



Sustainable Attention

How brands can optimise
towards Attention Time to
reduce their carbon footprint

CO₂ emissions data supplied by



Introduction

Environmental sustainability is at the forefront of many advertisers' CSR strategies, with increasing scrutiny being placed on their partners and suppliers. Research conducted by Scope3 has indicated that the digital advertising industry has a significant carbon footprint, contributing the equivalent of flying 1.35 million passengers from London to Paris each year (Scope3 & Ebiquity, 2022).

There is unanimous agreement from across the industry that such an impact cannot continue. Research, monitoring and alternative media solutions from the likes of Scope3 have enabled advertisers to achieve a clearer understanding of their own contributions but we believe that attention signals can also play a powerful role in helping advertisers deliver their campaigns more efficiently and sustainably.

This report details the findings of our research into attention's ability to identify opportunities for digital ad campaigns to reduce carbon emissions whilst not negatively impacting overall performance.

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Summary

The average advertising campaign generates approximately 5.4 tonnes of carbon. Government regulations are beginning to ensure that brands and media agencies are doing their part to see their reduction. The current whitepaper demonstrates that the combination of Playground xyz's Attention Time data, with that of Scope3's carbon emissions data, suggest that brands running digital advertising campaigns have three main options when it comes to reducing emissions:

- Removing domains from a campaign if they emit large amounts of carbon**

Analysis of 45 million impressions revealed that removing the highest 20% of polluters (web domains) saw brands reduce their campaign's carbon emissions by nearly 60%

- Reduce wasted advertising by optimising towards a minimum level of attention**

Removing advertising from domains where Attention Time is below 0.5 seconds, on average, saw total emissions fall by 63% whilst the average Attention Time per impression grew by nearly 40%

- Publishing on domains where the environments and advertisements are congruent**

Attention Time varies as a result of many factors. One such factor is that of the environment. Placing a sports ad within a sports page is likely to yield higher Attention Times than if the same ad were placed within a domain advertising real estate. The data revealed that in 87% of cases, brands on the same domain saw Attention Time differ by more than 25%, and in more than half of instances, the difference in Attention Time for two brands on the same domain was greater than 50%

The media industry has an obligation to reduce emissions

World leaders at the UN Climate Change Conference in Paris reported that global emissions have to be reduced by 45% before 2030 and reach net zero by 2050 (United Nations, 2022). The media industry has a role to play in leading the way because, whilst figures may vary slightly, reports have suggested that the technology and infrastructure that support the internet accounts for approximately 4% of total global greenhouse gas emissions (Hugues et al., 2019). This figure is estimated to be increasing at a rate of 9% each year (Hugues et al.). For comparison, that is more than double what the aviation industry contributes (1.9%; Emissions by Sector, n.d.).

According to recent industry reports, the average advertising campaign generates approximately 5.4 tonnes of carbon, equal to what the average Australian produces in a year (Wappet, 2022). Until now, it has been inherently difficult to measure online emissions and optimise towards decreasing it, however, the market has recently seen several players, including Scope3 and Playground xyz, begin offering the ability to measure emissions and Attention Time at a domain and URL level respectively.

The adoption of Attention

Recent months have seen the interest in attention grow exponentially. A recent analysis conducted by Playground xyz saw the year-on-year growth of industry press containing the term “attention measurement” increase by nearly 900%*.

This movement is largely driven by the fact that traditional metrics assess an advertisement’s opportunity to be seen, rather than providing a measure of whether the consumer saw a message. Advancements in technology, and a better understanding of consumer behaviour, have resulted in many brands looking for more sound metrics, including that of Attention Time.

The move towards attention-based metrics is unsurprising. Thus far, Attention Time has been linked to increases across numerous brand outcomes, inclusive of, but not limited to awareness, recall, consideration, and purchase intent. Although attention signals are still in their infancy, studies seen to investigate its relationship with brand outcomes have produced robust findings.

*analysis conducted using Muck Rack, comparing Share of Voice figures for a number of attention-based ad tech vendors over YoY periods ‘21 vs ‘22

Attention optimisation & carbon emissions

Whilst it may not be immediately obvious, attention and carbon emissions are closely associated. As one could imagine, the desire to ensure that brand messages are seen by consumers, comes at a significant cost to the environment. Until now, many brands have used a 'spray-and-pray' approach, where brands are diversifying the environments within which they are advertising, without truly understanding their effectiveness. This typically sees brands focusing on increasing reach, which inevitably produces greater emissions.

Data from Playground xyz, has revealed that between 30 and 40 percent of online ads are not viewed, despite being present on the screen (Figure 1). This means that for the majority of campaigns, resources are often allocated to publishing ads on domains where they are not looked at. As one could imagine, this contributes to not only poorer brand outcomes, but also results in large amounts of unnecessary emissions. Recent research conducted by Ebiquity and Scope3 revealed that approximately 15.3% of advertising spend is wasted on inventory that generates no value while generating excessive amounts of CO₂ emissions (AdNews, 2022).

To further the industry's understanding of AT and CO₂, Playground xyz collected ATs at an impression level across hundreds of domains and matched it with data collected using Scope3's API. The process involved providing Scope3's API with the number of impressions served on each domain, along with the device type and the creative size. An associated emissions value for CO₂ was calculated on the side of Scope3, for each domain, and allowed for the two datasets to be merged.

Initial analysis of 45 million impressions, across the top performing 400 domains, revealed that higher Attention Times aren't correlated with higher carbon emissions (Figure 2). In other words, brands don't appear to be expending greater CO₂ in exchange for greater Attention Time. What this means is that brands should be looking to achieve the highest Attention Times possible, in order to most effectively utilise the space in which they are presented. These preliminary findings suggest that optimising towards Attention Time is an effective means of ensuring brand outcomes are achieved, whilst emissions are simultaneously reduced.

Through the combination of Scope3 emissions data and Attention Time data provided by Playground xyz, the present paper aims to establish some of the most effective approaches to maintaining media effectiveness, whilst reducing environmental impact.

Attention Given to Ad Impressions Across Domains

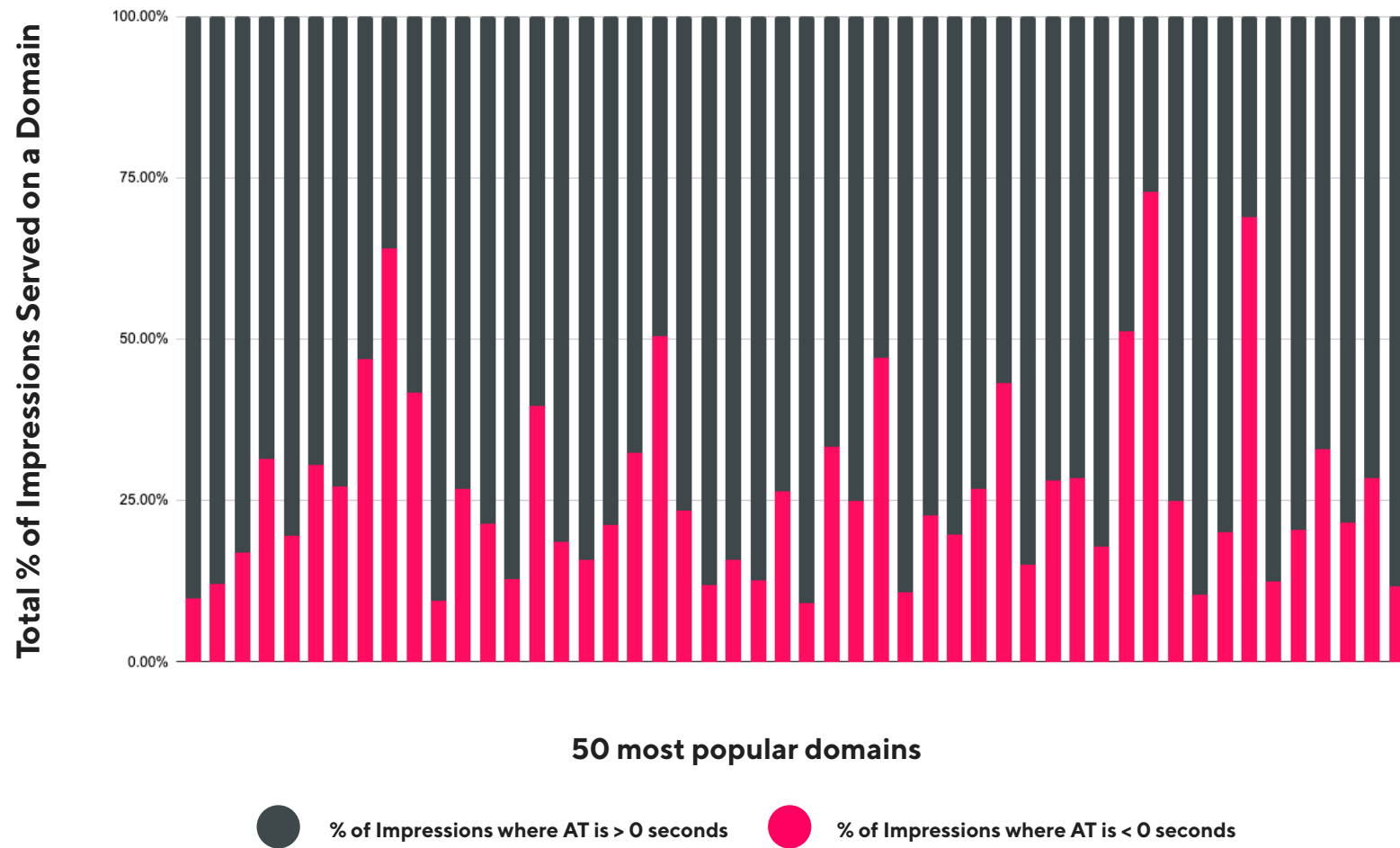


Figure 1: A graph depicting the number of impressions across 50 random domains, and the percentage of those that receive no AT.

Relationship Between CO₂ Emissions, Attention Time, & Domains

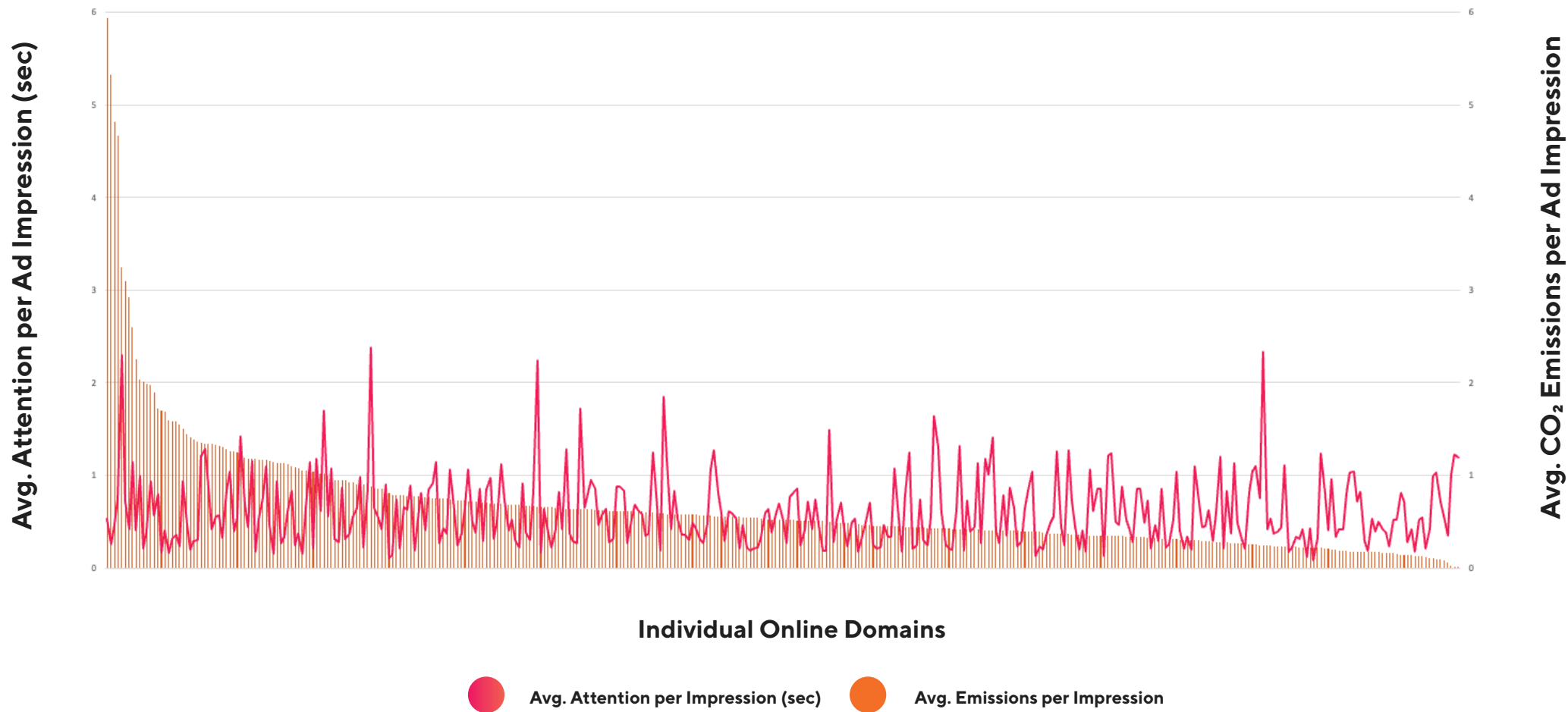


Figure 2: A graph depicting the relationship between carbon emissions, Attention Time, and domains. The graph reveals that higher Attention Times are not associated with higher carbon emissions.

How Attention Time data informs better decision making around reducing CO₂ emissions

Although brands can approach carbon minimisation differently, this paper addresses three of the most effective means of reducing a brand's carbon footprint. The centralised approach for each method, is to ensure that brands are maximising the effectiveness of their ad placements using Attention Time. The first of these approaches is the most simple, and involves the arbitrary removal of domains from a campaign where emissions are highest. The second approach is to publish ads on domains where they are most likely to be attended to. And the third and final approach is one in which brands publish in the environments in which the ad matches the context of the domain.

Approach 1: Arbitrarily remove domains that emit large amounts of CO₂

To begin the journey of reducing carbon emissions, brands should look to complete an assessment of the domains across which they are present, and note the impact their being on such domains has on overall carbon emissions. Whilst the data presented above revealed no linear relationship between the Attention Time given to an advertisement and the carbon that it emits (Figure 2), there is however, a relationship between emissions and domain. These findings clearly indicate that the arbitrary removal of certain domains significantly reduces carbon emissions, without negatively impacting the Attention Time that consumers allocate to the overall campaigns.

Table 1 shows the analysis of three of the largest campaigns run using Playground xyz's Attention Intelligence Platform. The three campaigns were published on over 213 domains, and consisted of 21 million impressions. The data reveals the subsequent impact of removing between 5% and 25% of the highest emitting domains on Attention Time, impressions, and emissions. What is clear from this analysis, is that the effects were most obvious when 20% to 25% of the worst offending domains were removed. Although this saw approximately 35% of impressions removed from the campaign, it cut approximately 60% of the total emissions.

Although this approach sounds viable in theory, it isn't without inherent issues. Specifically, the crude approach to simply removing domains means that brands will forgo the opportunity to be present across domains where they may have a proven record of reaching their audiences and driving brand and business outcomes. Instead, a more viable approach would be for publishers to understand what contributes to higher emissions across their domains, and then work with tech vendors, including the likes of Scope3, to accurately measure and subsequently take actions to reduce emissions.

Removing between 20-25% of the highest-emitting domains looks to be an effective approach, however such arbitrary removal comes with inherent issues

		% Increase in average attention time	% Decrease in impressions	% Decrease in emissions
% Of Highest CO ₂ Emitters Removed	5%	9%	13%	23%
	10%	9%	21%	38%
	15%	10%	29%	49%
	20%	6%	35%	57%
	25%	7%	38%	60%

Table 1: A table depicting the effects of arbitrarily removing the largest CO₂ emitting domains across three campaigns, and its subsequent impact on campaign delivery and Attention Time.

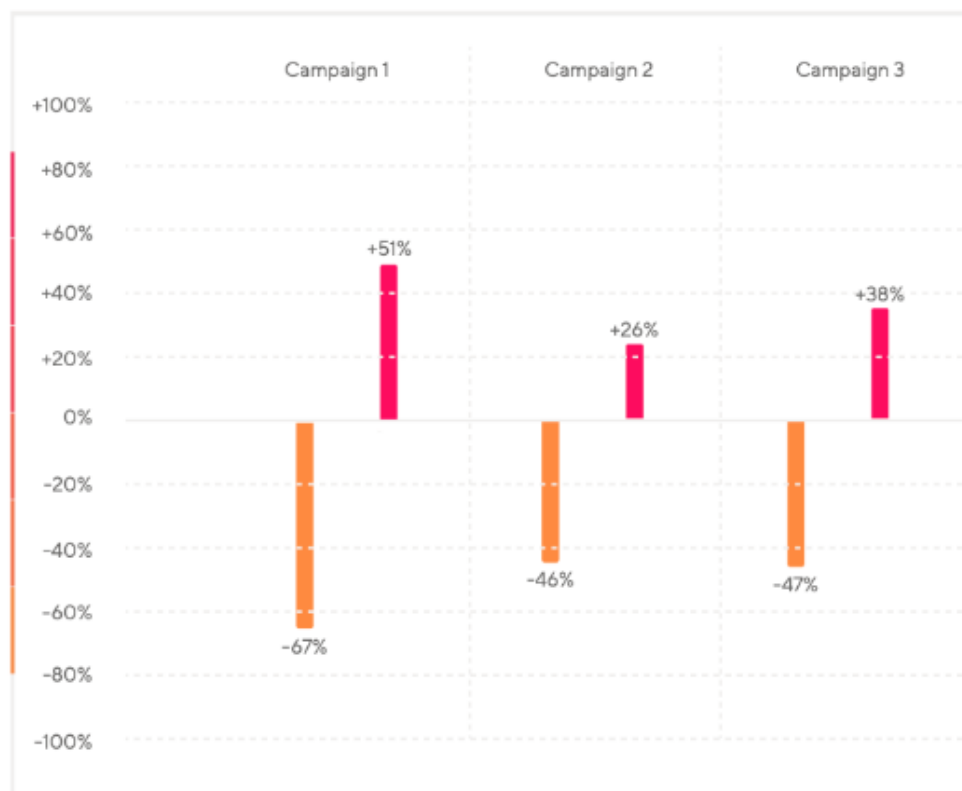
As a result of the issues that arise from such an approach, brands must consider more suitable methods of maintaining their desired outcomes, whilst attempting to reduce emissions.

Approach 2: Optimising a minimum level of Attention Time to reduce waste

Another means of minimising carbon emissions is simply to reduce the amount of advertising that occurs where Attention Time is negligible. As previously mentioned, approximately 40% of online ads receive no Attention Time (Playground xyz internal reports, 2022). If brands simply optimised campaigns using Attention Time, and redistributed impressions where Attention Time was zero, to other domains, waste would inevitably fall.

To measure the efficacy of such an approach, three campaigns were randomly selected and all impressions that received less than 0.5 seconds of Attention Time were removed. The resulting campaigns, on average, saw total emissions fall by 53% whilst the average Attention Time per impression grew by nearly 40% (see Figure 3).

% Change in Emissions & Avg. Attention Time After Removing Impressions With < 0.5 seconds Attention Time



Reduction in Total Emissions



Increase in Average Attention per Impression

Figure 3: Graph depicting the implications of removing impressions from a campaign when they achieve less than 0.5 seconds of attention

Whilst this approach is far more effective than simply dropping domains from a campaign based on their emissions, brands should be looking to combine this approach with a third approach; one in which the campaign is optimised towards the highest achievable Attention Times.

Approach 3: Using Attention Time to optimise towards the most suitable environment

The above mentioned strategies focus predominantly on removing cases where either emissions are high, or attention is low. The following strategy requires that brands begin considering optimisation strategies whereby they pursue the highest level of attention, whilst simultaneously reducing emissions.

This double-pronged approach is heavily reliant on brands selecting the most suitable environments in which to publish their advertising. Existing research, within academia, has demonstrated that brand outcomes are higher when the brand message, and the context within which it's placed, match (i.e. are congruent; Belanche, et. al., 2021; Alonso Dos Santos & Calabuig Moreno, 2018). Research conducted within commercial settings has confirmed such results, revealing that the context an ad is delivered in has a large bearing on the attention it receives with the top-performing context receiving 94% higher Attention Time than baseline (Playground xyz, 2022).

To understand the nuances of the environment on advertising success, a preliminary analysis was conducted in which 11 million impressions across 133 domains, saw different brands advertise on the same domain. At this point, it's important to note that whilst we don't consider the overall domain to be a reflection of a single context (obviously because the same domain can contain numerous different contexts), however, in a lot of cases the domain can be classified as being predominantly related to a single context i.e. News or Sport. This provides a basic proxy for understanding of how domain (and any contextual skew it has) influences Attention Times, and promotes the notion that increases in performance occur as a result of congruence between message and that subsequent context.

When holding the 300x250 format constant, Attention Time was seen to fluctuate 72%, on average, between different brands on the same domain, despite emissions remaining largely unchanged. A more granular analysis saw that in the majority of cases (87%), the difference in the Attention Time allocated to different brands on

the same domain was greater than 25%. In more than half of instances (60%), the difference in Attention Time for two brands on the same domain was greater than 50%, and in a quarter of cases (25%), the difference in Attention Time between two brands was greater than 100% (see Figure 4).

Distribution of Differences in Attention Time Between Different Brands on Same Domain

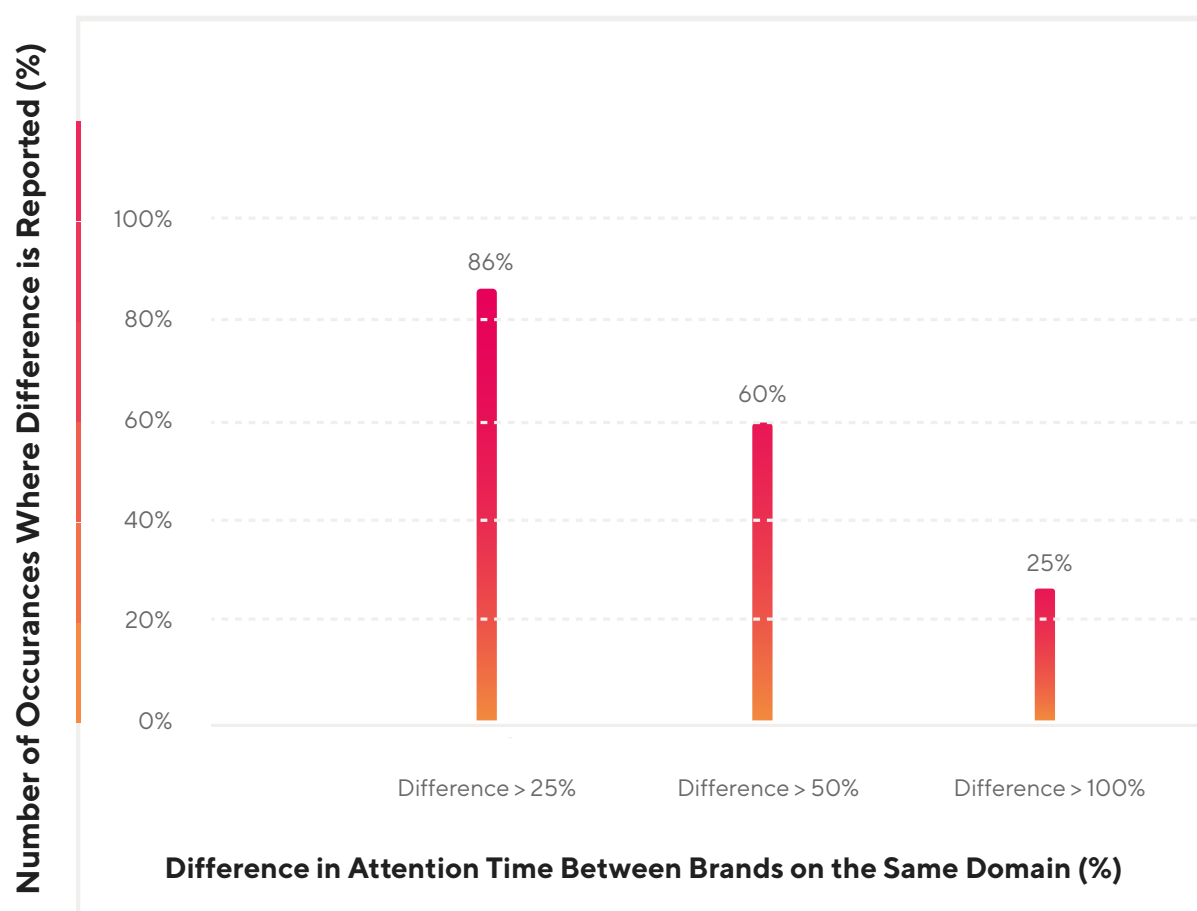


Figure 4: Graph showing the number of times (as a percentage) that Attention Time differed between brands placed on the same domain, and the size of that difference (25%, 50%, & 100%)

Given that the environment seems to play an integral role in how well an advertisement is able to garner attention, it is only logical that subsequent analyses investigate the relationship between congruence of message and emissions. For brands, the ideal solution is to select environments where Attention Times are higher than average whilst emissions are lower than average.

The data revealed that in approximately 14% of cases, brands should have completely avoided advertising on a specific domain altogether. In these instances, the combination of brand and domain saw Attention Times lower than average, and emissions higher than average. In contrast, roughly 20% of instances saw the combination of domain and advertisement drive above average Attention Times, and lower than average emissions. These environments should be heavily sought after (see Table 2 for a distribution of placement effectiveness for each campaign).

These preliminary findings demonstrate the volatility in Attention Time and the need for attention to be continually optimised. If brands are to take anything away from the above analysis, it is that in approximately 80% of cases, the importance of congruence is being overlooked. It is remiss of brands to assume that they will perform well irrespective of the publisher content. The findings clearly show that by not considering the congruence between the brand/ad and the environment within which an advertisement is placed, brands are missing considerable opportunities to both reduce carbon emissions and increase Attention Time.

	Campaign 1	Campaign 2
High Attention + Low Emissions	19%	42%
High Attention + High Emissions	6%	33%
Low Attention + High Emissions	18%	10%
Low Attention + Low Emissions	32%	16%

Table 2: Table outlining the distribution of relationships between domain, Attention Time, and CO₂ emissions. Domains that contribute to low Attention Time and high emissions should be removed from campaigns.

What this means for brands

Consumers and governments are pushing for brands to consider environmental factors, and the online space presents brands with numerous opportunities to have a significant impact. Consumers are becoming far more cognisant of not only what avenues are available for brands to reduce carbon emissions, but which brands are seizing opportunities.

The above findings offer convincing evidence that optimising towards Attention Time is an immediate strategy which mitigates CO₂ emissions. For brands that are currently considering ways of reducing their emissions, the above data reveals that small changes to how a campaign is run, can have significant, positive, effects without compromising the outcomes of a campaign.

While the methodology for measuring carbon emissions in advertising is still fairly new, Scope3 data provides valuable insight into emissions across a brand's digital ad supply chain and helps highlight opportunities to reduce emissions. Through the process of adopting carbon-related KPIs, brands can expect significant benefits for what are considered relatively low costs.

Limitations & Future Ambitions

Of the three options presented above, option 1 is effective but it's a rather blunt instrument. While some domains and publishers do undoubtedly deliver higher emissions, removing domains en masse forever could reduce scale and effectiveness for a brand. A more suitable approach to this issue, would be the coming together of publishers and tech vendors to understand what contributes to higher emissions across a domain, and then working collaboratively to minimise carbon production.

As evidenced by the data, there exist viable options to reduce emissions while maximising attention by either focusing on certain impressions greater than 0.5s of Attention Time (per option 2) or by looking for the lifts in Attention Time driven by creative and contextual alignment (per option 3).

The future will hopefully see emission providers, including Scope3, continue to more widely adopt the tracking of carbon emission data at a URL level, and beyond that, a creative level. Publishing such insights will allow brands to individually assess domains where emissions are highest, and then select specific URLs based on Attention Time scores. Doing so will provide brands the opportunity to maintain relationships with publishers that have higher CO₂ emissions, reach their desired audience, all whilst ensuring minimal wastage and higher Attention Times.

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