



ISBA
PROGRAMMATIC
SUPPLY CHAIN
TRANSPARENCY
STUDY



aop

In association with the AOP,
carried out by PwC

May 2020



PART 1
INTRODUCTION



Introduction

– ISBA



In January 2018, ISBA’s Performance and Programmatic Steering Group, representing the UK’s advertisers, posed a simple question: what does my programmatic supply chain look like and how can I assess its value in terms of working media? And it tasked ISBA with finding out the answer.

The simplicity of this perfectly reasonable question belied the complexity involved in discovering the answer. Taking learnings from the WFA’s (World Federation of Advertisers) 2014, now famous ‘Waterfall’ report, and the 2016 Programmatic: Seeing Through the Financial Fog report by the ANA (ISBA’s US equivalent), ISBA has gone the next step creating a forensic end-to-end study, from advertiser to publisher. Working in partnership with the AOP (Association of Online Publishers) whose members have provided the publisher data, and commissioning PwC to connect and audit supply and demand, this study tracks disclosed media only.

As you’ll read, PwC’s report for ISBA and its members is about far more than answering our members’ simple question – what does my programmatic supply chain look like and cost? The study took a year to set up and a further year to carry out, revealing a market ripe for fundamental reformation to make it fit for purpose. The findings in this unique, world-first industry report, delivers the evidence to involve all stakeholders – advertisers, agencies, publishers and the ad tech sector itself, to urgently collaborate openly, honestly and constructively around shaping a trading market that is transparent, fair, safe and predictable where all

interests can thrive equally. Indeed, these cross-industry discussions have already begun.

This project which has lasted far longer than could have been reasonably anticipated, is brought to you because our participating advertisers backed and funded it. However, it should be noted that the final cost of the project was a factor of many times the collective investment of our member advertisers, due to the significant challenges faced and met by PwC. On behalf of those 15 advertisers and the wider ISBA membership, I want to thank the AOP and its 12 participating members for investing their precious resources and full support to secure that end-to-end supply chain. Mostly I want to thank Sam Tomlinson and his excellent team at PwC for their absolute dedication and investment in significant resources to bring this industry-changing report to life.

A handwritten signature in black ink that reads "S. W. Chester". The signature is fluid and cursive.

Steve Chester
Director of Media, ISBA

May 2020

Introduction

– PwC



PwC's Marketing & Media Assurance team is a neutral independent party committed to delivering trust and transparency across the marketing ecosystem – in this specific case, across the programmatic supply chain.

As you will read in this report, despite advertisers and publishers being keen to share their spend and revenue data respectively, it still took many months for this to happen. This supply chain complexity seems unlikely to be consistently in the best interests of market participants, an intuition corroborated by our findings that half of advertiser spend reaches publishers and that 15% of advertiser spend – around one-third of supply chain costs – is unattributable. And it's important to realise that this study represents the most premium parts of programmatic: the highest profile advertisers, publishers, agencies and adtech. If examined, the 'long tail' would presumably further reinforce these findings.

Our two critical conclusions in response are: (i) standardisation is urgently required across a range of contractual and technology areas, to facilitate the data sharing that is a key step towards a more transparent supply chain; and (ii) all industry participants should collaborate to further investigate the unattributable costs and agree industry-wide actions to reduce them.

The promise of programmatic is the ability to target the right audiences, in the right context, at the right time. All participants need confidence that the supply chain is acting to fulfil that promise. We hope this study can be a positive catalyst for change.

We would like to express our gratitude to everyone at ISBA and AOP and to all the participating publishers, agencies, adtech and particularly the advertisers who funded this study. And I would also like to extend a huge personal thanks to the team of programmatic and data experts at PwC who delivered this project – it took a year to envisage and another year to deliver, but your perseverance was rewarded in the end.

We hope you enjoy reading this report. Please do contact us with any questions.

Best wishes,

A handwritten signature in black ink that reads "Sam Tomlinson". The signature is fluid and cursive, written in a professional style.

Sam Tomlinson
Partner, PwC
May 2020



PART 2

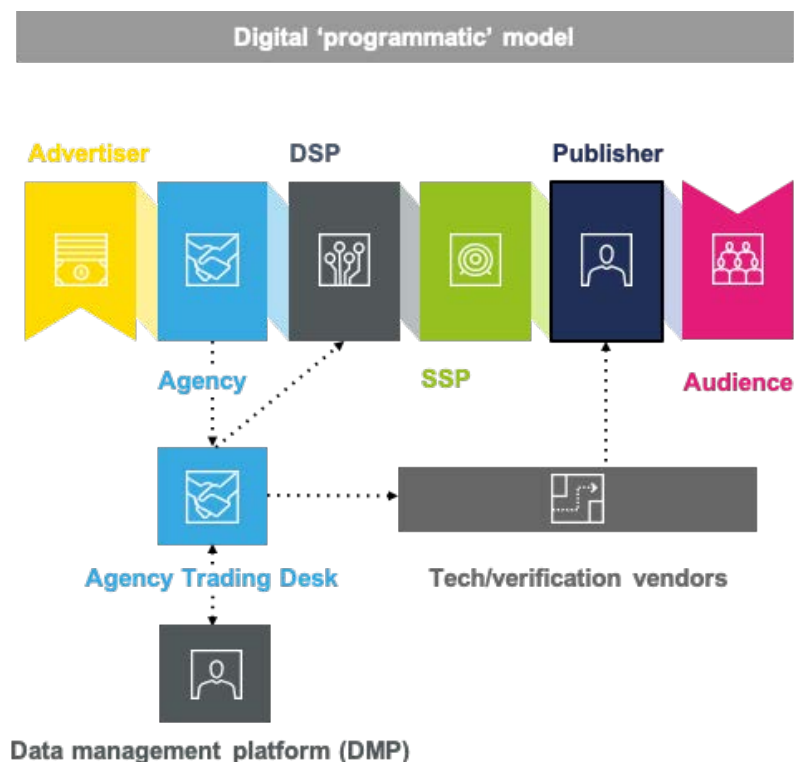
**EXECUTIVE
SUMMARY**

Executive summary

1. The programmatic supply chain

ISBA advertiser members were keen to understand the true nature of the ~£2bn UK programmatic market and its supply chain, in particular how much of their spend reaches publishers as revenue.

This study set out to identify each element of the supply chain, understand the services and costs at each stage, and map supply chains from start to finish using real market data from advertisers (operating disclosed programmatic models) and publishers. The intention was to provide a more transparent view of the UK programmatic supply chain, for the benefit of all participants and the industry as a whole.



2. Study participants

PwC's team of data scientists, data engineers and ad-tech specialists collected data from the study participants: 15 advertisers, 12 agencies, five DSPs, six SSPs and 12 publishers, representing approximately £0.1bn of UK programmatic ad spend and nearly two-thirds of AOP (premium publisher) digital ad revenues.

3. Study overview

Data collection ran from 1 January 2020 to 20 March 2020. From 267 million impressions served from study advertisers to study publishers, 31 million (12%) were successfully matched. The rest could not be mapped due to low data quality, which reinforces the critical conclusions from this study.

The matched impressions provide interesting insight into the supply chain, including the proportion of advertiser spend reaching publishers as 'working media', and an 'unknown delta' of unattributable costs.

31m
Matched impressions

50+
Companies involved

290
Unique supply chains matched

15 months study duration

2.2bn
Lines of data reviewed

267m
Total impressions observed

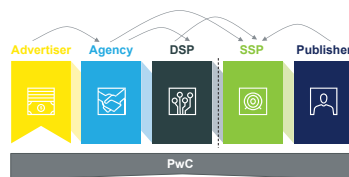
Executive summary

4. Challenges

Challenges with contracts, permissioning, data and technology meant it took more than a year to obtain the required data. The key challenges are summarised below. A critical conclusion of this study is the need for industry consistency around data sharing and data formatting.

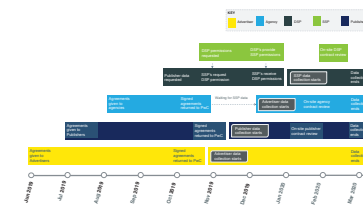
Chicken and egg permissioning

There is a lack of clarity and understanding over how parties share data and who needs to permission what, with up to four separate parties requested to confirm their approval over one data set for one part of one supply chain.



Access delays

Some supply chain intermediaries were not clear about what was required for permissions, leading to significant delays in data access.



Complex supply chain

The 15 advertisers had nearly 300 distinct supply chains to reach 12 publishers. This complexity contributes to a markedly opaque supply chain.



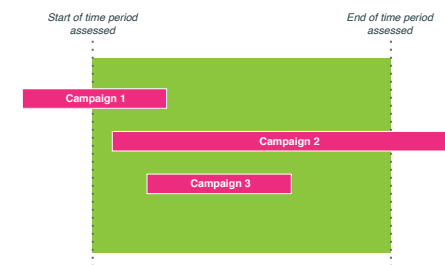
Data formatting and fidelity

A lack of uniformity across the supply chain on whether data is stored on a log level or aggregated basis led to a number of problems in data matching. Inconsistencies across parties in data formatting (names, currency, device type etc) further increased these challenges.

Date formats	Names for revenue	Monetary formats
1581900137000	AdeCPM	£0.01
1575587858110006	EstimatedBackfillRevenue	\$0.000123
2020-01-14-20:44:29	net_revenue	\$0.00001230245535566555
2019-11-11	trackerRevenue	- £0.0000999228111
11.01.20	Seller_revenue_CPM	\$0.0215066

Inflexible data retrieval

The data captured from a DSP for an impression is not equally captured on the sell side. Impression matching cannot easily be performed at campaign level due to missing information in datasets.

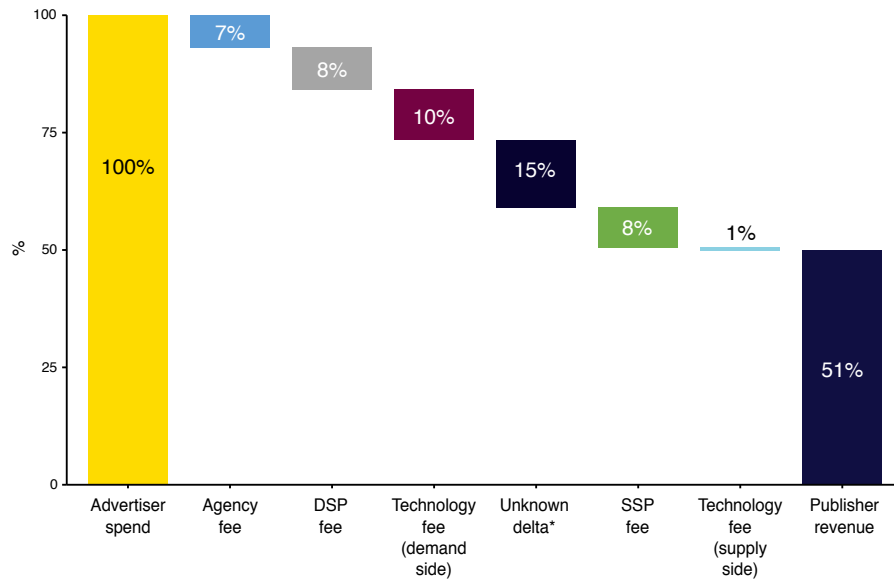


Executive summary

5. Supply chain findings

The industry waterfall: analysing advertiser spend

In this study, publishers received half of advertiser spend. 15% of advertiser spend – the unknown delta, representing around one-third of supply chain costs – could not be attributed.



This study cannot say with any certainty what the unknown delta represents. It could reflect a combination of: limitations in data sets, necessitating occasional estimations; DSP or SSP fees that aren't visible in the study data; post-auction bid shading; post-auction financing arrangements or other trading deals; foreign exchange translations; inventory reselling between tech vendors; or other unknown factors. A critical conclusion of this study is the need for industry collaboration to further investigate the unknown delta.

Agency fees: varying services and fee models

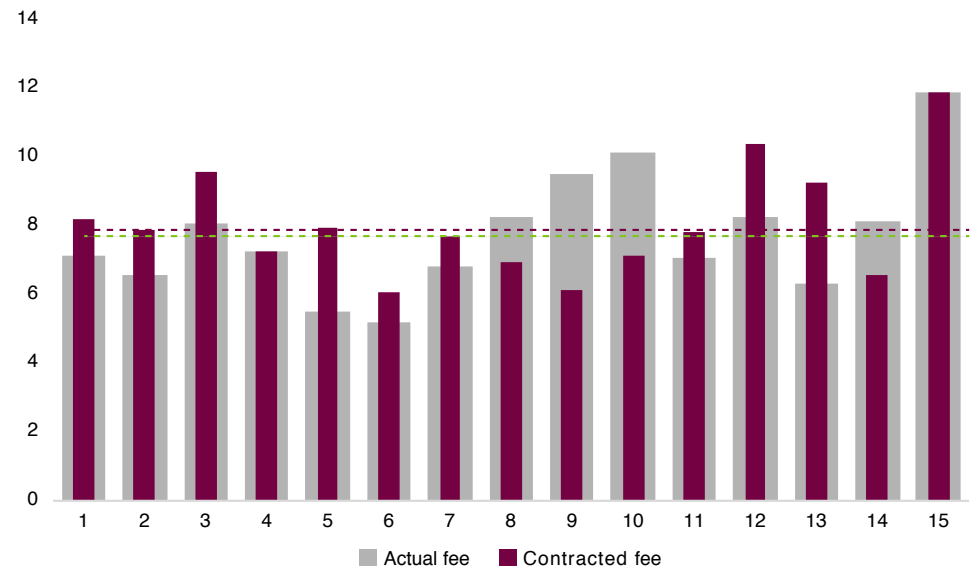
The various agency services and remuneration models were converted to estimated percentage equivalents to represent the cost of agency services in the waterfall analysis:

- Fixed fee for all services rendered
- Fixed fee for programmatic
- Commission
- Agency and adtech aggregated fee

These models prevent direct cost comparisons of agencies.

DSP fees: fees in the data can vary from contracted rates

DSP actual fees and contracts both averaged ~8%, but with individual variations. (These variations are at an impression level; they might be corrected via reconciliations.)

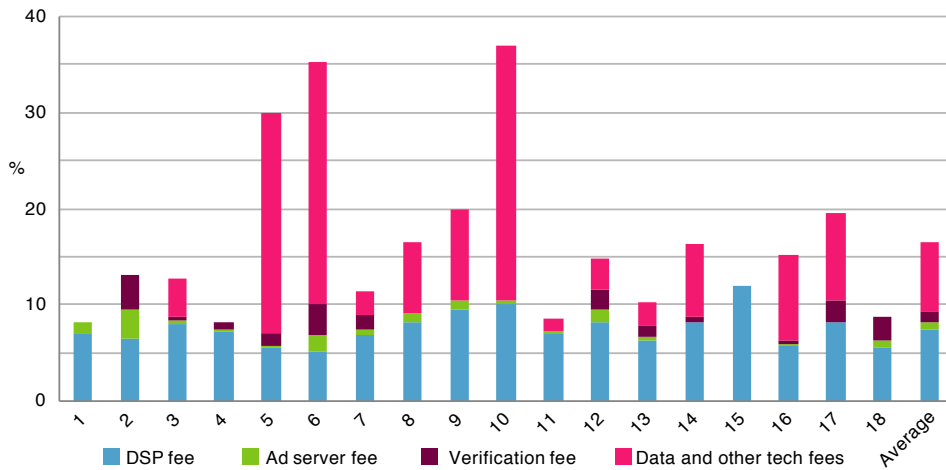


Executive summary

5. Supply chain findings

Tech fees (demand side): ad server, verification and data

Demand side tech fees (mainly ad serving, verification tools and data) averaged 10% of advertiser spend. DSP and technology fees were then analysed in aggregate, given the overlapping services, with an average aggregate cost of 18%.

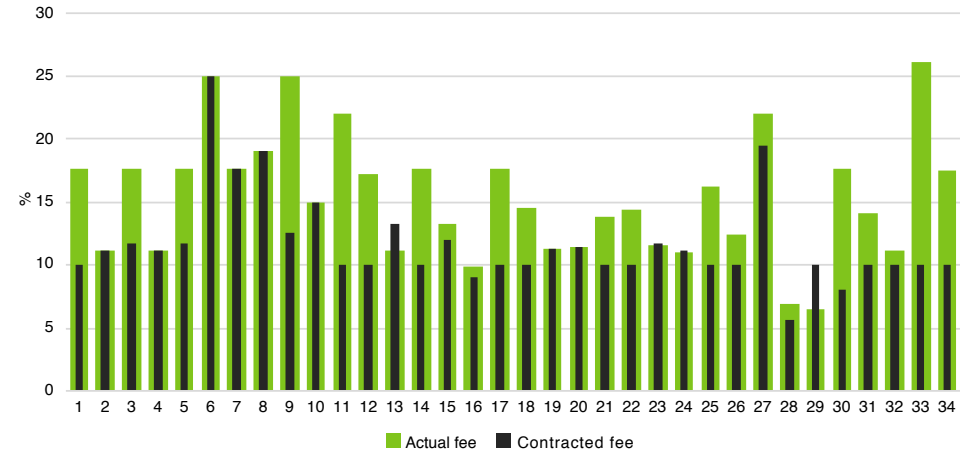


Tech fees (supply side): Exchange Bidding (EB)

EB fees of 5% were applied against publisher revenue, representing an average 1% of advertiser spend. Some participants were seemingly unaware of EB fees being applied.

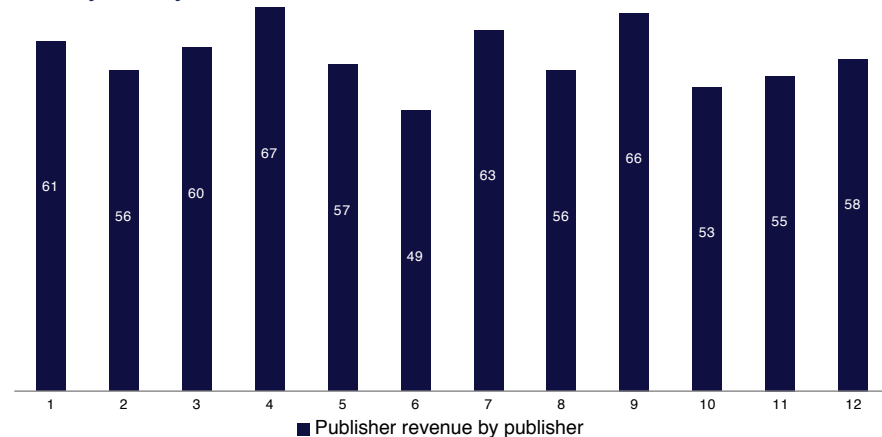
SSP fees: fees in the data can vary from contracted rates

SSP fees on average within the study data appear to be ~14% of publisher revenues (equivalent to ~8% of advertiser spend), compared to underlying contracts showing ~12%. (These variations are at an impression level; they might be corrected via reconciliations.)



Publisher revenue: ranged from 49% to 67% of ad spend

Publisher revenues in our study ranged from 49% to 67% of advertiser spend for each individual publisher. When giving equal weight to each supply chain, the average was 51%. Publisher revenues were also analysed by advertiser and SSP.

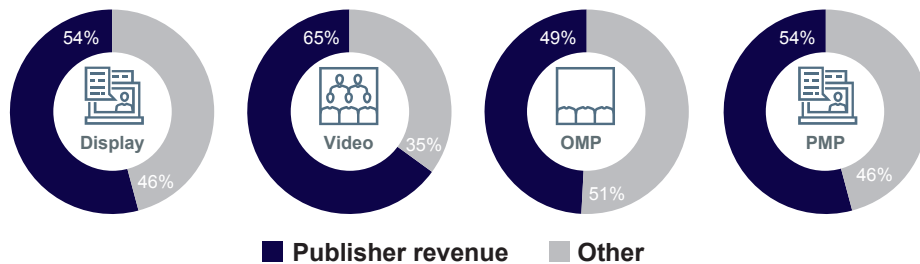


Executive summary

5. Supply chain findings

Publisher revenue: display vs video and OMP vs PMP

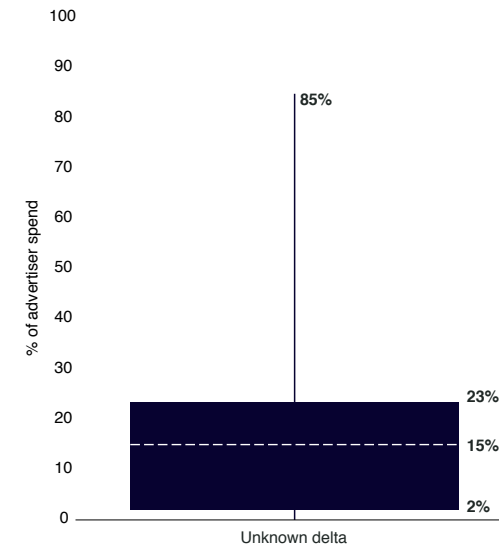
For identifiable impressions (~60% of the 31 million matched), a greater proportion of advertiser video spend (65%) reaches publishers than display (54%) and the same is true of private marketplace spend (PMP, 54%) vs open marketplace (OMP, 49%). Unidentifiable impressions (i.e. not labelled by format or marketplace) generally had a smaller proportion of advertiser spend reaching publishers, lowering the overall study average.



The 'unknown delta': 15% of advertiser spend

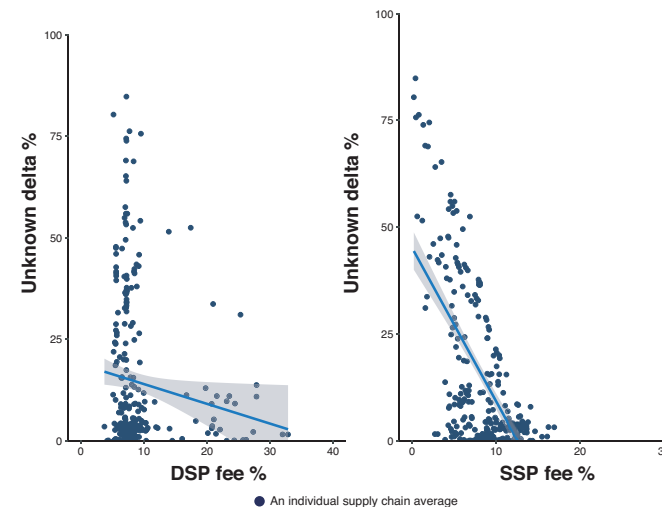
In our sample of 31 million matched impressions, the winning bid in the DSP often does not match the gross revenue recorded in the SSP. This 'unknown delta' averaged 15% of advertiser spend. Our study shows that even in a 'disclosed' programmatic model, around one-third of supply chain costs remain undisclosed.

The unknown delta averaged 15% of advertiser spend, ranging from 0% to 86%, with the majority from 2% to 23%.



The 'unknown delta': more investigation is needed

Data analysis shows a negative inverse correlation with both DSP and SSP fees, but does not provide insight into underlying causes or where they arise. Potential contributory factors are set out earlier, under the waterfall chart.

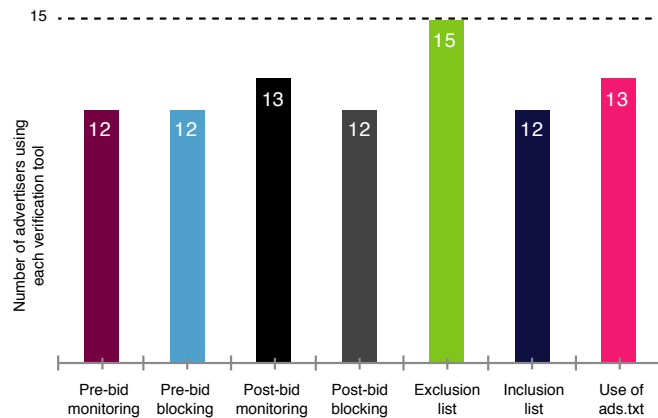


Executive summary

6. Supply chain governance

Verification tools: used widely but inconsistently

The most commonly used tools were post-bid monitoring and exclusion lists. Note: this study is mainly focused on matched impressions, so does not address ad spend lost to fraud etc.



Websites: advertisers are using a huge number

Participating advertisers appeared on an average of 40,524 websites, most being non-premium. Only 19% of impressions were served to study publishers.

Data maturity assessment: UK programmatic landscape

This was based on the PwC data maturity assessment tool.



7. Recommendations

Key recommendations from this study were determined for advertisers, publishers and the industry as a whole.

The two critical conclusions are:

- **Standardisation is urgently required across a range of contractual and technology areas, to facilitate data sharing and drive transparency; and**
- **All industry participants should collaborate to further investigate the unattributable costs and agree industry-wide actions to reduce them.**

Final thoughts

All market participants must contribute to industry evolution. This includes: a shared understanding and application of 'transparency'; contractual arrangements with standardised definitions; clear and consistent protocols for sharing data; careful monitoring of log level reports; supporting industry initiatives to investigate any unattributable costs; and implementing robust governance and compliance programmes.

We hope this study can be a positive catalyst for change.



PART 3
**STUDY
PARTICIPANTS**

Study participants

Advertisers



Through extensive collaboration with ISBA, 15 advertisers stepped forward to participate in the study and allowed their supply chains to be examined. They represent a cross-section of the marketplace across most major categories. With a combined annual UK media spend of over £800m, of which ~10% is programmatic, this provides a robust representation of major UK (and global) advertisers. These 15 advertisers funded the study through a fixed flat fee paid via ISBA. In return, each advertiser will receive an individual report and a personal debrief on their specific supply chain. The 15 advertisers are:



Study participants

Publishers



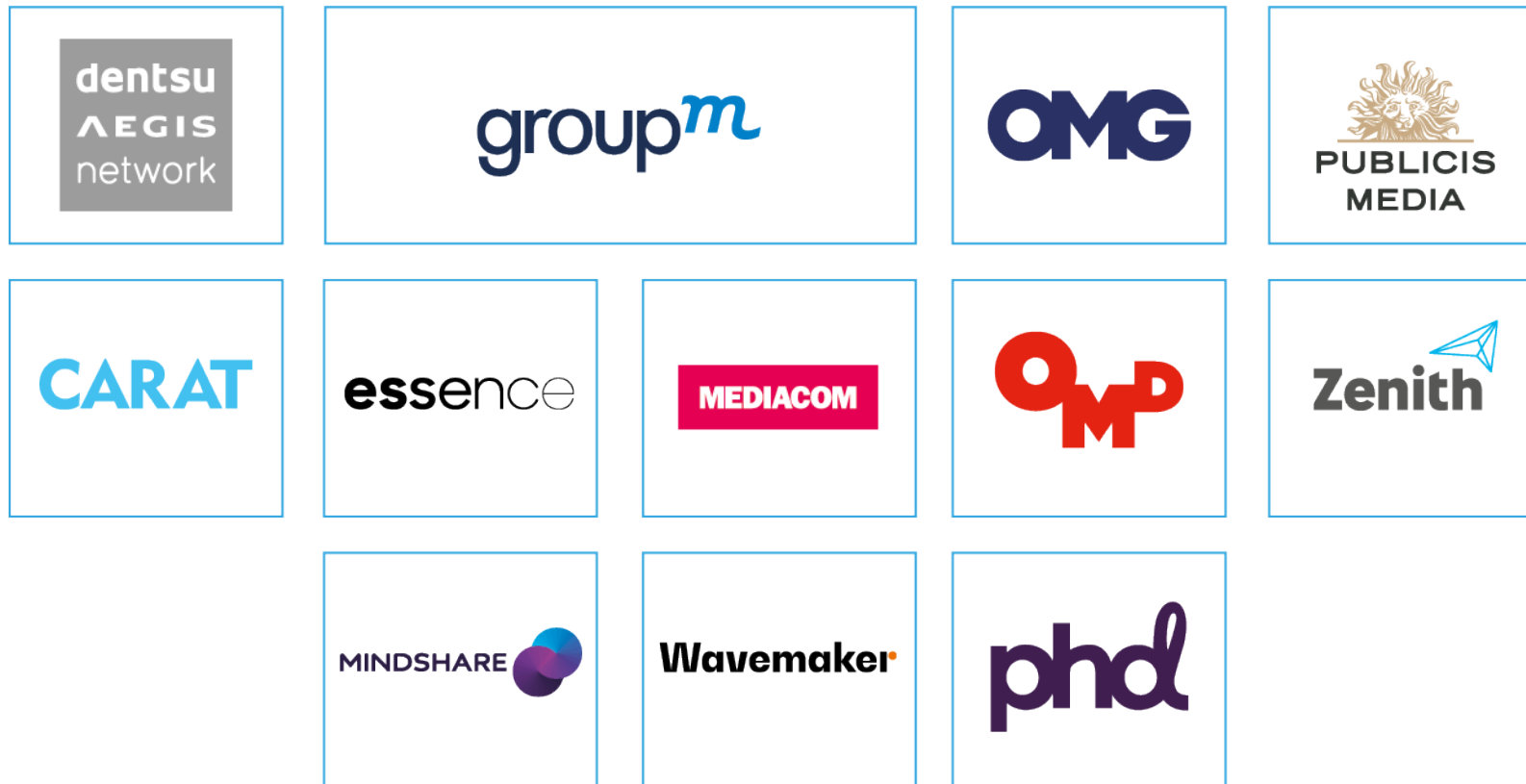
Through extensive collaboration with AOP, 12 publishers volunteered to participate in the study by sharing revenues received from their main SSP partners. These 12 participants are some of the highest-profile publishers from across the 'news' and 'magazine' sectors, representing nearly two-thirds of AOP (premium publisher) digital ad revenues. They took part in the study at no cost by agreeing to share data, and will each receive a copy of this report and a personal debrief. The 12 publishers and some of their key titles are:

Study participants

Advertiser agency partners



The 15 participating advertisers were represented by eight agencies, which in turn represent four of the six largest global holding companies. The agencies, and their trade body the IPA, entered into the study in a spirit of collaboration and shared spend data on behalf of their advertiser clients. Each of these agencies will receive a copy of this report. The eight agencies are:

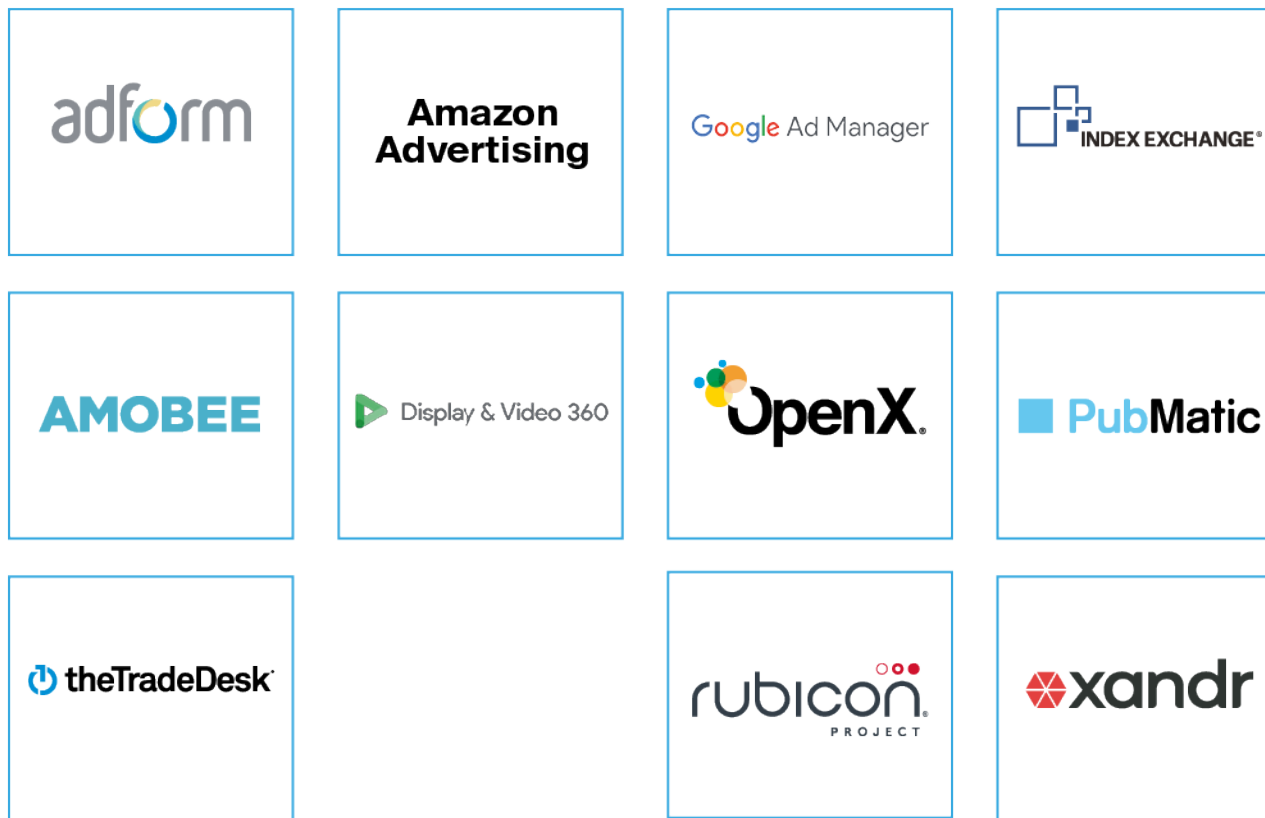


Study participants

Tech vendors



The demand side platforms (DSPs) and supply side platforms (SSPs) are the primary tech vendors used by the participating advertisers and publishers, representing approximately 80% of all impressions served by these publishers for these advertisers. These SSPs, with permission requested from DSPs in some cases, agreed to share publisher data with PwC. Two of the SSPs had smaller data sets due to delays in data permissions and provisioning. Each tech vendor will receive a copy of this report. (DSPs were not always active participants – sometimes, advertisers or their agencies simply extracted the relevant data for sharing with PwC).



Summary of study participants



Advertiser

Arla
British Airways
BT
Disney
GSK
HSBC
Lloyds Bank
Nestle
PepsiCo
RBS
Sainsburys
Shell
Tesco
Unilever
Vodafone

Agency

Carat Dentsu Aegis
Essence WPP
Mediacom WPP
Mindshare WPP
Wavemaker WPP
OMD UK Omnicom
PHD Omnicom
Zenith Media Publicis Group

DSP

Adform
Amazon
Amobee
DV360
TheTradeDesk

SSP

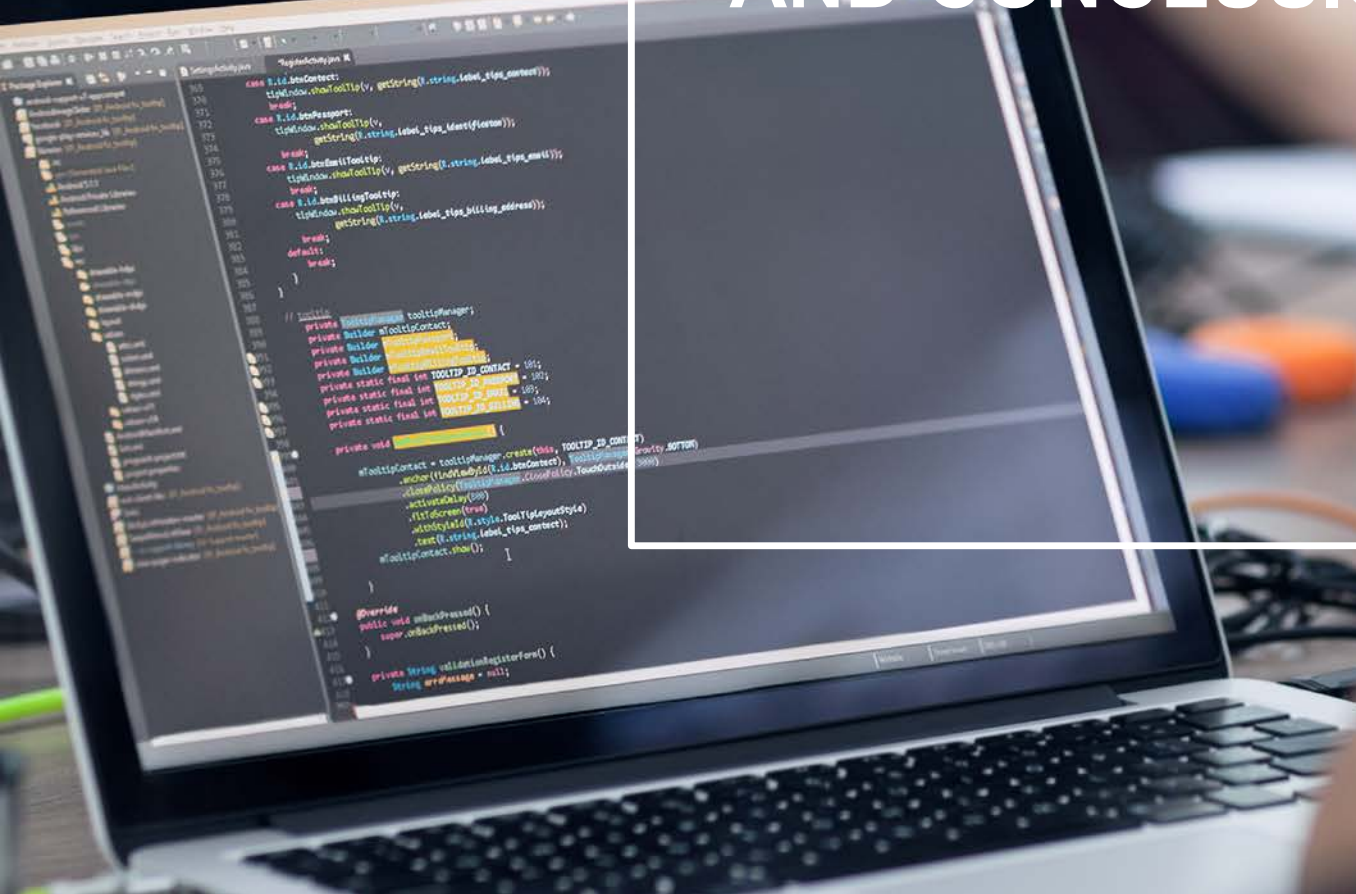
Ad Manager
Index Exchange
OpenX
PubMatic
Rubicon

Publisher

Autotrader
Bauer Media Group
Dennis
ESI
Haymarket
Immediate Media
Mail Metro Media
News UK
Rightmove
Telegraph
The Guardian
TI Media

PART 4

RECOMMENDATIONS AND CONCLUSIONS



RECOMMENDATIONS

Critical conclusions

Critical insight

Contractual T&Cs across all study participants were inconsistent, as were their interpretations. Similarly, each study participant had different data definitions, taxonomies and signifiers, retention policies, etc. These challenges with data access and data format caused this study to take 9 months longer than intended.

The industry must make it simpler for participants to access and share their own data (or their client's data), in a format that can be readily analysed.

The percentage of advertiser spend that reached publishers ("working media") averaged 51%.

The unknown delta of 15% represents around one-third of supply chain costs. Even in disclosed programmatic models, this amount remains unattributable.

The unknown delta could reflect a combination of: limitations in data sets, necessitating occasional estimations; DSP or SSP fees that aren't visible in the study data; post-auction bid shading; post-auction financing arrangements or other trading deals; foreign exchange translations; inventory reselling between tech vendors; or other unknown factors.

Critical implication / recommendation

Industry bodies and participants should agree standardised T&Cs for data access and sharing, to be implemented in all contracts along the supply chain.

They should also ensure consistent data taxonomies, definitions, retention, seats and seat IDs, etc. are used across all supply chain participants wherever possible.

The industry needs to mature urgently to facilitate the data sharing that is a key step towards a more transparent supply chain.

Unattributable costs representing around one-third of supply chain costs need investigation and resolution. Concerted action is required by all industry participants – advertisers, agencies, adtech, publishers and possibly regulators – to minimise these costs, in order to drive up the proportion of advertiser spend that reaches publishers.

Participants, trade bodies and regulators should work together to better understand the unknown delta, with the aim of uncovering causes and agreeing industry-wide actions to reduce them.

Industry participants should also engage with industry initiatives such as *sellers.json* and *OpenRTB SupplyChain object* (both driven by IAB) that seek to limit unauthorised reselling.

RECOMMENDATIONS

For advertisers

Insight	Implication / Recommendation
<p>The 'unknown delta' of unattributed spend averaged 15% in this study. This unknown delta represents around one-third of supply chain costs.</p> <p>Even in disclosed programmatic models, this amount remains unattributable.</p>	<p>Advertisers and agencies should seek to better understand the unknown delta; to engage with industry initiatives such as <i>sellers.json</i> and <i>OpenRTB SupplyChain object</i> (both driven by IAB) that seek to limit unauthorised reselling; and to consider maximising PMP (vs OMP) volumes where possible.</p>
<p>The percentage of advertiser spend that reached publishers ("working media") averaged 51%.</p>	<p>Advertisers should engage carefully with agencies to understand the steps their agency is taking on their behalf to maximise the proportion of their spend that reaches publishers.</p>
<p>Access to relevant buy-side data from agencies and DSPs was not always readily available to advertisers.</p>	<p>Advertisers should insist their agency has a separate seat for each client, and that log level data be readily available. Advertisers could also consider operational changes such as direct contractual relationships with DSPs and strengthening (or developing) direct publisher relationships.</p>
<p>Reporting on programmatic campaigns by agencies and monitoring practices by advertisers appear to be inconsistent, which can hinder analysis of campaign delivery and performance.</p>	<p>Advertisers perform ongoing monitoring of volume and placement of programmatic ads, including e.g. type (display / video), marketplace (PMP vs OMP), volume and nature of websites, country URLs.</p>
<p>All advertisers were using some form of verification tools (for ad serving, fraud, viewability, brand safety) but many were not using all of them. This creates potential exposures in each of these critical areas.</p>	<p>Advertisers should ask their agencies which tools are being applied, to what proportion of impressions, and how (to understand their granular implementation); and should monitor outputs on a regular basis.</p>

RECOMMENDATIONS

For publishers

Insight	Implication / Recommendation
The 'unknown delta' of unattributed spend averaged 15% in this study. This unknown delta represents nearly one-third of all supply chain costs.	Publishers should seek to better understand the unknown delta; to engage with industry initiatives such as <i>sellers.json</i> and <i>OpenRTB SupplyChain object</i> (both driven by IAB) that attempt to limit unauthorised reselling; and to consider maximising PMP (vs OMP) volumes where possible.
Publisher contracts with SSPs were frequently aged, so not reflecting recent technological innovations (e.g. Exchange Bidding) or current operational practices (e.g. changing auction mechanics).	Review and update SSP contracts on a regular basis (e.g. annually, or at least every other year).
Publisher / SSP contracts sometimes used undefined or unclear or inconsistent terms (e.g. gross vs net revenue), and/or were not fully understood by the publisher team with primary responsibility for the SSP relationship.	Ensure all SSP contracts are clearly set out, with defined terms used consistently, and are well understood by the team leading the SSP relationship.
Monitoring practices at publishers were inconsistent. Monitoring of impression volumes and revenues, ideally at log levels, would reduce discrepancies and help optimise supply chains.	Publishers should monitor impression volumes (from SSP and ad-server) and revenues, all at log level where possible.
Publishers are rarely exercising their right to audit their SSPs. Regular audits would ensure SSPs fulfil their contractual commitments for both commercial terms and use of publisher inventory and audience data.	Exercise the right to audit SSPs, at least every other year for each SSP.

RECOMMENDATIONS

For the industry

Insight	Implication / Recommendation
<p>The 'unknown delta' of unattributed spend averaged 15% in this study. This unknown delta represents nearly one-third of supply chain costs.</p>	<p>All industry participants should seek to better understand the unknown delta; to engage with industry initiatives such as <i>sellers.json</i> and <i>OpenRTB SupplyChain object</i> (both driven by IAB) that attempt to limit unauthorised reselling; and encourage the use of high-quality PMPs where possible.</p>
<p>Contractual T&Cs across all study participants were inconsistent, as were their interpretations. The industry must make it simpler for participants (e.g. advertisers, agencies, publishers) to access and share their data or their client's data.</p>	<p>Industry bodies and participants should agree standardised T&Cs for data access and sharing, to be implemented in all contracts along the supply chain.</p>
<p>Each study participant had different data definitions, taxonomies, signifiers, data retention policies, etc. all rendering data-linking across the supply chain hugely complex.</p>	<p>Industry bodies and participants should ensure consistent data definitions, taxonomies, retention, seats and seat IDs, etc. are used across all supply chain participants, wherever possible.</p>
<p>Transparency is inconsistently applied as a concept across the industry and by stakeholders. Without a consistent standard it is difficult to compare actors and incentivise good behaviour.</p>	<p>Standardise the definition of 'transparency' for all programmatic supply chain participants.</p>
<p>Inconsistent contracts, T&Cs, data taxonomies, reporting functionality, and concepts of 'transparency' all make it extremely difficult for any individual party to get a clear picture of their own supply chain.</p>	<p>Industry bodies and participants should support efforts to improve standardisation and data sharing, to facilitate robust independent supply chain verification.</p>

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