

Full length article

## The Gen Z attitude-behavior gap in sustainability-framed eWOM: A generational cohort theory perspective

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## ABSTRACT

Generational Cohort Theory (GCT) posits that consumers' attitudes, values, and behaviors are influenced by the generational cohort they belong to. While Generation Z is often portrayed as socially and environmentally conscious, limited empirical research has examined their actual online engagement with sustainability issues. This study builds on GCT to explore how Gen Z participates in electronic word-of-mouth (eWOM) regarding hotels' sustainability practices, focusing on environmental, socio-economic, and cultural aspects. Analyzing 495,000 online reviews using text analytics and regression analysis, the study reveals an attitude-behavior gap: Gen Z is less engaged in sustainability-related eWOM than other cohorts. The Silent Generation and Gen X show higher engagement with environmental and socio-economic issues, respectively, while Millennials focus on cultural dimensions. Furthermore, when Gen Z discusses sustainability, environmental content positively relates to ratings, while social and cultural aspects show negative associations. These findings offer insights for tailoring hotels' sustainability communications to different generational segments.

### 1. Introduction

The unprecedented environmental and social challenges facing society have made sustainability a critical consideration across industries. In the hospitality sector specifically, consumers are increasingly driven by the sustainability impact of products and services when making travel decisions and forming attitudes after reading online reviews (Vermeulen and Seegers, 2009; Sparks et al., 2013; Filieri et al., 2021).

Research reveals that age is an important condition in choosing green and/or socially friendly products (Casalegno et al., 2022). Generational Cohort Theory (GCT) provides a theoretical foundation for understanding these differences, positing that consumers' attitudes, values, myths, and behaviors are shaped by the major historical events and social conditions experienced during their formative years (Inglehart, 1977). According to this theory, consumers can be different based on the date they are born and the major historical or memorable events that characterized an epoch, such as the introduction of technological innovations (i.e., smartphone), major political events such as the War in Ukraine and socio-economic events, such as the Covid-19 pandemic and the inflation that came after. For instance, the widespread adoption of

digital technologies and increasing environmental awareness have created distinctly different consumption patterns across generations.

Gen Z has grown up in an era defined by accelerating climate change, social activism, and digital connectivity. Accordingly, Generation Z, followed by Millennials, represent the generational cohorts that show more engagement and social activism regarding climate change issues (Dimock, 2019; Tyson et al., 2021) and social sustainability-related issues (Confetto et al., 2023). Gen Z (i.e., individuals born between 1997 and 2012) and Millennials (i.e., individuals born from 1981 to 1996) (Chen et al., 2022) are often portrayed as the most socially and environmentally conscious and active of all generational cohorts (Robinson and Schänzel, 2019; Kaplan, 2020; Tyson et al., 2021; Petro, 2021; Prayag et al., 2022; Djafarova and Fouts, 2022). This generational cohort expresses their identity through distinctive sustainability-oriented behaviors. Gen Z consumers actively seek and choose eco-friendly product options (Seemiller and Grace, 2019; Djafarova and Fouts, 2022; Prayag et al., 2022), considering their carbon footprint before purchasing a product (Skeiryte et al., 2022). They demonstrate a willingness to boycott non-sustainable brands (Wee, 2019; Seyfi et al., 2023), and having received environmental education

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from an early age, they are more inclined to prioritize sustainability in their lifestyle choices (Ribeiro et al., 2023). In the tourism context, research indicates that Generation Z travelers place high importance on sustainable practices and environmental issues (e.g., Prayag et al., 2022; Seyfi et al., 2023; Sharma et al., 2023).

However, a significant research gap exists between understanding Gen Z's shared values and their actual behaviors. Gen Z environmentally friendly behaviors are shaped by internal factors such as awareness and a sense of responsibility, as well as external influences like social media (Salinero et al., 2022). About seventy percent of Gen Z consumers try to purchase products from companies they consider ethical (Francis and Hoefel, 2018). Additionally, Gen Z is a digitally native generation, having been raised with the internet, social media, and smartphones (Bhalla et al., 2021; D'Acunto, 2024).

Prayag et al. (2022) reveal that Gen Z travelers are more likely to engage in sustainable practices related to resource-saving and buying local food compared to other generational cohorts. Gen Z and Millennials are likelier to share green word-of-mouth recommendations with their peers (Allen and Spialek, 2018). Mass media depict Gen Z as the most sensitive towards environmental issues and see the Swedish environmental activist Greta Thunberg as their hero. However, despite the discussion on the social and environmental activism of Gen Z in the press and traditional mass media, there is little research on the actual behavior of this generational cohort, particularly in the travel and tourism context (Haddouche and Salomone, 2018; Salinero et al., 2022; Seyfi et al., 2023).

Most of the discussion about the environmentalism of Gen Z consumers is conceptual, and little empirical research has demonstrated their online engagement for sustainable development (Seyfi et al., 2023). Previous empirical studies have mostly focused on the drivers of Gen Z traveller's pro-sustainable behavior (Salinero et al., 2022) or boycott behavior (Seyfi et al., 2023) by respectively using online self-completed surveys or qualitative interviews. Although scholars have demonstrated that age matters in green purchase intention (Casalegno et al., 2022), they have not investigated Gen Z's engagement in spreading word-of-mouth about businesses' corporate social responsibility compared to other Generational cohorts, which is one important metric of their engagement (Muntinga et al., 2011) with sustainability matters (Chu et al., 2019), and can have a strong impact on the decisions of prospects. While sustainability represents one important consideration in Gen Z consumers purchase decisions, it operates alongside other key factors such as price, convenience, and quality (Casalegno et al., 2022). This study examines specifically how sustainability considerations manifest in Gen Z's online review behavior, rather than assuming its primacy over other purchase criteria. That is, little research has investigated Gen Z's engagement in eWOM about hotels' sustainability practices.

Building on Generational Cohort Theory, we expect that Generation Z consumers, due to their higher involvement with sustainability issues (Petro, 2021) and for being the first truly digital native generation (Francis and Hoefel, 2018; Ali et al., 2023), will voice their values online through online reviews about the products and services they use much more than other generational cohorts. Although previous studies have investigated electronic word-of-mouth (eWOM), they have not analyzed the relevance of generational cohorts in this process. To address these gaps, this study investigates three key research questions:

To what extent do Gen Z consumers pay attention to: i) the environmental, ii) socio-economic and iii) cultural aspects of sustainability online when reviewing their hotel experience, compared to the other generational cohorts?

To what extent does Gen Z consumers' sustainability-framed eWOM correlate with sentiment in reviews?

To what extent does Gen Z consumers' sustainability-framed eWOM relate to overall customer satisfaction when reviewing hotels?

Moreover, previous studies have relied heavily on self-reported measures through surveys and interviews, which are susceptible to

social desirability bias and often fail to capture actual behavior (D'Acunto et al., 2024; Khan et al., 2024; Viglia et al., 2024). Accordingly, scholars often discuss that the survey participants may declare to be sensitive towards environmental issues, for example declaring the willingness to buy eco-friendly services, but they do not act accordingly. The critical gap between stated sustainability intentions and actual behavior requires investigation through more objective methodologies (D'Acunto et al., 2024).

By adopting a big data approach, this study investigates different generational cohorts' sustainability-framed eWOM sharing behavior. This study relies on extensive consumer data, that is in which customers spontaneously discuss sustainability practices in the hotel they stay, thus overcoming the limitations of small sample sizes and sampling bias (Yang et al., 2015; Li et al., 2018). While online review data has its own limitations in representing only those guests who choose to write reviews, it provides valuable insights into actual posting behavior across generational cohorts, allowing us to examine real rather than stated communication patterns. Unlike survey-based studies that rely on self-reported intentions, our approach captures spontaneous and authentic sustainability-related discussions in consumer-generated content (i.e. online reviews) (Filiari et al., 2022). Unlike previous studies that mainly adopted self-completed surveys, the present study focuses on actual eWOM behavior and not stated intentions (Viglia et al., 2024), thus overcoming the limitations of survey-based studies relating to the intention-behavior gaps (Khan et al., 2024).

This study makes several contributions. Theoretically, it extends our understanding of generational differences in sustainability communication through eWOM. Methodologically, it demonstrates the value of analyzing actual online behavior rather than self-reported measures. From a practical perspective, it provides hotel managers with actionable insights about Gen Z's sustainability-framed eWOM behavior, helping them better target and serve this emerging consumer segment.

## 2. Theoretical background

### 2.1. Corporate social responsibility

In 1987, the World Commission on Environment and Development, in the Brundtland Report, defined sustainable development as *meeting the current society's needs without compromising the ability of future generations to do so* (Font and Lynes, 2018). Corporate social responsibility (CSR) means a company produces profits following ethical values and respecting the laws, consumers, its workers, local communities, and the environment (Bhattacharya and Sen, 2004). Examples include the adoption of best practices to reduce the organization's impacts on the environment such as resources' reuse and recycling, green building, philanthropic activities, investments in human resource training and education, the sponsoring of events for the benefit of local communities and the environment, and the like (McWilliams and Siegel, 2001; Rhou and Singal, 2020).

In the hotel industry, CSR initiatives involve employee satisfaction (Farmaki et al., 2022). Extant research on employees' awareness of CSR exhibited how such initiatives help reduce staff turnover, enhance staff engagement, and improve recruiting results and employees' job satisfaction (Shin et al., 2021). Moreover, satisfied employees are likely to act as ambassadors communicating to guests the firm's CSR commitment (Edinger-Schons et al., 2019). CSR initiatives aiming at reducing their environmental footprint may involve, e.g., water management, waste management, energy conservation, reducing greenhouse gas emissions, and use of renewable power. Such initiatives also involve guests, encouraging them to reduce water and energy consumption in their rooms (e.g., through linen and towel reuse information stickers). Adopting CSR initiatives in tourism accommodations is cost-effective and helps enhance the efficiency of hotels in the long term (Abaian et al., 2019).

CSR reflects the ethical principles that organizations should be

responsible for how their behavior might affect the environment and the society (Wang et al., 2019), thus involving different stakeholders ranging from employees, customers, and local communities. Among others, scholars acknowledge CSR as a fundamental component of customers' appraisal of companies and their products and services (Li et al., 2019). CSR and its social and environmental reporting are, therefore, key in shaping customers' evaluations of firms. Examples of CSR activities implemented by tourism operators are taking responsibility for the community, employees, products, environment, and even heritage of the local area (Font et al., 2016). The concept of CSR is, therefore, dynamic, evolving according to environmental and social changes and being affected by external demands and the ethical maturity of the organizations themselves (Font et al., 2016).

Although some hospitality businesses have been particularly active in implementing sustainability-related initiatives (Oriade et al., 2021; Rhou and Singal, 2020), little is known about whether customers recognize and value these initiatives when they share their experience online (D'Acunto et al., 2023; Seyfi et al., 2023). More specifically, there is little research on Gen Z online sustainability engagement, such as word-of-mouth, stressing the environmental, social, and cultural properties and best practices of products and services. Previous studies in the travel & tourism industries have mainly focused on Gen Y in the United States (U.S.) and have investigated their information search behavior, travel intentions and travel activity preferences (Beldona, 2005; Huang and Petrick, 2010; Li et al., 2013).

## 2.2. Generational cohort theory

Generational Cohort Theory, first proposed in the 1970s by Inglehart (1977), identifies generational segments in the population, with each generational cohort spanning approximately 20–25 years (Lissitsa et al., 2022). Scholars define a generation as a group of people who are born around the same years, and because of that, they share similar historical or memorable events (i.e., Second World War), fashion, media, and music trends, and political, economic, and social, which permeate their identities (Inglehart, 1977; Eyerman and Turner, 1998; Schewe and Meredith, 2004). Major political events such as the War in Ukraine and Palestine; socio-economic events, such as the Covid-19 pandemic and the inflation that came after; environmental events, including environmental disasters and climate change contribute to define the identity of the Generation that live with more intensity and participation those events. Consequently, members of the same generation are expected to share common characteristics, perspectives, as well as values, preferences, attitudes, and purchasing behaviour that endure throughout their lives (Schewe and Meredith, 2004). Furthermore, each generation tends to prefer media that were popular during childhood or that emerged during that time (Lissitsa and Laor, 2021).

Gen Z tech-savviness (Goh, and Lee, 2018) goes beyond simple familiarity with digital devices, encompassing an expectation for smooth technology integration in every facet of life (Seyfi et al., 2024). However, the financial challenges faced by this generation cannot be ignored, as Gen Z comes of age in a complex economic landscape (Sakdiyakorn et al., 2021), characterized by worries about job stability and the increasing cost of living (Misra et al., 2022). Gen Z consumers are more interactive than other generational cohorts and enjoy interacting with others on social media platforms and following the influencers they trust (Kim et al., 2022). They not only partake in sustainable consumption and purchasing behavior, but they also influence other generations (Lisboa et al., 2022). A summary of the main attributes of Gen Z consumers is reported in Table 1.

Although there are different classifications of generations in the literature (Okumus et al., 2021), there is not a precise or universally agreed boundary between one generational cohort and another, as well as the labels given to each generation. The most popular classification among scholars is the one from Dimock (2019) who identifies 5 living generations: the Silent Generation also named The Greatest Generation

(born 1928–1945), Baby Boomers (1946–1964), Generation X (1965–1980), Generation Y or Millennials (1981–1996), Generation Z or Centennials or Igen (1997–2012).

Generation Z and Millennials represent the generational cohorts that showed more interest in climate change issues both online and offline (Tyson et al., 2021). Climate change and the following extreme natural disasters such as drought, sea level rise, flooding, severe storm events, and wildfires concern more strongly the Gen Z cohort as it is a major problem that characterize their epoch and future.

Conversely, older generations (e.g. baby boomers, Gen X) perceive climate change as a problem the least and do not fully understand their contribution to the issue (Skeiryte et al., 2022). As a result, they are generally less concerned about climate change, less likely to support climate-friendly policies, and less likely to advocate for policy changes related to environmental protection (Andor et al., 2018). Climate change and related concerns are usually identified as minor considerations by older generational cohorts in influencing their travel decisions, compared to Gen Z tourists who are much more environmentally conscious (McKercher, 2023). Gen Z has grown up in a period characterized by social, political, and economic instability, witnessing significant changes such as international terrorism and the acceleration of climate change (Amatulli et al., 2023).

According to Pew Research, individuals belonging to Gen Z are more vociferous about the necessity for climate change action, they read more climate change-related content on social media, and they actively participate in rallies and protests compared to the older generations (Tyson et al., 2021). The higher engagement with social media-related sustainability content enhances their propensity to promote sustainability-related issues on social media, fostering sustainability advocacy (Confetto et al., 2023; Seyfi et al., 2023).

## 2.3. Sustainability-framed reviews

Pro-sustainable tourism behaviors go beyond an examination of just environmental concerns of travelers to include pro-economic, pro-social, and pro-cultural behaviors that would better reflect the sustainability concept (Salinero et al., 2022). Electronic word-of-mouth (eWOM) is defined as positive, neutral, or negative statements made by potential, current, or former customers (Hennig-Thurau et al., 2004). When eWOM focuses on the green product or service's attributes/features or its impact on the environment, it is defined as environmentally-framed eWOM or green eWOM (Filiari et al., 2021; Huy et al., 2022; D'Acunto et al., 2023). Sustainability-framed eWOM is a broader concept, referring to those reviews containing sustainability aspects regarding any of the triple bottom-line dimensions of sustainability (Gerdt et al., 2019), thus going beyond the environmental dimension and encompassing social and cultural sustainability aspects. Socio-cultural sustainability is one of the three pillars and triple bottom lines of sustainable development (Swanson and DeVereaux, 2017), with cultural sustainability specifically dealing with cultural preservation, the intergenerational transmission of cultural values, and the consolidation of cultural capital and identity (Zhang et al., 2024). However, compared to the environmental and social dimensions, cultural sustainability is an emerging area of research (Swanson and DeVereaux, 2017) and tourism research is still lagging behind (Zou et al., 2021). The detection of sustainability-related aspects discussed in eWOM allows us to understand the presence, depth and dispersion of such topics, consisting in an actual online pro-sustainable sharing behavior (D'Acunto et al., 2024).

Research on generational cohorts' sustainability-framed eWOM behavior is still in its infancy. In the travel and tourism literature, Li et al. (2013) use generational cohort theory to investigate traveller's behavior about tourists' information source preferences, destination visitation experiences, destination preferences for the future, destination evaluation criteria, and travel activity preference. Zhang et al. (2017) use a survey to investigate Gen Y's positive and negative eWOM

**Table 1**  
Generation Z's main attributes.

| Attribute                      | Description   | Examples  | References   |
|--------------------------------|---|---|--|
| Social                         | Naturally social generation   | They spend on average between 5 and 7,5 hours/day socializing online  | <a href="#">Pew Research Center (2023)</a> ; <a href="#">Statista (2024a)</a> ; <a href="#">Global Web Index (2022)</a> ; <a href="#">Mckinsey &amp; Company (2018a; 2018b)</a>  |
| Multi-taskers                  | Preferring working on multiple tasks at the same time   | They can work on 5 screens at once  | <a href="#">McKinsey and Company (2022)</a> ; <a href="#">Pew Research Center (2023)</a> ; <a href="#">Deloitte (2021)</a>   |
| Entrepreneurs                  | Desiring independency in work environments  | 72 % of them aim at starting a personal business  | <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">Monster (2022)</a> ; <a href="#">The Center for Generational Kinetics (2022)</a>   |
| Well Educated                  | Constantly learning   | 50 % of them have a college education   | <a href="#">Pew Research Center (2023)</a> ; <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">Statista (2024b)</a> ; <a href="#">McKinsey and Company (2022)</a>  |
| Philanthropists                | Seek doing something good in the world  | 93 % of them would chose a place of work according to the organization's impact on society  | <a href="#">Deloitte (2023)</a> ; <a href="#">The Center for Generational Kinetics (2022)</a> ; <a href="#">Cone Communications (2017)</a> ; <a href="#">IBM (2020)</a> ; <a href="#">Forbes (2024a)</a> .                     |
| Digital Natives                | The first true natives to the digital era   | They spend 15,4 hours/week using smartphones  | <a href="#">Pew Research Center (2022)</a> ; <a href="#">Statista (2023)</a> ; <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">Nielsen (2021)</a> ; <a href="#">Goh and Lee, (2018)</a>                                  |
| Interactive                    | Enjoy interactions with other people  | 34 % of them is concerned about improving their people management skills  | <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">The Center for Generational Kinetics (2022)</a> ; <a href="#">McKinsey and Company (2022)</a> ; <a href="#">LinkedIn (2022)</a>  |
| Tech-Savvy                     | They "Google" most of their questions   | 66 % say technology makes them feeling anything is possible   | <a href="#">Pew Research Center (2022)</a> ; <a href="#">Forbes (2024b)</a> ; <a href="#">Goh and Lee, (2018)</a> ; <a href="#">The Center for Generational Kinetics (2022)</a> ; <a href="#">IBM (2021)</a> .                 |
| Less Focused                   | Need constant updated and stimulation to keep attention   | They have an attention span of 8 seconds  | <a href="#">Microsoft (2015)</a> ; <a href="#">Pew Research Center (2022)</a> ; <a href="#">Colucci (2024)</a> ; <a href="#">Ghosh (2024)</a> ; <a href="#">Common Sense Media (2019)</a> . <a href="#">Emarketer (2024)</a> . |
| Cautious                       | Tend to be more careful with their expenses   | 57 % prefer saving than spending  | <a href="#">Bank of America (2022)</a> . <a href="#">Charles Schwab (2023)</a> ; <a href="#">NCR ATLEOS (2024)</a> ; <a href="#">Petersen (2024)</a> .   |
| Identity Nomads (Undefined ID) | They do not limit themselves to a single stereotype, but instead explore various ways of expressing themselves and develop their personal identities over time. | 20% do not identify as strictly heterosexual.<br>60% believe same-sex couples should have the right to adopt children.<br>70% feel it is important to support causes related to identity.   | <a href="#">Time (2023)</a> ; <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">Gallup (2024)</a> ; <a href="#">Barna (2024)</a> .   |
| Communaholics                  | Radically inclusive. Do not distinguish between friends they meet online and friends in the physical world.   | 66 % believe that communities are created by causes and interests, not by economic backgrounds or educational levels.<br>52 % think it is natural for every individual to belong to different groups and have no problem with moving between groups | <a href="#">Pew Research Center (2022);(2023)</a> ; <a href="#">Deloitte (2023a, 2023b)</a> ; <a href="#">McKinsey &amp; Company Report (2022)</a> ; <a href="#">VoxMedia (2024)</a> ; <a href="#">Barna (2024)</a> .          |
| Dialoguers                     | Believe in the importance of dialogue and accept differences of opinion with the institutions in which they participate   | 39% expect companies to respond to customer complaints within the same day.<br>They tend to believe that change must come from dialogue   | <a href="#">Deloitte (2024)</a> ; <a href="#">Mckinsey &amp; Company (2018a; 2018b)</a> ; <a href="#">Gartner (2023)</a> ;" <a href="#">Accenture (2022)</a> ; <a href="#">Pew Research Center (2023)</a> .                    |
| Realistics                     | More practical and analytical in their decision-making.   | 65 % particularly value knowing what is going on around them and being in control.<br>They are more comfortable absorbing knowledge online than in traditional institutions of learning   | <a href="#">Deloitte (2021)</a> ; <a href="#">McKinsey, 2018b</a> ; <a href="#">Pew Research Center (2023)</a> <a href="#">Ipsos (2024)</a> ; <a href="#">Accenture (2023)</a> ; <a href="#">Nielsen (2024)</a> .              |

Source: [Mckinsey & Company \(2018a; 2018b\)](#); [Hausman, \(2021\)](#)

behavior in the food service industry, focusing on factors such as family and mobile technological sophistication. Semrad and Rivera's (2018) research show that memorable festival experiences motivate Gen Y consumers to spread eWOM. Lee et al. (2021) support previous study findings showing how eWOM influences Gen Y's consumer purchase intention of luxury hotels. Similarly, Sharipudin et al. (2023) reveal that Gen Y post-stay evaluations affect positive eWOM, influencing revisit intentions. Huy et al. (2022) do not focus on a specific generational cohort and use a survey with tourists from emerging markets to assess the relationship between green motivation, ability, opportunity, and green WOM.

From this review of the literature, it emerges that little research has investigated Gen Z sustainability-framed eWOM behavior. As mentioned above, Generation Z is believed to be the most active and sensitive toward environmental issues. Furthermore, Gen Z is also termed as *digital natives* as this generation grew up with smartphones and the idea of digital interactivity and connectivity and of searching online for everything (Ali et al., 2023). However, there is little empirical research on the digital social and environmental activism of Gen Z, and few empirical studies have attempted to demonstrate if this generation is more active than others in sharing sustainability-framed eWOM.

This study focuses on sustainability-framed eWOM which is conceptualized as consumer feedback about the social, cultural, and environmental attributes of a product or service that is shared online following the consumption experience. Research shows that tourists are becoming more interested and involved in socio-cultural and environmental practices implemented by service providers, thus discussing such topics in their reviews (D'Acunto et al., 2020; Gerdt et al., 2019). Guests sharing sustainability-framed eWOM tend to primarily deal with environmental issues and related initiatives carried out by hotels in their reviews, but also about social aspects such as supplier relations, diversity issues, employee relations, and community relations (Ettinger et al., 2018). In addition, guests pay more attention to the environmental practices of hotels in reviews with higher rating scores, while the social aspects are more likely to be discussed in negative reviews (D'Acunto et al., 2020). According to Gerdt et al. (2019), the most recurring categories discussed by guests mentioning sustainability aspects in their review revolve around: *i*) environmentally preferable purchasing, *ii*) the sustainability concept, *iii*) transport, *iv*) local purchasing, *v*) vegetarian/vegan food, *vi*) buildings and infrastructure, *vii*) allergies/ intolerances. Extant research also exhibits how sustainability discourse in eWOM (i.e., green eWOM) is positively associated with higher rating scores, that is customer satisfaction with both green and non-green hotels (Mariani et al., 2020; D'Acunto et al., 2023) alongside the role of hotel star classification (Gerdt et al., 2019) and guest's environmental culture (D'Acunto et al., 2023) as moderators of such relationship.

By exploring this potential relationship, this research contributes to the emerging eWOM literature and generational cohort theory in the travel & tourism industry (Li et al., 2013; Zhang et al., 2017; Semrad and Rivera, 2018; Lee et al., 2021; Sharipudin et al., 2023). Specifically, this study seeks to uncover Generation Z's eWOM about hotels' sustainability practices. The study aims to address the following exploratory research questions:

**RQ1:** To what extent do Gen Z consumers pay attention to: *i*) the environmental, *ii*) socio-economic and *iii*) cultural aspects of sustainability online when reviewing their hotel experience, compared to the other generational cohorts?

**RQ2:** To what extent does Gen Z consumers sustainability-framed eWOM correlate with sentiment in reviews?

**RQ3:** To what extent does Gen Z consumers sustainability-framed eWOM relate to overall customer satisfaction when reviewing hotels?

### 3. Methodology

#### 3.1. Sampling and data analysis

This study adopted a big data text analytics approach using a sample of 495,000 TripAdvisor reviews covering six of the top tourism destinations in Europe, namely London, Paris, Istanbul, Rome, Amsterdam, Barcelona (Euromonitor, 2019) over a decade (2007–2017). These six cities account for about 79 million of inbound arrivals to Europe (Euromonitor, 2019). While online review data has its own limitations in representing only those guests who choose to write reviews, it provides valuable insights into actual posting behavior across generational cohorts, allowing us to examine real rather than stated communication patterns. Unlike survey-based studies that rely on self-reported intentions, our approach captures spontaneous sustainability-related discussions in consumer-generated content. The choice of TripAdvisor was deemed appropriate given it employs different methods to verify the quality of online customer reviews and maintain high content standards, including checking the IP and email addresses of reviewers to identify suspicious activity, screening for inappropriate or offensive language before publishing review, and relying on other platform members who can flag questionable content, which is then reviewed by a team of quality assurance specialists, thus helping ensuring the authenticity and reliability of the reviews posted (Zhao et al., 2019). The data was collected following Han and Anderson's (2021) guidelines for hotel review platforms web scraping and related Python codes, through a specific data crawler developed by the authors. Given the high suitability for JavaScript-heavy pages, such as TripAdvisor, the Python library adopted was Selenium, while WebDriver and XPath were respectively employed as browser automation frameworks in Selenium to localize, select, and extract the relevant elements from the HTML web pages (Han and Anderson, 2021). To avoid translation issues and to allow for a straightforward application of the dictionary used for text analysis, we selected only English reviews. We further discarded reviews shorter than two words because of a lack of information content in these texts (Tirunillai and Tellis, 2012). A series of metadata available on TripAdvisor for each review and hotel profile was retrieved to devise the control variables used in the study. The final dataset includes 19,018 reviews posted by Gen Z consumers, 110,027 reviews by Millennials, 183,661 reviews by Generation X, 146,178 reviews by Baby Boomers and 35,751 reviews by the Silent Generation. The dataset characteristics are reported in Table 2. Data reliability was ensured through a data cleansing and pre-processing phase (Fan and Gordon, 2014) following the scraping of raw data. In this phase, the csv file is converted into dataframes. Dataframes are cleaned through several stages, including case folding (i.e. converting all characters into lower-case), stop words removal (i.e. remove any irrelevant words in the sentence, such as words in the form of @username), punctuation removal (removing unnecessary characters), tokenization (splitting phrases and sentences into smaller units, individual words or terms) and stemming (converting every word in a sentence into basic word). Fig. 1 shows the research procedures.

Text analytics was adopted to analyze the data given their recognized power to unveil valuable insights into consumer sentiments and behaviour from online reviews (Fileri et al., 2022; D'Acunto et al., 2024). A specific dictionary, the sustainable tourism communication dictionary, developed and validated for the study of sustainability in the tourism context (Marchi et al., 2023), was employed to determine main indicators (e.g. existence, dispersion, depth) across the triple bottom-line that is the *i*) environmental, *ii*) socio-economic, *iii*) cultural dimensions of sustainability, in tourism online communication. The sustainable tourism dictionary (Marchi et al., 2023) is the newest and most complete context specific resource for automated text analysis in sustainable tourism research, the only one encompassing all the different dimensions of sustainability (i.e. economic, social, environmental, cultural). Using this dictionary enabled the identification of how

**Table 2**  
Dataset characteristics.

| Variables                    |                        | Observations  | %             | Min          | Max  | Mean    | Std. dev. |
|------------------------------|------------------------|---------------|---------------|--------------|------|---------|-----------|
| Reviewer Generational Cohort | 1 Generation Z         | 19018         | 3.8           |              |      |         |           |
|                              | 2 Millennials          | 110027        | 22.2          |              |      |         |           |
|                              | 3 Generation X         | 183661        | 37.1          |              |      |         |           |
|                              | 4 Baby Boomers         | 146178        | 29.6          |              |      |         |           |
|                              | 5 Silent Generation    | 35751         | 7.2           |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  |              | 1    | 5       | 3.14      |
| Reviewer Gender              | 0 Woman                | 233047        | 47.1          |              |      |         |           |
|                              | 1 Man                  | 261588        | 52.9          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 0            | 1    | .53     | .499      |
| Reviewer Origin              | 1 Africa               | 6200          | 1.3           |              |      |         |           |
|                              | 2 Asia                 | 38408         | 7.8           |              |      |         |           |
|                              | 3 Europe               | 287966        | 58.2          |              |      |         |           |
|                              | 4 Latin Ame.           | 6891          | 1.4           |              |      |         |           |
|                              | 5 North Ame.           | 123551        | 25.0          |              |      |         |           |
|                              | 6 Oceania              | 31619         | 6.4           |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 1            | 6    | 3.60    | 1.163     |
| Trip purpose                 | 1 As a couple          | 231144        | 46.7          |              |      |         |           |
|                              | 2 On business          | 78005         | 15.8          |              |      |         |           |
|                              | 3 Solo                 | 33092         | 6.7           |              |      |         |           |
|                              | 4 With Family          | 90605         | 18.3          |              |      |         |           |
|                              | 5 With Friends         | 61789         | 12.5          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 1            | 5    | 2.34    | 1.508     |
| Hotel type                   | 0 Non-chain            | 351709        | 71.1          |              |      |         |           |
|                              | 1 Chain                | 142926        | 28.9          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 0            | 1    | .29     | .453      |
| Hotel segment (STR)          | 1 Economy              | 8136          | 1.6           |              |      |         |           |
|                              | 2 Midscale             | 19374         | 3.9           |              |      |         |           |
|                              | 3 Upper Midscale       | 19788         | 4.0           |              |      |         |           |
|                              | 4 Upscale              | 23612         | 4.8           |              |      |         |           |
|                              | 5 Upper Upscale        | 50937         | 10.3          |              |      |         |           |
|                              | 6 Luxury               | 20155         | 4.1           |              |      |         |           |
|                              | 7 Independent          | 352633        | 71.3          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 1            | 7    | 6.16    | 1.543     |
| City of stay                 | 1 Amsterdam            | 54527         | 11.0          |              |      |         |           |
|                              | 2 Barcelona            | 58590         | 11.8          |              |      |         |           |
|                              | 3 Istanbul             | 42239         | 8.5           |              |      |         |           |
|                              | 4 Paris                | 90059         | 18.2          |              |      |         |           |
|                              | 5 Rome                 | 64741         | 13.1          |              |      |         |           |
|                              | 6 London               | 184479        | 37.3          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 1            | 6    | 4.22    | 1.767     |
| Rating (TripAdvisor)         | 1 Terrible             | 15479         | 3.1           |              |      |         |           |
|                              | 2 Poor                 | 21882         | 4.4           |              |      |         |           |
|                              | 3 Average              | 66683         | 13.5          |              |      |         |           |
|                              | 4 Very Good            | 173845        | 35.1          |              |      |         |           |
|                              | 5 Excellent            | 216746        | 43.8          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 1            | 5    | 4.12    | 1.008     |
| Review year                  | 2007                   | 6005          | 1.2           |              |      |         |           |
|                              | 2008                   | 7363          | 1.5           |              |      |         |           |
|                              | 2009                   | 14378         | 2.9           |              |      |         |           |
|                              | 2010                   | 25833         | 5.2           |              |      |         |           |
|                              | 2011                   | 38778         | 7.8           |              |      |         |           |
|                              | 2012                   | 58614         | 11.8          |              |      |         |           |
|                              | 2013                   | 68660         | 13.9          |              |      |         |           |
|                              | 2014                   | 74242         | 15.0          |              |      |         |           |
|                              | 2015                   | 78475         | 15.9          |              |      |         |           |
|                              | 2016                   | 71262         | 14.4          |              |      |         |           |
|                              | 2017                   | 51025         | 10.3          |              |      |         |           |
|                              | <i>Total</i>           | <i>494635</i> | <i>100.0</i>  | 2007         | 2017 | 2013.62 | 2.351     |
|                              | Review word count (WC) | <i>Total</i>  | <i>494635</i> | <i>100.0</i> | 2    | 4549    | 144.85    |

thoroughly sustainability themes are discussed by hotel customers, assessing the level of attention and emphasis placed on sustainability in their reviews. The three authors further conducted a manual check on a sample of reviews randomly selected to verify the dictionary accuracy. The software Linguistic Inquiry Word Count (LIWC) (Pennebaker et al., 2015) was chosen to examine the social and environmental discourse embedded in the reviews' text. The three dimensions of sustainability are operationalized through the adoption of Marchi et al.'s dictionary, and respectively relate to *i*) the promotion of excursions, tours, and activities that preserve natural sites, green and protected areas, eco-friendly practices, and the safeguarding of the natural environment and landscape (i.e. environmental), *ii*) the support for the local economy

and community, including the promotion of local markets and food, safety and security, accessible tourism, human rights, and assisting endangered sites through donations or volunteering (i.e. socio-economic) *iii*) enhancement of cultural heritage and encouraging respectful conduct while visiting heritage sites (i.e. cultural). The dictionary details are reported in Table 3 below.

#### 4. Results

First, we explore if reviewers belonging to different generational cohorts do review differently with regards to the sustainability dimensions, and to what extent such differences are statistical significant.

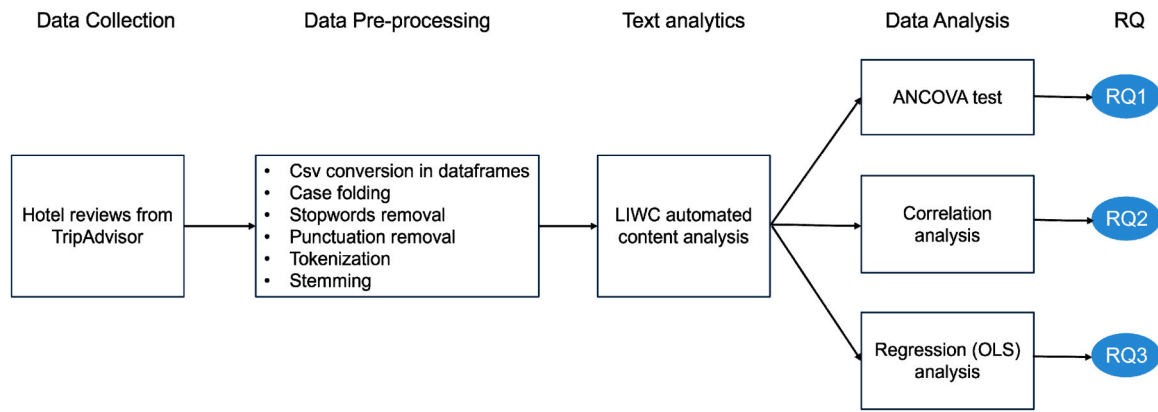


Fig. 1. Research methodology.

Table 3  
Dictionary used in the analysis.

| Category                 | N° of terms | Examples of keywords   | Source                   |
|--------------------------|-------------|--|--------------------------|
| Environmental            | 121         | <i>water quality; recycle*; food waste; ecologic*; biologic*; plastic free; biodegradable; low impact*; protected area*; green area*; bikesharing; sustainable transport*; climate change;</i>                           | Marchi et al. (2023)     |
| Socio-economic           | 99          | <i>local economy;; handcraft*; fair price, organic product*; local market*; traditional market*; accessible tourism; slow food; km0, local community, human right*; gender equalit*; lgbt; volunteer*; local people;</i> | Marchi et al. (2023)     |
| Cultural                 | 32          | <i>cultural heritage*, UNESCO; visitor experience*; archeological artefact*; historical culture; cultural event*, intangible heritage*; graffiti; damage*; touch; behave;</i>  | Marchi et al. (2023)     |
| LIWC – Positive emotions | 620         | <i>Love, nice, sweet</i>   | Pennebaker et al. (2015) |
| LIWC – Negative emotions | 744         | <i>Hurt, ugly, nasty</i>   | Pennebaker et al. (2015) |

To respond our RQ1, we conducted a series of ANCOVA (Analysis of Covariance) test with reviewer generational cohort as the independent variable and respectively the environmental, socio-economic and cultural aspects of sustainability in reviews as the dependent variables, along with a set control variables (covariates), including reviewer gender, type of trip (business vs. leisure), review date year, city of destination, hotel segment STR.

The findings revealed a statistically significant difference in mean values (Table 4) of i) environmental aspects [F(4, 494.607) = 7.20, p < 0.01] ii) socio-economic aspects [F(4, 494.607) = 160.07, p < 0.01] and iii) cultural aspects [F(4, 494.607) = 11.06, p < 0.01] in reviews between the reviewer age cohorts, whilst adjusting for reviewer gender, type of trip, review date year, city of destination, hotel segment STR (Tables 5,6,7). These results indicate the presence of statistically

significant differences in the orientation to discuss the three dimensions of sustainability in eWOM between different generations of reviewers. In additional analysis,<sup>1</sup> we regress the three dimensions of sustainability discussed in eWOM on the reviewer generational cohort, controlling for the abovementioned covariates. The results further reveal how the Silent Generation (.029 \*\*) and Millennials (.020 \*\*) are more willing to talk on environmental aspects compared to Gen Z. Furthermore, Millennials (.007 \*), Gen X (.042 \*\*) and Baby Boomers (.013 \*\*) are more willing to discuss on socio-economic aspects in reviews compared to Gen Z. Millennials (.003 \*) are more likely discussing cultural aspects in reviews compared to Gen Z. These findings suggest how, despite being often reported as “the sustainability generation” (Petro, 2021), Gen Z does not appear to be as vociferous about sustainability as other generational cohorts in eWOM.

To further explore Gen Z’s discourse on the three dimensions of sustainability in eWOM, we measured the correlation between sustainability-framed reviews and the consumer sentiment expressed by positive and negative emotions. Our findings (RQ2) indicate that the three dimensions of sustainability are differently associated with Gen Z sentiment (Table 8). Specifically, environmental content in Gen Z reviews is significantly and positively associated with positive emotions (.033\*\*) and significantly and negatively associated with negative emotions (-.160\*\*), thus indicating how Gen Z customers tend to discuss on environmental aspects with a positive mood or sentiment. The socio-economic aspects discussed in Gen Z reviews are significantly and positively associated with both positive (.046\*\*) and negative emotions (0.034\*\*), while the cultural aspects are significantly and positively associated with negative emotions (0.019\*\*), meaning they tend to discuss on it with a more negative sentiment.

Our RQ1 findings reveal Gen Z consumers are less oriented to share eWOM about the three dimensions of sustainability compared to other older generational cohorts (Table 4) and how this gap is particularly strong regarding the socio-economic dimension. Our results also show how the members of Generation X are more willing to discuss socio-economic aspects of sustainability when posting a review online. The Silent Generation appears more willing to include environmentally related terms in their reviews. Millennials are the most oriented in discussing the cultural dimension in their reviews. Surprisingly, the so-called “green generation” (i.e., Gen Z) does not appear to be among the first generational cohorts in sharing sustainability-related topics in eWOM, thus opening a debate on a “paradoxical” Generation.

To investigate the Gen Z sustainability-related eWOM behavior, this study further explores the relationship between the single sustainability dimensions and review ratings as an expression of overall customer satisfaction. To respond to RQ3, the study adopts an ordinary least

<sup>1</sup> In Appendix

**Table 4**  
Sustainability-related terms in eWOM across generational cohorts. Descriptive statistics.

| Sustainability dimension | Generational cohort | N      | Mean     | Std. Dev | Min | Max   |
|--------------------------|---------------------|--------|----------|----------|-----|-------|
| Environmental            | Gen Z               | 19018  | 1.003213 | 1.204439 | 0   | 12.5  |
|                          | Millennials         | 110027 | 1.015152 | 1.24121  | 0   | 20    |
|                          | Gen X               | 183661 | .9823096 | 1.25331  | 0   | 22.22 |
|                          | Baby Boomers        | 146178 | .995723  | 1.261278 | 0   | 17.14 |
|                          | Silent Generation   | 35751  | 1.017096 | 1.287776 | 0   | 20    |
|                          | Total               | 494635 | .9968971 | 1.253745 | 0   | 22.22 |
| Socio-Economic           | Gen Z               | 19018  | .1279798 | .4184056 | 0   | 7.32  |
|                          | Millennials         | 110027 | .1312282 | .4296311 | 0   | 10    |
|                          | Gen X               | 183661 | .1663222 | .504626  | 0   | 12.5  |
|                          | Baby Boomers        | 146178 | .1397878 | .4535548 | 0   | 11.11 |
|                          | Silent Generation   | 35751  | .1291561 | .4375023 | 0   | 13.51 |
|                          | Total               | 494635 | .1465138 | .4660624 | 0   | 13.51 |
| Cultural                 | Gen Z               | 19018  | .0381055 | .1939198 | 0   | 4.76  |
|                          | Millennials         | 110027 | .0407352 | .2043369 | 0   | 7.14  |
|                          | Gen X               | 183661 | .0398041 | .2036008 | 0   | 10    |
|                          | Baby Boomers        | 146178 | .037174  | .1978124 | 0   | 6.67  |
|                          | Silent Generation   | 35751  | .0341487 | .1911116 | 0   | 5.56  |
|                          | Total               | 494635 | .0387599 | .2008293 | 0   | 10    |

**Table 5**  
ANCOVA table. Dependent variable: Environmental dimension.

| Source              | Partial SS | df      | MS        | F      | Prob > F |
|---------------------|------------|---------|-----------|--------|----------|
| (Model)             | 579.85411  | 27      | 506.38777 | 327.90 | 0.0000   |
| reviewer_age_cohort | 44.500574  | 4       | 11.125143 | 7.20   | 0.0000   |
| trip_purp           | 418.98734  | 1       | 418.98734 | 271.31 | 0.0000   |
| review_year         | 342.56438  | 10      | 34.256438 | 22.18  | 0.0000   |
| city                | 6771.8213  | 5       | 1354.3643 | 877.00 | 0.0000   |
| segment_STR         | 6345.307   | 6       | 1057.5512 | 684.80 | 0.0000   |
| rev_gen             | .91231612  | 1       | .91231612 | 0.59   | 0.4421   |
| Residual            | 763831.29  | 494,607 | 1.5443196 |        |          |
| Total               | 777503.76  | 494,634 | 1.5718769 |        |          |

N° of obs: 494,635; Root MSE: 1.24271; R-squared: 0.0176; Adj R-squared: 0.0175

**Table 6**  
ANCOVA table. Dependent variable: Socio-economic dimension.

| Source              | Partial SS | df      | MS        | F      | Prob > F |
|---------------------|------------|---------|-----------|--------|----------|
| (Model)             | 579.85411  | 27      | 21.476078 | 99.40  | 0.0000   |
| reviewer_age_cohort | 138.33705  | 4       | 34.584262 | 160.07 | 0.0000   |
| trip_purp           | 196.32711  | 1       | 196.32711 | 908.70 | 0.0000   |
| review_year         | 21.546031  | 10      | 2.1546031 | 9.97   | 0.0000   |
| city                | 107.45594  | 5       | 21.491187 | 99.47  | 0.0000   |
| segment_STR         | 120.87053  | 6       | 20.145088 | 93.24  | 0.0000   |
| rev_gen             | 2.1473211  | 1       | 2.1473211 | 9.94   | 0.0016   |
| Residual            | 106861.68  | 494,607 | .21605371 |        |          |
| Total               | 107441.53  | 494,634 | .21721421 |        |          |

N° of obs: 494,635; Root MSE: .464816; R-squared: 0.0054; Adj R-squared: 0.0053

**Table 7**  
ANCOVA table. Dependent variable: Cultural dimension.

| Source              | Partial SS | df      | MS        | F     | Prob > F |
|---------------------|------------|---------|-----------|-------|----------|
| (Model)             | 22.060139  | 27      | .81704218 | 20.28 | 0.0000   |
| reviewer_age_cohort | 1.7827025  | 4       | .44567562 | 11.06 | 0.0000   |
| trip_purp           | .03552274  | 1       | .03552274 | 0.88  | 0.3477   |
| review_year         | 2.3163082  | 10      | .23163082 | 5.75  | 0.0000   |
| city                | 3.4791679  | 5       | .69583358 | 17.27 | 0.0000   |
| segment_STR         | 15.608627  | 6       | 2.6014378 | 64.57 | 0.0000   |
| rev_gen             | .0154725   | 1       | .0154725  | 0.38  | 0.5355   |
| Residual            | 19927.718  | 494,607 | .04029    |       |          |
| Total               | 19949.778  | 494,634 | .0403324  |       |          |

N° of obs: 494,635; Root MSE: .200724; R-squared: 0.0011; Adj R-squared: 0.0011

squares (OLS) regression analysis, using review rating as the dependent variable and the three bottom-line dimensions of sustainability as predictors. Furthermore, a set of control variables has been included in the

model, based on extant research in eWOM and tourism and hospitality. Table 9 presents the key and control variables along with their operationalization.

**Table 8**  
Pearson correlation matrix.

| Correlations   |                     | ENVIRONMENTAL | SOCIO-ECONOMIC | CULTURAL | posemo  | negemo  |
|----------------|---------------------|---------------|----------------|----------|---------|---------|
| ENVIRONMENTAL  | Pearson Correlation | 1             | ,009           | -,035**  | ,033**  | -,160** |
|                | Sig. (2-tailed)     |               | ,237           | ,000     | ,000    | ,000    |
|                | N                   | 19018         | 19018          | 19018    | 19018   | 19018   |
| SOCIO-ECONOMIC | Pearson Correlation | ,009          | 1              | -,012    | ,046**  | ,034**  |
|                | Sig. (2-tailed)     | ,237          |                | ,107     | ,000    | ,000    |
|                | N                   | 19018         | 19018          | 19018    | 19018   | 19018   |
| CULTURAL       | Pearson Correlation | -,035**       | -,012          | 1        | -,004   | ,019**  |
|                | Sig. (2-tailed)     | ,000          | ,107           |          | ,561    | ,010    |
|                | N                   | 19018         | 19018          | 19018    | 19018   | 19018   |
| posemo         | Pearson Correlation | ,033**        | ,046**         | -,004    | 1       | -,271** |
|                | Sig. (2-tailed)     | ,000          | ,000           | ,561     |         | ,000    |
|                | N                   | 19018         | 19018          | 19018    | 19018   | 19018   |
| negemo         | Pearson Correlation | -,160**       | ,034**         | ,019**   | -,271** | 1       |
|                | Sig. (2-tailed)     | ,000          | ,000           | ,010     | ,000    |         |
|                | N                   | 19018         | 19018          | 19018    | 19018   | 19018   |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 9**  
Constructs and operationalization.

| Construct                      | Variable name          | Model specification  | Operationalization   | Source                      |
|--------------------------------|------------------------|----------------------|--|-----------------------------|
| Rating Score                   | <i>Rating</i>          | Dependent variable   | Categorical variable ranging from 1 to 5   | Xiang et al. (2015)         |
| Environmental                  | <i>ENV_C</i>           | Independent variable | Ratio: the number of environment-related words (identified using the Marchi et al. dictionary) divided by the total word count of the review, then multiplied by 100.    | This study                  |
| Socio-Economic                 | <i>SE_C</i>            | Independent variable | Ratio: the number of socio-economic-related words (identified using the Marchi et al. dictionary) divided by the total word count of the review, then multiplied by 100. | This study                  |
| Cultural                       | <i>C_C</i>             | Independent variable | Ratio: the number of cultural-related words (identified using the Marchi et al. dictionary) divided by the total word count of the review, then multiplied by 100.       | This study                  |
| Reviewer Environmental Culture | <i>EPI_Score</i>       | Control variable     | Measured by the EPI score  | D'Acunto et al., (2023)     |
| Reviewer Experience            | <i>rev_exp</i>         | Control variable     | The total amount of reviews published by the reviewer.   | Gao et al. (2018)           |
| Review Length                  | <i>rev_WC</i>          | Control variable     | The word length (total word count) of each review.   | Chevalier & Mayzlin, (2006) |
| Reviewer Gender                | <i>rev_gen</i>         | Control variable     | Binary variable for reviewer gender (1 for male, 0 for female).  | Gao et al. (2018)           |
| Trip Purpose                   | <i>trip_purp</i>       | Control variable     | Binary variable for business travelers (1 for yes, 0 for no).  | Mariani & Borghi, (2022)    |
| City of stay                   | <i>City</i>            | Control variable     | Destination city (categorical variable).   | Mariani & Borghi, (2022)    |
| Year                           | <i>review_year</i>     | Control variable     | Year the review was posted.  | Mariani & Borghi, (2022)    |
| Type of hotel                  | <i>hotel_chain 0/1</i> | Control variable     | A binary variable for chain hotels (1 for yes, 0 for no).  | Gao et al. (2018)           |
| Hotel segment                  | <i>segment_STR</i>     | Control variable     | A categorical variable with 7 categories: Independent, economy, midscale, upper midscale, upscale, upper upscale, luxury – based on STR Hotel segmentation*.             | Kim et al. (2020)           |

\* STR (2022)

The results (Table 10) show that, environmentally-framed reviews significantly and positively relate to ratings (.120\*\*), while reviews framed on the socio-economic (-.062\*\*) and the cultural (-.070\*) aspects significantly and negatively relate to ratings. The results regarding our focal variables thus exhibit how the different sustainability dimensions discussed in reviews by Gen Z play a different role in shaping their overall satisfaction. More specifically, when Gen Z focuses on environmentally-related aspects in their reviews, they tend to rate the hotels higher. Conversely, when they include cultural and socio-economic elements of sustainability in their reviews, they are more likely to rate lower the hotel experience.

**5. Discussion**

This study contributes to Generational Cohort Theory (Inglehart, 1977) by empirically investigating Gen Z's sustainability-framed eWOM behavior. This research is the first to adopt a multi-dimensional approach that comprehensively explores Gen Z's sustainability-framed

eWOM across the triple bottom-line dimensions of sustainability. This study responds to calls for research examining how consumers behave with regards to the environmental, social and cultural practices of sustainability implemented and communicated by tourism organizations (Catlin et al., 2017; Khan et al., 2024; D'Acunto et al., 2024). This research adopts emerging methodologies (i.e. big data text analytics) and a new theoretical lens (the Generational Cohort Theory) in the study of the intention-behavior gap in sustainable hospitality. Despite the greater activism for sustainability issues displayed by Gen Z (Robinson and Schanzel, 2019; Seyfi et al., 2023), and widely reported by mass media (Tyson et al., 2021), little research has empirically investigated if and how Gen Z consumers engage online to make statements or send sustainability-related advice, recommendations, evaluations about the products and services they consume. This is particularly relevant because eWOM affects a variety of consumer attitudes, intentions, and behaviors (e.g., Vermeulen and Seegers, 2009; Sparks and Browning, 2011; Mauri and Minazzi, 2013; Filieri and McLeay, 2014), including purchase intention of products with different environmental impacts

**Table 10**  
OLS Regression analysis.

| Coefficients <sup>a</sup> |                   | Unstandardized Coefficients |             | Standardized Coefficients | t      | Sig.  |
|---------------------------|-------------------|-----------------------------|-------------|---------------------------|--------|-------|
| Model                     |                   | B                           | Std. Error  | Beta                      |        |       |
| 1                         | (Constant)        | 2.788607                    | .2055455    |                           | 13.57  | 0.000 |
|                           | ENV_C             | .1205768                    | .0057139    | .134817                   | 21.10  | 0.000 |
|                           | SE_C              | -.0622843                   | .0194249    | -.02411                   | -3.21  | 0.001 |
|                           | C_C               | -.0704653                   | .042717     | -.012692                  | -1.65  | 0.099 |
|                           | EPI_Score         | .006386                     | .0007433    | .0629805                  | 8.59   | 0.000 |
|                           | rev_exp           | -.0003778                   | .000177     | -.0148524                 | -2.13  | 0.033 |
|                           | rev_WC            | -.0011715                   | .0000737    | -.1403749                 | -15.90 | 0.000 |
|                           | rev_gen           | .0059976                    | .0164438    | .0025903                  | 0.36   | 0.715 |
|                           | trip_purp         | -.2791638                   | .0288128    | -.0754028                 | -9.69  | 0.000 |
|                           | hotel_chain       | .2796757                    | .1843774    | .1120325                  | 1.52   | 0.129 |
|                           | City              |                             |             |                           |        |       |
|                           | Amsterdam         | 0                           | (benchmark) | 0                         |        |       |
|                           | Barcelona         | .2775318                    | .0259892    | .0812267                  | 10.68  | 0.000 |
|                           | Istanbul          | .4081986                    | .035756     | .088056                   | 11.42  | 0.000 |
|                           | Paris             | .0397987                    | .0245102    | .0143037                  | 1.62   | 0.104 |
|                           | Rome              | .0396656                    | .027365     | .0122694                  | 1.45   | 0.147 |
|                           | London            | -.0565221                   | .0235854    | -.0248301                 | -2.40  | 0.017 |
|                           | review_year       |                             |             |                           |        |       |
|                           | (2007–2010)       | 0                           | (benchmark) | 0                         |        |       |
|                           | 2011              | .1354093                    | .0422566    | .0317083                  | 3.20   | 0.001 |
|                           | 2012              | .1377101                    | .0372492    | .0389225                  | 3.70   | 0.000 |
|                           | 2013              | .1837957                    | .035238     | .057499                   | 5.22   | 0.000 |
|                           | 2014              | .2499725                    | .0342077    | .0831285                  | 7.31   | 0.000 |
|                           | 2015              | .2822335                    | .033094     | .1013788                  | 8.53   | 0.000 |
|                           | 2016              | .3072897                    | .033849     | .1057732                  | 9.08   | 0.000 |
|                           | 2017              | .2880117                    | .0367076    | .0833663                  | 7.85   | 0.000 |
|                           | hotel_segment_STR |                             |             |                           |        |       |
|                           | Economy           | 0                           | (benchmark) | 0                         |        |       |
|                           | Midscale          | .2171075                    | .0649078    | .0420603                  | 3.34   | 0.001 |
|                           | Upper Midscale    | .3046728                    | .0654465    | .0554557                  | 4.66   | 0.000 |
|                           | Upscale           | .5088482                    | .0637752    | .0945798                  | 7.98   | 0.000 |
|                           | Upper Upscale     | .5568888                    | .0613567    | .1345128                  | 9.08   | 0.000 |
|                           | Independent       | .5861869                    | .1928714    | .234478                   | 3.04   | 0.002 |

a. Dependent Variable: review score-rating (1–5); N = 18,980; R2 = 0.084; F(27, 18952) = 63.15; Prob > F = 0.0000

(Filiari et al., 2021).

Contrary to previous research suggesting that Gen Z is highly engaged with sustainability issues (Robinson and Schänzel, 2019; Kaplan, 2020; Prayag et al., 2022), our analysis of actual online behaviors shows they are less likely to discuss sustainability practices in their reviews compared to other generations. This discrepancy between reported values and actual behavior aligns with recent work highlighting the intention-behavior gap in sustainable tourism (Viglia and Acuti, 2023; Khan et al., 2024). Previous studies show that Gen Z consumers show higher levels of engagement in sustainable practices related to resource-saving and prefer purchasing local food products compared to other generational cohorts (Prayag et al., 2022). However, their eWOM behavior does not show the same engagement intensity. Our findings reveal that Gen Z is the generational cohort that engages the least in eWOM about hotels' socio-economic practices compared to older generations.

Our study reveals that older generations (Silent Generation, Gen. X and Millennials) are more inclined to spread the word online about respectively environmental, socio-economic and cultural initiatives of hotels compared to the younger generations. These findings might indicate how Gen Z customers have not introjected sustainability values, instead, most of them probably follow a fashion/trend superficially. These findings inform on the presence of an attitude-behavior gap of Gen Z with regards to their social, cultural and environmental attitude versus actual online behaviors, thus opening the debate on Gen Z as a paradoxical generation.

Differently from previous studies that focused on Gen-Z pro-sustainability intentions and used semi-structured interviews or surveys (Salinero et al., 2022; Prayag et al., 2022; Seyfi et al., 2023), this study

has adopted a big data approach and investigated generational cohorts' engagement in sharing sustainability-framed online hotel reviews. Relying on big data analytics allows offering insights into real-time consumer trends in sustainable hospitality (Mariani and Borghi, 2021) and offers more reliable and generalizable findings compared to self-reported measures (Filiari et al., 2022), which are still mainstream in sustainable hospitality research (D'Acunto et al., 2024). This discrepancy between reported values and actual behavior aligns with recent work highlighting the intention-behavior gap in sustainable tourism (Viglia and Acuti, 2023; Khan et al., 2024). An attitude-behavior gap for sustainable consumption occurs when knowledge, values, attitudes and intentions relating to sustainability fail to translate into actual pro-sustainable behavior. This research contributes to expand this knowledge by focusing on the Gen Z attitude-behavior gap for sustainability (Prayag et al., 2022; Lisboa et al., 2022) with regards not only to the environmental dimension of sustainability, which is the most studied (Khan et al., 2024), but also considering the socio-economic and cultural dimensions. Furthermore, this study demonstrates the Gen Z's attitude-behavior gap with regards to eWOM across the socio-economic, cultural, environmental dimensions.

Our findings suggest that each generational cohort emphasizes different aspects of sustainability in their online communications. This supports Generational Cohort Theory's premise that formative experiences shape values and behaviors (Inglehart, 1977). The Silent Generation's greater attention to environmental aspects and Gen X's focus on socio-economic elements may reflect their different historical experiences with sustainability issues. This adds nuance to previous research on generational differences in sustainability engagement (Skeiryte et al., 2022).

The analysis also reveals important insights about eWOM behavior that extend beyond previous studies focused solely on environmental aspects (Filieri et al., 2021; Huy et al., 2022). By examining all three dimensions of sustainability, we demonstrate how different aspects of sustainability practices influence customer satisfaction (Filieri et al., 2021; Mariani et al., 2020; D'Acunto et al., 2023) and online engagement across generations.

This study advances the literature on green eWOM by providing novel insights into Gen Z's engagement with sustainability dimensions. Our results align with and extend previous findings about the positive relationship between environmentally-framed reviews and customer satisfaction. However, while prior research focused primarily on environmental aspects, our study reveals distinct patterns across sustainability dimensions. Second, we demonstrate that Gen Z's reviews show a more complex relationship with satisfaction: while environmental content correlates positively with ratings, socially- and culturally-framed content shows negative associations. These findings expand our understanding of how different sustainability dimensions influence Gen Z's satisfaction (Salinero et al., 2022; Casalegno et al., 2022) and challenge assumptions about uniform sustainability attitudes among this cohort. This pattern suggests that Gen Z may hold higher expectations for social and cultural sustainability initiatives, leading to more critical evaluations in these areas. This interpretation aligns with research showing Gen Z's heightened sensitivity to social justice and cultural authenticity (Lisboa et al., 2022; Confetto et al., 2023; Seyfi et al., 2023).

## 6. Managerial implications

From a managerial standpoint, we advise hotel managers targeting Gen Z customers to particularly pay attention and to better communicate the socio-economic and cultural aspects of their sustainability practices, to try to increase their rating on review platforms. These two dimensions show a negative association with Gen Z overall satisfaction. Conversely, our findings demonstrate how Gen Z do appreciate environmentally-friendly practices carried out by hotels, however tend to be not as vociferous as other generational cohorts online, thus reducing the availability of environmentally-related information online for their peers. Young customers are thus suggested to consider different sources of eWOM for their purchase decisions.

Our findings further suggest how older generational cohorts are more willing to discuss online about sustainability-related aspects than Gen Z consumers. Specifically, the Silent Generation and Millennials are more likely discussing environmental aspects than Gen Z; Generation X, Baby Boomers and Millennials tend to discuss more on the social aspects than Gen Z; Millennials are more likely discussing cultural aspects than Gen Z. Tourism operators and hotels should emphasize their commitment in the different areas of sustainability according to their target markets segments. Hotels targeting younger generational cohorts of customers (e.g. Gen Z, Millennials) should prioritize the cultural aspects of sustainability over environmental or social factors in their online and offline communication, as Gen Z and Millennials place greater emphasis on cultural elements compared to older generations. For instance, communicating the hotel commitment towards the protection and preservation of cultural heritage amid ongoing territorial changes and socio-political influences, prioritizing the resolution of pressing challenges and ensuring its long-term endurance.

Hotels and organizations should work in the direction of closing the attitude-behavior gap if they want to make the hospitality industry more sustainable and to avoid the perception of greenwashing. For instance, hotel brands should quantify the impact of their environmentally, socially and culturally friendly practices wherever possible for the sake of transparency. Firms should also standardize the sustainability language used to speak to the markets, ensuring it is easily understandable by customers and consistent across the hospitality industry. Using micro-influencers or including employees and customers in pro-sustainable marketing campaigns could also help narrowing the gap.

Similarly, review platforms should encourage Gen Z customers to review their travel experience discussing the different dimensions of sustainability by rewarding them with higher degree of online visibility or with promotional codes, considering customers also want to feel they can play a useful role in the transition toward sustainability.

## 7. Limitations and future research

This study has several important limitations that suggest avenues for future research. First, we did not consider psychological factors which may be important in this context. For instance, individuals who perceive themselves as sustainable consumers are likely to engage in pro-social behavior (Lee et al., 2006), pro-cultural (Salinero et al., 2022) and pro-environmental behaviors and green consumption to express their self-identity (Oliver and Lee, 2010), for example, through word-of-mouth about sustainable products. Self-identity theory postulates that people consume in ways consistent with their sense of self (Sirgy, 1982; Berger and Heath, 2007). While some consumers may have an ideal self-concept of being socially, culturally and environmentally responsible, others have a strong self-interest in perceiving themselves as sustainable consumers (Freestone and McGoldrick, 2008).

Methodologically, our reliance on review data presents certain limitations. By focusing only on review data, this study only considers the perspective of guests reviewing their stay, thus excluding consumers who do not write reviews. The extent to which hotels communicate online their effort toward sustainability and related activities can also influence reviewers' expectations and experiences with environmental, social and cultural sustainability. Not controlling for hotels' sustainability communications represents another limitation.

Our data also has geographic and linguistic constraints, focusing on major European destinations and English-language reviews. Cultural differences may influence how different generations perceive and discuss sustainability across regions.

Future research on eWOM behavior could consider other socio-demographic variables (i.e., gender, nationality, level of education), which have been important in sustainability research (D'Acunto et al., 2023) and look at casual relationships between the several dimensions of sustainability discussed in reviews and ratings, designing experiments. Another avenue should look at why Gen Z consumers struggle to translate their sustainability-related values into online actions, for instance investigating the barriers towards sharing sustainability-framed eWOM. The antecedents of sustainability-framed reviews production should also be investigated, to understand the reasons why consumers of different generations engage in discussing environmentally, socially or culturally related aspects in their reviews. Finally, the development of a hotel-centric dictionary based on the specificities of sustainability in the accommodation industry would also be useful for future studies, to better detect consumer experiences across the different sustainability dimensions. Such a tool could help capture industry-specific sustainability terminology and practices that might be missed by general sustainability dictionaries.

## CRediT authorship contribution statement

**D'Acunto David:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Filieri Raffaele:** Writing – review & editing, Validation, Supervision, Conceptualization. **Okumus Fevzi:** Supervision, Reviewing and editing.

## Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Co-author serving as Coordinating Editor for the journal – R.F. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to

influence the work reported in this paper.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ijhm.2025.104194](https://doi.org/10.1016/j.ijhm.2025.104194).

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