

iab.TECH LAB

The Sustainability Playbook:

Starter Guide for a Sustainable
Programmatic Marketplace

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Please email support@iabtechlab.com with feedback or questions

About IAB Tech Lab

The IAB Technology Laboratory is a nonprofit research and development consortium charged with producing and helping companies implement global industry technical standards and solutions. The goal of the Tech Lab is to reduce friction associated with the digital advertising and marketing supply chain while contributing to the safe growth of an industry.

The IAB Tech Lab spearheads the development of technical standards, creates and maintains a code library to assist in rapid, cost-effective implementation of IAB standards, and establishes a test platform for companies to evaluate the compatibility of their technology solutions with IAB standards, which for 18 years have been the foundation for interoperability and profitable growth in the digital advertising supply chain. Further details about the IAB Technology Lab can be found at <https://iabtechlab.com>.

This document has been developed by the [Sustainability Working Group](#), a subgroup of the [Programmatic Supply Chain Working Group](#).

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TABLE OF CONTENTS

Introduction	4
Who should read this handbook?	5
This list.....	5
Sell-side	5
Limit Multi-Hop Resellers.....	5
Use managerdomain and inventorypartnerdomain	6
Implement Global Placement Id (gpId)	6
Use Preferred Paths	6
Lazy Load Pages.....	7
Limit Cookie Syncs.....	7
Always Include Bid Floors	8
Multi-format ad request	8
Use Compression, Minification and Modularization	8
Buy-side	8
Reduce Duplicate Bid Requests Using Global Placement Id (gpId).....	9
Limit purchases of Multi-Hop impressions	9
Use managerdomain and inventorypartnerdomain	9
Support Pod Bidding	9
Avoid Inventory that is ‘Made For Advertising’	9
Leverage interoperable IDs where possible	10
Implement Ad Management API	10
Lean Creatives	10
Everyone	11

The Sustainability Playbook: Starter Guide for a Sustainable Programmatic Marketplace

Your introduction to sustainable media best practices in programmatic advertising

Introduction

Brands, agencies, and holding companies are increasingly making sustainability a key focus area for their businesses and questions are beginning to appear in Requests for Information (RFIs) as these entities determine where to allocate spend in the programmatic space.

The IAB Tech Lab Sustainability Working Group, under the Programmatic Supply Chain umbrella, has come together across the world to lay out an approach to more sustainable media best practices for participants in the programmatic advertising supply chain.

This guide can help you begin to take action that will reduce the industry's environmental impact while still making responsible economic impact. Our goal is to empower programmatic advertising supply chain participants with an actionable playbook of best practices to begin the urgent journey to net-zero emissions. This is a call to action to our industry to do its part in reducing resource impact of the programmatic ecosystem.

Still not convinced? Scope3's [State of Sustainable Advertising Report](#), found that Programmatic advertising generates 215,000 mt of CO₂e every month across 5 major economies (US,UK,DE,FR,AU). That's equivalent to the impact from 24M gallons of gasoline consumed.

There is a growing industry consensus around the need to have a singular, holistic, Greenhouse Gas Protocols informed standard for measuring carbon activities. Work is ongoing within global trade associations Ad Net Zero and the World Federation of Advertisers (WFA) Global Alliance for Responsible Media (GARM) to design this standard. As a measurement standard becomes codified and endorsed, more specific inputs around the measured emissions intensity and contribution can be calculated.

Perfect is the enemy of progress and this document and future education materials, including best practices, are intended to support taking action today and to be evolved and expanded as measurement standardizes in this critical area.

Who should read this handbook?

Our primary audience includes technologists at media suppliers and buyers as well as the teams involved in operationally managing Environmental, Social, and Governance (ESG) and procurement guidelines related to sustainability, sustainable advertising product development, and/or sustainability in media governing bodies.

This list...

- Is just a start and should not be considered exhaustive, as new areas of focus are identified they will be added
- Is not quantified in terms of CO₂ or Greenhouse Gas (GHG) emissions
- Assumes that reducing the volume of programmatic transactions and the amount of data processed in those transactions, will decrease the energy needed to power the programmatic supply chain
- Uses proxies like [CPU and RAM consumption](#). As [Hannah Pavalow put it](#): “proxies can enable development of explicit and measurable strategies in the short run, providing the industry with the ability and runway to establish direct measures – and better informing these ultimate metrics and practices.”
- Will be updated as frameworks for calculating emissions are agreed to and learnings are shared across the programmatic ecosystem
- Is not prioritized as the underlying impact per recommendation will vary by entity
- Is comprised of recommendations, not requirements

Implementers should take action on as many suggestions below as possible. Doing one is great, doing all of them is better.

Here are some ways to make the programmatic supply chain more efficient with little to no development required:

Sell-side

Sell-side refers to parties involved in the selling of advertising space on the open internet, which is primarily publishers which have ad opportunities and the ad tech partners who support them.

Limit Multi-Hop Resellers

Reducing the number of transactions in the bid stream has a direct impact on lowering energy consumption and a straightforward way to decrease transactions is to minimize duplication of requests. Fewer transactions, especially those that result from duplication in the bid stream, means less energy gets used. Said simply, multiple requests for the same ad slot, without clear business goals, creates unnecessary carbon emissions. Publishers should regularly review which parties are allowed to sell their inventory.

They should look closely at seller requests to authorize resellers by asking for a per entry forecast and ensure they understand the business value of any indirect partnerships, then leverage ads.txt to authorize only sellers and resellers which make meaningful revenue contributions.

Use managerdomain and inventorypartnerdomain

The ads.txt directives inventorypartnerdomain and managerdomain (added in [ads.txt 1.0.3](#) and [ads.txt 1.1](#), respectively) are powerful tools for increasing business relationship transparency. Use of these directives can indicate to buyers when you have relationships with resellers who provide exclusive paths to certain inventory and help buyers, who may limit reselling in other contexts, to prioritize those paths.

Implement Global Placement Id (gpuid)

Many publishers use the same identifier for every ad slot on a page or use the same identifier for all the ad units of the same size on a page, making it very difficult to distinguish unique ad requests and duplicates. The [gpuid](#) is designed to give buyers a way to uniquely identify each ad slot on a page across SSPs and header bidding integrations.

While some duplication may still exist, implementing a distinct id for each ad unit on a page helps publishers and exchanges understand performance and viewability of each unique ad slot and optimize ad requests to preference buyers that are actively winning auctions for those ad slots.

Use Preferred Paths

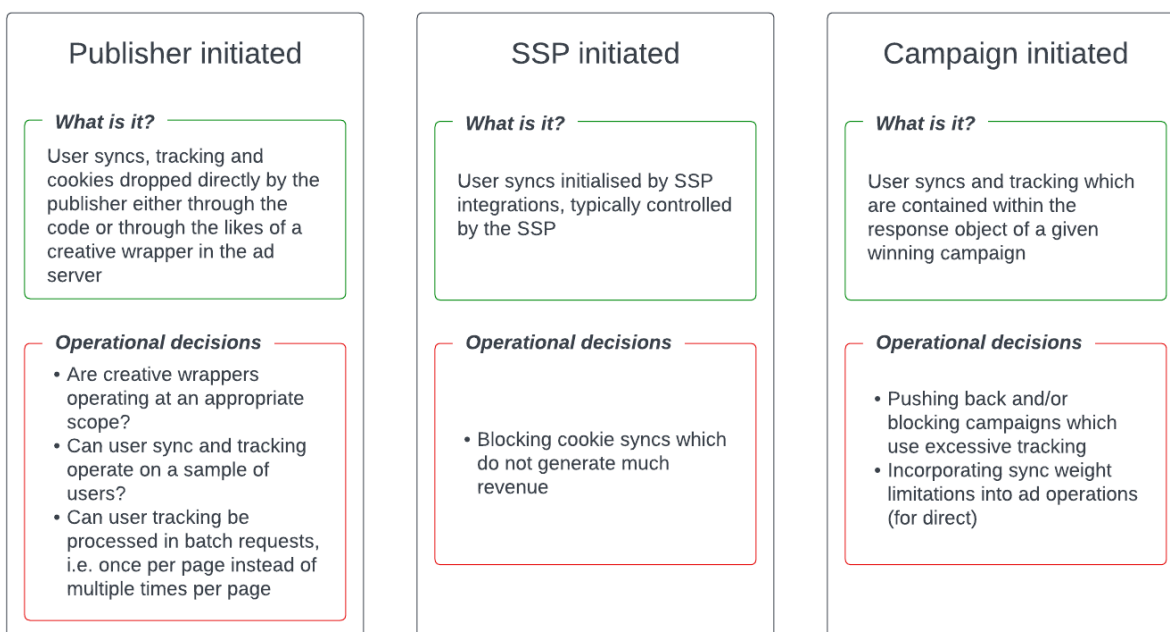
Publishers should consider picking a single preferred integration path per exchange and avoid integrations that result in multiple paths leading to the same exchange which result in redundant bid requests being generated for a given exchange for a single opportunity.

Lazy Load Pages

Websites which delay loading of non-essential resources [improve load speed](#), [reduce bounce rate](#) and [reduce the number of non-viewable ads](#) and each of these lower the amount of energy needed to run a website. It is [widely considered to be a UX best practice](#) and can be accomplished with a single click in most content delivery systems.

Limit Cookie Syncs

Websites initiate cookie syncs in a number of different ways as summarized below, each of which offers controls that can be employed to reduce transactional overhead and thus energy impact:



A study by id5 and sincera found that there is an average of [69.7 cookie syncs](#) per page load, some of which have no active relationship with the publisher. All parties should make best efforts to understand how many cookies are firing per page and limit the number of 3rd parties who are able to sync cookies on page loads to only what is commercially necessary. Publishers can reduce cookie syncs by reviewing the revenue generated by each exchange and removing those that consistently fail to drive revenue effectively. By setting revenue benchmarks and monitoring exchange performance, publishers can identify underperforming exchanges and engage in communication to seek improvements or ultimately remove them from their website. This process helps optimize revenue generation and reduce cookie syncs for better performance and lower emissions.

Always Include Bid Floors

Sellers should always provide bid floor prices so that buyers can avoid responding with bids for auctions that will not be qualified for and cannot win.

Multi-format ad request

If an ad unit supports multiple formats (display, native, video), consider sending a single multi-format ad request as opposed to sending separate ad requests per format. Historically this hasn't been done because the current OpenRTB specification does not support the ability to send multiple bid floors for different formats. However, a proposal for adding that functionality is currently being worked on by the Programmatic Supply Chain Working Group.

Use Compression, Minification and Modularization

Many page elements can be compressed significantly, which reduces the energy consumed in loading them. In addition, resources such as code libraries can be modularized so that components which share dependencies are packaged and delivered together, while unrelated components are left out so they aren't needlessly loaded. Tools like [HTMLMinifier](#), [CSSNano](#) and [csso](#), and [UglifyJS](#) and [Closure Compiler](#) will help ensure that code libraries for HTML, CSS, and JavaScript (respectively) are as lean as possible.

It is good practice to periodically audit web pages, review what they're loading and then optimize required resources and eliminate those that aren't needed. This sort of effort not only reduces energy consumption, but reduces page load times and site responsiveness, both of which have positive impacts on engagement, usability and rankings.

More generally, tools like [Google pagespeed insights API](#), [Chrome Lighthouse](#), and [Sincera](#) can be used to measure site performance and identify heavy files. [Gzip](#) is used by many sites to reduce the size of websites and [Brotli](#) can be used as an alternative compression method on more text heavy sites.

Buy-side

Buy-side refers to parties involved in the buying of advertising space on the open internet, which is primarily Agencies, Advertisers and DSPs who bid on ad opportunities programmatically and the technologies they use to do so.

Reduce Duplicate Bid Requests Using Global Placement Id (gpId)

Buyers should read and analyze [gpId](#) provided by publishers to determine if there are multiple paths through which they are purchasing the same piece of inventory. They can use the results of this analysis to limit themselves to the most optimal paths.

Limit purchases of Multi-Hop impressions

Buyers and DSPs should endeavor to purchase the most efficient impressions possible. There are many cases where most direct possible path is a resold impression, but buyers should closely monitor for cases where resellers are allowed to sell impressions to other resellers (2-hop reselling), and especially to cases where the party listed as secondary reseller is also listed as direct in the publishers ads.txt file.

Most DSPs do not currently support targeting preferences that include the number of hops and while providing that functionality may require significant effort, buyers should request functionality that enables this kind of targeting from their DSP partners. In the interim, Private Marketplaces (PMPs) offer direct access to diverse inventory from publishers which reduces the need for intermediaries, lowers the number of hops in the supply chain, and decreases the computational load necessary to run auctions; all of which contribute to reduced emissions.

Use managerdomain and inventorypartnerdomain

While limiting purchases of multi-hop impressions is a good practice for buyers, there are several cases in which reselling provides critical value. Two of those use cases: when a partner has exclusive access to monetize publisher content, or to monetize a slice of publisher content, can be declared by publishers using managerdomain and inventorypartnerdomain in ads.txt. This enables buyers to continue prioritizing such paths and allows them to continue buying through certain resellers as the needs of their business dictate.

Support Pod Bidding

OpenRTB 2.6 introduced the notion of [pod bidding](#) which significantly lowers the amount of video ad requests by replacing a unique ad request for each advertisement in a pod with a single request that can support the entire ad break holistically.

Avoid Inventory that is ‘Made For Advertising’

There is a perverse incentive to buy inventory on webpages with exceedingly heavy ad loads and sites whose sole purpose is to deliver advertisements (aka Made for Advertising) because they offer high viewability and low cost per outcome (such as Cost Per Click or Cost Per View),

but they should be carefully vetted for quality, real performance, and brand suitability. Different tolerances for what constitutes Made for Advertising are expected, but brands should work closely with their inventory partners to request signals around the ratio of ads to content, how the traffic was sourced, and if, and how often, ad slots [automatically refresh](#). Less clutter is greener for brands and the environment.

Leverage interoperable IDs where possible

Many critical use cases such as targeting, pacing, measurement and fraud detection rely on multiple programmatic supply chain participants being able to recognize a user when they land on a webpage or open an application. Today, this is accomplished through mapping tables held by each party to provide information about which user from party A maps to the same user from party B. Building, maintaining and using these mapping tables requires significant resource overhead.

As an alternative to this model, some ecosystem participants have developed common, interoperable identifiers designed to be shared by many participants and which allow for centralized identity graphs that are shared by all participants. The result is fewer identifiers and significantly lowered resource overhead. Publisher utilization of different interoperable IDs can be found at [Sincera](#).

Implement Ad Management API

Ad management occurs when a buyer (or a representative party) submits creatives for creative approval, supply platforms approve or disapprove of those creatives, and buyers receive feedback accordingly. By implementing IAB Tech Lab's [Ad Management API](#) DSPs can stop bidding for inventory that will never win due to things like not-yet-approved or denied creatives, according to exchange policy.

Lean Creatives

While cleaning up the auction dynamics will have the most impact, decision-makers should be aware of the impact on the carbon footprint of their ad creatives. Working group member [IMPACT+](#) has found that on average, optimizing the asset weight reduced campaign emissions by 30%. Following Tech Lab guidance for [Lightweight Ads](#) released in 2017 will ensure the ads that render on pages are as small as possible, which will result in less energy consumption.

Here are some other optimizations that can be done with relative ease:

- Leveraging the [srcset](#) attribute will allow the browser to determine the right image variation to load (smaller resolution on a smaller screen).
- Avoid having multiple verification scripts on the same creative for the same measurement, use only supported file formats, and leverage compressor tools to reduce the size of the creatives when they're delivered.
- Ensure your inventory partners are applying web performance best practices to optimize ad experience using [core web vitals](#) as a good proxy measurement of the device resources usage.
- Limit the highest resolution and bitrates of your video vast file, depending on the inventory you target. For example, 4K capable files are not useful for most contexts.

Everyone

While this document focuses on the programmatic supply chain, it is important to note that the United Nations sustainable development goals (SDGs) outlined the importance of using sustainable energy (SDG7). For advertising technology companies, data centers typically account for the highest percentage of energy use. Criteo's [2021 Corporate Social Responsibility Report](#) states that 75% of the IT infrastructure energy consumption came from data centers. This applies for data centers in both the public and private cloud. Due to this high concentration in energy footprint, technology companies are able to significantly reduce their Greenhouse Gas (GHG) Emissions by utilizing low carbon, carbon free, and/or renewable sources of energy in their data centers. Ad buyers can influence their campaign carbon footprints by engaging in supply path optimization (SPO) efforts that route spend through paths that have a higher share of low carbon & renewable energy powering their data centers.

In addition to measuring emissions from your own organization, it's also critical to ask supply chain partners for their organization's verified and publicly reported Greenhouse Gas Emissions. Require verification by an accredited third-party from any partner offering climate neutral, low carbon, green energy, or offsetting solutions.

Prominent climate scientist, Dr. Bill Wescot, put the ask in these terms in a [recent article](#): “Brands should require in their contracting terms that every company in their advertising value chain with significant revenues (e.g., over \$100 million) create a greenhouse gas emissions inventory, have it verified by a reputable third-party (for less than the cost of a cocktail party) and disclose the inventory publicly through a well-recognized platform, such as CDP, The Climate Registry or the Global Reporting Initiative.”

This all boils down to understanding who you are transacting with programmatically and ensuring your partners are aligned with the sustainability goals and practices set out by your organization.

As ShareThrough's Chief Product Officer, Curt Larson, put it: "If the fire truck shows up at a house, they don't stop to analyze which rooms are on fire. They just start fighting fire and then they learn as they go." As the programmatic advertising industry moves toward a more sustainable future there will be more to come; this list is only the start of a conversation.