the packaging.

[16] https://pt.mydeltaq.com/pt/pt/delta-q-eqo?srsltid=AfmBOoplUBWLfGSN-4oKfsNBYrVt5w5sO3IAcQJ4K0A7E3zbq8QfG5C3

[17] https://www.publico.pt/2019/05/25/p3/noticia/afinal-as-novas-capsulas-da-delta-tem-bioplasticos-e-degradamse-apenas-em-compostagem-industrial-1874038

[18] https://www.publico.pt/2019/05/25/p3/noticia/afinal-as-novas-capsulas-da-delta-tem-bioplasticos-e-degradamse-apenas-em-compostagem-industrial-1874038

CAPSULE - The capsule itself does not present a certification.[19]

COFFEE - The blend of coffee, presents three Third-Party Sustainability Certifications, from its launch in 2019 to the present day, that assure the protection of the environment, communities, and more sustainable agriculture. Those are the following

- Rainforest Alliance Certification, dedicated to conserving biodiversity and promoting sustainable livelihoods by transforming land-use practices, business operations, and consumer behavior.
- UTZ Certification, promoting sustainable farming practices and better opportunities for farmers, their families, and the planet.
- Organic Certification, emphasizing a production method that integrates best environmental practices, contributing towards biodiversity enhancement and natural resources preservation.

PACKAGING - The packaging of the eQo capsules is the first one of Delta with fully recyclable card, certified by FSC (Forest Stewardship Council), which ensures that the product comes from a sustainably managed forest, and that is printed with eco-friendly inks.[20]

3. Alignment with Business Practices

Delta Cafés leads the ranking of the most responsible companies in Portugal for the third consecutive year, topping all environmental, social, and governance categories (ESG).[21] Delta considers "sustainability" to be one of its values, together with "integrity", "transparency", "truth", "quality", "solidarity", "modesty", "innovation", and "loyalty"[22] and presents a website page dedicated to sustainability. [23] Delta' last Sustainability report refers to 2018 and presents Delta nine areas of action towards the Sustainable Development Goals: 1-business sustainability, 2-coffee producer communities, 3-jobs creation, 4-biodiversity, 5-operational efficiency, 6-circular economy, 7-health, safety, and well-being, 8-responsible citizenship, 9-responsible entrepreneurship; but environmental data are scarce in this report, and most recent ones can be found regarding Delta Integrated Management System. Delta Group presents an Integrated

[19] https://pt.mydeltaq.com/pt/pt/delta-q-eqo?srsltid=AfmBOoplUBWLfGSN-4oKfsNBYrVt5w5sO3IAcQJ4K0A7E3zbq8QfG5C3

[20] https://gruponabeiro.com/comunicados-de-imprensa/delta-q-apresenta-primeira-capsula-de-cafe-sem-plastico

[21] https://expresso.pt/sustentabilidade/2023-03-26-Grupo-Nabeiro-e-o-mais-responsavel-em-Portugal-e-lidera-em-todas-as-categorias-ESG-015c9f78

[22] https://gruponabeiro.com/visao-grupo-nabeiro

[23] https://gruponabeiro.com/sustentabilidade

Management System aimed at participatory management which include, among others goals, the reduction of its environmental impacts. In this scope we can find the most recent Delta 2023 Environmental Declaration publication. According to the data presented in this document, is worth noting that Delta has held the Environmental Management System certification since 2007, according to the international NP EN ISO 14001:2004 standard; and that since 2009 has also been verified in accordance with the requirements of the European Union's Eco-Management and Audit Scheme (EMAS), promoted by the European Commission, that is applicable to all organizations interested in mitigating and reducing their environmental impact.[24] Delta has also set relevant sustainability goals for 2025, namely[25]: BIODEGRADABLE CAPSULE - Extension and introduction of biodegradable material across the entire range of Delta capsule blends; as well as GREEN ENERGY - Installation of photovoltaic solar panels in all national departments; ELECTRIC CARS FLEET - Complete replacement of the commercial fleet with electric vehicles; and 100% PORTUGUESE COFFEE - Support for 500 coffee farmers in the Azores region over the next 15 years.

4. Transparency

The Delta 2023 Environmental Declaration presents several indicators regarding categories such as water, energy, waste, noise, visual impact, land use and biodiversity, etc. From the topic here considered, we present the analysis of total consumption of the following main raw materials of production: green coffee, packaging film, and plastic for capsules; comparing the data from 2021 to 2023 (pages 28-29):

- Green coffee: 19,266 tons in 2021; 22,518 tons in 2023;
- Packaging film: 13,107 tons in 2021; 12,635 tons in 2023;
- Plastic for capsules: 4,557 tons in 2021; 4,379 tons in 2023.

Although coffee intake is increasing it is possible to observe a decrease in the consumption of materials regarding packaging and plastic for capsules, what seems to suggest coherence with the sustainability goals claimed by the company as well as a potential consumer preference for eQo capsules (non-petroleum plastic) and other solutions offered by Delta beyond capsules.

[24] https://gruponabeiro.com/app/uploads/2020/05/Declaracao-Ambiental_2023.pdf

[25] https://gruponabeiro.com/sustentabilidade

5. Consistency

Sustainability efforts seem to be consistent across all activities of the case study, considering its implemented Integrated Management System, its goals towards 2025, that cover topics such as energy production to electric vehicles, as well as the different initiatives that Delta has in place, such as:

- Collection Points for Used Capsules - Delta iniative that is creating collection points for the used capsules, in partnership with the Industrial and Commercial Coffee Association (AICC) and other coffee brands, to give a new life to the capsules. However, these collection points are not yet available in many parts of the country, namely in the South and islands.

- Treatment of Used Capsules - the Group has its own recycling unit for the treatment of capsules, where the components, coffee grounds and plastic capsules, are separated. Through partnerships, the coffee grounds are used in agriculture, and the plastic begins a new cycle by being transformed. Capsules eQo reference of treatment was not found.

- Circular Economy Design (Matter) - a partnership solution that transforms the husk, a natural byproduct of the production process, into exclusive accessories, reinforcing Delta's commitment to circularity and repurposing.

- Azores Project - Over 500 coffee-producing families of the Azores archipelago receive Delta support in all stages of coffee production, from preparation to commercialization, in cooperation with the Azorean Coffee Producers Association (APAC), and the Regional Government of the Azores, since 2019.

- [re]BORN Refurbished Machines - project created by Delta that refurbishes machines with little use, minimizing waste. Purchases are available on the Delta website.

- Reusing Coffee (Nãm Urban Farm) - A partnership between Delta Cafés and Nãm Urban Farm enables reusing the coffee grounds as a residual compost and organic fertilizer for mushroom production.

6. Lifecycle Consideration

For the eQo capsule specifically, the product lifecycle is not clear, as Delta uses the term "0% plastic" and "100% biodegradable" due to the fact that it "is not the same as other plastics derived from petroleum" but that it assumes the fact that those are only compostable in "specialized facilities that, at the moment, do not exist in Portugal". This may eventually pose a risk of

misleading consumers, who might believe the capsules will degrade and mistakenly mix them with their general waste or organic waste, instead of depositing them at a collection point.

Delta (2022) is indeed alert to the fact that coffee capsule recycling rates are still very low, identifying this as an issue, and aims for all capsules to be biodegradable by 2025 stating: "recycling largely depends on civic efforts and educating people, which remains a task to be addressed. However, we want the 80% who still dispose of capsules in the trash to do so without creating an environmental problem".[26] But what solution will be applied, is still not clear.

A National Geographic Portugal article of 2023[27], explores bioplastics complex issue. More products are emerging that use so-called bioplastics, with some in favor and others against them, but the truth is that we still don't have a dedicated solution for recycling these bioplastics. It's assumed that possibly, only with increased production of this new type of waste, will dedicated treatment solutions emerge.

Currenlty, refering to the product of eQo capsules, only the coffee can be reused, and the packaging can be reused/recycled again.

- **Scoring system (low, medium, high) to rank organizations' authenticity in sustainability efforts**

Although this analysis is subjective, and that additional information may exist that was not possible to find during the study, the following is being considered for the testing purposes of the scoring system of the index:

1. Clarity of Claims: Medium

Environmental claims clarity is considered medium, as the term "100% biodegradable" is qualified by the need for industrial composting facilities, and the "0% plastic" claim is based on the absence of petrochemical-based plastics, without clearly stating in the communication used that BioPBS are part of the so-called bioplastics. Although the claims are not factually false it's considered they may pose the risk of being misleading for consumers.

[26] https://expresso.pt/economia/2022-08-10-Delta-Reciclagem-de-capsulas-de-cafe-ainda-e-muito-baixa-b83b147c

[27] https://www.nationalgeographic.pt/ciencia/o-roteiro-dos-bioplasticos-em-portugal_2820

2. Third-Party Certifications: High

Although the capsule itself is not certified, the product presents 4 different relevant Third-Party Certifications: Rainforest Alliance Certification, UTZ Certification and Organic Certification regarding the coffee blend, and FSC - Forest Stewardship Council regarding the packaging.

3. Alignment with Business Practices: High

Alignment with Business Practices is considered high. Delta Cafés leads the ranking of the most responsible companies in Portugal for the third consecutive year, presents an Integrated Management System with an Environmental Management System certificated since 2007, according to the international NP EN ISO 14001:2004 standard; and since 2009 has been verified in accordance with the requirements of the European Union's Eco-Management and Audit Scheme (EMAS). Delta has also set relevant sustainability goals for 2025, that range from the installation of photovoltaic solar panels, to electric vehicles, besides the use of more biodegradable material across the entire range of Delta capsule, although the future of these solutions is still unclear.

4. Transparency: High

Transparency is considered high due to the fact that information is easily available online. Namely, the Delta 2023 Environmental Declaration presents several indicators regarding categories such as water, energy, waste, noise, visual impact, land use and biodiversity, materials, etc.

5. Consistency: High

Sustainability efforts seem to be consistent across all activities of the case study, considering its implemented Integrated Management System, its goals towards 2025, as well as the different initiatives that Delta has in place, such as the Circular Economy Design (Matter), Azores Project, [re]BORN Refurbished Machines, Reusing Coffee (Nãm Urban Farm), and others.

6. Lifecycle Consideration: High

Lifecycle consideration is rated as medium due to the lack of collection points for used capsules in many parts of Portugal, particularly in the South and islands, which affects the treatment of used capsules, and the absence of treatment references for eQo capsules that are central in the communication of the brand as being 100% organic and biodegradable but for which treatment

solutions are not yet unfortunatelly easily available. Although Delta is alert to the fact that coffee capsule recycling rates are still very low in Portugal, identifying this as an issue, and aiming for all capsules to be biodegradable by 2025, this issue being currently unresolved affects greatly affects the lifecycle of the product. On the other hand, proactive efforts (e.g. the existing collection points, Delta own treatment unit, etc.) are indeed in place and recognized as positive; and the reusing of husk and of and coffe grounds are positive considerations of the product lifecycle as well.

Overall score: High

IV. Greenwashing and Youth

Survey Analysis

IV. Greenwashing and Youth: Survey Analysis

The survey aims to investigate the prevalence of greenwashing and its effects on young consumers' behavior, mental health, and opinions. The primary focus is on understanding:

- How frequently respondents encounter greenwashing.
- Their confidence in identifying greenwashing practices.
- The behavioral and psychological impact greenwashing has.
- Consumers' opinions on transparency and the need for education to address greenwashing.

The survey results provide a deeper understanding of how greenwashing influences individuals, particularly younger demographics, who are often more environmentally sensitive yet vulnerable to deceptive practices.

4.1. Methodology

The survey was conducted online and utilized a structured questionnaire with 16 targeted questions. All responses were collected using a 5-point Likert scale format[28] to ensure comparability and ease of analysis. The questions were divided into five categories:

1. **Exposure to Greenwashing (Question 2):** Frequency of encountering greenwashing.
2. **Confidence in Identifying Greenwashing (Questions 3, 4):** Assessing the ability to recognize misleading environmental claims.
3. **Behavioral Impact (Questions 5, 6, 9, 12, 13, 14):** Measuring how greenwashing influences consumer trust, purchasing habits, and lifestyle changes.
4. **Mental Health Impact (Questions 7, 8, 10, 11):** Evaluating feelings of stress, anxiety, and eco-guilt linked to greenwashing.
5. **Opinions on Greenwashing (Questions 15, 16):** Understanding perceptions about transparency and the need for educational programs.

[28] Jamieson, S. (2024, September 20). Likert scale. Encyclopedia Britannica. https://www.britannica.com/topic/Likert-Scale

Survey Questions

1. How old are you?
   • 15-17 • 18-25 • 26-30

2. How often do you encounter advertisements or campaigns that claim to be environmentally friendly?
   • Never • Rarely • Sometimes • Often • Always

3. How confident are you in determining whether a product or service is genuinely eco-friendly or if it is greenwashing?
   • Not at all confident • Slightly confident • Moderately confident • Very confident
   • Extremely confident

4. Can you distinguish genuinely eco-friendly practices from greenwashing? How do you do it?
   • I cannot distinguish them • I have difficulty distinguishing them • I can distinguish them occasionally • I often distinguish them • I can always distinguish them

5. Have you ever purchased a product or service based on its environmental claims, only to later feel misled by false advertising?
   • Never • Rarely • Sometimes • Often • Always

6. To what extent do you think greenwashing affects your trust in brands or companies?
   • Not at all • Slightly • Moderately • Significantly • Completely

7. How does seeing companies engage in greenwashing impact your mood or stress levels?
   • No impact at all • Slightly impacts me • Moderately impacts me • Significantly impacts me • Extremely impacts me
8. Do you feel anxious or overwhelmed when trying to make eco-friendly choices in your daily life due to misleading claims?
   • Never • Rarely • Sometimes • Often • Always

9. How often do you research the environmental impact of products before making a purchase?
    • Never • Rarely • Sometimes • Often • Always

10. Do you ever feel pressured to make more sustainable choices, even when unsure of their authenticity?
    • Never • Rarely • Sometimes • Often • Always

11. In your opinion, how does greenwashing contribute to feelings of eco-guilt or environmental anxiety?
    • Does not contribute at all • Slightly contributes • Moderately contributes
    • Significantly contributes • Absolutely contributes

12. How do you think greenwashing influences the decisions of your peers in their everyday purchases?
    • No influence at all • Slight influence • Moderate influence
    • Significant influence • Absolute influence

13. Do you feel that misleading environmental claims make it harder to adopt a truly sustainable lifestyle?
    • Not at all • Slightly • Moderately • Significantly • Completely

14. Have you changed your buying habits or lifestyle due to concerns about greenwashing?
    • Not at all • Slightly • Moderately • Significantly • Completely

15. How important is it to you that companies are transparent about their environmental practices?
    • Not important • Slightly important • Moderately important • Very important
    • Extremely important

16. Do you think guidelines or educational programs could help you make more informed decisions about sustainable products?
    • Not at all • Slightly • Moderately • Significantly • Absolutely

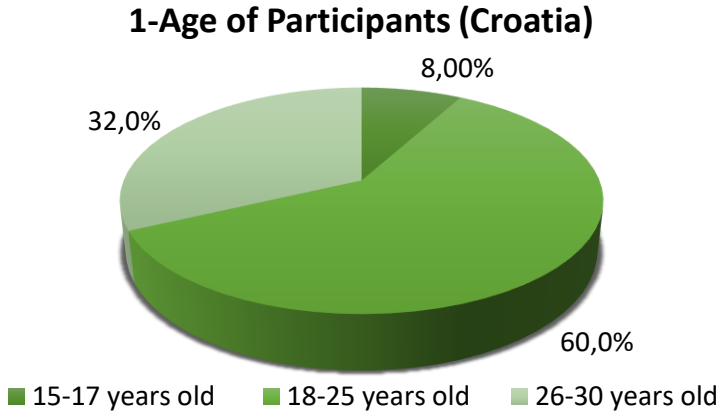
The following sections present and comment the results gathered from each partner country's survey.

4.2. Results

4.2.1. Croatia Survey Results

Sample Size and Demographics

The survey received a total of 25 responses from young people aged 18 to 30, reflecting a diverse representation of the youth population in Croatia. Participants were grouped into tree main age categories: 15-17, 18-25 and 26-30 years. The survey aimed to ensure a balance of perspectives across these age groups to provide a comprehensive understanding of how greenwashing impacts young people at different stages of early adulthood. The survey also captured data on the respondents' frequency of encountering eco-friendly claims, their confidence in evaluating such claims, and the extent to which greenwashing influences their emotional well-being and purchasing behavior. Demographic information, such as age and exposure to green marketing, was collected to identify patterns and correlations within the data.



Data Analysis

The data collected was analyzed using a combination of descriptive and inferential statistical methods. Descriptive statistics, such as frequencies and percentages, were used to summarize the main trends and responses. Inferential analyses, where relevant, helped to identify significant relationships between variables, such as the link between exposure to greenwashing and levels of consumer trust or environmental anxiety. The research approach was designed to provide a

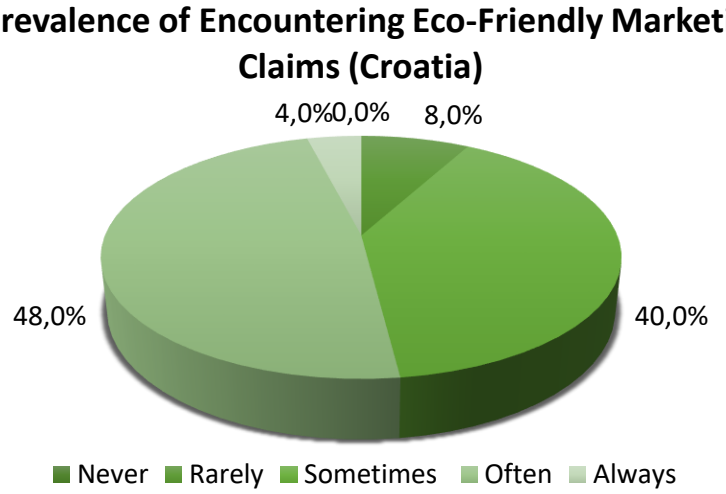
detailed and nuanced understanding of how greenwashing influences the perceptions and behaviors of young people in Croatia. By capturing both the quantitative prevalence of certain attitudes and the qualitative depth of personal experiences, the methodology ensured a comprehensive and balanced analysis of the issue.

Key Findings: Breakdown of responses to highlight significant trends and insights from the data

The survey conducted among young people in Croatia revealed several noteworthy trends and insights regarding their awareness of greenwashing, their confidence in identifying misleading eco-friendly claims, and the impact of these deceptive practices on their trust in brands and overall well-being. Below is a detailed breakdown of the findings:

Prevalence of Eco-Friendly Marketing Claims

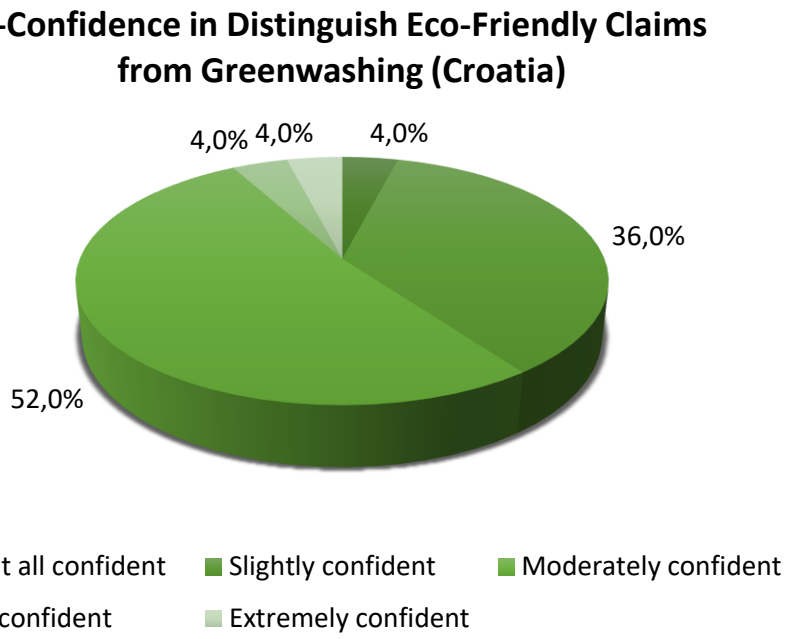
The majority of young people in Croatia frequently encounter advertisements or campaigns that claim to be eco-friendly. Specifically, 48% of respondents reported encountering such claims "often," while 40% stated that they encounter them "sometimes." This indicates a widespread presence of green marketing in everyday life, which may influence consumer behavior and perceptions.



Confidence in Recognizing Greenwashing

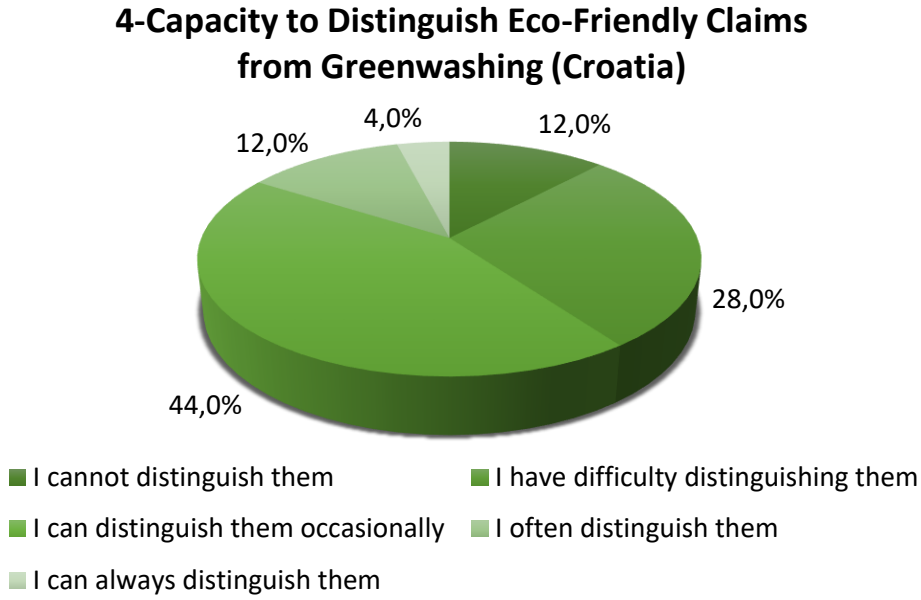
Confidence levels in identifying whether a product or service is genuinely eco-friendly or a case of greenwashing are generally low among Croatian youth. Over half (52%) of respondents indicated that they are only "moderately confident" in recognizing greenwashing, and 36% felt "slightly confident." These figures suggest that young people often struggle to distinguish genuine

sustainability efforts from deceptive claims, pointing to a need for more education and awareness-raising initiatives.



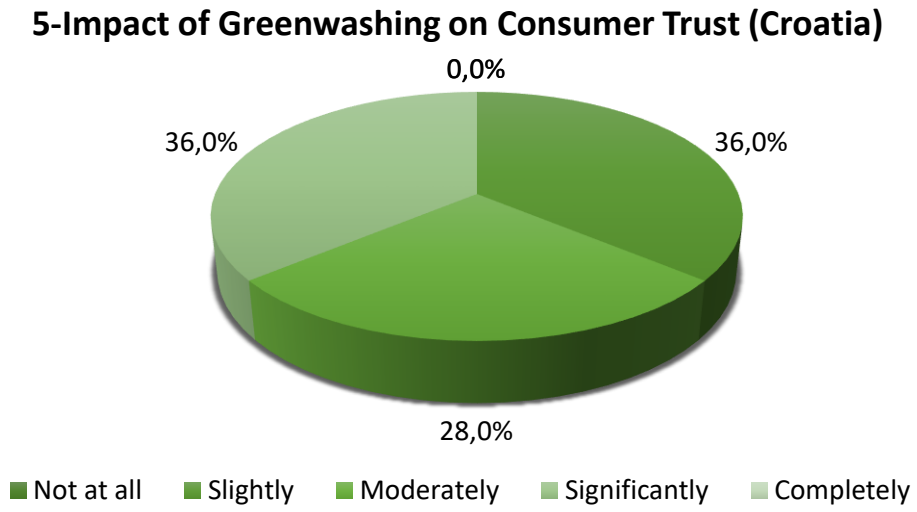
Ability to Differentiate Authentic Sustainability Practices

The data show that a significant portion of respondents faces challenges in differentiating between real eco-friendly practices and greenwashing. While 44% reported that they can “sometimes” make this distinction, 28% expressed difficulty, and only 12% claimed they could often differentiate, and only 4% can always distinguish them. This highlights a gap in critical knowledge and the potential for consumer manipulation through misleading eco-claims.



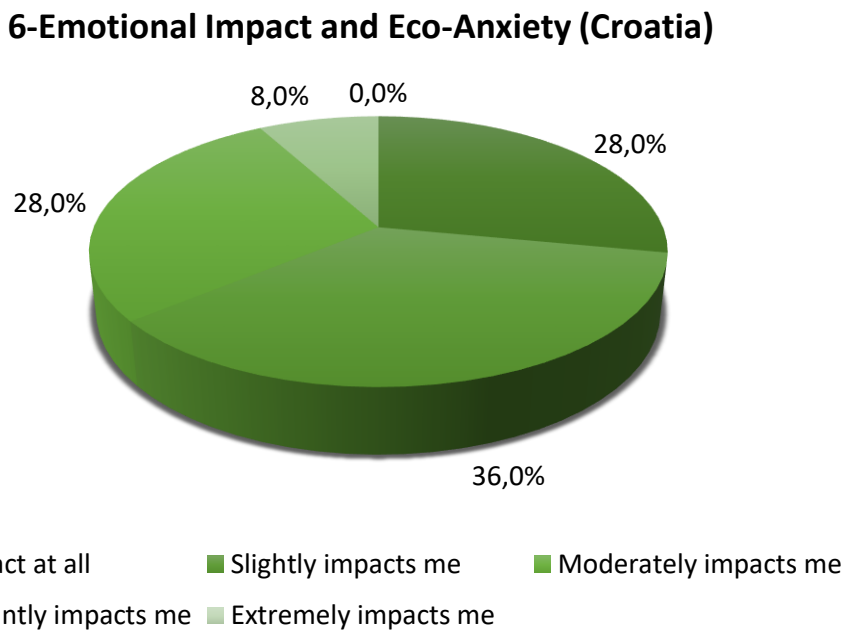
Impact of Greenwashing on Consumer Trust

Greenwashing appears to have a considerable impact on consumer trust in brands and companies. The survey revealed that 36% of respondents felt that greenwashing "significantly" undermines their trust in brands, and 28% indicated a "moderate" impact. This erosion of trust suggests that deceptive marketing practices are damaging the credibility of companies and making consumers more skeptical. However, a significant percentage, 36% of young people, claim that greenwashing has little impact on their trust in brands and companies. This indicates that there is still work to be done to raise awareness among young people about the consequences of greenwashing and the importance of making informed and responsible consumer choices.



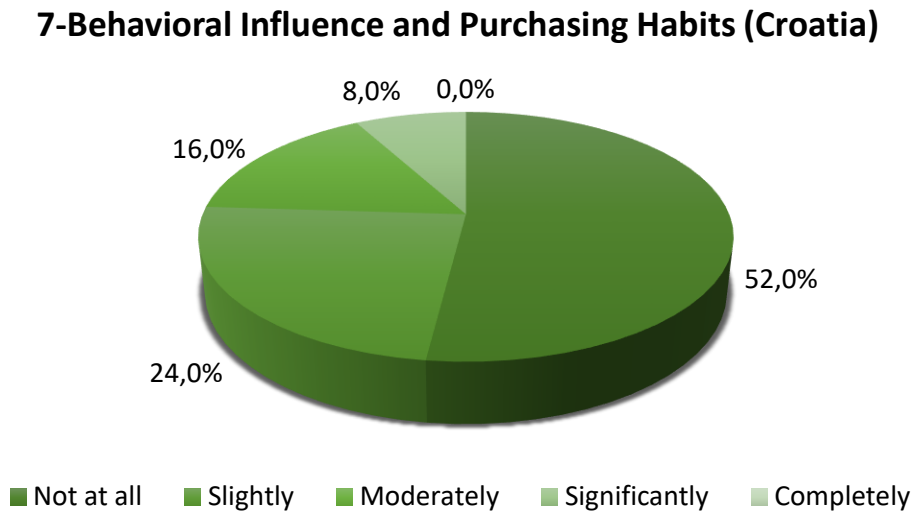
Emotional Impact and Eco-Anxiety

Greenwashing also contributes to feelings of stress and environmental anxiety among young people. A substantial 64% of respondents reported feeling “sometimes” anxious when trying to make eco-friendly choices due to the prevalence of misleading claims. Additionally, 8 % believed that greenwashing “significantly” contributes to feelings of environmental guilt or eco-anxiety. These findings indicate that the psychological impact of greenwashing is real and affects young people’s mental well-being.



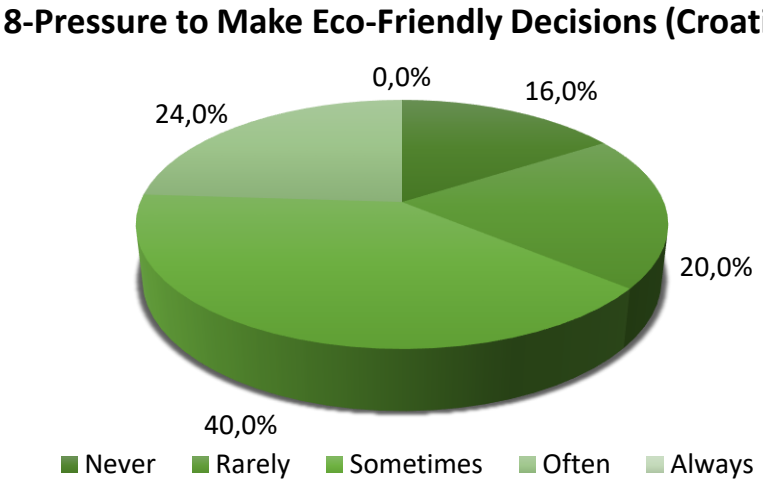
Behavioral Influence and Purchasing Habits

When asked about how greenwashing influences their behavior in everyday shopping, 52 % of respondents admitted they didn’t change their purchasing habits due to concerns about deceptive environmental claims. However, 48% indicated only moderate, slightly or significant changes. This suggesting that while greenwashing influences behavior, some young people may still feel uncertain about how to act on their concerns.



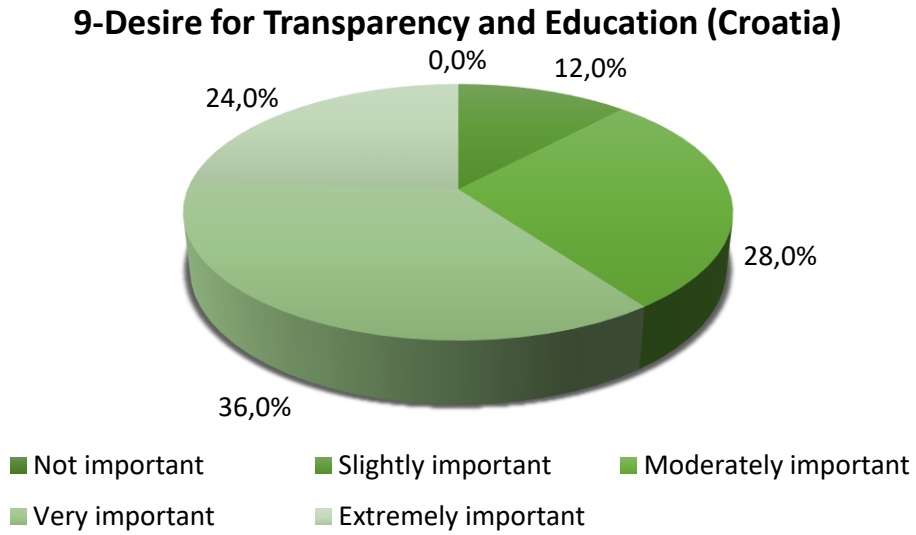
Pressure to Make Eco-Friendly Decisions

The survey found that 40% of young people feel pressured to make eco-friendly decisions "sometimes," even when they are unsure of the claims' authenticity. This pressure can lead to confusion and indecision, highlighting the need for clearer and more reliable information on sustainability practices.

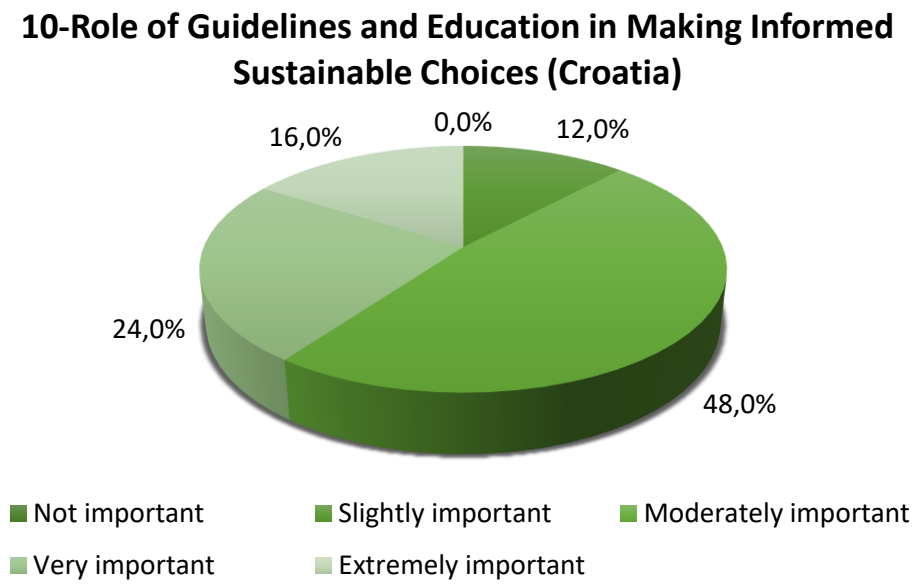


Desire for Transparency and Education

A strong consensus emerged around the need for corporate transparency and better education. About 36% of respondents stated that it is "very important" for companies to be transparent about their eco-friendly practices, and 28% found it "moderate important."



Furthermore, 48% believe that guidelines or educational programs could “moderately”, and 40% “completely or significantly” assist them in making more informed decisions about sustainable products. This underscores the critical role that education and clear communication can play in empowering young consumers. This underscores the critical role that education and clear communication can play in empowering young consumers. That means developing and implementing effective educational programs and clear guidelines is essential to equip young people with the knowledge and skills they need to recognize and avoid greenwashing. By doing so, we can help them make more informed and sustainable choices, fostering a generation that is more conscious of environmental impact and corporate responsibility.



Recommendations:

To address greenwashing's impact on Croatian youth, it is crucial to enhance education through targeted programs that teach young people how to identify genuine sustainability claims. Companies should prioritize transparency by providing verifiable data and measurable goals, while regulatory bodies must enforce stricter rules to prevent deceptive marketing. Additionally, fostering partnerships between educational institutions and NGOs can amplify awareness and equip youth with the tools to make informed, sustainable choices.

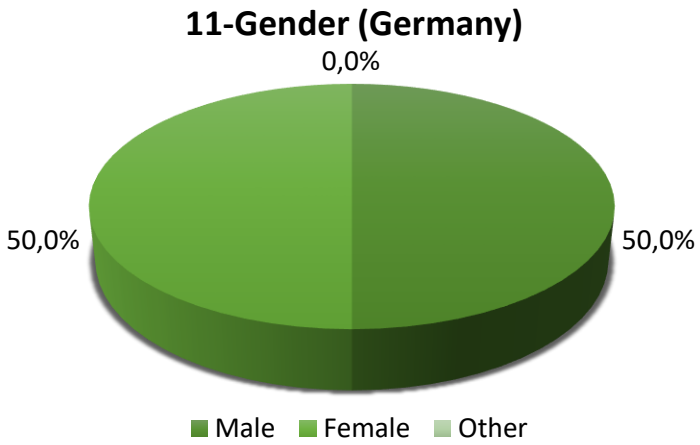
4.2.2. Germany Survey Results

Respondents were diverse in age, ranging primarily from 18 to 35 years, reflecting a cross-section of young adults and early professionals. Data was analyzed quantitatively, with frequencies and percentages used to identify dominant trends. Visualizations, such as bar charts, were created to summarize the findings effectively.

Analysis of Age and Gender Distribution

Gender Distribution

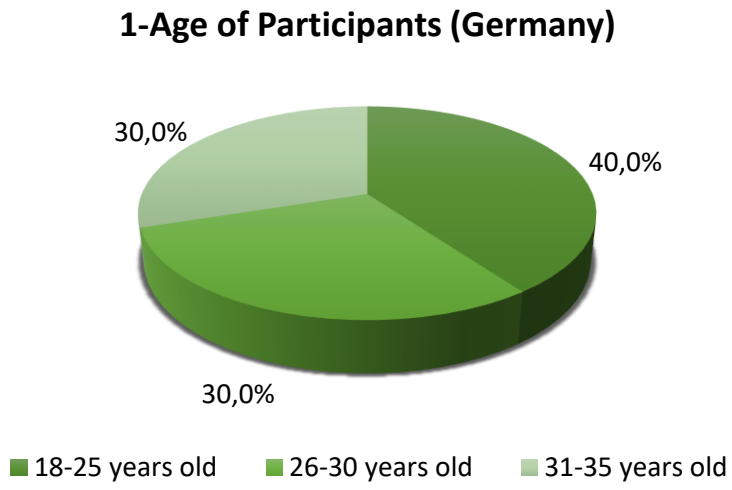
- The survey reflects an equal representation of genders, with a 50-50% split between male and female respondents.
- Key Insights:
    - 50% of the responses were from males.
    - 50% of the responses were from females.



This perfect balance in gender representation ensures that the findings are unbiased and representative of both male and female perspectives. It also allows for an equitable analysis of how greenwashing impacts individuals across genders.

Age Distribution

- The respondents span three key age groups, with a focus on younger individuals who are likely more environmentally aware and affected by greenwashing practices.



Key Insights:

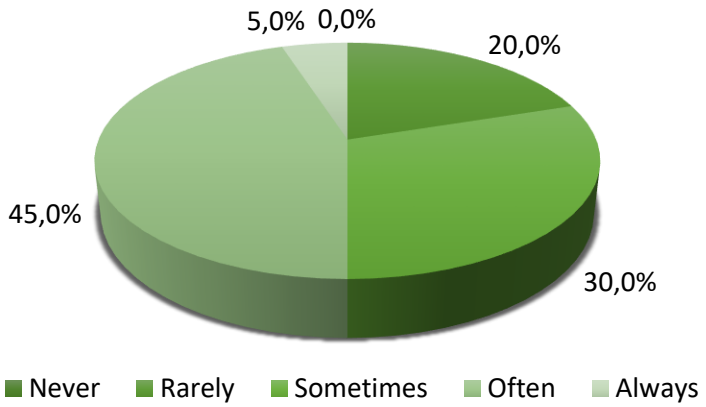
- The 18–25 age group comprises 40% of respondents, representing young adults and students who are highly engaged with sustainability issues.
- The 26–30 age group accounts for 30%, reflecting early-career professionals with growing purchasing power.
- The 31–35 age group also constitutes 30%, capturing slightly older participants with more life experience and potentially greater skepticism toward marketing claims.

Interpretation: The age distribution focuses on younger demographics, providing insights into the groups most vulnerable to or impacted by greenwashing. The even split between the 26–30 and 31–35 groups further strengthens the diversity of perspectives in the analysis.

1. Frequency of Encountering Greenwashing

- **Finding:** A significant portion of respondents (45%) reported encountering advertisements with greenwashing claims "Often" (Question 2), and another 30% reported encountering them "Sometimes" (Question 2).
- **Example:** For instance, advertisements featuring terms like "eco-friendly" or "sustainable" without credible backing were commonly mentioned by respondents.
- **Interpretation:** This prevalence suggests that greenwashing is an everyday phenomenon that impacts consumer perception. Such frequent exposure can lead to growing skepticism about corporate environmental claims.

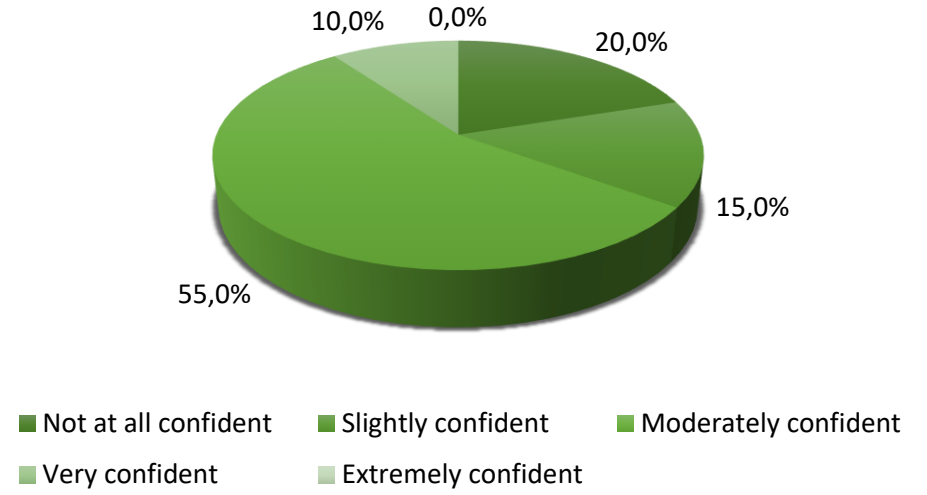
2-How often do you encounter advertisements or campaigns that claim to be environmentally friendly? (Germany)



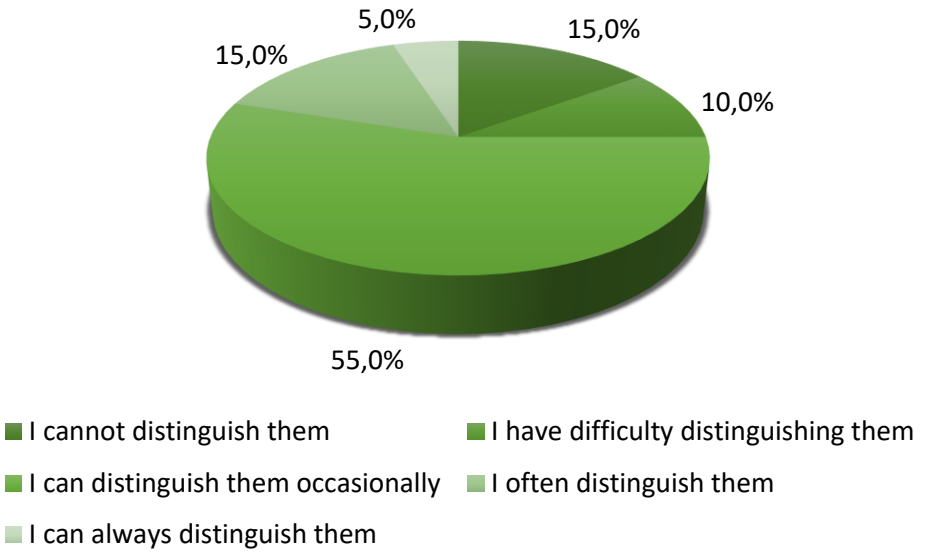
2. Confidence in Identifying Greenwashing

- **Finding:** 55% of respondents stated they feel "Moderately confident" in identifying greenwashing (Question 3). Additionally, 55% noted they "occasionally" distinguish real eco-friendly practices from misleading claims (Question 4).
- **Example:** Younger respondents aged 18-25 reported lower confidence levels, reflecting their struggles to identify deceptive practices, while respondents aged 26-35 displayed slightly higher confidence.
- **Interpretation:** This indicates a general lack of tools or knowledge among consumers, particularly younger demographics, to reliably discern genuine environmental practices from greenwashing.

3-How confident are you in determining whether a product or service is genuinely eco-friendly or if it is greenwashing?(Germany)

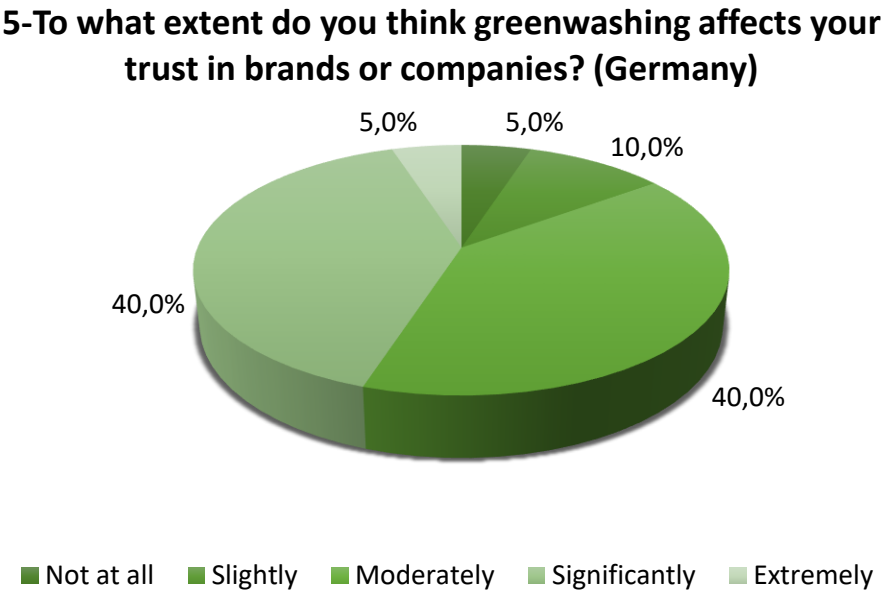


4-Can you distinguish genuinely eco-friendly practices from greenwashing? How do you do it? (Germany)

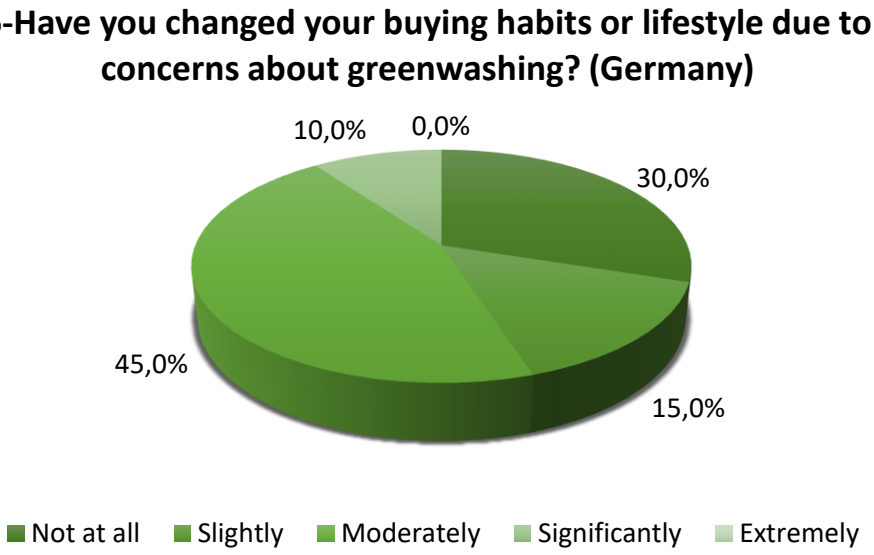


3. Behavioral Impact

- **Trust in Brands (Question 6):** 40% of respondents said that greenwashing "Significantly" affects their trust in brands.

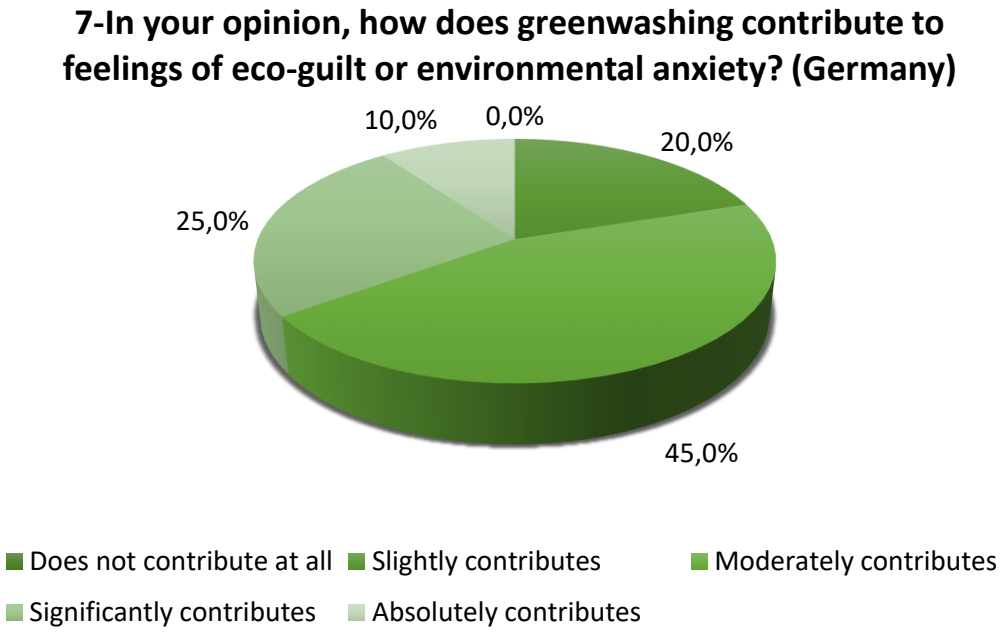


- **Purchasing Decisions (Question 14):** 45% admitted to "Moderately" changing their buying habits due to concerns about greenwashing, such as opting for brands with verifiable certifications.
- **Example:** A respondent mentioned feeling deceived after purchasing a product labeled "biodegradable," only to discover it contained plastic components.
- **Interpretation:** Greenwashing erodes trust, leading to behavioral shifts like reduced brand loyalty and increased scrutiny of environmental claims.

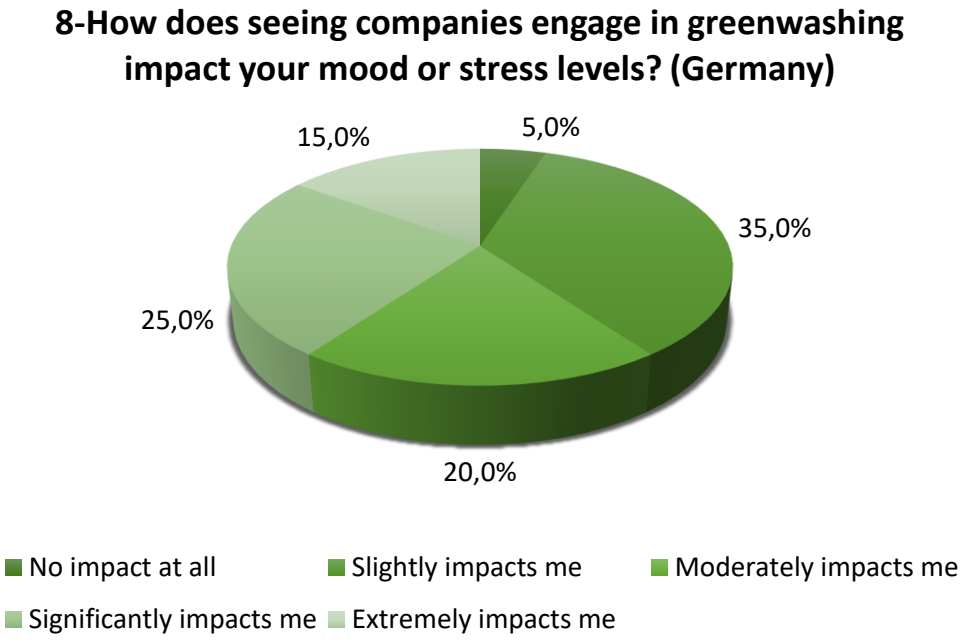


4. Mental Health Impact

- **Emotional Effects (Question 11):** 45% stated that greenwashing "Moderately contributes" to eco-guilt and anxiety. Younger participants, especially those aged 18-25, reported feeling overwhelmed by the conflicting claims.



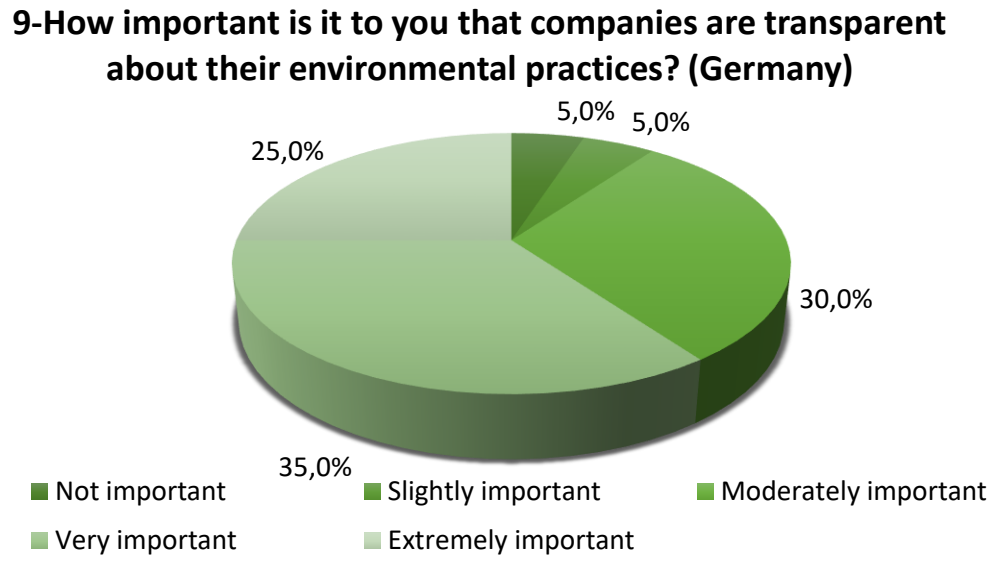
- **Stress and Mood (Question 7):** 35% reported that greenwashing "Slightly impacts" their mood or stress levels.



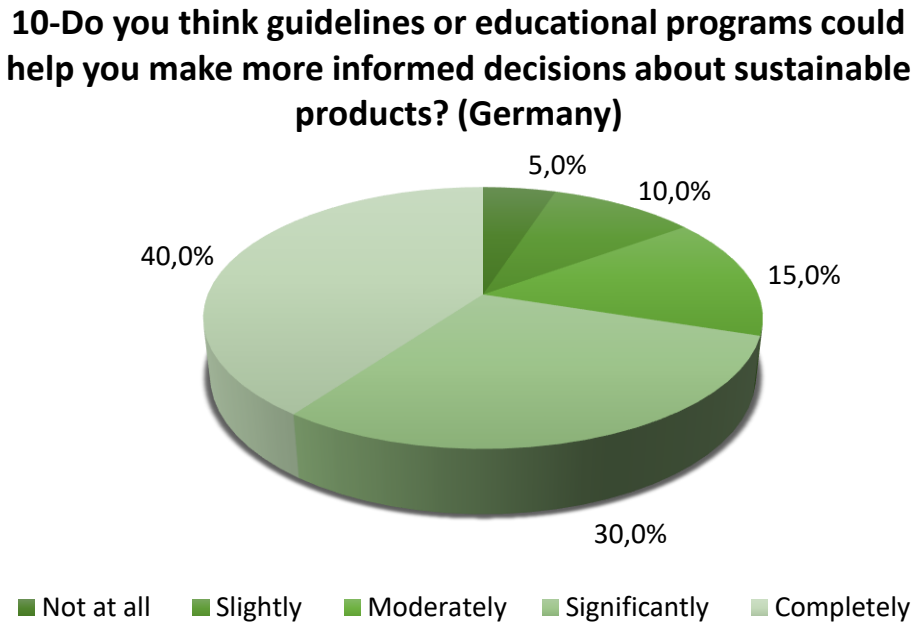
- **Example:** One respondent noted experiencing stress while trying to make sustainable choices, only to later find out the product wasn't genuinely eco-friendly.
- **Interpretation:** Greenwashing exacerbates eco-guilt and decision fatigue, especially in younger demographics striving to make a positive environmental impact.

5. Opinions on Greenwashing

- **Transparency (Question 15):** 34% emphasized that corporate transparency is "Very important."



- **Educational Need (Question 16):** 40% strongly supported the implementation of educational programs to help consumers make informed decisions.



- **Example:** Respondents aged 18-25 prioritized the need for accessible resources, while older participants (30-35) emphasized stricter regulations and corporate accountability.
- **Interpretation:** There is a clear demand for transparency and verifiable claims. Consumers seek both regulatory changes and educational tools to navigate greenwashing effectively.

Conclusion

The survey highlights the pervasive impact of greenwashing on consumers. Key findings include:

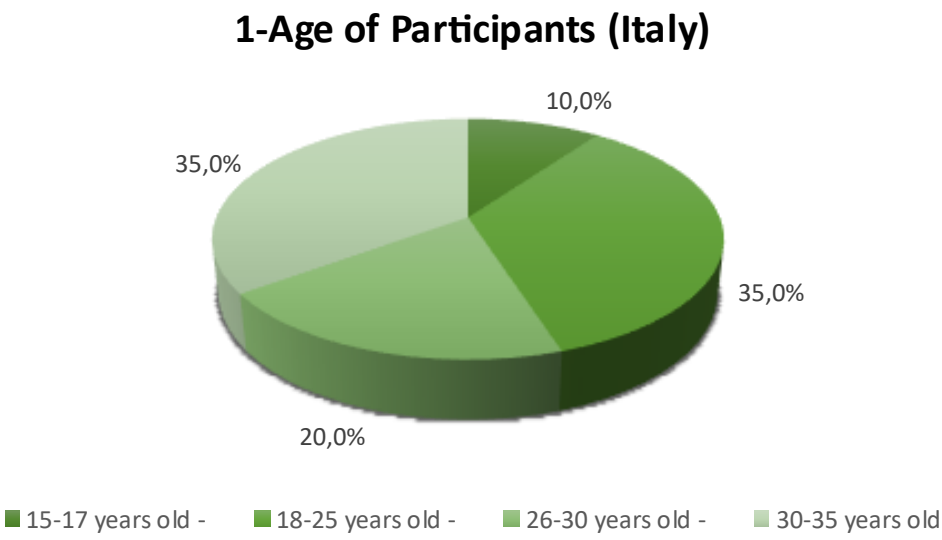
1. **Prevalence:** Nearly half of respondents (45%) frequently encounter greenwashing, indicating its widespread use in marketing strategies (Question 2).
2. **Confidence Gap:** While most respondents feel "Moderately confident" (55%, Question 3), their ability to distinguish genuine claims is limited, as 55% "occasionally" identify greenwashing (Question 4).
3. **Behavioral Impact:** Greenwashing erodes trust (40%, Question 6), alters buying habits (45%, Question 14), and complicates sustainable choices (40%, Question 13).
4. **Emotional Toll:** Greenwashing contributes to eco-guilt (45%, Question 11) and stress, especially among younger respondents.
5. **Demand for Change:** Consumers demand greater transparency (40%, Question 15) and education (55%, Question 16) to make informed choices.

Recommendations:

To mitigate the adverse effects of greenwashing, companies must adopt transparent, verifiable practices. Educational programs are essential to empower consumers with tools to critically evaluate sustainability claims. Regulatory authorities should enforce stricter guidelines to curb misleading advertisements and promote trust in sustainable practices.

4.2.3. Italy Survey Results

Demographics



In the sample analyzed, 35 percent of participants fall into the 18-25 and 30-35 age groups, respectively. Equally significant are the responses of participants between 26-30 years old (20 percent) and a smaller percentage (10 percent) between 15-17 years old. This age range represents young students as well as young workers and adults, providing a cross-sectional view of the phenomenon among different age groups.

Frequency of Exposure and Ability to Recognize Greenwashing Practices

The data indicate that greenwashing is a widespread phenomenon among young people, with 60 percent of participants stating that they often come across advertising campaigns declaring green intentions, although about 20 percent feel “Fairly confident” in distinguishing sustainable products from greenwashing practices. Among younger people, especially those aged 15-17, there emerges a lower level of confidence in recognizing such practices, while participants aged 26-35 report a slightly higher level of confidence and discernment. Despite this greater perceptual ability, insecurity remains a cross-cutting element among the different age groups, with 45 percent of the total stating that they have felt deceived at least once by misleading statements, a phenomenon particularly prevalent among younger participants.

Emotional Impact and Stress

The analysis reveals that greenwashing has a significant impact on the psychological well-being of young people. The 15-25 age group appears to be particularly vulnerable, with 60 percent of respondents associating high levels of stress and anxiety with greenwashing, likely related to the difficulty of navigating through often ambiguous and conflicting messages. The sense of "eco-guilt," or psychological distress related to the perception of not being able to make truly sustainable choices, appears to be heightened in younger respondents. Even among participants between the ages of 30-35, greenwashing maintains an emotional impact, albeit with a slightly lower incidence, suggesting a greater ability to detach or manage stress as they age.

Influence on Purchasing Decisions

Young adults, particularly those between the ages of 18 and 25, show a predisposition to change their purchasing habits, influenced by environmental claims of products and services. However, uncertainty about the veracity of such claims leaves many consumers unsatisfied and undecided. Approximately 10 percent of young adults say they are driven to make green choices despite a lack of transparency, highlighting how sensitivity to the environment can overlap with distrust of advertising information. In higher age groups, this influence is less, probably due to a greater ability to analyze and question environmental claims.

Demand for Greater Transparency and Educational Programs

The desire to adopt a sustainable lifestyle is also reflected in the demand for transparency from companies. In particular, among young adults (18-25 years old), about 40 percent believe there is a need for guidelines or educational programs that can help them make more informed decisions. This suggests a need for educational support, with the goal of acquiring more critical and informed analytical tools. In the 30-35 age groups, however, interest shifts toward greater transparency, showing a growth in awareness with age, where experience seems to reduce the need for educational support.

The survey brings to light how greenwashing is a phenomenon that profoundly affects the mental health and consumption behavior of young people. Frequent exposure to misleading advertisements fuels anxiety, stress and a sense of "eco-guilt" that can lead to uncertain and sometimes counterproductive consumption behavior. Younger age groups are particularly susceptible, demonstrating a strong desire to move toward sustainable choices but, at the same

time, showing significant difficulty in distinguishing between genuine and deceptive green practices. Among older participants, the tendency to perceive deception and anxiety remains present, although mitigated by experience and greater capacity for critical detachment, enabling them to deal more resiliently with the stress induced by greenwashing. The demand for transparency and interest in educational guidelines indicate that there is a growing demand for clear and verifiable information, now considered essential for conscious and sustainable consumption. Finally, the need for educational tools is particularly felt by younger people, who want to develop critical skills to better interpret sustainability statements, and promote a more informed consumer culture that is mindful of environmental impacts.

This analysis suggests the importance of more transparent and verifiable regulations and corporate communication practices, as well as educational programs aimed at strengthening the critical capacity of young consumers. Facilitating access to authentic information about sustainable practices could not only improve the psychological well-being of the younger generation, but also drive the market toward more concrete and responsible sustainability.

Recommendations

Based on the analysis of survey responses, the following recommendations are proposed to address the challenges posed by greenwashing and its effects on young people:

1. Regulatory Action on Transparency: Governments and regulatory bodies should implement stricter guidelines to ensure that companies provide clear, verifiable, and standardized information about the sustainability of their products and services. This could include mandatory disclosure of life cycle assessments and third-party certifications to validate claims.

2. Educational Programs for Young Consumers: Tailored educational initiatives should be designed to enhance critical thinking skills and consumer literacy in distinguishing between genuine and deceptive green claims. These programs could be integrated into school curricula, community workshops, or online platforms targeting youth.

3. Awareness Campaigns on Greenwashing: Public awareness campaigns should highlight the characteristics and dangers of greenwashing. These campaigns can educate consumers about identifying false claims and encourage them to demand greater accountability from companies.

4. Corporate Social Responsibility (CSR) Enhancement: Companies should be encouraged to adopt and communicate transparent, authentic sustainability practices. Building consumer trust through honesty and tangible environmental actions can reduce the prevalence of greenwashing.

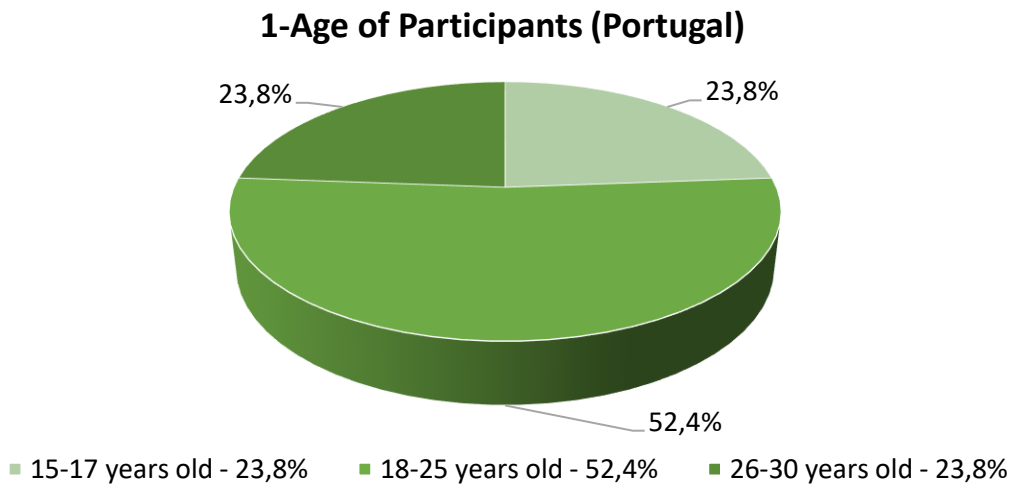
5. Support Systems for Mental Health: Given the psychological impact of greenwashing, particularly among the younger population, mental health support initiatives could be provided. These could include awareness on managing “eco-guilt” and promoting a balanced perspective on sustainable choices.

6. Collaboration Between Stakeholders: Partnerships between educational institutions, NGOs, and businesses should be fostered to create unified efforts in tackling greenwashing. Collaborative initiatives could include co-developed sustainability guidelines or shared platforms for credible environmental information.

4.2.4. Portugal Survey Results

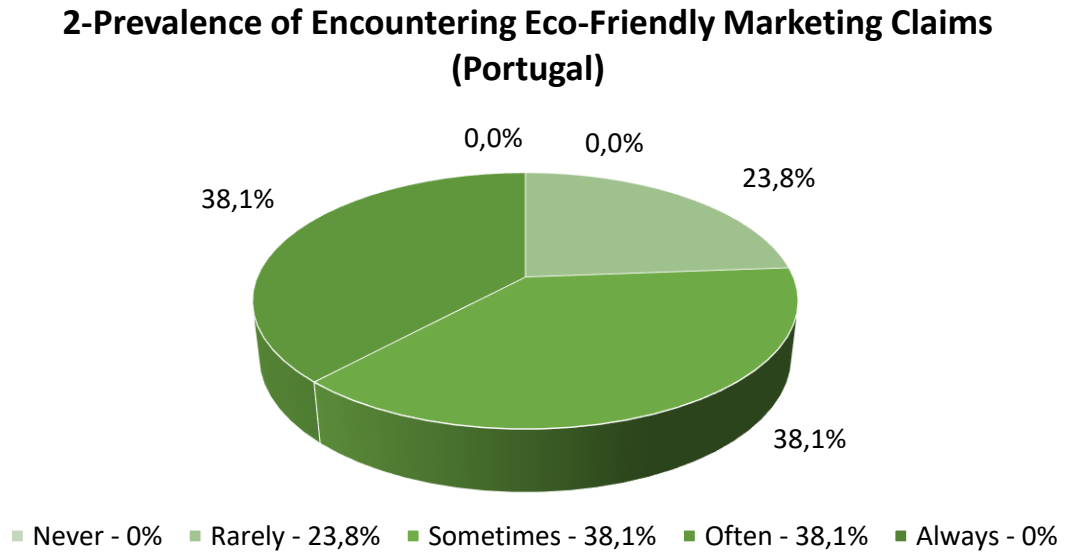
- **Sample Size and Demographics**

The survey received a total of 21 responses from young people in Faro, Portugal, aged 18 to 30. Within this group, 23,8% of participants were 15-17 years old, 52,4% were 18-25, and 23,8% were 26-30. Regarding gender, 57,1% identified as male, 38,1% as female, and 4,8% as non-binary.



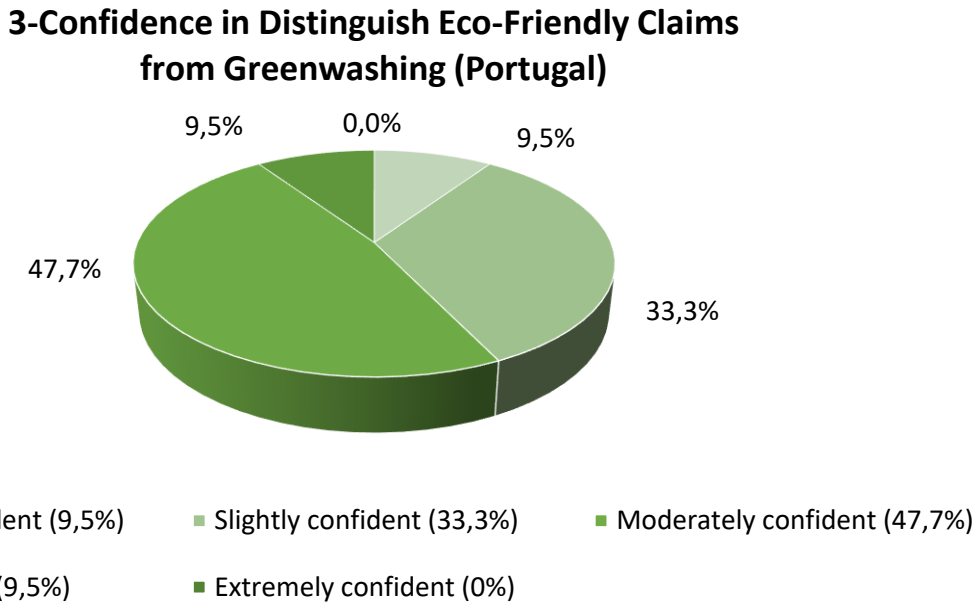
- **Prevalence of Eco-Friendly Marketing Claims**

The majority of young people who responded to the survey reported **encountering advertisements or campaigns with environmental claims either frequently** (38,1%) **or sometimes** (38,1%), making up a total of 76,2% of all responses. 23,8% stated they rarely come across such claims. None of the participants selected the extreme options, "never" or "always."



- **Confidence and Capacity to Distinguish Eco-Friendly Claims from Greenwashing** (questions 3, 4)

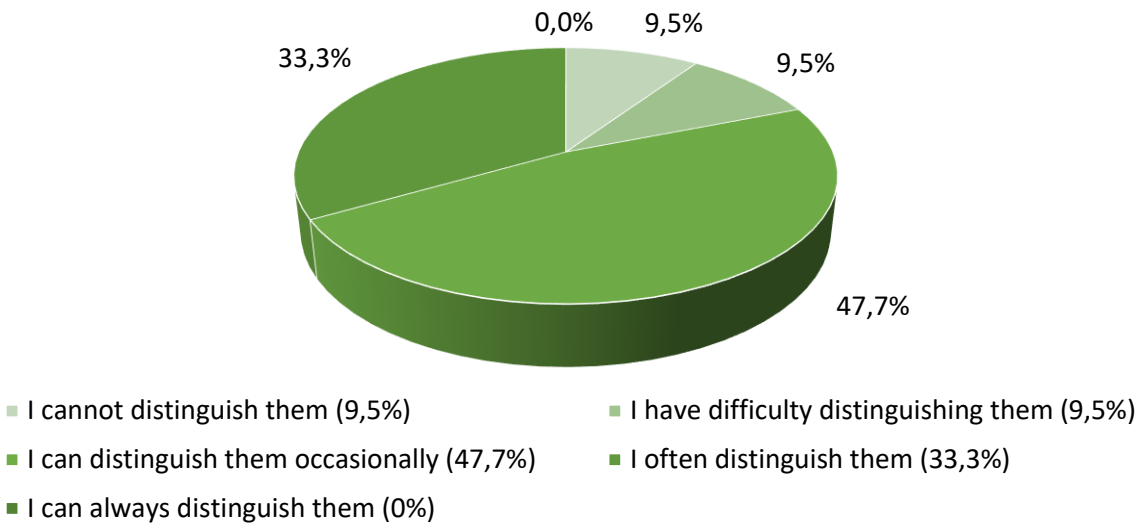
9,5% said they were not confident at all, while almost half of the respondents (47,7%) said they were **moderately confident** in distinguish true eco-friendly claims from greenwashing. About a third (33,3%) said felling slightly confidente. Only 9,5% said they were very confident and none of the respondents reported felling extremely confident.



33,3% stated they often could distinguish true eco-friendly claims from greenwashing, while the majority, **47,7% reported that they could distinguish between the two occasionally.**

9,5% answered being unable to distinguish between the two and 9,5% answered having difficulty doing so. None of the respondents reported always being able to distinguish them.

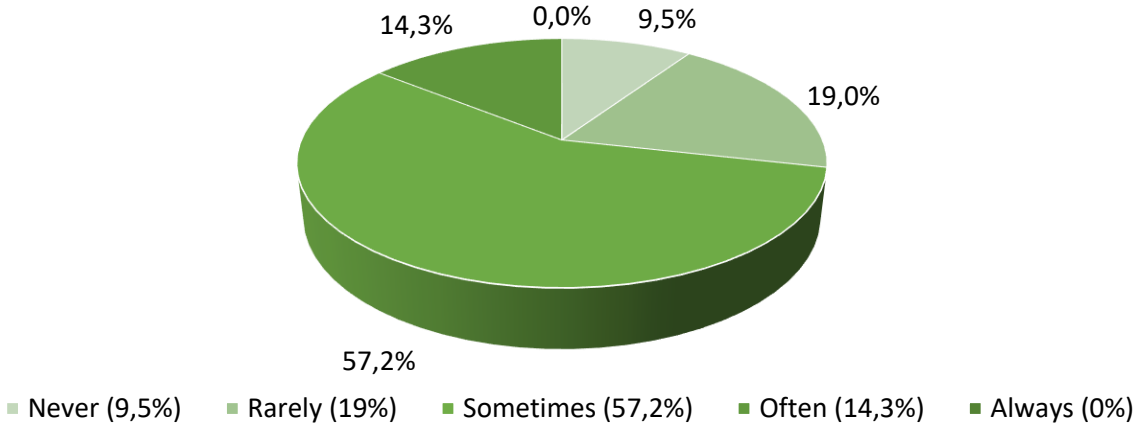
4-Capacity to Distinguish Eco-Friendly Claims from Greenwashing (Portugal)



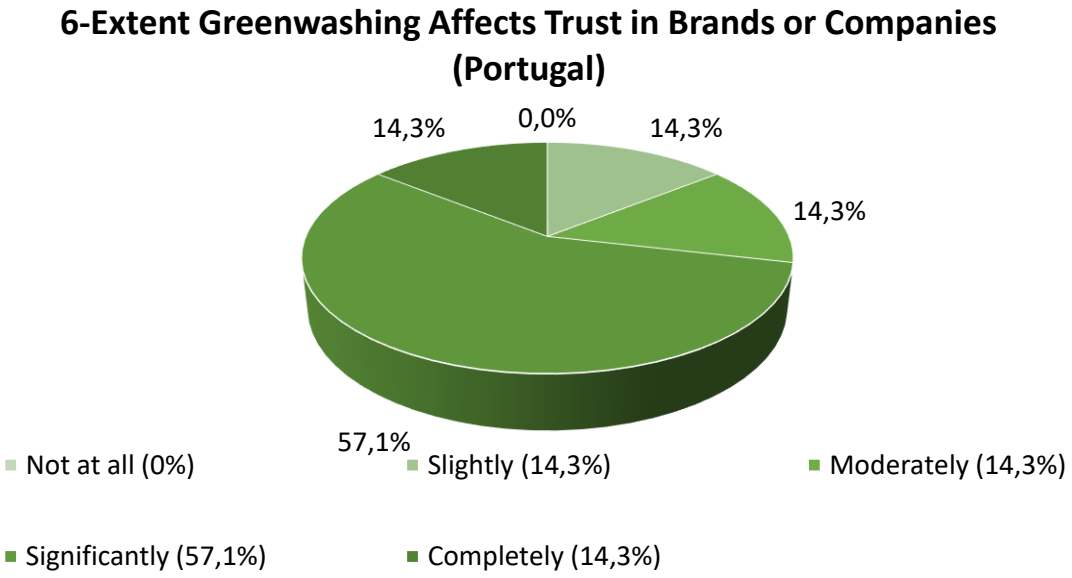
- **Behaviour Impacts**

Over half of the respondentes - **57,2% said they sometimes feel misled after buying products based on environmental claims.** A smaller percentage says rarely (19%) or often (14%) feeling this way, while 9,5% never feel misled. 0% reported always feeling misled.

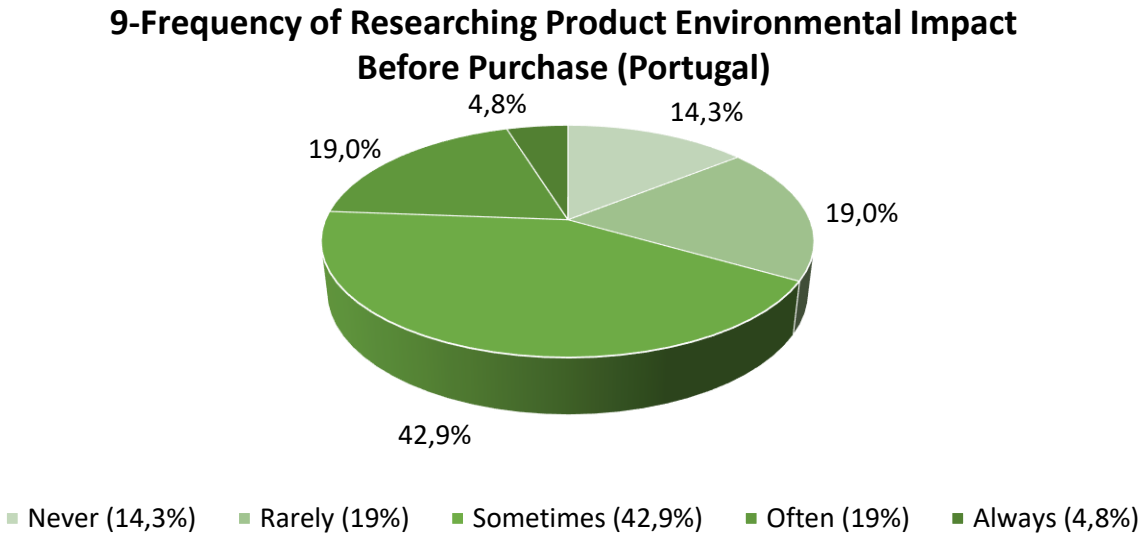
5-Feeling Misled After Purchasing Based on Environmental Claims (Portugal)



The majority of respondents (57,1%) said greenwashing significantly affects their trust in brands or companies and 14,3% said it affects their trust completely. 14,3% reported it affects their trust just slightly and others 14,3% moderately. 0% indicated that greenwashing doesn't affect their trust at all.

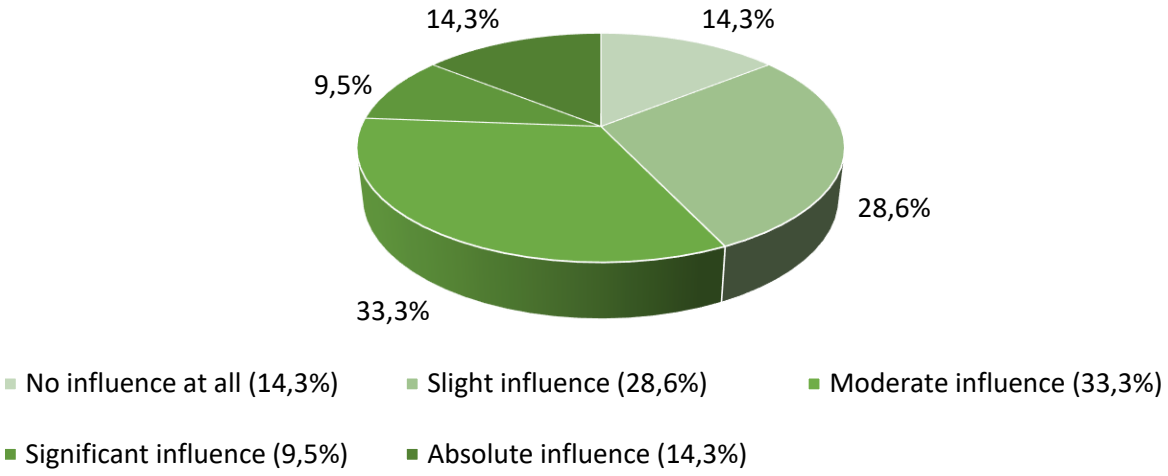


Most participants (42,9%) said they sometimes research a product's environmental impact before buying it. Smaller groups reported doing so rarely (19%) or often (19%). 14,3% reported never doing research. 4,8% says always researching before buying.



Greenwashing has a moderate influence on peer purchasing decisions for 33,3% of respondents. Slight influence was reported by 28.6%, while 14.3% felt it had either no influence at all or absolute influence. Only 9.5% said it had a significant influence.

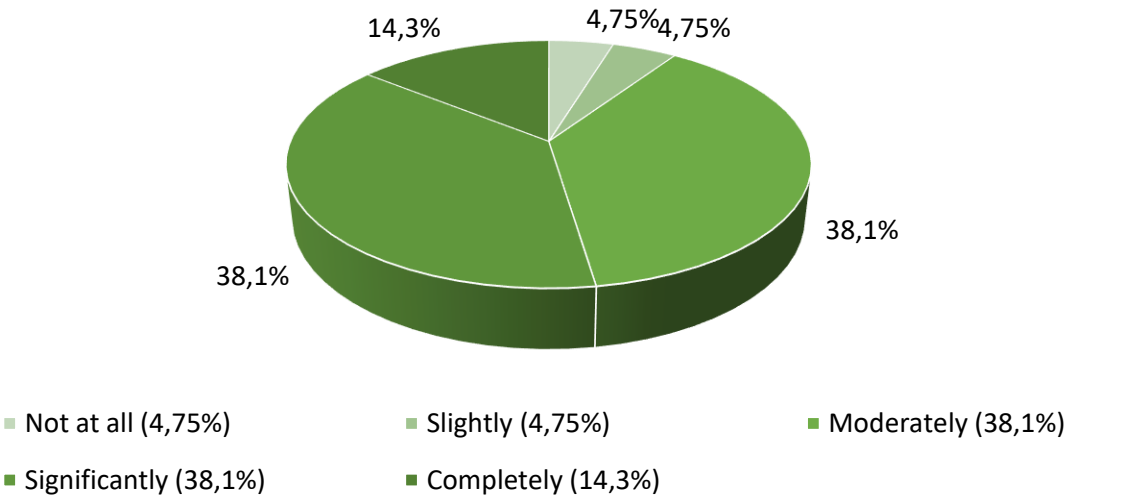
12-Influence of Greenwashing on Peer Purchasing Decisions (Portugal)



(question 13)

Misleading environmental claims are said to pose a significant challenge to adopting a sustainable lifestyle for 38,1% of the young respondents, with another 38,1% saying it poses a moderate challenge. 14,3% says it affects them completely. A small percentage says they are slightly (4,75%) or not at all (4,75%) affected by such claims.

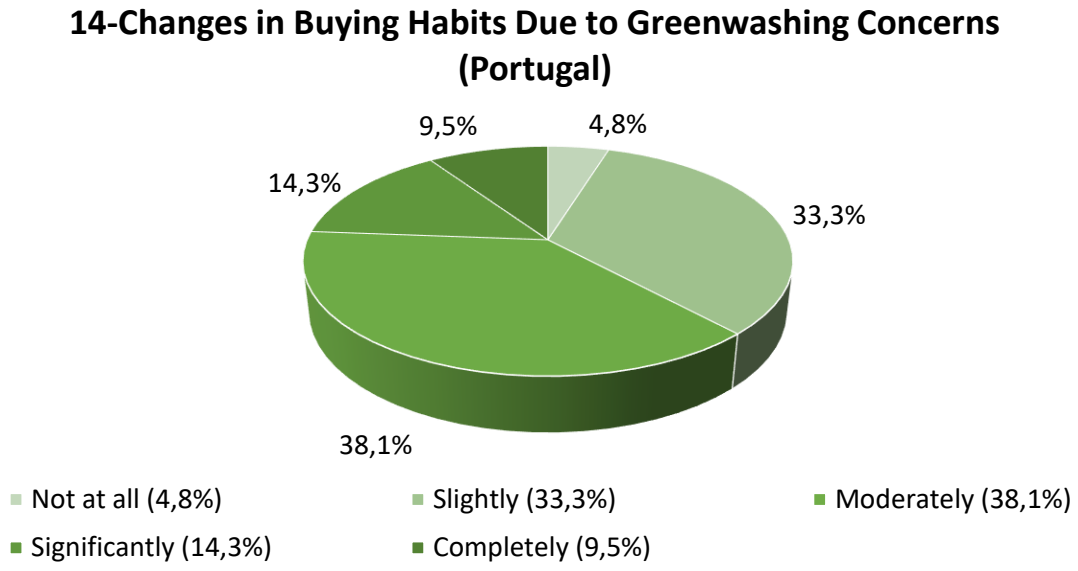
13- Challenges Misleading Claims Pose to Adopting a Sustainable Lifestyle (Portugal)



(question 14)

Greenwashing concerns are moderately influencing the buying habits of 38,1% of the survey participants, while 33,3% reported slight influence. 14,3% answered significant and 9,5%

complete shifts in their habits due to greenwashing concerns. Only 4,8% said their habits haven't changed at all.



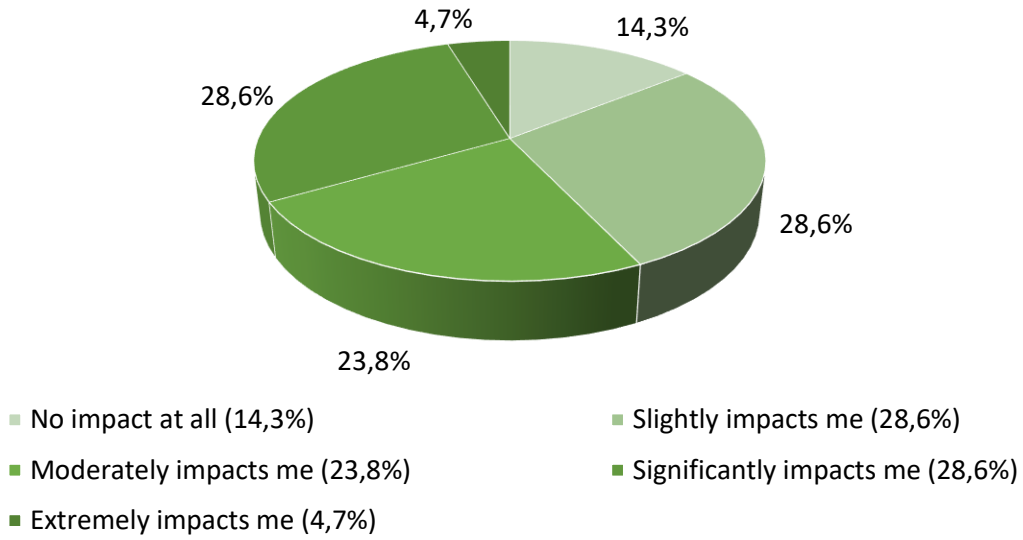
- **Mental Health Impacts**

  (questions 7, 8, 10, 11)

  (question 7)

Greenwashing slightly (28,6%) or significantly (28,6%) impacts the mood and stress levels of respondents, while 23,8% reported a moderate impact. 14,3% reports feeling no impact at all and on the other extreme, 4,7% says it impacts them extremely.

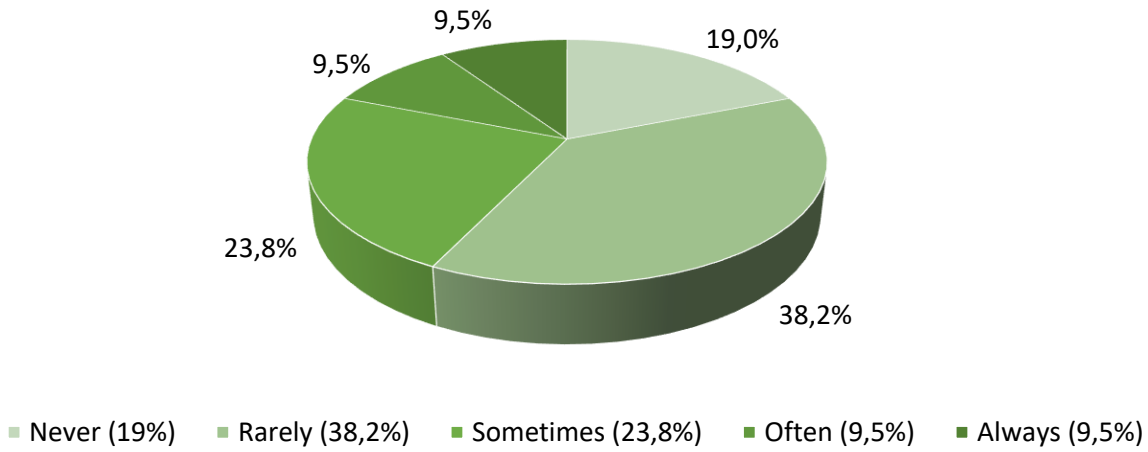
7-Impact of Greenwashing on Mood and Stress Levels (Portugal)



(question 8)

19% of respondents say they never feel anxious about misleading eco-friendly claims, while 38,2% say feel anxious rarely, and 23,8% sometimes. For some, the anxiety is more frequent, as they state feeling misled often (9,5%) or always (9,5%).

8-Anxiety from Misleading Claims in Making Eco-Friendly Choices (Portugal)

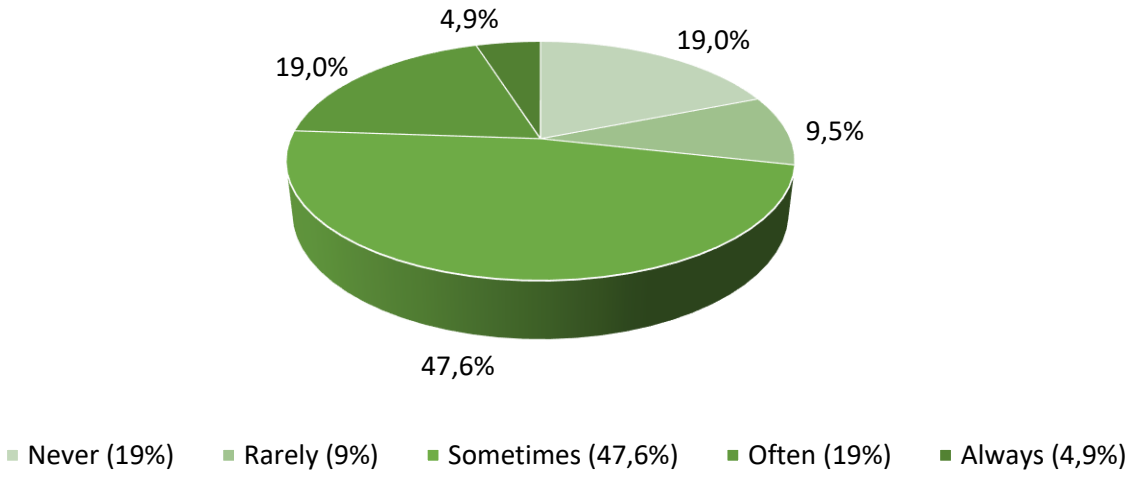


(question 10)

47,6% report feeling the pressure to make sustainable choices sometimes, while 19% report experiencing it often. A smaller group (4,9%) feel this pressure always, indicating a consistent

challenge. On the other hand, 9% rarely feel this pressure, and 19% never experience it at all, showing that for some, uncertainty around sustainability does not weigh heavily on their choices.

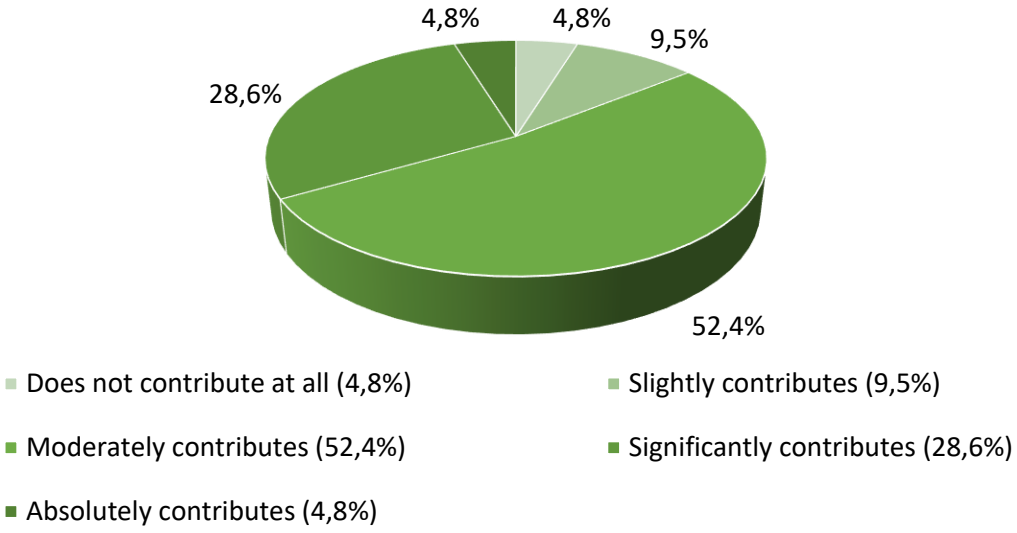
10-Pressure to Make Sustainable Choices Amid Uncertainty (Portugal)



(question 11)

Greenwashing plays a notable role in eco-guilt and environmental anxiety for many respondents. A majority (52,4%) feel it moderately contributes to these feelings, while 28,6% report that it significantly contributes. Additionally, 9,5% say it slightly contributes, and 4,8% feel it absolutely contributes to their environmental concerns. A small portion (4,8%) feel greenwashing does not contribute at all to their eco-guilt or anxiety.

11-Role of Greenwashing in Eco-Guilt and Environmental Anxiety (Portugal)

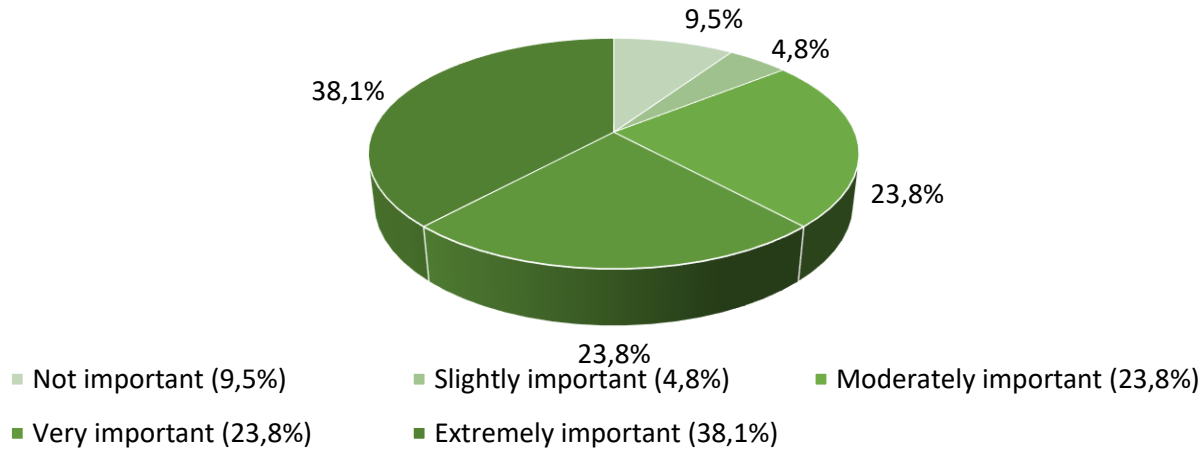


- **Personal Opinion on Greenwashing** (questions 15, 16)

(question 15)

Transparency in companies' environmental practices is seen as crucial by most respondents. A significant 38,1% consider it extremely important, while 23,8% believe it is very important. Additionally, 23,8% think it is moderately important. However, a smaller portion of respondents (4.8%) view it as slightly important, and 9.5% consider it not important at all.

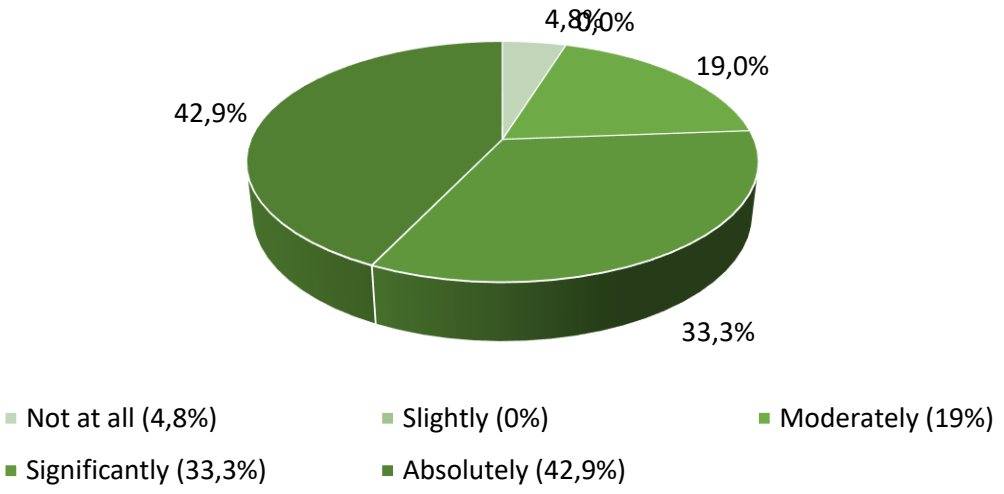
15- Importance of Transparency in Companies' Environmental Practices (Portugal)



A substantial 42,9% of respondents think guidelines and education for better informed sustainable choices can absolutely contribute to making informed decisions, while 33,3% feel they

may significantly help. Additionally, 19% say they would moderately benefit from such guidance. Only a small portion (4,8%) feel that guidelines and education do not play a role at all. This highlights the importance of proper resources and learning in fostering sustainability.

16-Role of Guidelines and Education in Making Informed Sustainable Choices (Portugal)



Main conclusions:

The following conclusions can be drawn regarding the Faro, Portugal sample:

- **Prevalence of Eco-Friendly Marketing Claims** (frequency of encountering eco-friendly marketing claims, question 2)

  The majority reported encountering advertisements or campaigns with environmental claims either frequently (38,1%) or sometimes (38,1%), totaling 76,2% of all responses. This indicates that most participants notice this type of communication regularly, as consumers, in their daily lives. This points towards the possible prevalence of this topic in the daily lives of young people and underscores the importance of studying it further and building their capacity to become more knowledgeable and informed consumers.

- **Confidence and Capacity to Distinguish Eco-Friendly Claims from Greenwashing** (confidence and capacity in identifying greenwashing, questions 3, 4)

  Almost half of the participants, 47,7%, reported feeling moderately confident in distinguishing true eco-friendly claims from greenwashing, and about a third, 33,3%, said felling slightly confident. This suggests that young people already demonstrate some awareness of the topic and an interest in being informed to differentiate between the two. However, it also highlights room for improvement in building their knowledge and skills to make these distinctions more effectively. None of the respondents reported felling extremely confident.

  When it comes to the ability to distinguish eco-friendly claims from greenwashing, participants' responses align with their confidence levels. The majority, a total of 47,7%, reported being able to distinguish between the two occasionally, pointing to the fact that confidence and capacity can be intertwined.

- **Behaviour Impacts** (the degree to which it affects their behavior, questions 5, 6, 9, 12, 13, 14)

  Over half of the respondentes, 57,2%, said they sometimes feel misled after buying products based on environmental claims, and the same percentage said greenwashing significantly affects their trust in brands or companies. These results point to a possible impact on mental health, as participants may feel deceived by brands and the need to always be attentive and alert to the possibility of being misled.

  These concerns also seem to be influencing the behavior of young participants as consumers, with 42,9% saying they sometimes research a product's environmental impact before buying it, 19% often researching before purchasing, and 4,8% always researching before buying.

  38,1% stated that greenwashing concerns are moderately influencing their buying habits, and 33,3% reported a slight influence.

  Regarding lifestyle habits, misleading environmental claims are said to pose a significant challenge to adopting a sustainable lifestyle for 38,1% of the young respondents, with another 38,1% saying it poses a moderate challenge, totaling 76,2% of all responses. This means that a large majority of participants perceive these misleading claims as a considerable barrier to embracing a more sustainable lifestyle.

  All these results suggests that greenwashing can be a pervasive issue with both emotional and behavioral consequences.

- **Mental Health Impacts** (the degree to which it affects their mental health, questions 7, 8, 10, 11)

  Regarding mental health questions specifically, greenwashing slightly (28.6%) or significantly (28.6%) impacts the mood and stress levels of respondents, with 4,7% saying it impacts them extremely. This means a total of 61.9% report some kind of impact, whether slight, significant, or extreme, suggesting that a relevant possible effect of greenwashing on young people well-being.

  In fact, 47,6% reported feeling eco-anxiety and pressure to make good environmental choices sometimes, while 19% feel this pressure often, and 4.9% always. This totalizes 71.5% of all respondents, suggesting that many young people may regularly feel pressure about their environmental choices. Additionally, greenwashing plays a notable role in eco-guilt and environmental anxiety for the majority of respondents. While 52.4% feel it moderately contributes to these feelings, over 30% state higher levels of eco-guilt.

  In conclusion, greenwashing appears to have a significant impact on mental health, namely with 61,9% reporting some level of mood or stress impact and 71,5% feeling pressure to make environmentally responsible choices, contributing to eco-anxiety and eco-guilt feelings.

- **Personal Opinion on Greenwashing** (their personal opinion on greenwashing, questions 15, 16)

  Possibly because of these negative impacts, transparency in companies' environmental practices is seen as crucial by most respondents, with 61.9% of participants considering it extremely and very important. And regarding the role of guidelines and education in making informed sustainable choices, a substantial 42,9% of respondents believe they absolutely contribute to making informed decisions, while 33,3% feel they may significantly help.

  All these results highlight the importance and relevance of the work ahead.

V. Takeaways and Guidelines

Based on the GreenWashing Index research and the Survey analysis herein presented, this section explores the prevalence and impact of greenwashing across Croatia, Germany, Italy, and Portugal, emphasizing its role in shaping consumer behavior, trust, and mental health. Greenwashing has emerged as a significant barrier to genuine sustainability efforts. Across these partner nations, industries such as energy, automotive, consultancy, and consumer goods employ ambiguous claims and unverified certifications, eroding consumer confidence and contributing to eco-anxiety. This report examines the unique manifestations of greenwashing in each country, identifies its effects on young demographics, and highlights the shared demand for transparency, regulatory action, and education to combat its adverse impacts.

Croatia

Greenwashing Practices:

Energy Sector Dominance: Key case studies such as INA (Croatia's largest energy company) and HEP (national energy provider) demonstrate systemic greenwashing. INA's campaigns use vague slogans like "Making Croatia Green," accompanied by visuals of pristine nature. These are contradicted by incidents such as oil spills and the Sisak refinery's environmental mismanagement, highlighting the disparity between marketing and actual practices.

Limited Certifications: While INA references general sustainability initiatives like the Green Belt project, it lacks third-party certifications to substantiate its claims. HEP faces similar issues, boasting about renewable projects like the Korlat Wind Power Plant but continuing to rely on fossil fuels (over 60% of their energy portfolio).

Impact on Consumers:

Psychological Stress and Trust Issues: Surveys reveal a deep mistrust in green claims, with over half of young respondents struggling to distinguish authentic environmental efforts from greenwashing. This struggle leads to eco-anxiety and "eco-guilt," particularly among younger demographics, who feel pressured to make sustainable choices but are unsure of the validity of marketed claims.

Behavioral Responses: While many youths are aware of greenwashing, its prevalence diminishes their confidence in environmental claims, undermining trust in brands and reducing the likelihood of changing consumption habits based on green claims.

Key Observations:

Greenwashing in Croatia is deeply embedded in industries critical to the economy, like energy, which perpetuates mistrust and misinformation.

A clear demand exists for stricter transparency measures, third-party certifications, and consumer education to combat the negative impact of greenwashing on mental health and consumer confidence.

Germany

Greenwashing Practices:

Automotive Industry: Volkswagen's post-Dieselgate strategy heavily markets its electric vehicle (EV) lineup, including the ID series, as symbols of its shift to sustainability. However, the continued production of internal combustion engine (ICE) vehicles and the environmental costs of EV battery production expose inconsistencies in their green narrative.

Energy Sector: RWE, a major energy provider, highlights investments in wind and solar power but continues to rely heavily on coal-fired power plants, making it one of Europe's largest carbon emitters. The long timeline for phasing out coal (by 2038) casts doubt on the immediacy of their sustainability claims.

Impact on Consumers:

Confusion and Skepticism: The duality of green marketing alongside traditional fossil-fuel-dependent practices causes confusion among consumers, particularly young adults, who are often unable to reconcile the inconsistencies between claims and operations.

Eco-Anxiety and Behavioral Shifts: Surveys indicate that greenwashing significantly affects trust in brands, with respondents noting moderate changes in purchasing habits. Emotional stress arises from the perceived inability to make genuinely sustainable choices.

Key Observations:

Greenwashing in Germany reflects a dual-track approach where companies advertise future goals while delaying actionable sustainability shifts. This exacerbates eco-guilt and consumer mistrust, particularly in sectors like automotive and energy, where sustainable transitions are critical.

Italy

Greenwashing Practices:

Corporate Initiatives: Organizations like CRSL and Silaq, which focus on consultancy and energy efficiency, illustrate the nuanced greenwashing landscape in Italy. While CRSL promotes ESG compliance and sustainable energy solutions, the absence of third-party certifications (e.g., ISO 14001) weakens the credibility of its claims. Similarly, Silaq assists clients in achieving certifications but lacks measurable internal benchmarks or a lifecycle evaluation for its services.

Digital Solutions with Gaps: CRSL's environmentally neutral digital tools, like the InnoPeople and Gate5.0 apps, demonstrate innovation but lack comprehensive lifecycle assessments.

Impact on Consumers:

Emotional Impact: Italian youth, particularly those aged 15-25, report significant stress and anxiety stemming from greenwashing, with younger participants often unsure of how to distinguish authentic claims. This leads to feelings of inadequacy or "eco-guilt" when their choices fail to align with their values.

Demand for Transparency and Education: A strong desire for transparency in environmental claims is evident, with young adults expressing a preference for clear guidelines and educational programs to enhance their ability to identify credible sustainability efforts.

Key Observations:

Greenwashing in Italy is more subtle, and may be more tied to emerging digital solutions and consultancy services. While progress exists in promoting energy efficiency and ESG compliance, a lack of measurable outcomes and certifications diminishes trust. Educational initiatives are crucial to empower younger demographics to navigate green claims effectively.

Portugal

Greenwashing Practices:

Aviation Sector Misrepresentation: The case study example presented shows greenwashing is prominent within the aviation industry, with TAP Portugal and other European airlines marketing air travel as "sustainable," "green," or "responsible." European airlines use claims such as "offset your carbon emissions" or "fly more sustainably," tied to carbon offset programs and Sustainable Aviation Fuels (SAFs). These claims face significant criticism for being misleading, as SAFs are not

yet widely available, and the climate benefits of offset programs are uncertain. The BEUC complaint against 17 airlines, including TAP, and subsequent scrutiny by the European Commission illustrate the widespread nature of these questionable practices.

Biodegradability Miscommunication: Delta Q's introduction of the eQo capsule as a "100% biodegradable" and "plastic-free" solution highlights an example of challenges experienced in the consumer goods sector. While marketed as an innovative, eco-friendly product, the capsules require industrial composting facilities—that are yet absent in Portugal—to degrade. Additionally, the term "plastic-free" is based on the absence of petroleum-based plastics but omits the fact that the capsules contain bioplastics, contributing to potential consumer confusion.

Impact on Consumers:

Psychological Stress and Trust Issues: Surveys show that greenwashing significantly affects the emotional well-being of Portuguese consumers. Over 57% of respondents feel misled by environmental claims at least sometimes, and 61.9% report greenwashing impacts their mood or stress levels. Younger demographics are particularly vulnerable, experiencing heightened eco-anxiety and eco-guilt when they perceive their environmentally conscious efforts are undermined by misleading claims.

Behavioral Changes: Greenwashing diminishes consumer trust, with 57.1% of respondents indicating it significantly affects their confidence in brands. Many young people have adapted by researching products before purchasing, though the absence of clear and verifiable claims often hinders their ability to make informed choices. Over 76% view misleading claims as a barrier to adopting a sustainable lifestyle

Key Observations:

Transparency Gaps: Both the aviation and consumer goods sectors examples presented lack clarity in their environmental claims. While these industries employ sustainability-focused messaging, the absence of third-party certifications and actionable details undermines trust. The aviation sector particularly struggles to provide evidence that aligns with its claims of "sustainable flying".

Sectoral Infrastructure Deficits: For products like Delta Q's biodegradable coffee capsules, inadequate infrastructure—such as a lack of industrial composting facilities - renders key

sustainability claims impractical. This highlights the need for systemic solutions that align product innovation with local capacities.

Demand for Consumer Empowerment: Surveys emphasize the importance of education and transparency to combat greenwashing's adverse effects. Approximately 43% of respondents strongly believe educational initiatives would enable them to make more informed choices, while 62% stress the need for increased transparency from companies.

- ## Cross-Cutting Trends and Insights

Shared Challenges:

Across Croatia, Germany, Italy, and Portugal, greenwashing persists as a significant obstacle to genuine sustainability, undermining both consumer confidence and broader environmental initiatives. Younger demographics, who display a heightened interest in sustainable consumption, are particularly susceptible to the emotional toll of greenwashing. The prevalence of vague and unverifiable claims leaves many young people feeling disillusioned and powerless, exacerbating eco-anxiety and fostering distrust in corporate and regulatory institutions. The inability to distinguish genuine environmental efforts from deceptive practices often leads to consumer disengagement, weakening the momentum of collective sustainability goals. Compounding this issue is the lack of uniform standards for environmental claims, which enables companies to exploit ambiguities and avoid accountability. This inconsistency further erodes trust in sustainability narratives, creating a cycle of skepticism and inaction among consumers.

Sector-Specific Concerns:

Greenwashing manifests uniquely across different industries, with distinct patterns observed in the partner countries:

- **Energy Sector (Croatia and Germany):** In Croatia, energy companies like INA and HEP prominently market sustainability initiatives while continuing to rely heavily on fossil fuels. This duality undermines their claims and raises questions about their genuine commitment to reducing carbon emissions. Similarly, in Germany, energy giant RWE showcases renewable energy investments but remains one of Europe's largest coal operators, presenting a conflicting image of sustainability. These cases highlight the sector's struggle to reconcile profit-driven operations with environmental accountability.

- **Automotive Industry (Germany):** Volkswagen's post-Dieselgate marketing of electric vehicles illustrates the automotive sector's attempt to pivot toward sustainability. However, the continued production of internal combustion engine vehicles reveals a lack of alignment between green messaging and operational practices, weakening consumer trust in the industry's environmental commitments.
- **Consultancy and Professional Services (Italy):** Companies like CRSL and Silaq in Italy present nuanced cases of greenwashing. While promoting ESG compliance and offering environmental certifications, these organizations often lack measurable goals or internal adherence to the sustainability practices they advocate. This highlights the sector's reliance on superficial metrics rather than substantive environmental impact.
- **Consumer Goods Industry (Portugal):** Portugal's greenwashing case study focused on the consumer goods sector, where vague eco-labels and unverified claims about product sustainability are used, shows how consumers can be mislead. On the aviation sector, the absence of standardized certifications exacerbates this issue, leaving consumers unable to make informed choices and diminishing trust in green marketing.

Demand for Change:

A universal theme across all sectors and regions is the critical need for systemic interventions to combat greenwashing. Governments and regulatory bodies must establish stringent frameworks with clear definitions and enforceable guidelines for environmental claims, ensuring that terms like "biodegradable" and "carbon neutral" are consistently and accurately applied. Mandating lifecycle assessments and third-party certifications for all sustainability claims would enhance transparency and reduce the prevalence of deceptive practices. Education and public awareness play a pivotal role in addressing greenwashing. Tailored educational initiatives targeting younger demographics can empower consumers to critically evaluate environmental claims, reducing their vulnerability to misleading marketing. Additionally, public campaigns should focus on promoting recognition of credible certifications and sustainability indicators, equipping consumers with practical tools for informed decision-making. For businesses, aligning operations with sustainability messaging is essential to rebuilding consumer trust. Companies must integrate comprehensive environmental strategies across their value chains, ensuring consistency between their practices and claims. Transparency in reporting and third-party audits should be standard practices, fostering accountability and enhancing credibility.

VI. Greenwashing Prevention Guidelines

Greenwashing undermines consumer trust, contributes to environmental misinformation, and dilutes genuine sustainability efforts. The prevention of greenwashing must be rooted in transparent practices, robust regulations, and systemic accountability, as evidenced by the findings from the Greenwashing Index document. Below is a detailed set of universal guidelines grounded in real cases and examples from the research.

1. Transparent Communication and Verifiable Claims

In Croatia, INA promoted vague environmental messages like "Let's protect the environment together," while relying heavily on fossil fuels and providing little verifiable evidence for its claims. Similarly, Delta Cafés' "0% plastic" capsule claim was found misleading as it relied on bioplastics that degrade only in industrial composting facilities that are yet unavailable in Portugal.

Guidelines:

- **Specific Claims**: Environmental statements must include clear, measurable outcomes, such as "reduce emissions by 30% by 2025," rather than broad terms like "eco-friendly."
- **Verification Mechanisms**: Employ third-party certifications such as ISO 14001, UTZ, or FSC for all sustainability claims to establish credibility.
- **Public Accessibility**: Companies must publish detailed, independently verified reports showcasing their environmental impact and progress on sustainability goals, similar to the AirBaltic Sustainability and Annual Report, which provides data on fuel consumption and emissions.

2. Regulatory Oversight and Legal Frameworks

The European Commission flagged deceptive greenwashing practices by airlines like Lufthansa and TAP Portugal, and others, which claimed "sustainable flying" while relying on offsetting strategies with uncertain efficacy. Such cases highlight the lack of strict regulatory frameworks.

Guidelines:

- **Standardized Definitions**: Terms such as "sustainable," "biodegradable," or "green" must have standardized, legally binding definitions to avoid misuse.

- **Penalties for Misrepresentation**: Introduce stringent penalties for companies found guilty of greenwashing, ensuring deterrence.
- **Compliance Mechanisms**: Establish monitoring bodies to assess adherence to environmental claims, as seen with the EU's scrutiny of airlines' SAF (Sustainable Aviation Fuel) claims.

3. Alignment of Business Practices with Environmental Claims

Volkswagen, despite its shift toward electric vehicles post-Dieselgate, continued producing internal combustion engine cars, showcasing a disconnect between green marketing and operational reality. Similarly, H&M's "Conscious Collection" failed to align with its fast-fashion model that promotes overproduction.

Guidelines:

- **Holistic Integration**: Sustainability must permeate all levels of operation, from procurement to product delivery, ensuring no misalignment between claims and core activities.
- **Carbon Footprint Reduction**: Companies should set quantifiable targets for transitioning to renewable energy and reducing dependency on fossil fuels, as noted in the critiques of INA and RWE.
- **Lifecycle Evaluations**: Products and services must be designed with full lifecycle sustainability in mind, addressing environmental impacts from sourcing to disposal.

4. Consistency Across Organizational Activities

Lufthansa Group airlines offered "Green Fares" while maintaining high levels of fossil fuel reliance, leading to inconsistencies. HEP in Croatia similarly promoted green energy projects but heavily invested in fossil fuels, revealing a lack of uniform sustainability efforts.

Guidelines:

- **Unified Strategy**: Sustainability principles must be consistent across all projects, regions, and departments. Green initiatives should not serve as token gestures while the majority of operations remain environmentally harmful.
- **Transparent Reporting**: Publish detailed accounts of sustainability efforts across all organizational activities, ensuring internal consistency.

5. Lifecycle Consideration in Product Development

Delta Cafés' eQo capsules, although marketed as biodegradable, require specialized composting facilities, complicating their end-of-life environmental impact. European airlines, by contrast, emphasized the young fleet's reduced fuel consumption as part of lifecycle considerations

Guidelines:

- **Comprehensive Lifecycle Approach**: Assess environmental impact across all product lifecycle stages, including raw material sourcing, manufacturing, transportation, usage, and disposal.
- **Circular Economy Practices**: Adopt recycling, reuse, and waste management strategies to extend product life and reduce waste.

6. Educational Campaigns and Consumer Empowerment

Surveys in Germany and Italy revealed that many young consumers struggle to distinguish genuine green practices from greenwashing. A significant portion of respondents in both countries demanded educational programs and clearer sustainability guidelines.

Guidelines:

- **Public Awareness**: Launch campaigns to educate consumers on identifying authentic sustainability claims and understanding certifications.
- **Youth Education**: Incorporate greenwashing awareness into educational curricula, equipping young people with critical thinking tools to scrutinize corporate claims.
- **Consumer Tools**: Develop online platforms or apps providing reliable information on company sustainability records, similar to the EU's energy efficiency labels for household appliances.

7. Corporate Responsibility and Ethical Standards

Silaq in Italy demonstrated a commitment to embedding sustainability into its consultancy services and operational practices, though its efforts lacked measurable targets and third-party certifications. RWE, on the other hand, faced criticism for emphasizing renewable energy while continuing large-scale coal operations.

Guidelines:

- **Genuine Efforts**: Corporations must prioritize substantial environmental initiatives over superficial marketing strategies.
- **ESG Integration**: Embed Environmental, Social, and Governance (ESG) considerations into all levels of corporate strategy.
- **Accountability Structures**: Regularly review and update CSR policies to reflect evolving sustainability goals.

8. Monitoring and Reporting Mechanisms

Greenpeace criticized INA's sustainability reports for omitting critical details, which hindered stakeholder ability to verify claims. Conversely, Delta Cafés' 2023 Environmental Declaration outlined key metrics on material consumption, demonstrating better reporting practices.

Guidelines:

- **Regular Updates**: Companies should provide periodic, transparent updates on their environmental progress, supported by third-party audits.
- **Independent Monitoring**: Establish external oversight bodies to verify claims and provide public ratings on company sustainability practices.
- **Consumer Feedback**: Encourage consumer reviews and ratings to gauge public perception and trust in corporate sustainability efforts.

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