Sustainable Online Advertising

User perceptions of the environmental impact of

online advertising and sustainable advertising initiatives

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Executive Summary

Many internet users are aware of the environmental impact of online ads

Internet users are aware of the environmental impact of online advertising. Three in five state that they are aware of the impact of online ads on the environment with 50% estimating that online advertising has a moderate to large impact on the annual carbon emissions associated with using the internet – comparable to that of music or video streaming or video conferencing. Only sixteen percent think it has no impact at all. Despite a high level of awareness, most users underestimate the actual environmental impact of online ads. When informed, 61% thought the impact was more or significantly more than they thought and 59% felt more or a lot more concerned about its impact.

Internet users hold technology companies that sell ads and track their analytics as most responsible for reducing carbon emissions from online ads, followed by governments or non-government organizations, brands, and websites. Internet users rank themselves as least responsible – 56% of participants ranked themselves as least responsible relative to the other stakeholder groups.

Internet users want to reduce their carbon emissions from viewing online ads and are willing to take action to do so

The majority of internet users (67%) want more control over the environmental impact of the ads they see online. Over 70% are already taking action to reduce the impact of their internet usage and, after learning about carbon emissions from online ads, two-thirds are more willing to take action to reduce the environmental impact of online ads.

Nevertheless, there is a clear need for more information and education, as well as products or services that help internet users to achieve these goals. Over two-thirds of internet users want easily accessible information about the carbon emissions of the ads they see online and 63% would be likely to install a free product that provides information on the carbon

footprint of the websites they view. The vast majority of users (92%) think that an important function of an independent governing body overseeing sustainable online advertising standards is to provide education to internet users on how they can reduce their carbon footprint from online ads.

Internet users are interested in solutions that contribute to a sustainable online advertising ecosystem

Internet users are interested in a sustainable ad-filtering experience. If it reduced the environmental impact of online ads, users are equally likely to install an extension that blocks non-sustainable ads (66%) as they are to install an ad blocker (68%). In fact, current ad blockers are even more likely than non-ad blockers to be interested in doing so (70% vs. 54%, respectively). However, there are limits to the actions users are willing to take; less than 45% of internet users are interested in initiatives that require that they pay for a tool or make a donation to an institution that monitors the carbon emissions from online ads.

Environmental sustainability and social responsibility are the strongest drivers of intentions to view ads to support publishers and content providers, yet the Acceptable Ads criteria are just as important. Seventy-seven percent of ad-blocking users would consider accepting to view ads to support publishers and content-providers if the ads meet clear sustainability criteria set by an independent governing body or if - when viewing the ad - the publisher donates a proportion of the ad revenue to a good cause. Over 70% of ad blockers would also consider viewing ads if there were restrictions on the placements and types of ads that can be shown on a webpage and if these ads had been rated by a majority of internet users to be not disruptive or annoying. A similar proportion of non-ad-blocking users would be interested in downloading an extension that provided the same features. Thus, the Acceptable Ads Standard represents online advertising initiatives that internet users are willing to adopt to support publishers and content-providers, with sustainable online advertising or social good initiatives having the potential to further enhance support.

There are clear benefits for brands and publishers who adopt sustainable online advertising initiatives

For brands, sustainable online advertising initiatives would retain positive brand reputations and sway purchasing decisions. Sixty percent of internet users would think less of a brand if their online ads were not carbon-friendly. At the same time, 65% would be more likely to purchase products or services from brands if they practiced sustainable online advertising. However, not all sustainability initiatives are equally likely to sway purchasing decisions. Initiatives to reduce carbon emissions from online advertising across the supply chain (producing lower-emitting ad creatives, working with low-carbon suppliers to advertise products, only advertising products on low-carbon-emitting websites) would sway more than 50% of consumers to purchase from one brand over another, yet purchasing carbon credits to compensate for emissions from manufacturing activities would convince fewer consumers (39%).

For publishers, adoption of sustainable online advertising initiatives would translate into continued visits to websites (66%) and a greater likelihood that users would click on ads (62%). Initiatives that offer a more sustainable online advertising experience – and already evident in the Acceptable Ads Standard – would encourage the majority of internet users to support publishers by viewing ads on their websites: 86% would be moderately to extremely willing to view ads if the publisher displayed fewer ads than other similar websites as would 81% if the website displayed ads that have a lower carbon footprint (e.g., static ads, not video or animated ads). However, there is room for additional sustainable advertising initiatives: restricting the length of video ads, restricting tracking and third-party cookies, and having ads display a badge from an independent organization verifying that they adhere to standards for sustainable online ads would each encourage over 80% of internet users to support publishers by viewing ads.

Internet users believe a broad range of sustainable online advertising initiatives would reduce carbon emissions and there is a clear role for an independent governing body to oversee and enforce them

The majority of internet users believe that reducing carbon emissions from online ads can be achieved through multiple industry initiatives. Technology-based initiatives that would block high carbon-emitting ads or block ad tech that emits carbon were considered to be the strongest initiatives for reducing emissions (~60% of internet users believed these to be very to extremely helpful for reducing emissions), along with commitments from brands to work with more carbon-friendly websites (57%) and publishers to only display low carbon-emitting ads (56%). Fewer internet users believe that leaving it up to websites to determine an acceptable amount of carbon emissions would help reduce emissions (42% very or extremely helpful).

According to internet users, an independent governing body overseeing sustainable online advertising standards would have multiple functions with the most essential being oversight, transparency, and education. Specifically, just under half of internet users thought monitoring and auditing publishers and advertisers to ensure they are adhering to the standards (46%), requiring websites to transparently report data on their carbon emissions from online ads (45%), and providing education to internet users on how they can reduce their carbon emissions from online ads (44%) were essential functions. Only 8% of internet users considered these functions to be not important.

There is also a clear value in establishing such an organization to give credibility to and bolster trust in industry initiatives. Verification of a brand's or website's sustainability initiatives or standards by an independent source would increase user trust in the efforts of brands (67%) and publishers (66%) with the majority of internet users being moderately to extremely willing to support publishers by viewing ads on their webpages with such verification (81%).

Gen Zs are less interested in having more control over the environmental impact of the ads they see online or in endorsing or trusting the efforts of brands or publishers who adopt sustainable online advertising initiatives

Millennials and Gen Z were most aware of the environmental impact of using the internet and the impact of online ads on carbon emissions and, when informed about the actual environmental impact of online advertising, were less likely than Baby Boomers to think that the impact was more than they thought. However, Millennials were the generation who were most likely and Baby Boomers the least likely to report that they were already taking actions online for sustainability reasons (e.g., reducing the quality of music or video streaming, using more sustainable products or services online).

In general, Gen Z, when compared to other generations, were less likely to agree that they want more control over the environmental impact of the ads they see online, less likely to want more information on how they can reduce their environmental impact from the ads they see online or want to have easy access to information about the carbon emissions of the ads they see online (~10 percentage points lower). Gen Z respondents were also slightly less likely to strongly support or trust the efforts of brands or publishers who adopt sustainable advertising initiatives (~10 percentage points lower than other generations).

Internet users from emerging markets are more aware of the environmental impact of online advertising, more likely to take action, and more supportive of sustainable online advertising initiatives

Across almost all survey questions, participants from Brazil, China, India, Indonesia, South Africa, and Vietnam gave stronger responses than those from other countries. For instance, respondents were more likely to report being aware of the environmental impact of using the internet, more concerned about its impact and likely to take action to reduce carbon emissions from online ads, more willing to support brands and publishers who adopt sustainable online advertising initiatives, more likely to think that sustainable advertising

initiatives would be more helpful for reducing carbon emissions for online ads, and more likely to consider multiple potential functions of an independent governing body as essential to help reduce emissions from online ads.

In summary, many global internet users are aware of the environmental impact of online advertising – although many underestimate its actual impact, are concerned about its impact, and are willing to take action to reduce carbon emissions from online ads. There is broad support for sustainable online advertising initiatives and for those brands and publishers who adopt such initiatives. There is a clear and valuable role for an independent governing body to oversee and enforce standards for sustainable online advertising.

About the Acceptable Ads Committee

Over 250MM online users worldwide are open to receiving Acceptable Ads. Established in 2017, the Acceptable Ads Committee ("AAC") is a non-profit organization whose objective is to protect the user experience, while simultaneously providing publishers and content creators with meaningful monetization opportunities. The AAC does so by conducting independent research into the acceptability of various ad formats and codifying the results in the Standard for what constitutes an Acceptable Ad. One of the few advertising bodies that provides a voice for internet users, the AAC aims to maintain a sustainable open internet by balancing the needs of its stakeholder representatives, including users, publishers, advertisers, ad tech companies, and digital rights organizations.

The environmental impact of online advertising

According to Scope3, digital advertising produces 7.2M metric tons of carbon emissions per year, equivalent to the annual electricity usage of 1.4 million US households (Scope3, 2023). These emissions are comparable to emissions for the entire aviation and shipping industry of Portugal or the entirety of the manufacturing and construction industry in Sweden (Scope3, 2023). At an advertising campaign level, Good-Loop estimates that an average online advertising campaign in the UK emits 5.4 tons of carbon dioxide (Good-Loop, 2021). At an impression level, streaming video ad inventory (706.5 gCO_2PM) accounts for more than double those from display advertising (330 gCO_2PM; Scope3, 2023). These emissions originate not only from production (creative and media distribution) but also are a byproduct of the energy to deliver ads and track their performance (ad selection; Scope3, 2023).

Industry initiatives

The advertising industry recognizes that they must do more to reduce carbon emissions from online advertising. Nine out of ten US marketers agree that the advertising industry has a responsibility to reduce its carbon footprint and 76% believe the industry needs to do more to reduce emissions (Good-Loop, 2022). However, while 90% of executives believe that sustainability is important, only 60% have a sustainability strategy in place (World Economic Forum, 2022). There are a number of ways that companies are tackling the issue, such as investing in carbon offset programs to offset emissions or improving or optimizing efficiency in the way in which ads are delivered. Nevertheless, there is a lack of standardization in how carbon emissions are tracked and reported, and efforts being limited when not all stakeholders in the value chain report carbon emissions.

Industry initiatives are seeking to address these issues. For instance, numerous companies have joined Ad Net Zero and committed to its action plan to transition to net zero emissions in the advertising industry (Ad Net Zero, 2023). The IAB Tech Lab recently published "The Sustainability Playbook" as a starter guide for sustainability in the programmatic marketplace (iab. Tech Lab, 2023). Further, companies are partnering with organizations like Scope3 that offer comprehensive carbon measurement solutions for advertisers, publishers and ad tech companies (Scope3, 2023).

Consumer research

A few recent consumer surveys have sought to understand what consumers know about the environmental impact of online advertising and the actions that consumers think they or industry should take to reduce carbon emissions from online advertising. Although these surveys have provided valuable first insights into the importance of sustainable advertising to consumers, they have primarily focused on perceptions of or benefits for brands that take initiatives to reduce the environmental impact of their advertising (e.g., consumer purchase intentions). There has been very little research to explore consumer perceptions of publishers or the benefits that sustainable online advertising initiatives would provide for publishers who rely on online advertising to fund content creation. Further, prior surveys have established general support from consumers for sustainable online advertising initiatives but there are currently few insights into the specific initiatives consumers would support or those they would consider most helpful for reducing emissions. Finally, while consumers have stated that trust in sustainability initiatives would be enhanced if standards were overseen by an independent governing body, consumer perspectives on the specific functions of this organization would help to establish an organization that consumers would support. The present survey seeks to fill these gaps.

Insights from previous consumer surveys

Consumers have some awareness of the environmental impact of online advertising and want industry to take action

Two recent consumer studies have focused on internet consumers' awareness of the environmental impact of online advertising. A recent Vox Media study found that US consumers were largely unaware of the CO_2 emissions from the advertising industry (Vox Media, 2023). A large global consumer research study conducted by dentsu and Microsoft found that 61% of consumers considered that experiencing an ad had a negative impact on the planet, with younger generations and respondents from APAC countries being more aware of the impact (dentsu and Microsoft, 2021).

When made aware of the environmental impact of online advertising, consumers want industry to take action. While half of global consumers hold Governments accountable for decarbonizing the way they experience advertising, over 40% also hold brands (43%) and the advertising industry (41%) accountable (dentsu and Microsoft, 2021). More than 75% of US consumers felt it was important that the advertising industry adopt technologies to measure and reduce the CO_2 emissions from their campaigns and 86% felt it was important to partner with publishers who offered more sustainable solutions (Vox Media, 2023).

Sustainability is an important driver of consumer behavior

Environmental sustainability is important to consumers and is becoming a core consideration in their purchasing decisions. Over two-thirds of US and UK consumers consider sustainability when making purchasing decisions, with sustainability being preferred to brand name as a purchasing consideration by many consumers (First Insight, 2022). Not surprisingly, 91% percent of global consumers want brands to be more explicit in demonstrating that they are making positive choices about the environment and the vast majority would stop using products or services if they learned that they were damaging the

environment (dentsu and Microsoft, 2021; Brand Finance, 2023). Over a third of UK consumers want clearer information, more transparency, and availability about the sustainability of products and services and the sustainability credentials of companies (Deloitte LLP, 2023).

Awareness of the environmental impact of online advertising may also influence purchasing decisions. All things being equal between two brands, 73% of American consumers said that it would make a difference to their purchasing decision if they knew one of the brands was actively measuring and reducing carbon emissions related to their advertising (Vox Media, 2023). At a global scale, 84% of global respondents stated that they would be more likely to buy from a company that practices sustainable advertising (dentsu and Microsoft, 2021).

Consumers are willing to take action to reduce their carbon footprint from online advertising. Fifty-nine percent of global consumers indicated that they would buy a channel or service subscription that only showed environmentally friendly advertisements and 25% would actively avoid or opt out of advertisements that were not sustainably produced or delivered (dentsu and Microsoft, 2021).

The potential for sustainability initiatives to influence the actions users take online when it comes to viewing advertising has important implications for publishers. However, **despite online advertising being an economic driver for publishers, there has been very little research to explore consumer perceptions around sustainable online advertising or the benefits that sustainable online advertising initiatives would provide for publishers.**

Consumers want to be informed about sustainable online advertising initiatives

Consumers want to be informed about the sustainability of the ads they see online, but how to inform consumers or which sustainable online advertising initiatives consumers

would support are unclear. Forty-three percent of global consumers think it would help them to determine which brands are environmentally friendly if there was clear labeling of green credentials on websites or social media (dentsu and Microsoft, 2021) and more than half (55%) of US consumers want a consistent symbol or label that designates whether an ad was produced sustainably (Vox Media, 2023). Less than a third of US consumers (29%) wanted a legal disclaimer or subtext included in ads that provided more detailed topline emissions data and whether or not the ad met industry standards for sustainability, and only 16% preferred that ads include a link with further details of emissions data (Vox Media, 2023).

Qualitative interviews with internet users also revealed some ambiguity about how a sustainability initiative should be communicated (The Acceptable Ads Committee, 2023). Despite all participants agreeing that a label would be a good signal to users that publishers are showing sustainable advertising, participants were not aligned on whether such labels should appear on the website (e.g., as a banner, logo or seal, disclaimer or popup) on the ads themselves (e.g., a logo, label, or short text disclaimer), or even embedded within the ad (e.g., at the start or end of a video advertisement). Internet users also suggested that sustainable advertising standards could help reduce carbon emissions by specifying restrictions on file sizes or mandating the use of lower-emitting ad formats. Importantly, internet users stated that online advertising initiatives should match their expectations about a more sustainable advertising experience; for example, with websites showing fewer ads or shorter video ads.

It is currently unclear what sustainability initiatives users would support or find most helpful to reduce the environmental impact of online ads. For instance, users may prefer technology solutions that provide additional personal control (e.g., technology that blocks non-sustainable ads or blocks ad tech that contributes to carbon emissions) over industry-initiated solutions (e.g., commitments to showing lower carbon-emitting ads). Similarly, internet users may prefer to support publishers whose ads have a label verifying

they adhere to sustainable online advertising standards to solutions that restrict certain types of ads (e.g., high carbon-emitting ads, fewer ads in general).

An independent governing body could facilitate consumer trust in sustainable online advertising initiatives

In general, consumers want to be able to trust the sustainability credentials of companies. Over a third of UK consumers would increase their trust in brands if an independent third party recognized them as an ethical/sustainable provider, and this was considered to be the most important signal for trusting the sustainability commitments of businesses (Deloitte LLP, 2023). Similarly, more than a third of respondents would look for either transparency of reporting (36%) or independently audited credentials (34%) to help them evaluate the company's green status. The majority of global consumers (88%) would have more trust in brands if there was independent verification of their green credentials (dentsu and Microsoft, 2021). In qualitative interviews with internet users, transparency and clear messaging were considered essential to help users to evaluate the trustworthiness of initiatives, with the absence of these qualities leading to doubt or distrust (The Acceptable Ads Committee, 2023).

An independent governing body overseeing sustainable online advertising standards will need to meet internet users' expectations to help them evaluate and trust its initiatives. For instance, some internet users want to know how sustainability initiatives are audited and expect transparency in reporting from brands or publishers (The Acceptable Ads Committee, 2023). **Understanding what internet users consider to be essential functions for an independent governing body to perform in relation to sustainable online advertising initiatives will help promote trust in these initiatives, and ultimately benefit those brands and publishers who adopt them.**

Research questions

The present survey seeks to address the following research questions:

- How aware are internet users of the environmental impact of online advertising and what actions are they currently taking to reduce their impact?
- How much control do internet users want over the sustainability of the ads they see online and what actions are they willing to take to reduce their carbon emissions?
- How could brands and publishers benefit from sustainable online advertising initiatives?
- What sustainability initiatives do internet users find most helpful for reducing the carbon emissions from online advertising?
- How can an independent body drive sustainable online advertising standards?

Survey Methodology

The Acceptable Ads Committee (AAC) commissioned an independent research study to understand how aware global internet users are of the environmental impact of online advertising and to gauge consumer support for sustainable online advertising initiatives. The study was conducted by eyeo together with the research provider Lucid LLC and overseen by the AAC.

The Sustainable Online Advertising survey was conducted in November 2023 with 14,004 individuals[1] (aged 16+) from 14 countries: USA (n=998), Canada (n=999), Brazil (n=1000), UK

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[1] A total of 14,970 participants completed the study and 966 (6.5%) were excluded because they failed data quality checks (slightly higher than the 5% estimate provided by the vendor). Data quality checks included identifying speeders, duplicate respondents, respondents that had no variation in response patterns, and multiple gibberish open-ended responses.

(n=1002), France (n=996), Germany (n=999), Spain (n=1002), Poland (n=994), South Africa (n=1005), Australia (n=1003), India (n=998), Indonesia (n=1003), Vietnam (n=1001) and China (n=1004). Quotas were applied to obtain samples matching age and gender based on Census data. Details of the samples can be found in the Appendix.

In the following sections, survey results are presented for the global sample. Where relevant, differences across generations (Gen Z, Millennials, Gen X, and Baby Boomers) or country differences are mentioned if there is a difference of at least ten percentage points between groups or where there are different patterns of results across questions.

Survey Results

Overview of respondents

The majority of respondents agreed (45%) or strongly agreed (29%) that reducing their environmental impact was important to them. Older generations (Baby boomers and Gen X) were more likely to agree (each 76%) relative to Millennials (70%) and Gen Z (64%). There were also marked differences across countries. Agreement was highest in Brazil, Indonesia, China and Vietnam (78-89%) and lowest in Poland, the USA, UK, Australia and Canada (60-69%). Seventy-one percent of respondents reported that they were using an ad-blocker, with the most common ad-blocker being AdBlock (47%), Opera's built-in ad blocker (23%), and Adblock Plus (19%).

Awareness of the environmental impact of using the internet was high with over three-quarters of respondents acknowledging that they had some awareness (53%) or were very aware (24%) of its impact. Millennials were most aware of the environmental impact,

with four out of five stating that they were somewhat (54%) or very aware (27%). Baby Boomers were least aware, with a third (33%) stating that they were completely unaware of the environmental impact. Around one-third of respondents from Australia, Spain, the UK, Canada, and the USA (32-37%) reported being completely unaware of the environmental impact of using the internet relative to participants in Indonesia, China, India, Vietnam and Brazil (14-16%).

When it came to actions internet users were currently taking to reduce their environmental impact when using the internet (Figure 1), the most frequent actions were using more sustainable products or services online (46%), changing online shopping habits (e.g., buying in bulk or less often; 41%) or regularly deleting unnecessary cloud storage (41%). Respondents were least likely to be turning off video in virtual meetings (31%), using an ad blocker (32%), or a private browser or search engine to block tracking/cookies (32%) for the purpose of reducing their environmental impact.

> **Over 70% of internet users are already taking action to reduce the environmental impact of their internet usage.**

Which of the following actions are you taking when using the internet?

	I am taking this action to reduce my environmental impact	I am taking this action for other reasons	I am not taking this action
Changing my online shopping habits (e g , buying in bulk, less often)	41	32	28
Reducing the amount of time I spend on activities online	35	35	30
Reducing the amount of time I spend on social media	35	39	27
Reducing the quality of music or video streaming (e g , do not stream in high resolution)	34	29	37
Regularly deleting unnecessary cloud storage (e g , emails, images)	41	40	19
Turn off video in virtual meetings	31	34	36
Using a private browser or search engine that blocks tracking/cookies	32	37	30
Using an ad blocker to block advertisements	32	39	29
Using more sustainable products or services online	46	27	27

Proportion of responses

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Figure 1. Actions users are currently taking online to reduce their environmental impact.

Millennials were most likely and Baby Boomers were least likely to report taking actions for sustainability or other reasons. Millennials were the generation who was most likely to be using more sustainable products or services online (52%), changing their online shopping habits (47%), or deleting unnecessary cloud storage (46%) for sustainability reasons. Baby Boomers were less likely than other generations to be using an ad blocker to block advertisements (21%), using a private browser or search engine that blocks tracking/cookies (22%), or turning off video in virtual meetings (23%) for sustainability reasons. In general, respondents from India, Indonesia, China, Vietnam, and Brazil were most likely to report taking any of the listed actions for sustainability or other reasons.

The main reasons respondents reported that they were prevented from taking further actions to reduce the environmental impact of their internet usage were because they were not aware that using the internet had an environmental impact (31%), they did not think about it until now (29%) or they did not think their actions would have that much impact (28%). One in five respondents were not aware of actions they could take, reported there were no good products, services, or solutions to help them reduce their impact, or thought that taking action would reduce the quality of their internet experience. A greater proportion of respondents in China (39%), India (32%), and Vietnam (30%) reported that a lack of good products, services, or solutions were available to help them reduce their impact (other countries between 11-24%).

Awareness of the environmental impact of online advertising

The majority of internet users are aware of the environmental impact of online advertising

Three out of five global respondents reported being somewhat (47%) or very aware (12%) of the impact of online ads on the environment. Millennials were most likely (67%) and Baby Boomers least likely (46%) to be somewhat or very aware of the impact. Respondents from China (78%), India (74%), Indonesia, and Vietnam (both 73%) reported having at least some awareness of the impact of online ads on the environment, whereas rates were around 30 percentage points lower in Australia (45%), the UK, Canada and Spain (all 47%).

> **Three out of five global internet users are aware of the impact of online ads on the environment**

On average, three in five global respondents had not (52%) or could not recall (11%) reading any articles or viewing any videos about the environmental impact of online ads. A greater proportion of Millennials (50%) and Gen Z (45%) respondents had read articles or viewed videos relative to Gen X (35%) and Baby Boomers (17%). Respondents from India (69%), Indonesia (58%), Vietnam, and China (both 55%) were the most likely and respondents from Canada (18%), Australia (20%), and the UK (21%) were least likely to have read or viewed content about the environmental impact of online ads.

Internet users think being shown online ads has a moderate to large impact on the annual carbon emissions from using the internet

When asked to rank the industries that generate the highest to lowest carbon emissions, online advertising was consistently ranked as the lowest emitter (Figure 2). For 50% of

respondents, the online advertising industry was rated as contributing the lowest carbon emissions, with another 15% each ranking online advertising as fourth or fifth lowest. Chemical and petrol production followed by air travel were ranked as having the highest carbon emissions amongst the selected industries.

Using your best judgment, please rank the following according to those that you think generate the highest carbon emissions (1) to the lowest carbon emissions (6):

Answer	Rank distribution	Total Score	Rank
Chemical and petrol production		100,000	1
Air travel		100,000	2
Shipping		48,084	3
Land use and crop production		43,790	4
Livestock and fisheries		42,502	5
Online advertising		31,889	6

Figure 2. Weighted ranking of industries according to the industries internet users ranked as emitting the highest to lowest carbon emissions. The rank distribution column shows the frequency each answer was ranked from 1 (highest emissions, left) to 6 (lowest emissions, right). The total score represents a weighted sum where the highest rank received the greatest allocation of points and the lowest rank the least number of points.

When asked to estimate the impact of online advertising on the annual carbon emissions from using the internet (Figure 3), 73% of respondents thought that being shown online ads had at least some impact on the annual carbon emissions of using the internet: 23% thought it had a small, 29% a moderate, and 21% a large impact. The impact of being shown online ads was comparable to that of music or video streaming and video conferencing.

> **Carbon emissions from being shown online ads are perceived to be comparable to those from music or video streaming or video conferencing.**

Cryptomining, online gaming, and online shopping were rated as having a greater impact. Only browsing or searching the web was considered to have a lower impact than being shown online ads.
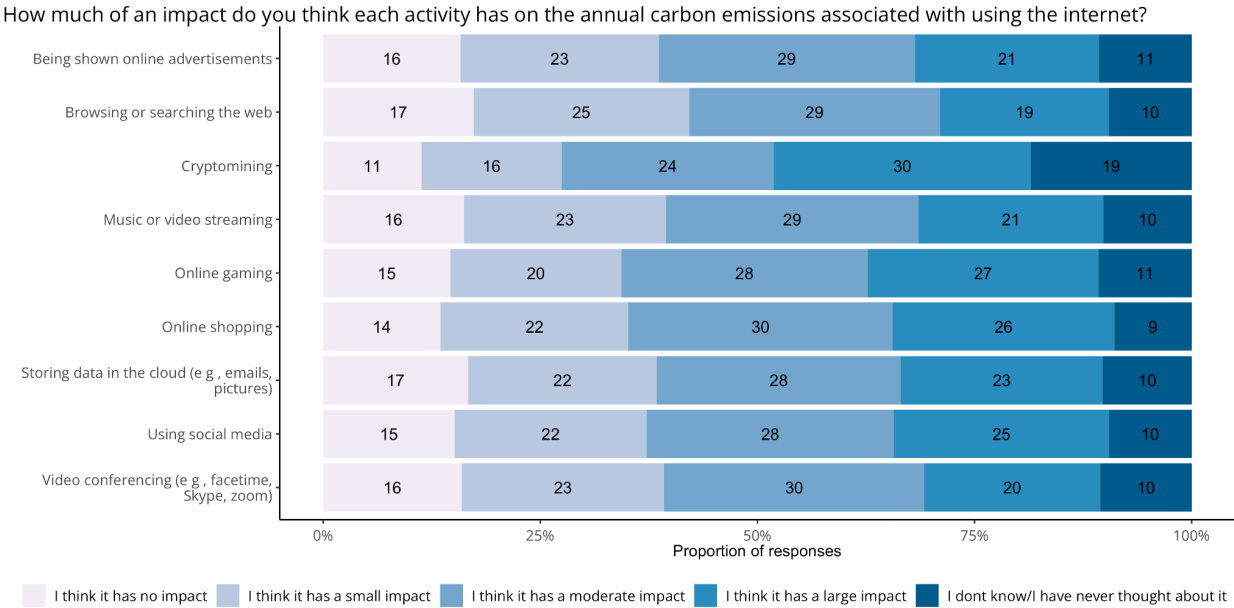
Figure 3. Estimated impact of each online activity on the annual carbon emissions associated with using the internet.

Overall, over 60% of respondents from China, France, India, and Indonesia thought that being shown online ads had a moderate to large impact on the carbon emissions from using the internet compared to only 50% or less of respondents from the remaining countries. Respondents from India (31%) and Indonesia (30%) were most likely to think that it had a large impact, while respondents from Canada and the UK (both 12%) and Australia (13%) were least likely to think it had a large impact.

Technology companies that sell ads are perceived as most responsible for reducing the environmental impact of online advertising

When it came to attributing responsibility for reducing the environmental impact of online advertising (Figure 4), technology companies that sell ads and track their analytics were ranked as most responsible, followed by government or non-government organizations, brands, and websites. The user was consistently ranked as having the least responsibility, with 56% of respondents ranking themselves (the user) as least responsible.

In your opinion, please rank the following stakeholder groups from those who should be most responsible (1) to least responsible (5) for reducing carbon emissions from online ads:

Answer	Rank distribution	Total Score	Rank
Technology company		49,093	1
Government or non-government organization		46,362	2
Brand		44,377	3
Website		40,932	4
Me (the user)		29,227	5

Figure 4. Weighted ranking of stakeholders internet users perceived to be most to least responsible for reducing carbon emissions from online ads. The rank distribution column shows the frequency each answer was ranked from 1 (most responsible, left) to 5 (least responsible, right). The total score represents a weighted sum where the highest rank received the greatest allocation of points and the lowest rank the least number of points.

When learning of the actual environmental impact of online ads, the majority of users are more concerned and willing to take action

To inform respondents about the environmental impact of online advertising, respondents were provided with the following information before answering further questions:

Online advertising impacts the environment by emitting greenhouse gasses (such as carbon dioxide, or CO2) into the atmosphere. These gasses create conditions that cause global warming.

The primary way that online advertising creates carbon emissions is as a byproduct of the energy that is required to deliver ads to a user's device and track their performance, as well as the energy of the device itself.

It is estimated that a single ad impression (i.e. 1 ad shown on 1 web page to 1 user) generates the same amount of carbon emissions as having a light bulb on for about 30 seconds. Since the average internet user sees 30,000 online ads every month, the estimated carbon emissions of online ads for each person is equivalent to having a light bulb switched on continuously for about 10 days each month.

Despite 59% of global respondents previously reporting that they had some awareness of the environmental impact of online advertising, after reading the above information, the majority of respondents thought that the impact was more than (38%) or significantly more

than they thought (23%) and were more concerned (43%) or a lot more concerned (16%) about its impact (Figure 5). Two-thirds of respondents were more (47%) or a lot more willing (19%) to take actions to reduce the environmental impact of online ads.[2]

The environmental impact of online ads is:

| 9 | 12 | 18 | 38 | 23 |

significantly less than I had thought ■ less than I had thought ■ the same as I had thought ■ more than I had thought ■ significantly more than I had thought

How concerned do you feel about the environmental impact of online ads?

| 6 | 10 | 25 | 43 | 16 |

A lot less concerned ■ Less concerned ■ About the same as before ■ More concerned ■ A lot more concerned

How willing are you to take actions to reduce the environmental impact of online ads?

| 4 | 6 | 25 | 47 | 19 |

A lot less willing ■ Less willing ■ About the same as before ■ More willing ■ A lot more willing

Figure 5. Internet user's reactions to learning about the actual environmental impact of online advertising.

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[2] An additional question asking how acceptable users thought it was to consume high carbon-emitting ads while using the internet is not reported. The pattern of responses was contradictory to responses users gave to other questions, suggesting that the item was misinterpreted.

Gen Z were least likely to report that the environmental impact of online advertising was more (33%) or significantly more (16%) than they thought while Baby Boomers were most likely to think the environmental impact of online advertising was more (40%) or significantly (29%) more than they had thought.

There were some general patterns across countries. Over two-thirds of respondents from Brazil, China, Indonesia, South Africa, and Vietnam thought that the impact was more or significantly more than they thought, were more or a lot more concerned, and were likely or a lot more likely to take action, relative to just over half of respondents in Germany, Poland, France, and the USA.

Actions internet users are they willing to take to reduce emissions from online ads

Internet users want more control over the sustainability of the ads they see online

Two-thirds of respondents agreed or strongly agreed that they would like more information about how they can reduce their environmental impact from the ads they see online (68%), that they want more control over the environmental impact of the ads they see online (68%), and that

The majority of internet users want more control over the environmental impact of the ads they see online.

they want to be able to easily access information about the carbon emissions of the ads they see online (66%; Figure 6). On average, Gen Z respondents were less likely to agree or strongly agree with each of these statements (~10 percentage points less relative to other generations). Over 75% of respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam agreed with these statements, whereas around 60% or less of respondents

from Australia, Canada, Germany, Poland, the UK, and the USA agreed with each of these statements.

Only one-third of respondents agreed or strongly agreed that it was not their responsibility to reduce the environmental impact of the ads they see online.

Please rate how much you agree with the following statements:
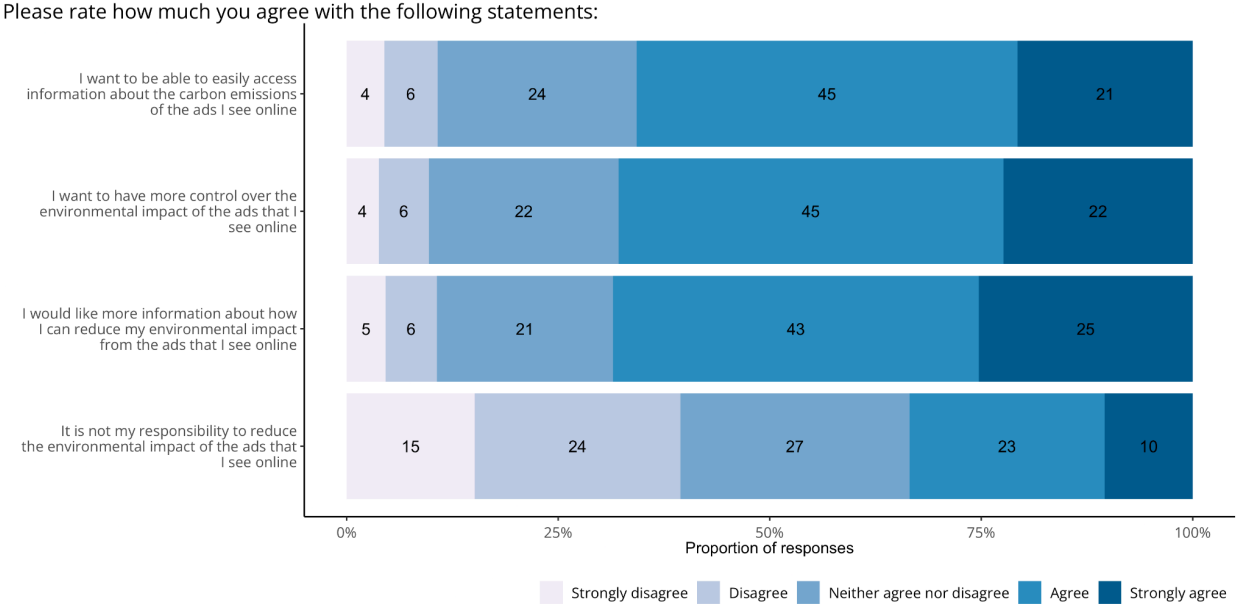
Figure 6. Proportion of internet users who agreed or disagreed with statements about wanting more control and information about the environmental impact of ads seen online.

To reduce emissions from online ads, users are equally likely to install an extension that blocks non-sustainable ads as they are to install an ad blocker

If it would help reduce carbon emissions from online ads, over two-thirds of respondents would be likely (38%) or very likely (31%) to install an ad blocker or to install an extension that blocks non-sustainable online ads (39% likely and 27% very likely; Figure 7). Respondents were less likely to take actions that required payment: for instance,

Two-thirds of internet users would install an extension that blocks non-sustainable ads

to pay for a carbon measurement tool that rates the environmental impact of the ads they see online (42%) or to donate to a non-governmental organization that monitors brands and websites on the environmental impact of online ads (45%). Three in five respondents would be likely to install a free product that provided information on the carbon footprint of websites they view online (63%).

Gen Z respondents were less likely than Millennials or Gen X to indicate that they would install an adblocker or install an extension that blocked non-sustainable ads (10 percentage points less likely). Baby boomers were less likely than Millennials or Gen X to be interested in paying for a carbon measurement tool or donating to a non-governmental organization (14-18 percentage points less likely). Respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam were more likely to take each action relative to respondents from other countries, particularly Australia, Canada, France, Germany, and the UK.

If it would help reduce carbon emissions from online ads, how likely would you be to:
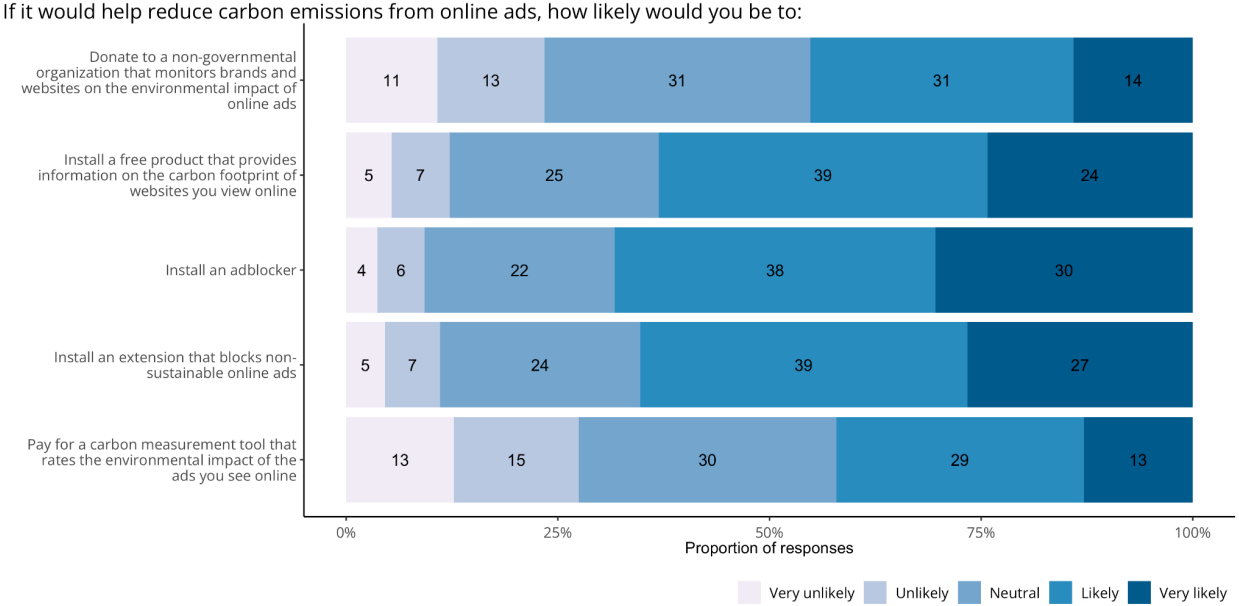
Figure 7. Proportion of internet users who rated how likely they would be to take each action if it would help reduce carbon emissions from online ads.

Ad blockers vs. non-ad blockers

Ad-blocking users have already taken the initiative to install a product to improve their browsing experience. To explore whether ad-blocking users were also interested in or even more likely than non-ad blockers to be interested in initiatives to reduce emissions from online ads, responses for ad blocking and non-ad-blocking users were compared. Not surprisingly, current ad blockers were more likely to indicate that they would install an ad blocker if it reduced emissions from online ads relative to non-ad-blocking users (74% vs. 55%). Ad-blocking users were also more likely to indicate that they would install an extension that blocked non-sustainable ads (70% vs. 54%), and install a free product that provided information on the carbon footprint of websites (66% vs. 55%). Ad blockers would also be more likely to donate to a non-governmental organization that monitored brands and websites on the environmental impact of ads (55% vs. 31%) and to pay for a carbon measurement tool (48% vs. 30%).

Users are interested in sustainable ad-filtering experiences

Ad-blocking users

Respondents who were currently using an ad blocker were asked under which conditions they might change their decision to block ads to support publishers and content providers by allowing certain types of ads to appear on a website (Figure 8). One-quarter of ad blockers would definitely accept viewing ads and half would consider viewing ads if the publisher or advertiser donated a proportion of

Over 75% of ad blockers would consider viewing ads if they met clear sustainable online advertising criteria set by an independent source.

the ad revenue to a good cause (25% and 52%, respectively) or if the ads met clear sustainable online advertising criteria set by an independent governing body (24% and 53%, respectively). In general, over 70% of ad blockers would consider or definitely accept

viewing ads if part of the revenue was able to be distributed back to organizations of the users' choice, if there were restrictions on the placements and types of ads shown on a webpage, or if the ads shown had been rated by a majority of internet users to be not disruptive or annoying.

If your ad blocker or extension offered the following options to help support publishers and content-providers by allowing certain types of ads to appear on a website, how would this affect your decision to view ads?
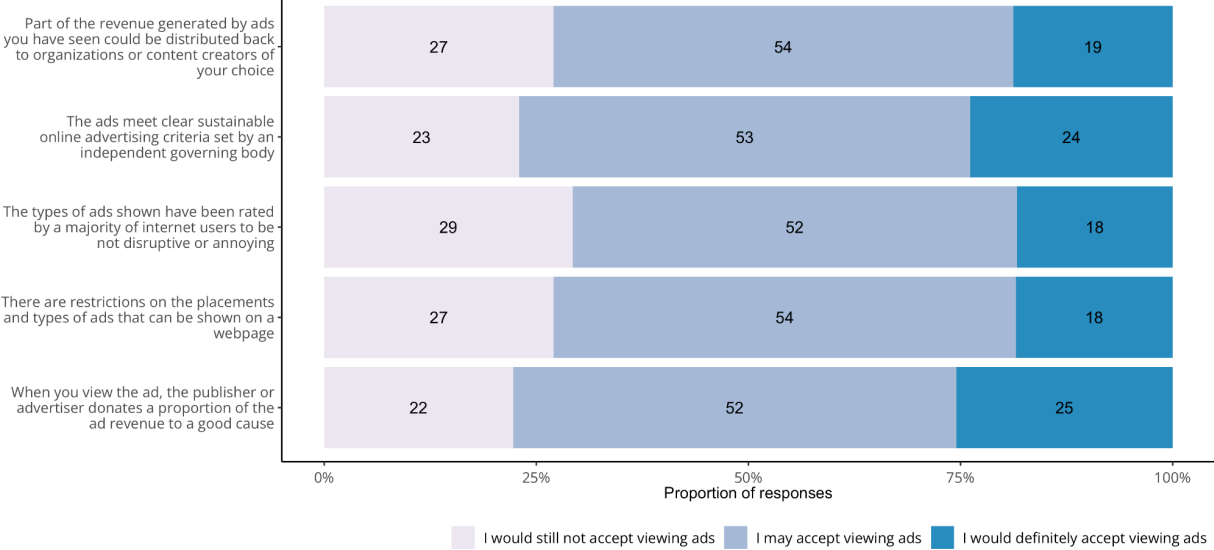
Figure 8. Proportion of current ad-blocking users who would be willing to view ads to support publishers and content providers if they met the stated conditions.

Non-ad-blocking users

Respondents who indicated that they did not currently use an ad blocker were asked under which conditions they would download a browser extension to support publishers and content providers by allowing certain types of ads to appear on a website (Figure 9). Under all conditions, over 70% of respondents would consider or definitely install the extension, with slightly greater support for ads that donate a proportion of the ad revenue to a good cause and if ads meet clear sustainable online advertising criteria set by an independent governing body (24% and 23% would definitely install the extension, respectively).

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If there was a browser extension that offered the following options to support publishers and content-providers by allowing certain types of ads to appear on a website, which of the following would motivate you to install the extension?

	I would not install the extension	I may install the extension	I would definitely install the extension
Part of the revenue generated by ads you have seen could be distributed back to organizations or content creators of your choice	28	54	18
The ads met clear sustainable online advertising criteria set by an independent governing body	23	54	23
The are restrictions on the placements and types of ads that can be shown on a webpage	24	57	19
The types of ads shown have been rated by a majority of internet users to be not disruptive or annoying	27	54	19
When you view the ad, the publisher or advertiser donates a proportion of the ad revenue to a good cause	24	52	24

Proportion of responses

Figure 9. Proportion of non ad-blocking users who would be willing to install an extension that supported publishers and content providers by viewing ads if they met the stated conditions.

In general, for both ad blocking and non-ad-blocking users, respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam tended to be more willing to view ads under each of the stated conditions than respondents from other countries.

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Brands and publishers would benefit from sustainable online advertising initiatives

Improving the sustainability of online ads is as important to users as creating a good user experience

Respondents thought it was equally important for industry to focus on improving the sustainability of online ads (53% very or extremely important) and creating a good user experience (52% very or extremely important) and slightly less important to show ads that are relevant to users (47% very or extremely important; Figure 10).

How important is it to you that the online advertising industry focus on the following:
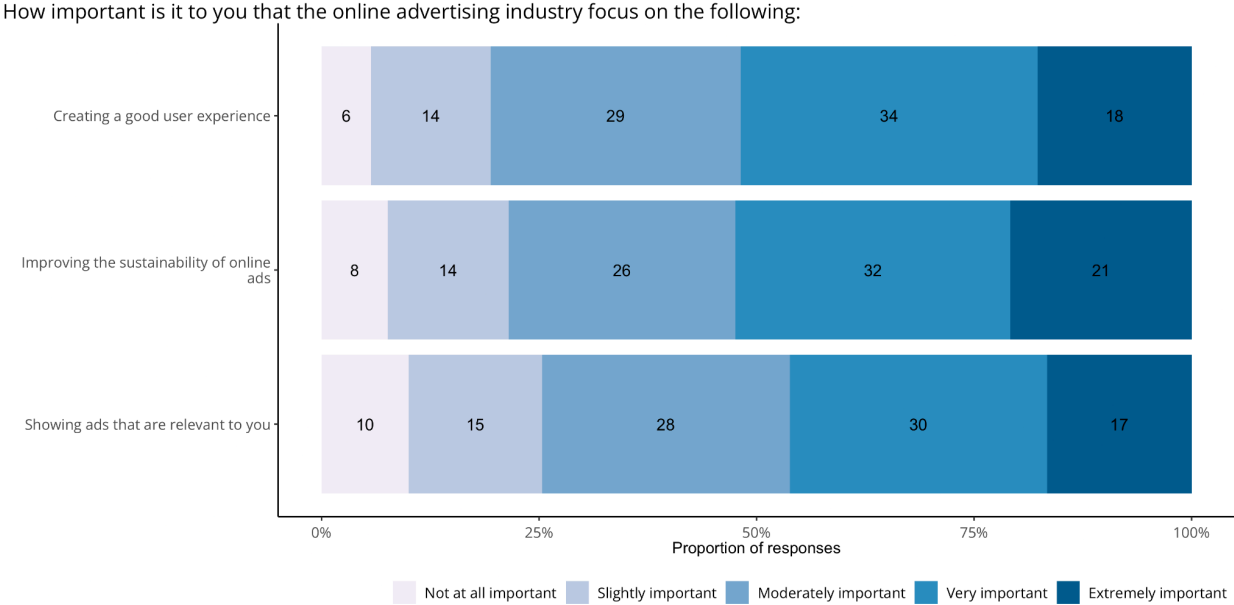
Figure 10. Internet users' ratings of the importance that industry focuses on each objective.

Sustainable online advertising initiatives would motivate users to purchase from brands

Two-thirds of respondents agreed (45%) or strongly agreed (20%) that they would be more likely to buy a product or service from a brand that practiced sustainable online advertising

and three in five respondents agreed (42%) or strongly agreed (18%) that they would think less of a brand if they knew their online ads were not carbon friendly (Figure 11). For 67% of respondents, having a brand's sustainability credentials verified by an independent source would increase their trust in the brand's sustainability efforts (46% agreed, 21% strongly agreed). Gen Z respondents were slightly less likely to agree with each statement relative to other generations (~10 percentage point difference), while respondents from Brazil, China, India, South Africa, and Vietnam were more likely to agree with each statement relative to other countries.

Perceptions of brands that practice sustainable advertising
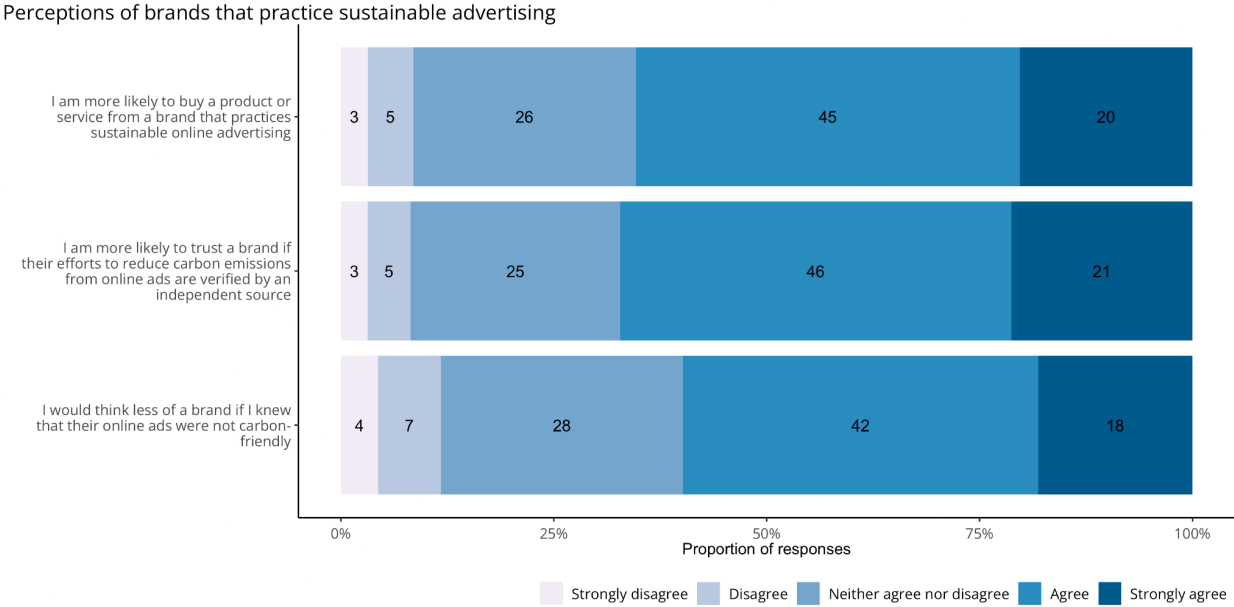
Figure 11. Proportion of internet users that agreed with each statement about how they would perceive brands based on their sustainability initiatives.

To gauge how specific sustainable online advertising initiatives would benefit brands, users were asked to imagine that they were deciding between products from two brands and consider how each action (Figure 12) would influence their decision to purchase from one of the brands. In general, the majority of respondents would be more likely or much more likely to buy from brands that took initiatives to reduce the carbon

> **More than half of internet users would be more likely to purchase from a brand if they reduced carbon emissions across each phase of the supply chain**

emissions from their online advertising at each phase of the supply chain: produces lower-emitting ad creatives (54%), works with low-carbon suppliers to advertises its products on low carbon-emitting websites (57%), and only advertises its products on low carbon-emitting websites (53%). Users also place faith in brands simply pledging to support sustainability efforts (60%). However, not every sustainability initiative would have a positive influence on users' purchasing decisions. Only 39% of respondents would be more likely to buy from brands that buy carbon credits to compensate for emissions from its manufacturing activities. In general, respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam were more influenced to buy from brands that practiced each initiative relative to other countries.

How much would the following influence your decision to purchase from one of the brands? The brand…

buys carbon credits to compensate for emissions it produces from its manufacturing activities	8 / 13 / 40 / 29 / 10
does not take efforts to reduce carbon emissions when shipping its products	21 / 30 / 28 / 14 / 6
makes a pledges to support sustainability efforts	3 / 6 / 30 / 41 / 19
only advertises its products on low carbon-emitting websites	4 / 8 / 35 / 38 / 15
produces lower-emitting ad creatives (e g , image or text ads short video ads)	4 / 8 / 33 / 40 / 14
uses non-recyclable packaging in its products	19 / 27 / 26 / 19 / 10
works with low-carbon suppliers to display its online ads	4 / 8 / 32 / 41 / 16

Legend: Much less likely to buy, Less likley to buy, About the same, More likely to buy, Much more likely to buy

Figure 12. Proportion of internet users who would be likely to buy from brands that practice each sustainability initiative.

Sustainable online advertising initiatives would influence how users interact with publisher websites

The majority of users are willing to support publishers who adopt sustainable online advertising initiatives (Figure 13). Two-thirds of respondents would be more likely to continue visiting a website if it practiced sustainable online advertising and three in five would reconsider visiting a website if they knew it was a high-carbon emitting website. Importantly, users agreed that verification of the sustainable online advertising efforts of publishers by an independent source would increase trust and influence their behavior with online ads. Two-thirds of respondents agreed that having the sustainable online advertising initiative verified by an independent source was important for increasing user trust in the efforts of publishers (45% agreed and 21% strongly agreed). Similarly, three in five users would be more likely to click on an ad that had been labeled as sustainable or

carbon-friendly by an independent source (42% agreed, 20% strongly agreed). Gen Z respondents were slightly less likely to agree with each statement relative to other generations (~10 percentage point difference), while respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam were more likely to agree with each statement relative to other countries.

Please rate how much you agree with the following statement:
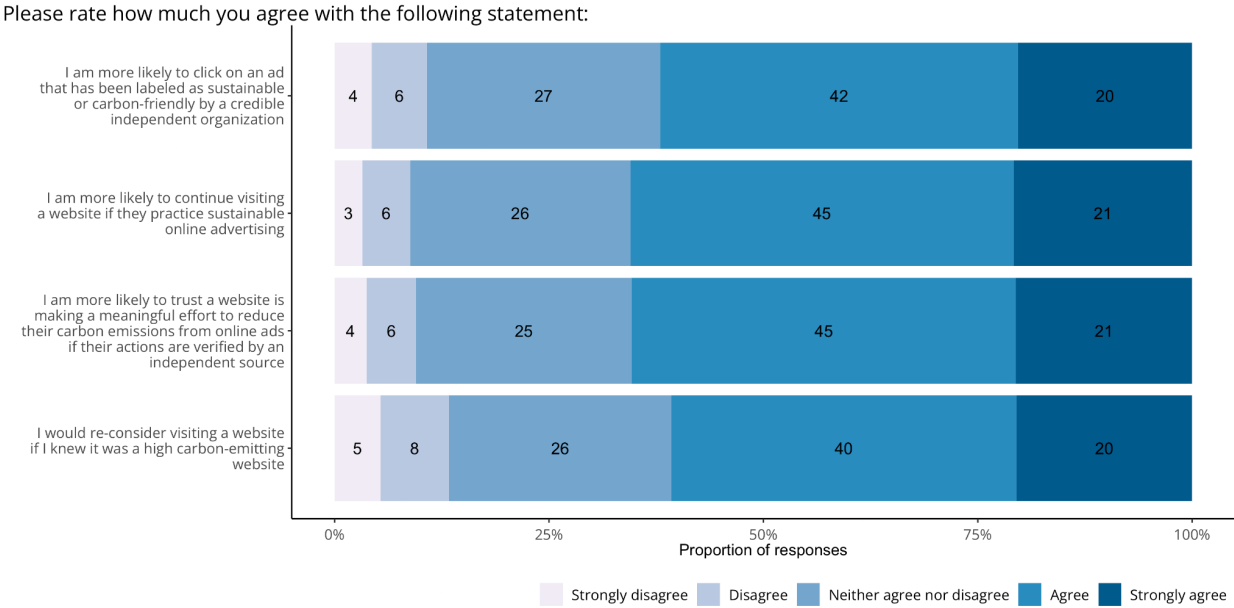
Figure 13. Actions internet users would take if publishers adopted sustainable online advertising initiatives.

When it came to the specific initiatives publishers could implement to reduce carbon emissions from online ads, over 80% of all respondents were moderately to extremely willing to view ads on publisher websites if they adopted each of the six suggested initiatives (Figure 14). First, those initiatives already evident in the Acceptable Ads Standard would encourage users to view ads, with 86% being at least

Over 80% of internet users would be moderately to extremely willing to view ads on websites if the publisher adopted sustainable advertising initiatives.

moderately willing to view ads if the publisher displayed fewer ads than other similar websites and 81% at least moderately willing if the website only displayed ads that have a lower carbon footprint (e.g., static ads instead of video or animated ads). Users would also be willing to view ads if publishers restricted the length of video ads (86%), restricted tracking and third-party cookies for targeting online ads (82%), and if the ad displayed a badge or label from an independent organization verifying that it adheres to standards for sustainable online ads (81%). Users also put faith in publishers pledging to support sustainability efforts, with 84% willing to view ads. Support was extremely similar when looking at responses from current ad blockers and non-ad blockers.

Compared to other generations, a smaller proportion of Gen Z respondents were very or extremely willing to view ads if the publisher displayed ads that have a lower carbon footprint or restricted tracking and third-party cookies (~12 percentage points lower), and compared to Millennials and Gen X, when the publisher restricted the length of video ads or made a pledge to support sustainability efforts (~10 percentage points lower). A greater proportion of respondents from Brazil, China, France, India, Indonesia, South Africa, and Vietnam tended to state that they were very or extremely willing to view ads for each of the six initiatives.

How willing would you be to support publishers by viewing ads on their websites if they took the following steps to reduce the environmental impact of their online ads? The website...

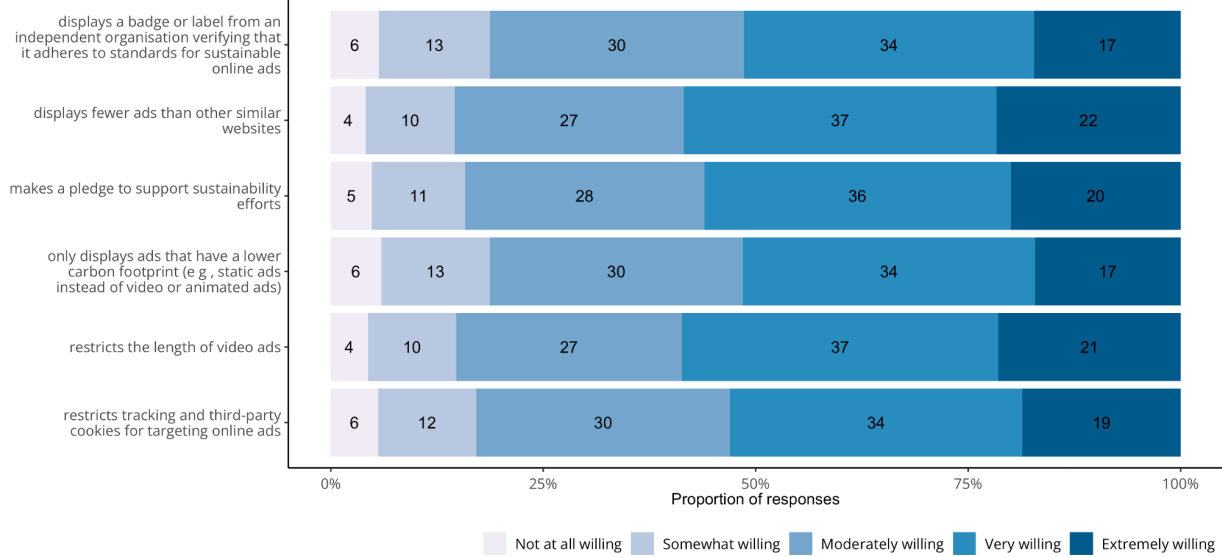| Initiative	Not at all willing	Somewhat willing	Moderately willing	Very willing	Extremely willing
displays a badge or label from an independent organisation verifying that it adheres to standards for sustainable online ads	6	13	30	34	17
displays fewer ads than other similar websites	4	10	27	37	22
makes a pledge to support sustainability efforts	5	11	28	36	20
only displays ads that have a lower carbon footprint (e g , static ads instead of video or animated ads)	6	13	30	34	17
restricts the length of video ads	4	10	27	37	21
restricts tracking and third-party cookies for targeting online ads	6	12	30	34	19

Figure 14. Proportion of internet users who would be willing to support publishers by viewing ads if they took each initiative to improve the environmental impact of online ads.

Internet users support a broad range of initiatives to reduce carbon emissions from online ads

The most helpful initiatives for reducing carbon emissions from online ads were technology-based initiatives (Figure 15). Three in five respondents rated that it would be very (35%) or extremely helpful (27%) if technology is made available that allows users to block high carbon-emitting ads, followed by technology that allows users to block tracking and other ad tech that emits carbon (35% very helpful and 24% extremely helpful). Brands committing to only work with websites that are more carbon-friendly or websites committing to only display low carbon-emitting online ads, and having an independent governing body establish and enforce standards for sustainable online advertising were the next most helpful initiatives

> **Technology-based initiatives were considered most helpful for reducing carbon emissions from online ads.**

(rated as very to extremely helpful by 57%, 56%, and 56% of respondents, respectively). Having a carbon label appear on an ad or website that discloses the carbon emissions associated with the ad or all ads on a webpage, respectively, was considered very to extremely helpful by 52% of all respondents. Allowing each website to decide what they think is an acceptable amount of carbon emissions for their site was rated as being the least helpful with only 42% of respondents rating it as very or extremely helpful to reduce emissions from online ads.

Respondents from Brazil, India, and South Africa gave the strongest support for each initiative, for instance, over 70% of respondents in each country stated that technology-based initiatives would be very to extremely helpful in reducing emissions. In comparison, less than 55% of respondents from Australia, Canada, Germany, Poland, the US, and UK thought technology-based initiatives would be very to extremely helpful.
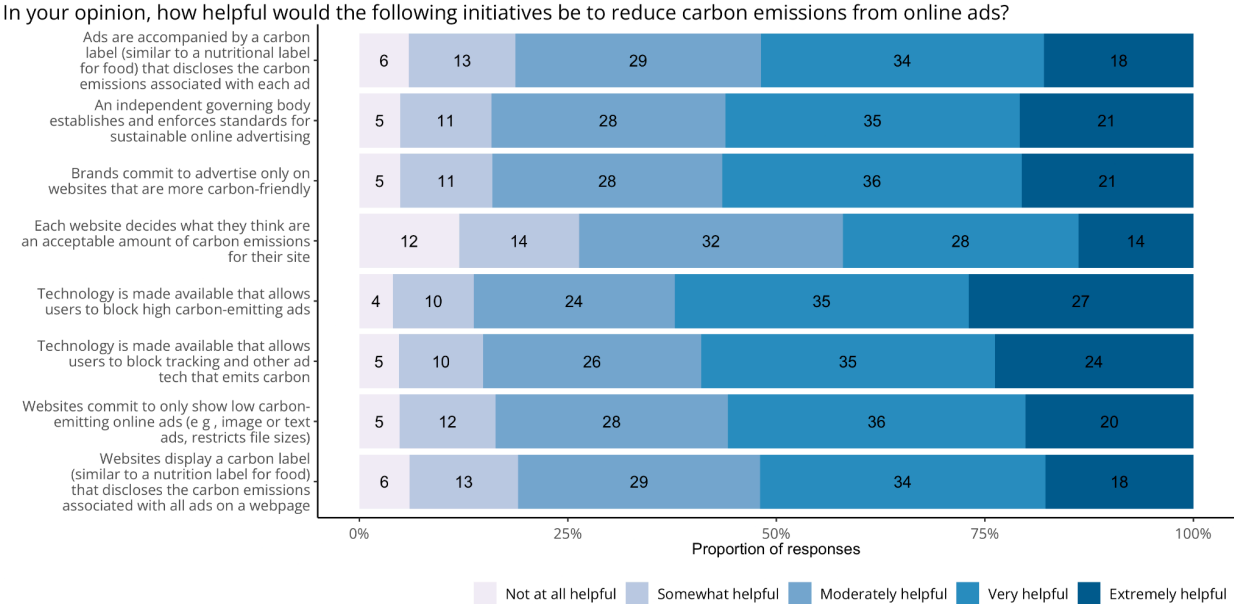
In your opinion, how helpful would the following initiatives be to reduce carbon emissions from online ads?

Figure 15. Internet users' ratings of the helpfulness of each initiative in reducing carbon emissions from online ads.

An independent governing body should drive multiple initiatives to reduce emissions from online ads

Respondents were asked to imagine that there was an independent governing body that creates and enforces standards to reduce the environmental impact of online ads and to consider which functions the body should perform. Each of the six potential functions were rated by more than 40% of respondents as essential for an independent body to perform, with the majority of remaining respondents rating each function as "would be nice" (Figure 16). The two most essential functions were to monitor and audit publishers and advertisers to ensure they are adhering to Standards (essential: 46%, would be nice: 46%) and to require websites to transparently report data on their carbon emissions from online ads (essential: 45%, would be nice: 46%). Providing education to internet users on how they can reduce their carbon footprint from online ads was also rated highly, with 44% of global respondents considering this essential and 48% as a function that would be nice for the independent body to perform.

Respondents from Brazil, China, India, Indonesia, South Africa, and Vietnam were more likely than respondents from other countries to rate each initiative as essential. For instance, over 59% thought it was essential that an independent governing body monitor and audit publishers and advertisers to ensure they are adhering to the Standards, almost double the proportion of respondents from France, Germany, Poland, and the UK.

In your opinion, which of the following functions do you think this body should perform to help achieve this objective?
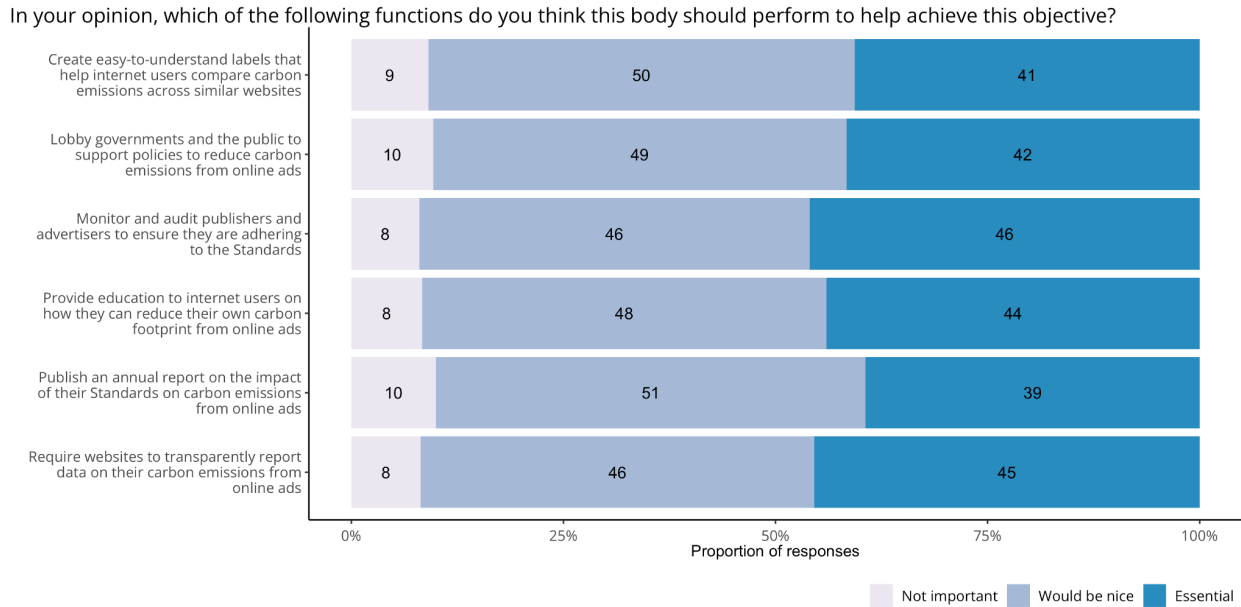

Figure 16. Internet users' ratings of the importance of each function an independent governing body should perform to help the environmental impact of online ads.

Conclusions

Three in five internet users are aware of the environmental impact of online ads with 50% estimating that it has a moderate-to-large impact on the annual carbon emissions associated with using the internet. However, 61% of respondents underestimate the impact: when informed about the actual impact of online advertising, they rated the actual impact as being more or significantly more than they thought.

Technology companies that sell ads and track their analytics are considered to be most responsible for reducing emissions while internet users rank themselves as least responsible. Nevertheless, two-thirds of internet users want more control over the environmental impact of the ads they see online and are willing to take action to reduce the impact. While some of these actions could be detrimental to the online advertising ecosystem (e.g., 68% of internet users would consider installing an ad blocker if it reduced carbon emissions from online ads), internet users are equally open to solutions that would

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support sustainable online advertising (e.g., 66% would install an extension that blocked non-sustainable ads).

Sustainable online advertising initiatives would benefit brands and publishers by contributing to positive brand reputations or greater engagement with websites, respectively, while also translating to economic benefits. For brands, 65% of internet users would be more likely to purchase products or services from brands if they practiced sustainable online advertising and more than 50% of consumers would be swayed to purchase from one brand over another if the brand took initiatives to reduce carbon emissions across their supply chain (producing lower-emitting ad creatives, working with low-carbon suppliers to advertise products, online advertising products on low carbon-emitting websites). For publishers, over 80% of internet users would be moderately to extremely willing to view ads on a webpage if the ads had a lower carbon footprint, if there were restrictions on the types of ads or tracking technology, and if ads were accompanied by a badge from an independent source verifying that they adhered to standards for sustainable online ads.

There was strong support from internet users that technology-based initiatives would help reduce carbon emissions from online ads (e.g., blocking high carbon-emitting ads or ad tech that emits carbon) but also for brands and publishers committing to specific sustainability initiatives (e.g., only working with carbon-friendly websites or only displaying low carbon-emitting ads, respectively).

Internet users saw clear value in an independent governing body overseeing sustainable online advertising standards – not only in terms of bringing a source of trust or verification to the sustainability efforts of brands and publishers – but also by providing oversight and transparency to sustainability initiatives (e.g., through monitoring and reporting) as well as being a source of education for users on reducing emissions from online ads.

Consistent with findings from other global sustainability consumer surveys, Millennials, and Gen Z were most aware of the environmental impact of online advertising (dentsu and Microsoft, 2021) with Millennials being the generation who were most likely to already be making sustainable choices by taking actions online for sustainability reasons (e.g., reducing the quality of music or video streaming, using more sustainable products or services online; e.g., dentsu and Microsoft, 2021; PwC, 2021). While all generations were broadly and often strongly supportive of sustainable online advertising initiatives, wanted more control over the environmental impact of the ads they see online, and would value information on how they can reduce their impact, Gen Z respondents were slightly less strong in their agreement with or support for such statements (~10 percentage points lower than other generations). Gen Z was also slightly less likely to strongly support or trust the efforts of brands or publishers who adopt sustainable advertising initiatives which is consistent with previous surveys that suggest Gen Z may be generally more distrustful of the efforts of brands or publishers to take initiatives to reduce carbon emissions from their online advertising (at least in the US, Gen Z is the most distrustful of a brands' sustainability claims; Statista, 2023).

Across all survey questions, participants from emerging markets tended to give stronger responses than those from other countries. Specifically, participants from Brazil, China, India, Indonesia, South Africa, and Vietnam were more likely to report being aware of the environmental impact of using the internet, were more concerned about its impact, and likely to take action to reduce emissions from online ads, more willing to support brands and publishers who adopt sustainable online advertising initiatives, and more likely to consider multiple potential functions of an independent governing body as essential to help reduce emissions from online ads. While some of these countries are amongst the biggest polluting countries (e.g., China, India, and Indonesia), this general pattern is consistent with recent trends in global awareness, engagement, and action related to environmental causes in certain countries, with particularly strong growth in awareness,

engagement, and action in Asian countries (The Economist Intelligence Unit Limited, 2021). These results are also consistent with patterns found in surveys on the importance of sustainability to purchasing decisions (e.g., China and Brazil consistently reported stronger attitudes toward sustainability and its importance as a purchasing criterion; Simon Kucher & Partners, 2021) and adoption of eco-friendly lifestyles (consumers from Indonesia and Vietnam were most likely to say they had become more eco-friendly; PwC, 202). Nevertheless, the results of the present survey suggest that internet users from emerging markets feel more strongly about reducing carbon emissions from online ads and would be more supportive of sustainable online advertising initiatives.

In summary, global internet users are aware of the environmental impact of online advertising – although many underestimate its actual impact, are concerned about its impact, and are willing to take actions to reduce carbon emissions from online ads. Further, internet users are broadly supportive of sustainable online advertising initiatives and are willing to support brands and publishers who adopt such initiatives. The results from the Sustainable Online Advertising Survey support that there is a clear and valuable role for an independent governing body to oversee and enforce standards for sustainable online advertising.

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Appendix

Table A1. Socio-demographic details of the sample (n=14,004). Numbers represent %.

	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Poland	South Africa	Spain	UK	USA	Vietnam
Gender														
Male	49.2	48.7	49.6	50.1	47.6	48.7	51.0	50.5	47.8	48.9	48.7	48.0	49.3	49.2
Female	50.0	51.2	50.1	49.0	52.0	51.1	48.7	49.4	51.6	50.6	50.4	51.1	49.8	50.8
Other	0.2	0.1	0.3	0.4	0.1	0.1	NA	NA	NA	0.2	0.1	0.2	0.3	NA
Prefer not to say	0.7	NA	NA	0.5	0.3	0.1	0.3	0.1	0.6	0.3	0.8	0.7	0.6	NA
Age group														
16-17 years old	4.0	5.1	2.0	3.0	3.0	2.0	6.1	3.9	1.9	5.4	3.0	2.8	4.0	3.1
18-24 years old	13.1	18.1	11.8	16.5	13.0	10.8	20.7	16.7	11.1	21.6	9.8	12.8	14.1	12.9

25-34 years old	23.0	25.2	21.0	20.2	17.9	19.0	26.2	24.0	19.9	27.0	16.0	19.1	18.9	36.9
35-44 years old	19.0	20.3	20.0	25.4	19.1	17.0	20.0	22.0	22.9	19.5	22.8	19.2	17.9	18.9
45-54 years old	17.9	17.2	18.1	18.3	19.1	22.8	15.2	18.3	18.1	15.3	23.3	19.9	18.9	19.1
55-64 years old	16.9	10.9	19.9	13.5	19.1	21.1	9.7	12.1	19.0	9.3	19.2	18.1	19.1	7.9
65 years or older	6.0	3.2	7.1	3.0	8.9	7.2	2.0	3.0	7.0	2.0	6.1	8.3	6.9	1.3
Education level														
Low	14.8	9.6	13.8	1.8	18.1	25.9	4.7	5.0	29.5	19.5	10.4	6.0	12.0	4.1
Medium	50.0	38.4	38.3	27.9	31.5	46.1	15.8	33.2	33.5	42.1	50.9	39.0	44.3	16.4
High	34.3	51.7	47.2	70.1	49.5	27.4	78.8	61.7	35.2	37.2	37.7	53.6	41.3	79.1
Prefer not to say	1.0	0.3	0.6	0.2	0.9	0.5	0.7	0.1	1.8	1.2	1.0	1.4	2.4	0.4