

· BLOCKGRAPH

BUILDING THE FUTURE OF DATA-DRIVEN TV

**THE QUEST TO CREATE A SAFE
IDENTITY LAYER FOR THE INDUSTRY**

TABLE OF CONTENTS

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 3 |
| INTRODUCTION | 5 |
| SECTION 1 | 8 |
| Data-Driven Advertising: The Current State | 9 |
| SECTION 2 | 10 |
| Bringing Data to The New TV Ecosystem | 11 |
| SECTION 3 | 16 |
| Blockgraph: A New Data Path | 17 |
| SECTION 4 | 21 |
| The Future of Data-Driven TV: What Lies Ahead | 22 |
| CONCLUSION | 24 |
| APPENDIX (RESEARCH) | 25 |

EXECUTIVE SUMMARY

Data is fueling our modern economy, and nowhere is it in greater demand than in the advertising industry. Historically, data-driven advertising has been focused on digital media. However, as data becomes a bigger part of TV advertising, a new approach will be needed that avoids the past mistakes of digital advertising, while solving for the unique challenges of using data within The New TV environment.

This paper explores the current protocols for data use in the TV industry, as well as an emerging, alternative path forward. The paper also presents the findings from a new research survey of over 150 advertisers, commissioned from Advertiser Perceptions, on the challenges, opportunities and importance of bringing advanced data to television advertising.

REPORT SUMMARY

- The concept of using data in advertising is not new. What has changed, however, is the sheer amount of data created across billions of connected devices and consumer interactions.
- Data usage has now become the norm for advertisers who are looking for better, more accurate targeting of relevant prospects and customers, at the desired frequency, with the ability to measure business outcomes. And while data usage has been most easily adapted to digital media, its rollout in the TV ecosystem is now underway and critical to ensuring a healthy, competitive future for television advertising.
- Historically, there have been a number of challenges limiting the use of data in the TV advertising ecosystem:
- Identity Resolution in The New TV Ecosystem: growing content options and distribution channels makes it difficult to build a 360 degree view of an advertiser’s targeted audience
 - Industry Dynamics in the Media Supply Chain: audience relationships and advertising rights are split between a number of distributors and content owners, creating a complex ecosystem to navigate and involving the use of trusted third parties
 - Privacy, Compliance and Data Security: this supply chain complexity places greater demands on companies to ensure consumer privacy and data security
 - Data Matching and Operational Inefficiencies: today, data matching is facilitated by trusted third-party providers outside of the supply chain; however, operational and coordination challenges can make this process inefficient in terms of turnaround time and expense
- Considering the sizable barriers to data usage, The New TV ecosystem needs a new path forward. Blockgraph, led by FreeWheel, with participation by some of the biggest companies in TV, digital video and advertising across the U.S. and Europe, offers a new option.
- Blockgraph is designed to become an “identity layer” for the TV industry, providing a platform on which media companies and publishers can offer marketers data activation capabilities, leading to more relevant and successful ads, without disclosing identifiable user data—adding additional protections to user privacy. Blockgraph was formed with the goal of enhancing the use of data across the premium video

and TV ecosystem while allowing for the appropriate privacy and business controls to be implemented.

- At its core, Blockgraph provides a platform that allows participating organizations to directly match their data sets quickly, and most importantly, in a way that helps them control and prevent access to any proprietary or identifying consumer information. It accomplishes this by providing common software that companies can install within their own systems. Blockgraph participants can then match data without exposing the underlying data to one another over a private peer-to-peer network. (Technical primer follows within body of paper.)
- Blockgraph creates value in The New TV ecosystem by solving the key challenges of data sharing and identity resolution mentioned above. (Solutions defined within body of paper.) By connecting data across the TV ecosystem while protecting data ownership and consumer privacy, Blockgraph’s common identity layer will enable TV to pair its current strengths—including efficient reach and high engagement—with the breadth and depth of data insights necessary for audience-based, data-driven TV buying.
- Blockgraph’s use cases extend throughout the entire buying process—from planning and execution, to measurement and attribution. (Use case outlined in body of paper.)
- The TV industry is in the midst of a fundamental transformation—and data is at the center. To that end, a more connected, safe and data-enabled TV industry will benefit all parties: advertisers, content owners, distributors, and audiences.

(Charts on proprietary research conducted with Advertiser Perceptions are included throughout the report, and in the whitepaper’s Appendix.)

INTRODUCTION

In a few short years, data has become one of the most heavily talked about topics in the media. It seems as though we can't go a day without a new publication claiming "Data is the New Oil." As our world becomes more digital and connected, data is being created, stored, and used at previously unthinkable rates.

It's easy to see why the "data is oil" metaphor is so frequently used. It has undoubtedly become the fuel of the modern economy. Companies are racing to collect, process, and harness the power of data in order to help them in a number of areas, from predicting customer preferences, to streamlining operational processes, to driving better decision-making and financial results.

THE RISING USE OF DATA IN ADVERTISING

Perhaps nowhere is the demand for data greater than in the advertising industry. Marketing executives, under ever-increasing pressure to build their brands and sell more products, have looked to data in order to help them pinpoint and reach valuable prospects and customers, measure business outcomes, and analyze marketing effectiveness. Long gone are the days where marketers simply accepted the oft quoted John Wanamaker adage that “half of their advertising is wasted.”

Until recently, data has primarily been used in digital advertising. Digital media platforms have used their rich proprietary consumer datasets to offer marketers audience targeting capabilities and the ability to tie advertising exposure to business outcomes, including searches, website visits, and even purchases.

It appears likely that data has been one of the biggest drivers in the rapid growth in digital advertising spend. This trend is evidenced when comparing the historic trend of worldwide data creation side-by-side with digital advertising spend. (Graph 1.)

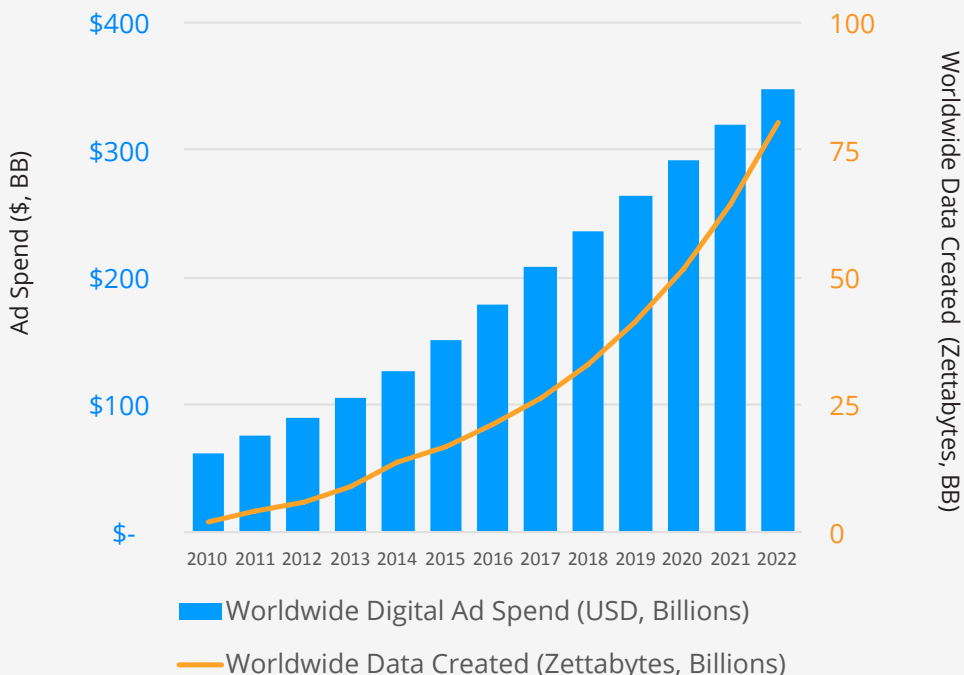
However, data-driven digital advertising has also brought its own challenges. Look no further than comments made at the ANA in April 2019 by Marc Pritchard, the Chief Brand Officer of Proctor & Gamble:



Digital media continues to grow exponentially, and with it, a dark side persists, and in some cases, has gotten worse. Waste continues to exist from lack of transparency and fraud. Seven out of 10 consumers say ads are annoying... Privacy breaches and consumer data misuse keeps occurring. Unacceptable content continues to be available and is still being viewed alongside our brands.

Graph 1

Worldwide Digital Advertising Spend (Total) vs. Worldwide Data Created (Total)



SOURCES:
 (1) MAGNA Global, Data for 2017 and beyond are forecasts
 (2) Data - IDC Global Datasphere 2025, (3) eMarketer 2018 digital advertising estimates of revenue by company

Blockgraph's research confirmed that Pritchard is not alone with these concerns, with only 41% of surveyed advertising executives believing that their advertising data was securely protected by major digital media platforms in 2018. These advertising executives were also aligned with how to make digital advertising more effective, with several top responses hitting on themes described by Marc including: offer a brand safe environment (39%), improving safety/reducing fraud (32%), offering a better viewer experience (29%), and offering better measurement (34%).

DATA AND TV ADVERTISING: FORGING A NEW PATH FORWARD

In the past twenty years, the global TV advertising market has remained steady at over \$180B - representing over 35% of total advertising spend. This has remained true in spite of increased competition from major digital media platforms such as Google and Facebook who have been able to provide marketers with more advanced data and targeting capabilities. To date, TV advertising has offered marketers differences from digital: excelling at offering an efficient way to reach massive audiences in a high quality, brand-safe, content environment, but falling short in offering data-driven capabilities.

Today's TV industry is in the midst of undergoing a significant transformation - with more high-quality content available across more distribution and access points than ever before. These new access points, paired with technological advancements, have resulted in a proliferation of data that has opened up new ways for TV advertising to look more like digital, while maintaining the brand-safe attributes and standards of TV. This fundamental shift towards a data-driven TV future has brought both opportunities and challenges for advertisers and media companies who are looking for ways to apply data to TV, from targeting to measurement.

As data becomes a bigger part of TV advertising, a new approach will be needed that avoids the past mistakes of digital advertising while solving the unique challenges of applying data across the TV industry value chain - from content to distribution.

This paper offers original research, commissioned by FreeWheel's Blockgraph group in April 2019 from Advertiser Perceptions, on the biggest challenges and opportunities of using data in TV advertising and offers practical advice for companies moving towards the data-driven future.



SECTION 1

DATA-DRIVEN ADVERTISING: THE CURRENT STATE

**DATA-DRIVEN ADVERTISING:
THE CURRENT STATE**

The concept of using data in advertising is not new. Data has been used by marketers for decades to perform market analysis, segment customers, and target audiences. One needs to look no further than the launch of Nielsen’s first audience measurement solution for TV in 1950 to understand how long brands and media companies have been using data to inform media buying.

What has changed, however, is the sheer amount of data created across billions of connected devices from consumers’ daily digital interactions: searches, interests, website visits, purchases, time spent watching videos, geo-location history, and more.

To date, the majority of data-driven advertising has been in the world of digital media. Within this space, the bulk of consumer data is received and stored by a small number of digital media platforms and is subsequently used to provide both consumer-facing products and to offer marketers data-driven media solutions. As these platforms collect more data, their products have become increasingly more valuable, yielding even more data, and creating platform stickiness for both consumers and marketers.

Marketers have used this consumer data to help them:

- Precisely target specific audiences (based on audience demographics, behaviors, likelihood to make a purchase, or receptiveness to a particular message at a given time)
- Analyze results of advertising within those platforms by attributing ad exposure against brand searches, website visits, store visits, and more

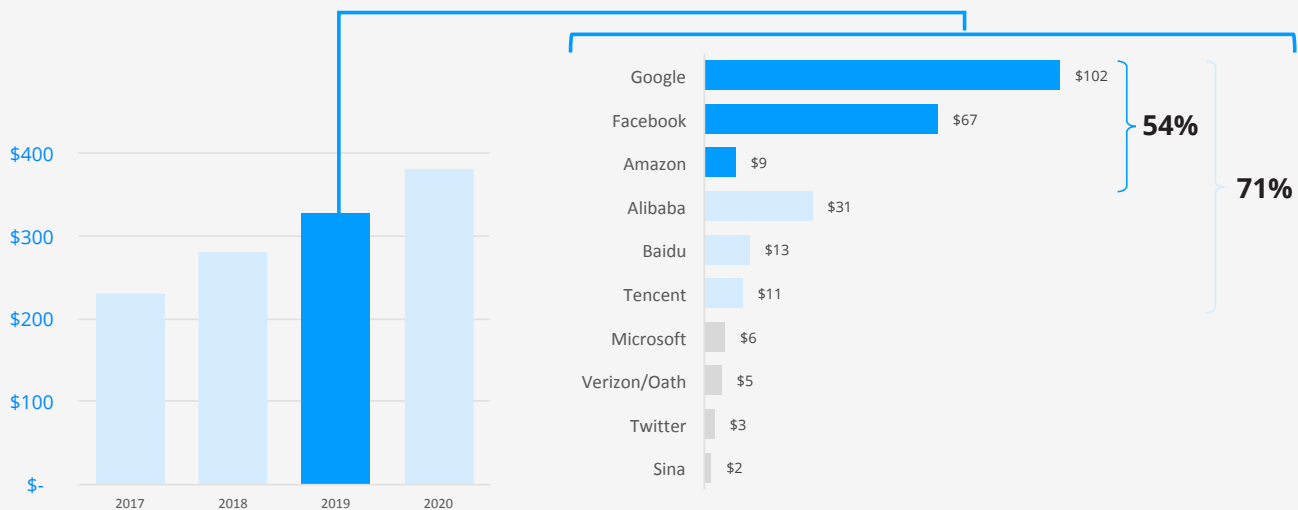
As such, it should come as no surprise to most that major digital platforms were able to use their massive data advantage to capture the bulk of advertisers’ digital spend worldwide by offering these very capabilities – with Google, Facebook and Amazon alone accounting for over half of the nearly \$300B market in 2018. (Graph 2.)

Data usage has now become the norm for advertisers who are looking for better, more accurate targeting of relevant prospects and customers, at the desired frequency, with the ability to measure business outcomes. And while data usage has been most easily adapted to digital media, its rollout in the TV ecosystem is now underway and critical to ensuring a healthy, competitive future for television advertising.

Graph 2

Worldwide Digital Advertising Spend (Total)

Worldwide Digital Advertising Spend (By Company)



SOURCE: (1) eMarketer, September 2018

SECTION 2

BRINGING DATA TO THE NEW TV ECOSYSTEM

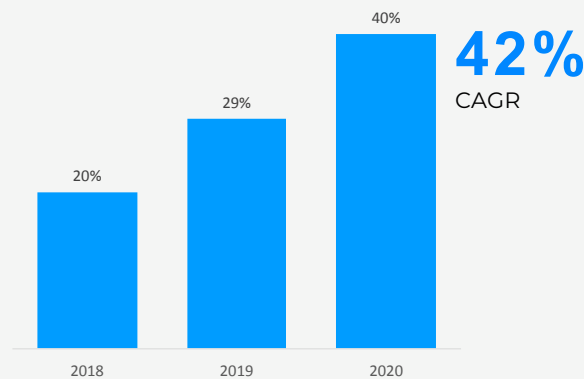
BRINGING DATA TO THE NEW TV ECOSYSTEM

Despite TV's historic lag behind digital media in terms of data usage, television advertising has remained largely steady in spite of this increased digital competition, with \$180B+ of global advertising spend still allocated to TV. In the U.S. specifically, TV accounts for over 30% of total advertising spend, according to MAGNA Global's Winter 2018 report. This may be attributed to TV's strengths in helping brands efficiently reach large audiences with engaging high-quality, brand-safe content. These capabilities have continued to render TV an important source for marketers looking to build and maintain their brands across large audiences.

This does not mean, however, that TV can be complacent in its adoption of data-driven offerings. Advertisers are eager to begin applying data to their TV advertising in the same way that they use data on digital media channels. Our proprietary research confirms this. In partnership with Advertiser Perceptions, we commissioned a survey of 150 agency and advertising executives to understand their current use of, and attitudes towards, applying data in TV advertising. We found that only 20% of marketers' TV advertising budget was data-enabled in 2018. However things are quickly changing. Marketers expect 29% of their TV advertising to be data-enabled in 2019, and up to 40% by 2020 – representing a compound annual growth rate of over 40%! (Graph 3.)

Graph 3

What percentage of your total TV advertising (Linear, VOD, TV Everywhere) was (2018) / is (2019) / will be (2020) data-enabled?



For purposes of study, data-enabled TV defined as leveraging data to improve media planning, targeting, and/or analyze attribution and return on investment

CHALLENGES AND BARRIERS

Historically, the limited use of data in the TV advertising ecosystem has been driven by a number of challenges:

1. Identity Resolution in the New TV Ecosystem

In the past, consumer access to premium TV and video was generally limited to cable TV or satellite programmers. This large audience made statistical audience measurement feasible for major demographics that advertisers were looking to reach.

In the New TV Ecosystem, audiences can choose from a seemingly infinite amount of premium video content options, using a multitude of distribution and streaming services, on an ever-evolving list of connected viewing devices. This choice has resulted in a much more fragmented audience, a challenge that media companies and marketers must now grapple with. Specifically, data must be mapped together across this myriad of access points in order to build a 360 degree, omni-channel view of an advertiser's targeted audience.

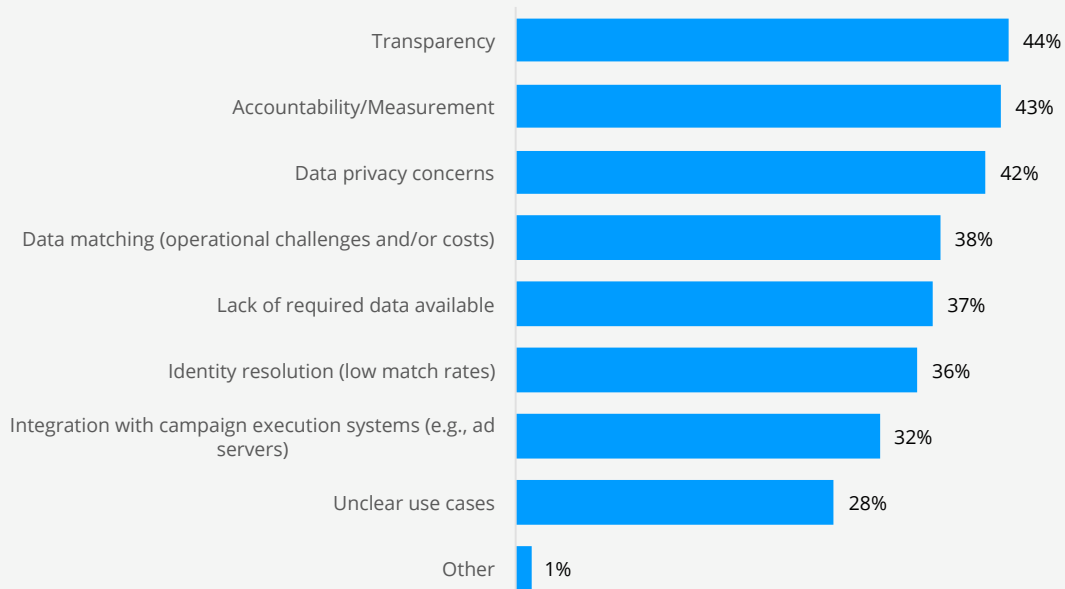


Our research confirmed this challenge, with 36% of marketers feeling that identity resolution was one of the top 3 barriers preventing them from using data to build TV advertising segments.

Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 4

Please rank the following barriers preventing you company from using data to build audience segments for TV advertising



Furthermore, only 20% of marketers agreed that they were able to easily develop a 360 degree view of their targeted audience. (Graphs 4-5.)

Developing this view requires coordination across the media supply chain.

2. Industry Dynamics in the Media Supply Chain

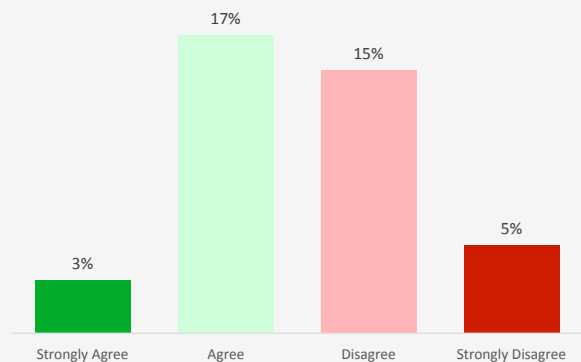
In traditional TV, the customer relationship has been owned by the cable TV or satellite provider (Distributors and/or virtual Distributors), whilst the advertising rights are typically split between these distributors and the content owners (TV networks).

The rise of on-demand streaming and over-the-top (OTT) services, as well as connected TVs and devices, has added yet another set of important players into this supply chain, including both distributors and device manufacturers. Using data for TV advertising—whether for planning, targeting or reporting—now requires combining siloed data insights

across distributors, content owners, advertisers, and device makers. This differs from digital where the content owner and the distributor are often the same party, drastically simplifying the number of involved parties with individualized data standards, technologies, and policies.

Graph 5

“Today I am easily able to develop a 360° view of my customers (cross-devices, cross-media platform, online/offline).”



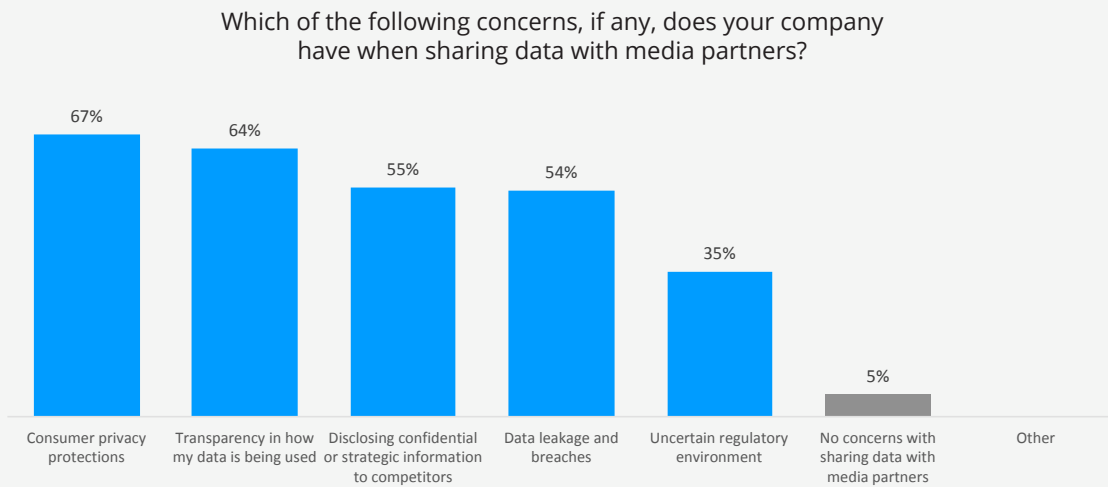
Source: Blockgraph’s The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

As data is increasingly viewed through a strategic lens, supply chain partners are wary of disclosing confidential or proprietary information to possible competitors and concerned about transparency in how data is used. Our research indicated that only 5% of surveyed marketers expressed no concerns with sharing data with their media partners. (Graph 6.) In terms of the types of data, surveyed

agency and marketing executives expressed the most concern on sharing personally identifiable data. (Graph 7.)

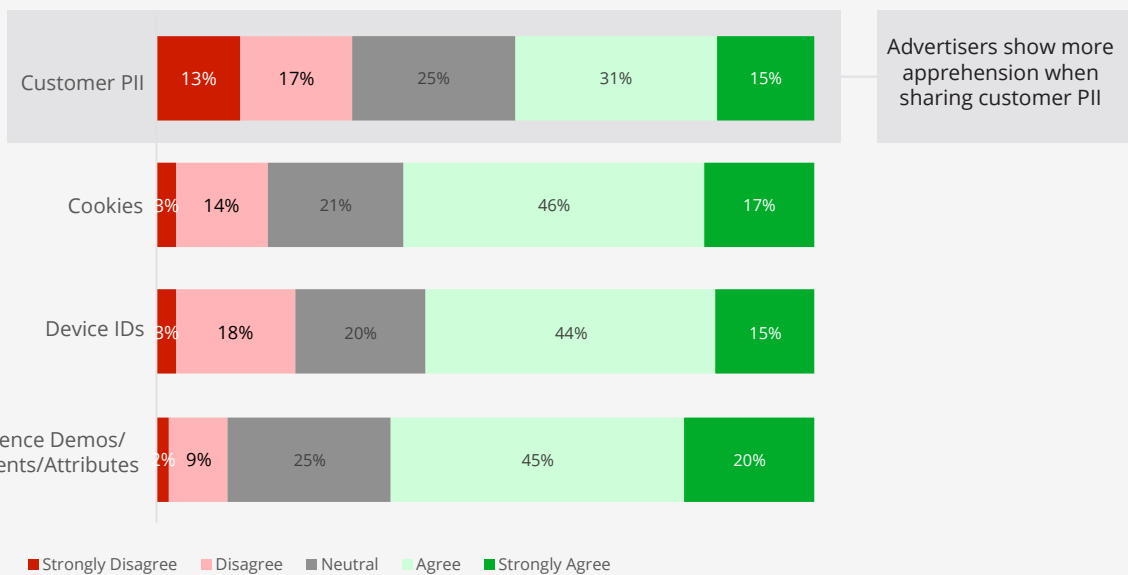
These industry dynamics associated with data use are compounded by an increasingly more robust set of privacy and security requirements.

Graph 6



Graph 7

For each of the following data types please indicate the extent you agree or disagree with the following statement. "I have no concerns with sharing this data with media partner(s)"



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

3. Privacy, Compliance, and Data Security

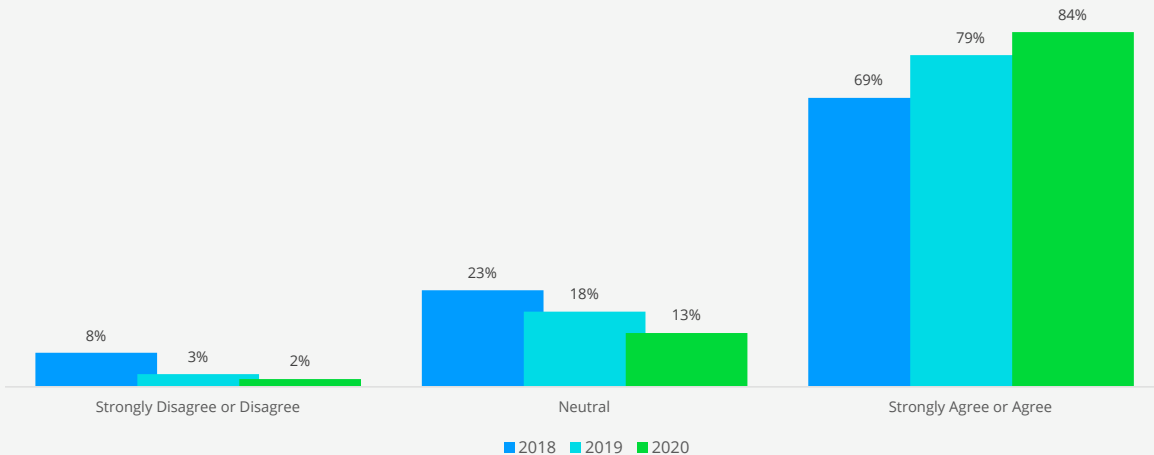
Data privacy has come into focus on a global scale, as evidenced by the rise in data protection regulations such as the European Union’s General Data Protection Regulation (GDPR and the California Consumer Privacy Act (CCPA), with many more under consideration both in the U.S. and abroad. Moreover, consumer backlash from data breaches like those involving Facebook and Equifax underscores the important need for organizations to maintain user trust in the management of data.

Our research confirmed many of the 150 agency and marketing executives were experiencing these concerns firsthand, with 79% agreeing that protecting consumer privacy is a top priority this year (up 10% from 2018). These same advertising executives expressed concerns about the potential consequences of using data to optimize their TV advertising, namely the risk of data breaches (55% cited as a top 2 concern) and consumer backlash and receptiveness (50%). (Graphs 8-9.)

It should be noted that these privacy and data security concerns were particularly high when respondents were asked about digital advertising specifically. Only 41% of advertising executives believed that digital media platforms securely protected their advertising data. To be fair, it appears marketers believe that these platforms will become more secure in the coming year, with the number expected to grow to 51% by 2020. (Graph 10.)

Graph 8

For each of the following years, please indicate the extent you agree or disagree with the following statement. “Protecting consumer privacy was/is/will be a top focus for my company.”



Source: Blockgraph’s The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Several third party data companies have emerged to help solve the privacy and supply chain complexity, but these too have created their own fair share of challenges and costs.

4. Data Matching and Operationalization Inefficiencies

The competitive concerns among media partners, paired with increasing privacy and security concerns and requirements, have paved the way for a number of trusted third parties to provide data matching and safe haven onboarding services.

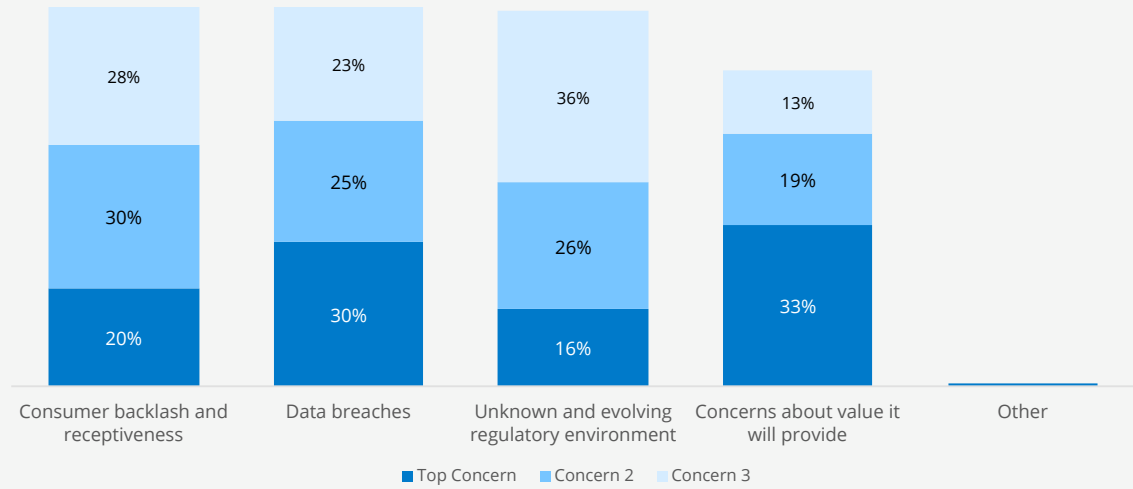
In today’s world, if multiple parties want to run an audience-targeted campaign using multiple data sets, they have to use a common data match provider. In this scenario, each party (advertisers, content owners, and distributors, etc.) would send data to the third party. The third party would provide common “match IDs” that various data sets could be matched with for audience segmentation, planning, targeting, and measurement.

Given the operational and coordination challenges, this process can take weeks, result in low match rates, and create unnecessary cost for each user. As the number of data-enabled campaigns grows, this cost could quickly escalate.

With the myriad of identity, supply chain, privacy, and operational challenges, it is not surprising that 38% of advertisers cited data matching as a top 3 barrier preventing them from using data to build audience segments for TV. (Graph 4.)

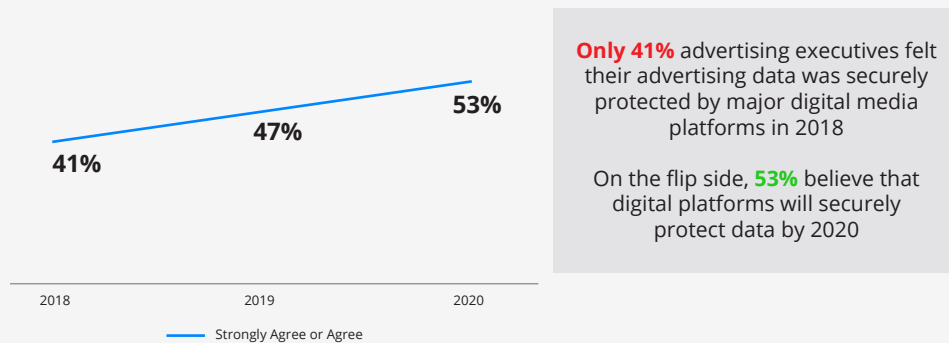
Graph 9

Please rank the following barriers preventing your company from using data to build audience segments for TV advertising.



Graph 10

“For each of the following years, please indicate the extent to which you agree or disagree with the following statement. ‘Digital media platforms (e.g., Google, Facebook, Amazon) securely protect your advertising data?’



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

SECTION 3

**BLOCKGRAPH:
A NEW DATA PATH**

BLOCKGRAPH: A NEW DATA PATH

Considering the sizable barriers to data usage, The New TV ecosystem needs a new alternative to effectively compete in the current data-driven advertising environment. This path needs to learn from the experiences of digital media – by ensuring the appropriate privacy and security safeguards are in place – while solving for the unique identity, supply chain, and operational challenges faced by the TV industry today.

BUILDING A SAFE IDENTITY LAYER FOR THE INDUSTRY

Blockgraph is an industry initiative led by FreeWheel, with participation by some of the biggest companies in TV, digital video, and advertising across the US and Europe.

Blockgraph is designed to become an “identity layer” for the TV industry, providing a platform on which media companies and publishers can offer marketers data activation capabilities without disclosing identifiable user data—providing additional protections around user privacy. Blockgraph was formed with the goal of reducing the friction in using data across the premium video ecosystem while allowing the appropriate privacy and business controls to be implemented.

At its core, Blockgraph provides a platform that allows participating organizations to directly match their data sets quickly and, most importantly, in a way that helps them to control and prevent access to any proprietary or identifying consumer information. It accomplishes this by providing common software that companies can install within their own systems. Blockgraph participants can then directly match data without exposing the underlying data to one another over a private peer-to-peer network.

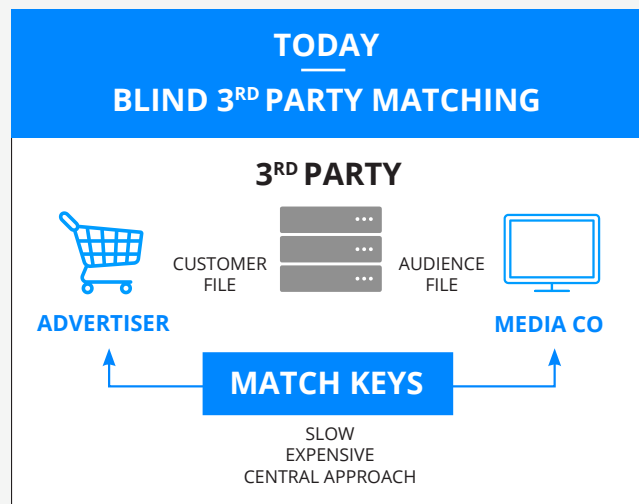
HOW DATA MATCHING WORKS TODAY:

In today's world if a marketer and media company wanted to perform a data match without exposing proprietary data to one another, they could agree to use a neutral third-party data match provider to act as the intermediary who performs blind data matching.

In this process:

- An advertiser would provide its data to a third-party match provider
- Each media partner would send its relevant audience data to the same third-party provider
- This third party match provider would perform a data alignment and mapping exercise, and return a set of “synthetic IDs” for audience members
- These synthetic IDs could be used to align on the appropriate audience segment and allow data-informed ad targeting

This process can become expensive (with each data match costing several thousand dollars) and can often take weeks, given the amount of multi-party involvement necessary. Further, data normalization and the lack of common unique identifiers among parties can often result in low match rates, which shrinks the available audience that can be reached.



HOW BLOCKGRAPH WORKS - A TECHNICAL PRIMER:

The next section provides an overview on how advertisers and media companies can join the Blockgraph network and begin participating.

Step 1: Join the network, access and install software

Participating organizations can access the packaged Blockgraph software and install it within their own private cloud infrastructure. Since the software is licensed, deployed and operated in each participant's systems, each company will have complete transparency into, and control over, what the software is doing and how their audience data is used.

Step 2: Upload audience data to private Blockgraph node

Users can upload their audience data and customer record mappings to their own private account. The Blockgraph software running locally then uses cryptography to transform each piece of data in order to obfuscate identifiable data before it is connected with other network participant data.

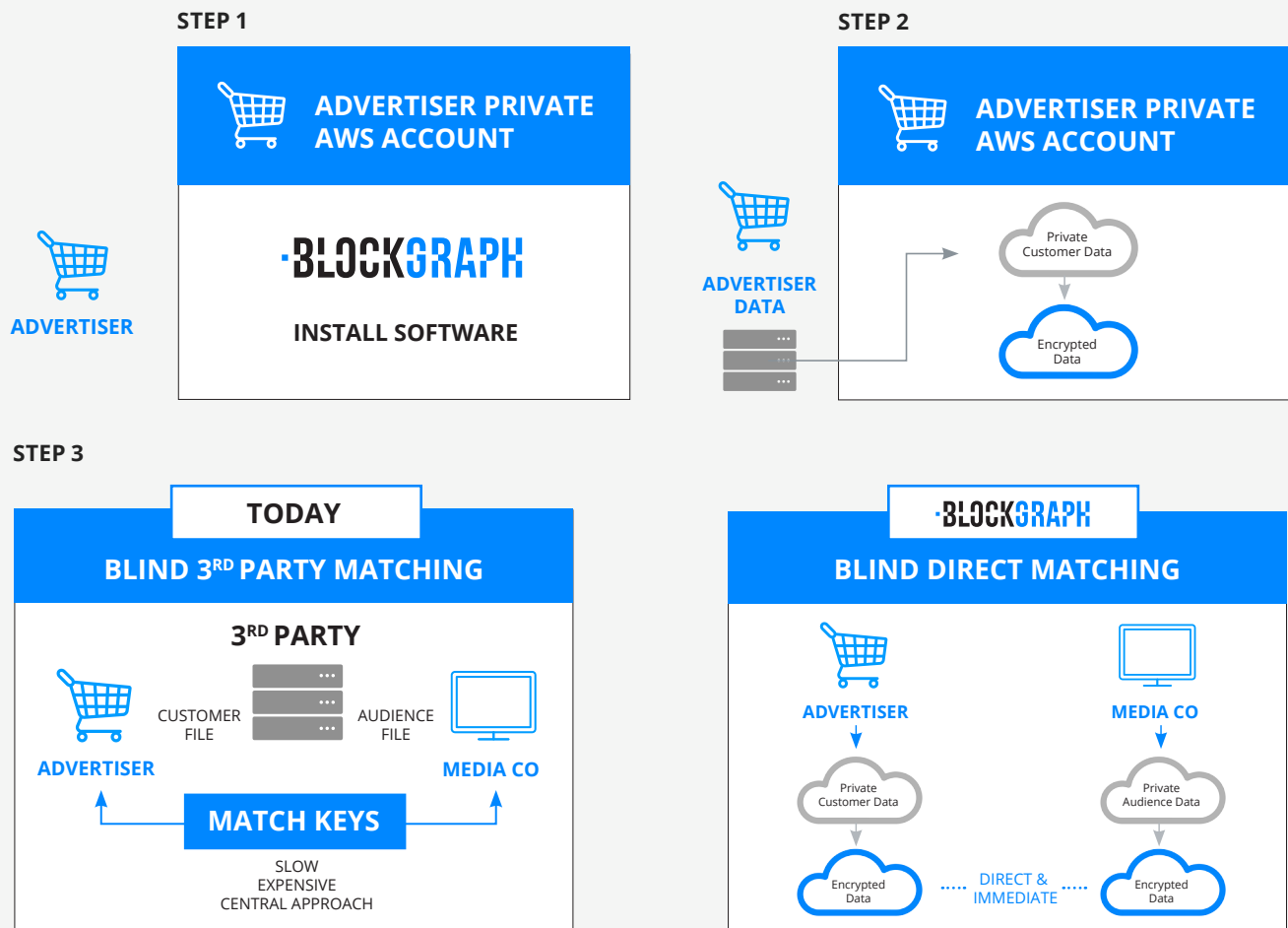
This approach protects privacy and allows each data owner to maintain control over its proprietary insights.

Step 3: Transformed data is connected with other participants

Once encrypted data has been connected, it is mapped against existing, or creates a new, Blockgraph audience ID within a shared, common, distributed database.

All the while, other network participants are resolving their own data against this database. With multiple network participants contributing, the fidelity and accuracy of this identity benefits from the shared knowledge of the collective platform, resulting in a significantly increased match rate over time. Yet because no identifiable consumer data is disclosed or shared in this process, consumers' privacy is maintained throughout.

Lastly, since data matching happens on a peer-to-peer basis, there is no third-party provider in the middle doing the matching, making the process much more streamlined and cost-effective.



Step 4: Data can be operationalized using access controls and rights management

Blockgraph software, as directed by the data owner in its own systems, would then be used to set data access controls to dictate which data can be queried for insights, with which parties, and under which limits. For example, a given Distributor with viewership data may allow a set of advertisers to query ad exposure data at the aggregate level for a custom audience, provided that the audience size was at least 1,000 households.

Step 5: Data usage is accounted in a shared Blockchain ledger

To ensure that data owners are fairly compensated for the value that their data provides, a trusted ledger is necessary to account for when data queries have been made.

Rather than relying exclusively on trusted third parties to validate data insight usage for billing and accounting, a blockchain-based approach can be used to verify exchange using digital signatures, a shared ledger, and software-based rules to align behaviors and make tampering infeasible.

SOLVING THE ECOSYSTEM CHALLENGES:

Blockgraph was designed to significantly reduce business and technical friction associated with using data in The New TV Ecosystem, while still allowing parties to maintain control and privacy of their data.

Blockgraph creates value within the New TV ecosystem in the following ways:

Rather than relying exclusively on trusted third parties to validate data insight usage for billing and accounting, a

| CHALLENGE | BLOCKGRAPH SOLUTION |
|---|--|
| Identity Resolution in the New TV Ecosystem | Blockgraph provides a universal ID that is continuously made more accurate through the network effect, enabling data owners to match their data accurately, efficiently, and fast. |
| Industry Dynamics in the Media Supply Chain | <p>Blockgraph peer-to-peer software can be used to enforce appropriate data rights agreements and policies when audience, viewership, and advertising exposure data insights are shared between supply chain partners, examples include:</p> <ul style="list-style-type: none"> • Aggregated viewership insights for a given audience segment between a distributor and inventory owner • Aggregated ad exposure for a given audience segment between a distributor and inventory owner • In target audience segment between an advertiser, an inventory owner, and a distributor |
| Privacy, Compliance and Data Security | <p>Blockgraph software enables participants to link their own audience data with the audience data or other participants in a manner that prevents the sharing of identifiable personal information with third parties.</p> <p>Architecture enables rights management at the data owner, device, and person level, giving participants the ability to honor consumer preferences, opt-outs, and other regulatory requirements.</p> |
| Data Matching and Operationalization | Blockgraph software enables direct data matching between participants and provides the ability to integrate with downstream systems using data access controls. |

blockchain-based approach can be used to verify exchange using digital signatures, a shared ledger, and software-based rules to align behaviors and make tampering infeasible.


SOLVING THE ECOSYSTEM CHALLENGES:

Blockgraph was designed to significantly reduce business and technical friction associated with using data in The New TV Ecosystem, while still allowing parties to maintain control of their data and preserving consumer privacy.

Blockgraph creates value within the New TV ecosystem in the following ways:

Benefits for your business:


Blockgraph is designed to create industry-wide value:

 **SAFE**

CONTROLS
Owners retain complete control of their data

PRIVACY
Built with privacy and encryption at its core

TRANSPARENT
Participants operate software in their own systems

 **EASY**

FRICTIONLESS
Easy and fast to match data and exchange insights

NETWORK EFFECTS
Insights can be combined using shared identity layer

 **PROFITABLE**

MARKETERS
New customer insights and reduced waste

MEDIA OWNERS
Improve yield and prove value of media

DISTRIBUTORS
New revenue streams and prove value of platform

CONSUMERS
Better privacy and security controls

SECTION 4

THE FUTURE OF DATA-DRIVEN TV: WHAT LIES AHEAD

THE FUTURE OF DATA-DRIVEN TV: WHAT LIES AHEAD

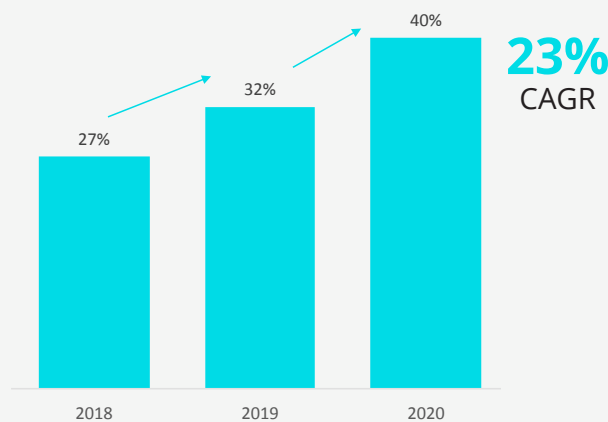
By connecting data across the entire TV ecosystem, while protecting data ownership and consumer privacy, Blockgraph's common "identity layer" will enable TV to pair its current strengths—including efficient reach and high engagement—with the breadth and depth of data insights necessary for audience-based buying.

USE CASES FOR AUDIENCE-BASED TV STRATEGIES

It is clear that the future of TV advertising will be both data-driven and audience driven. Our research indicated as much, as advertisers expect 40% of their TV advertising to be audience-based (buying granular audiences and users beyond demographics) by 2020 (up 13% from 2018).

Graph 11

What percentage of your total TV advertising (Linear, VOD, TV Everywhere) was (2018) / is (2019) / will be (2020) audience-based?



For purposes of study, audience-based TV define as buying granular users / audiences (beyond basic demographics) in , of or in addition to content

Audience-based TV advertising strategies benefit from the use of data through the entire buying process. With the use of the Blockgraph platform, there are numerous potential data-driven use cases that can be achieved more effectively across the value chain – from planning through attribution.

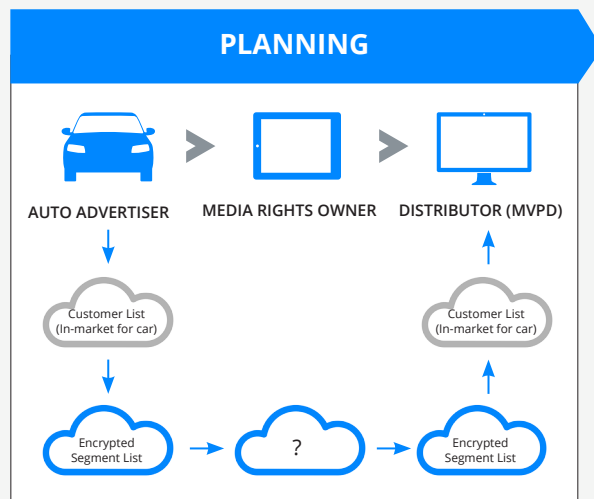
USE CASE/EXAMPLE: ENABLE ADDRESSABLE TARGETING

Use Case: A marketer can target an audience segment built from its own first, second, or third-party data on integrated Distributor platforms (i.e., VOD or Linear addressable)

Example: Auto advertiser has a list of customers whose leases are up for renewal in 6 months

Planning:

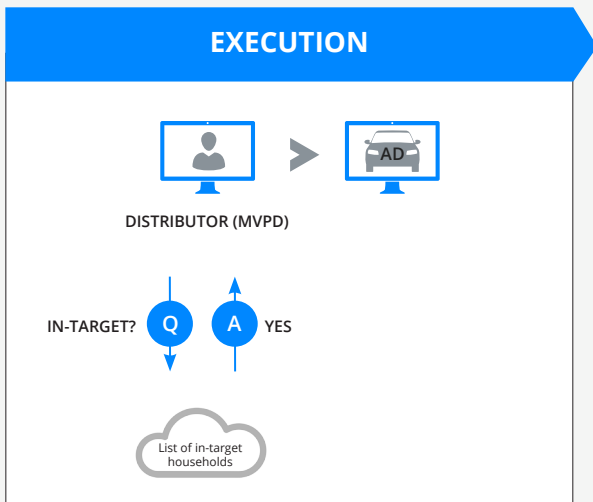
- The advertiser/agency (or inventory owner on the advertiser's behalf) will join Blockgraph, install the software, and upload its target segment to its own private database
- Once the software has encrypted this data, it is now ready to be shared with other media-partners for planning and targeting
- This segment of Blockgraph IDs, representing the target segment, is shared as a list of encrypted IDs
- Since the Distributor owns the audience in this case, it now can setup its systems to target the appropriate household list



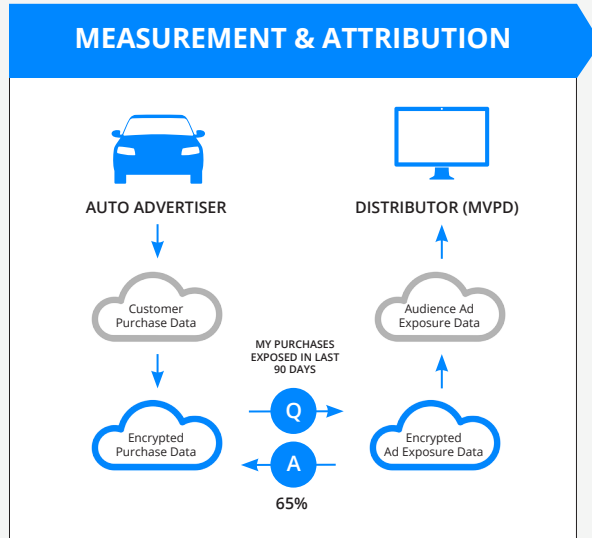
Execution:

- In real time, each Distributor distributor can lookup whether the audience member matches the in-target list
- If so, it can serve the appropriate auto maker's advertisement

Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).



- A shared data usage ledger is updated to track the insight exchange so that data owners can request compensation for the value of their insights



Measurement and Attribution:

- After the campaign, the advertiser can upload a new segment of customers that made a purchase from its CRM
- Once the data is encrypted, the segment can be shared with the Distributor partners
- The advertiser can query the Distributor and ask:
 - *“Of this segment, what percentage of them were exposed to an advertisement on your platform in the past 90 days”*
- The Distributor can respond with the aggregate percentage of users that were exposed to an advertisement, illustrating the value of the media

Result:

- The auto advertiser is able to target a specific audience in brand-safe high-quality TV content – thus reducing waste
- The inventory owner is able to optimize yield and rates
- The distributor is able to offer addressable capabilities and be fairly compensated
- All parties drastically reduce operational and data-matching inefficiencies



CONCLUSION

The TV Industry is in the midst of a fundamental transformation – and data is at the center. As demand for data grows, a new approach will be needed that learns from the past issues with digital media and solves for the unique challenges of the New TV ecosystem.

This approach must empower data owners to control their own data, connect it with others, and facilitate its safe use for data-driven planning, personalization and targeting, measurement, and analysis.

By connecting data across the entire TV ecosystem, while protecting data ownership and safeguarding consumers' privacy, Blockgraph will enable TV to pair its exceptional ability to reach and engage mass audiences efficiently, with an increased ability to offer the breadth and depth of data insights currently generally available on closed digital media platforms.

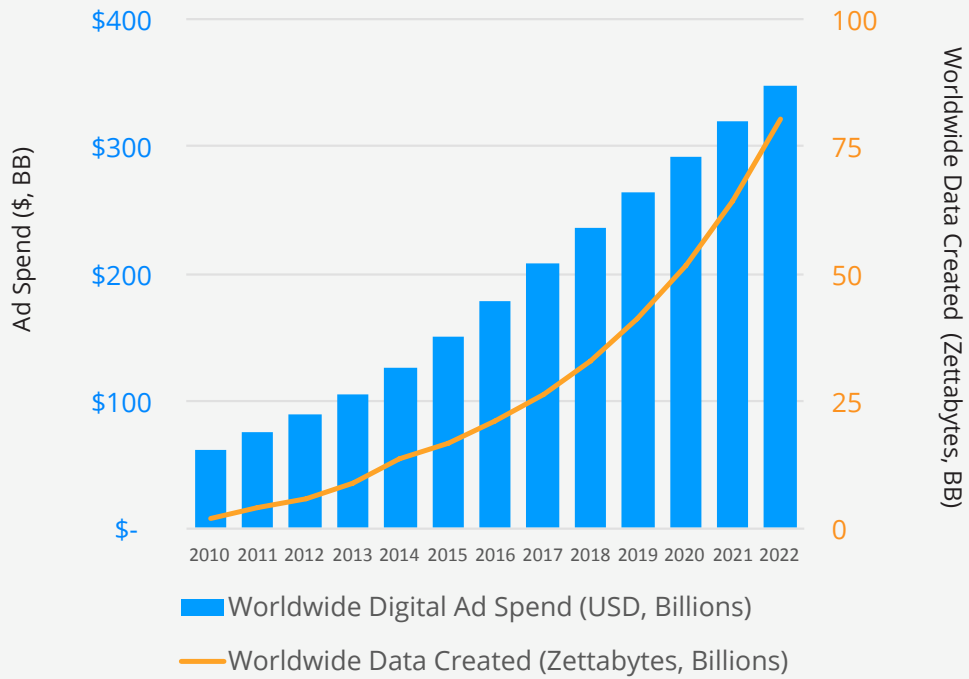
A more connected, safe, and data-enabled TV industry will benefit all parties: advertisers will be able to more efficiently reach targeted audiences and analyze ROI; content owners will be able to manage their inventory yield; distributors will be compensated for the value of their insights; and audiences will receive engaging content, more relevant advertising and a better overall viewing experience.

APPENDIX

(RESEARCH)

Graph 1

Worldwide Digital Advertising Spend (Total) vs. Worldwide Data Created (Total)

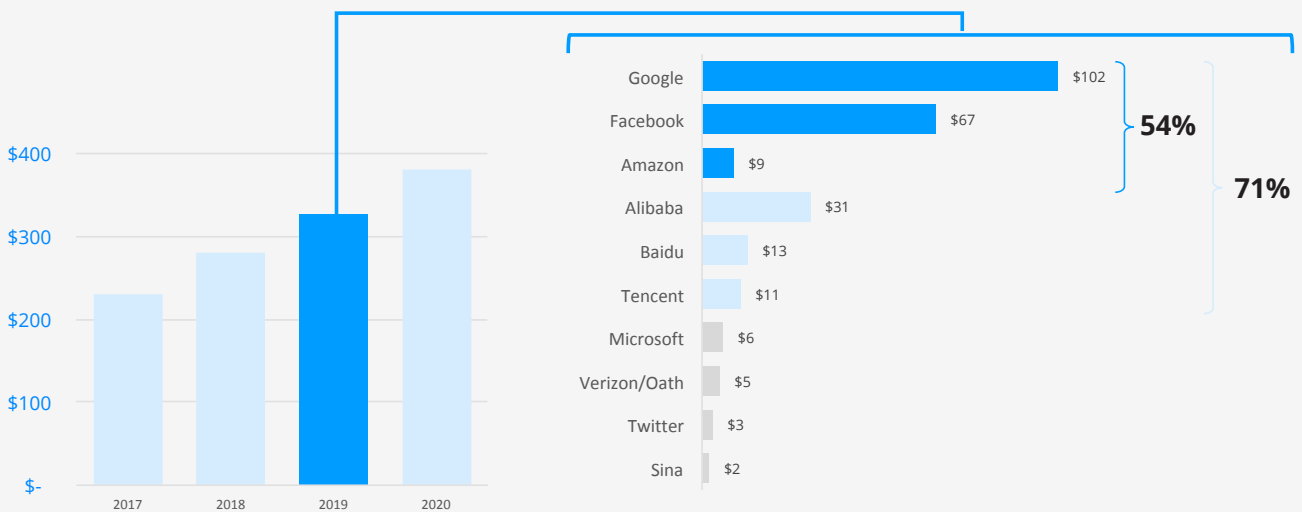


SOURCES:
 (1) MAGNA Global, Data for 2017 and beyond are forecasts
 (2) Data - IDC Global Datasphere 2025, (3) eMarketer 2018 digital advertising estimates of revenue by company

Graph 2

Worldwide Digital Advertising Spend (Total)

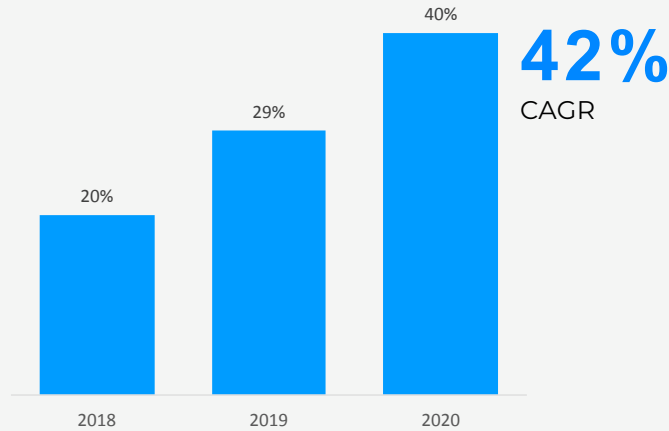
Worldwide Digital Advertising Spend (By Company)



SOURCES:
 (1) eMarketer, September 2018

Graph 3

What percentage of your total TV advertising (Linear, VOD, TV Everywhere) was (2018) / is (2019) / will be (2020) data-enabled?

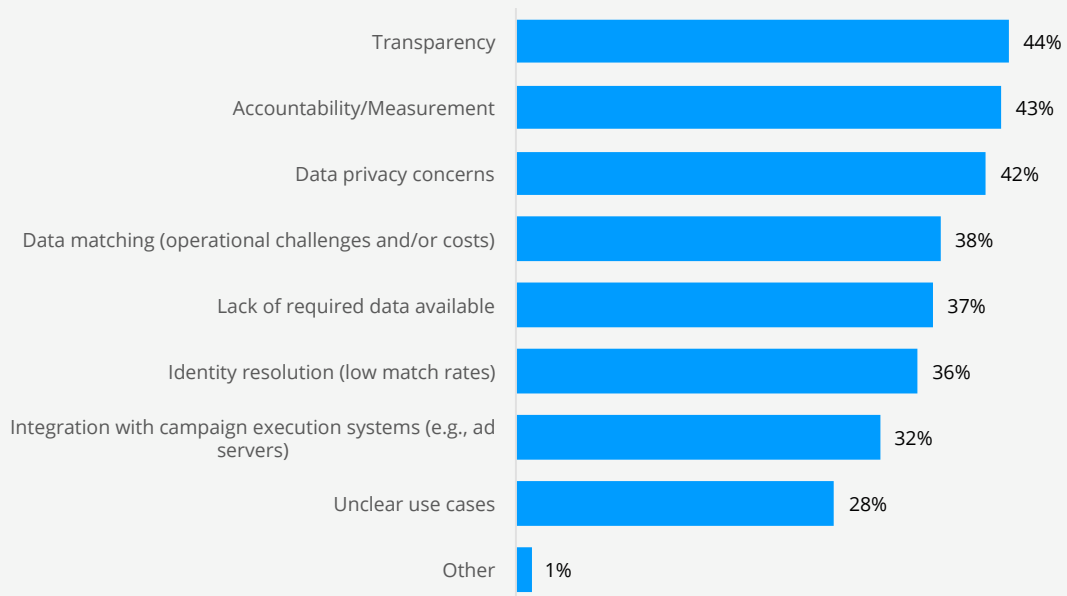


For purposes of study, data-enabled TV defined as leveraging data to improve media planning, targeting, and/or analyze attribution and return on investment

Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 4

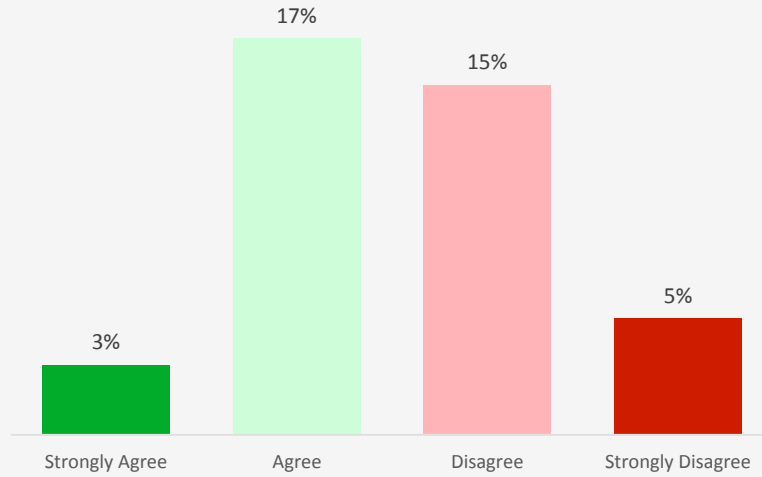
Please rank the following barriers preventing you company from using data to build audience segments for TV advertising



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 5

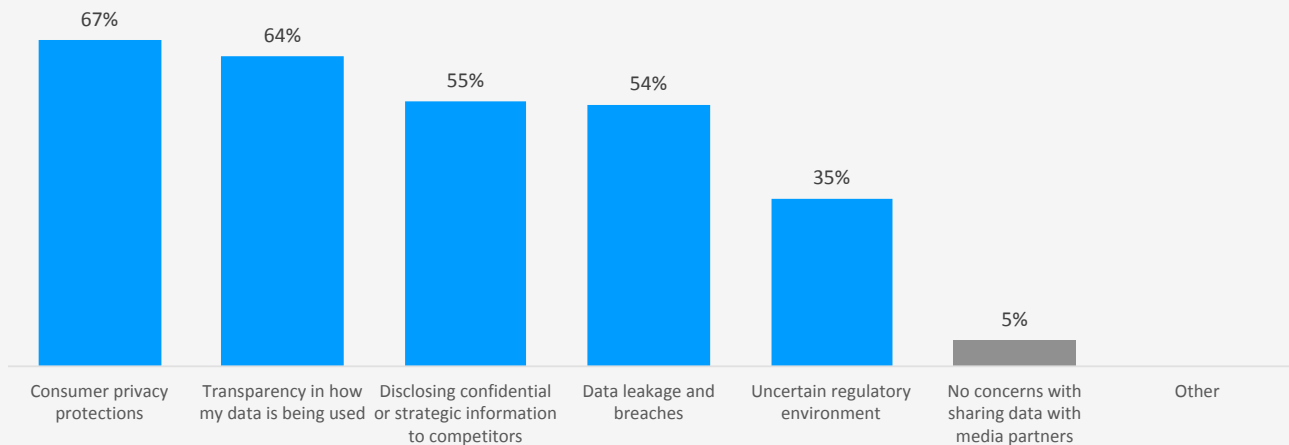
“Today I am easily able to develop a 360° view of my customers (cross-devices, cross-media platform, online/offline).”



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 6

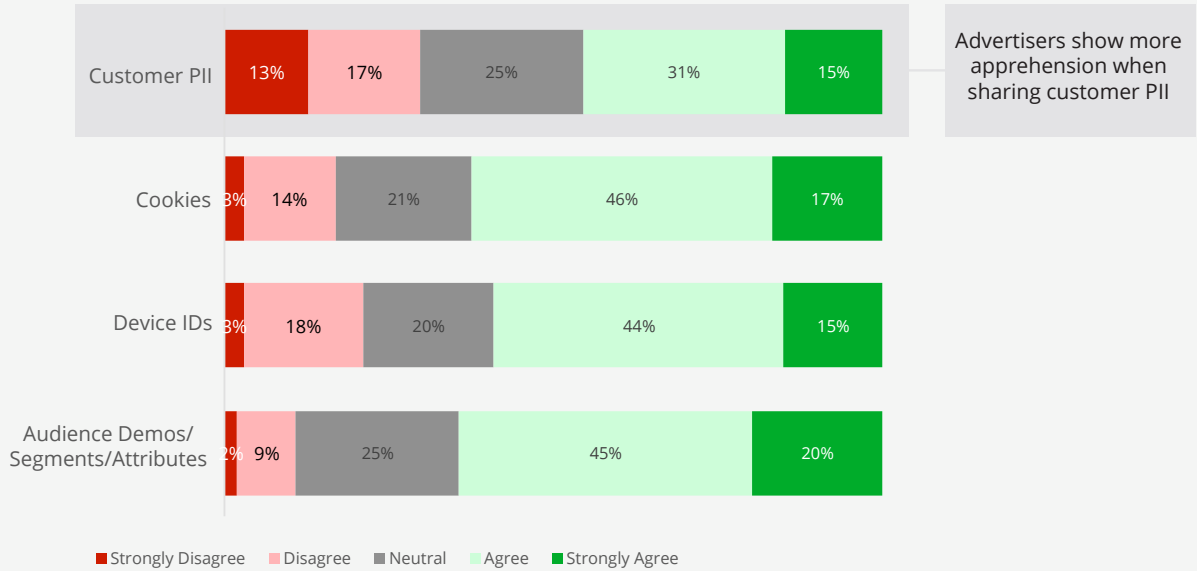
Which of the following concerns, if any, does your company have when sharing data with media partners?



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 7

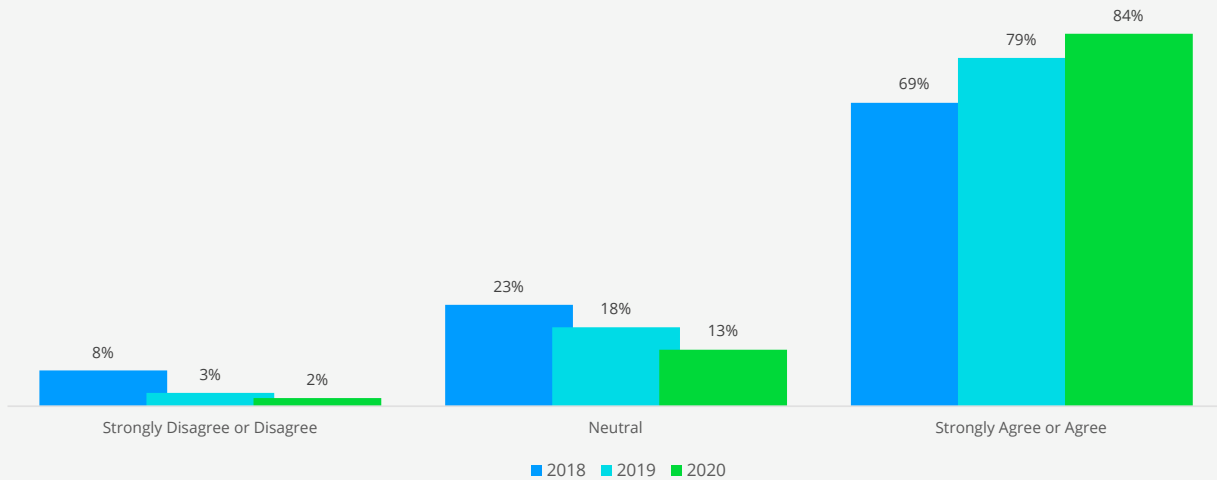
For each of the following data types please indicate the extent you agree or disagree with the following statement. "I have no concerns with sharing this data with media partner(s)"



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 8

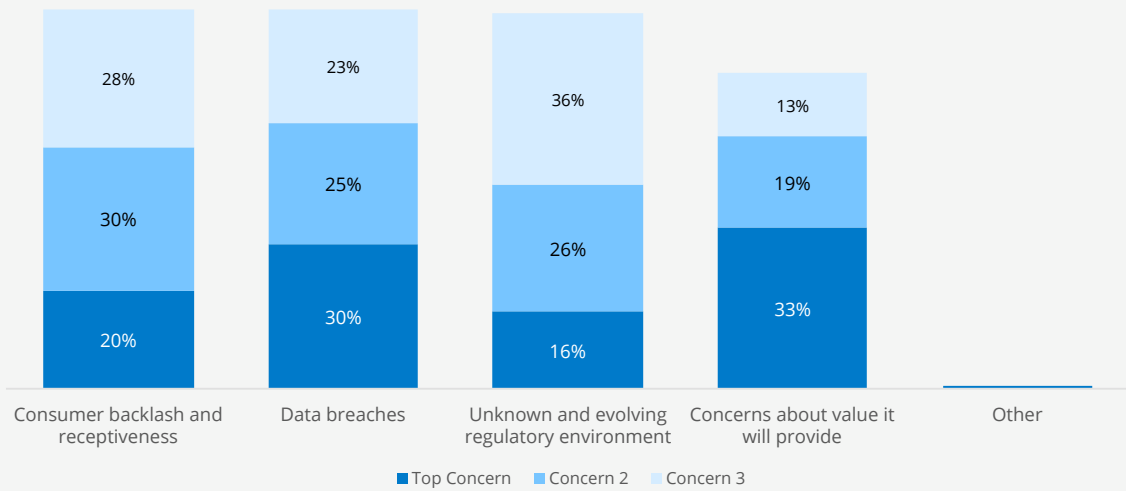
For each of the following years, please indicate the extent you agree or disagree with the following statement. "Protecting consumer privacy was/is/will be a top focus for my company."



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 9

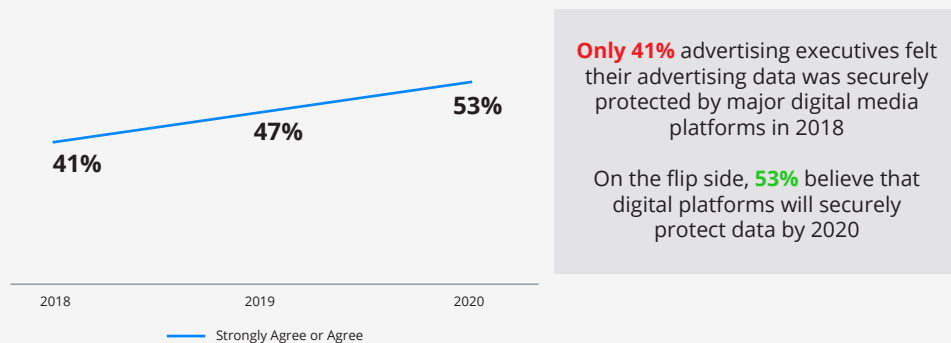
Please rank the following barriers preventing your company from using data to build audience segments for TV advertising.



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 10

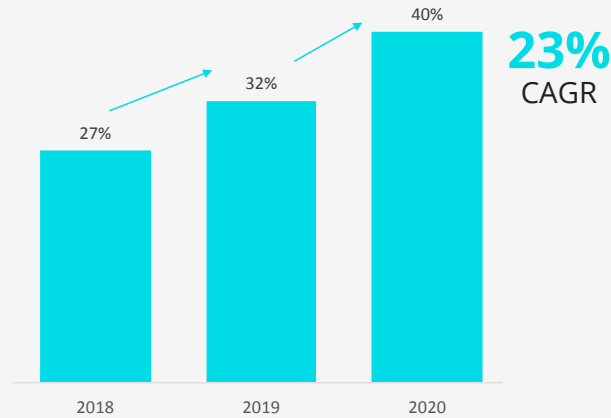
For each of the following years, please the extent you agree with the following statement. "Digital media platforms (e.g., Google, Facebook, Amazon) securely protect your advertising data?"



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 11

What percentage of your total TV advertising (Linear, VOD, TV Everywhere) was (2018) / is (2019) / will be (2020) audience-based?



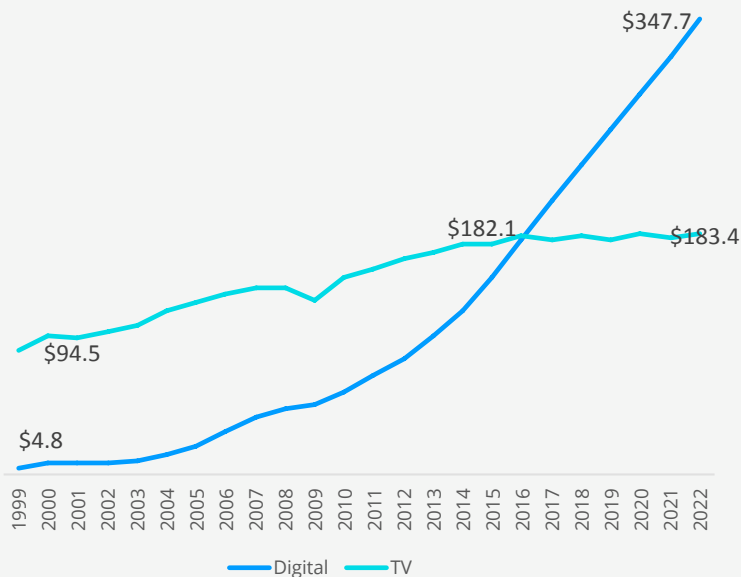
For purposes of study, audience-based TV define as buying granular users / audiences (beyond basic demographics) in or in addition to content

Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

ADDITIONAL INFORMATION

Graph 12

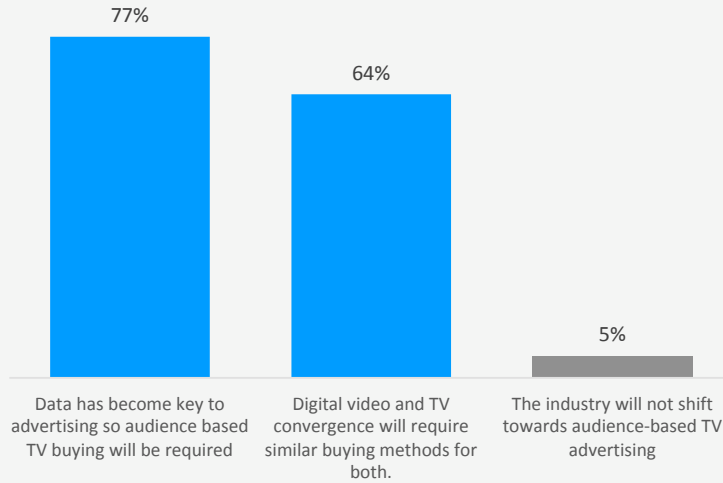
Worldwide TV Advertising (Total) vs. Worldwide Digital Advertising (Total)



SOURCE: MAGNA Global, Data for 2017 and beyond are forecasts

Graph 13

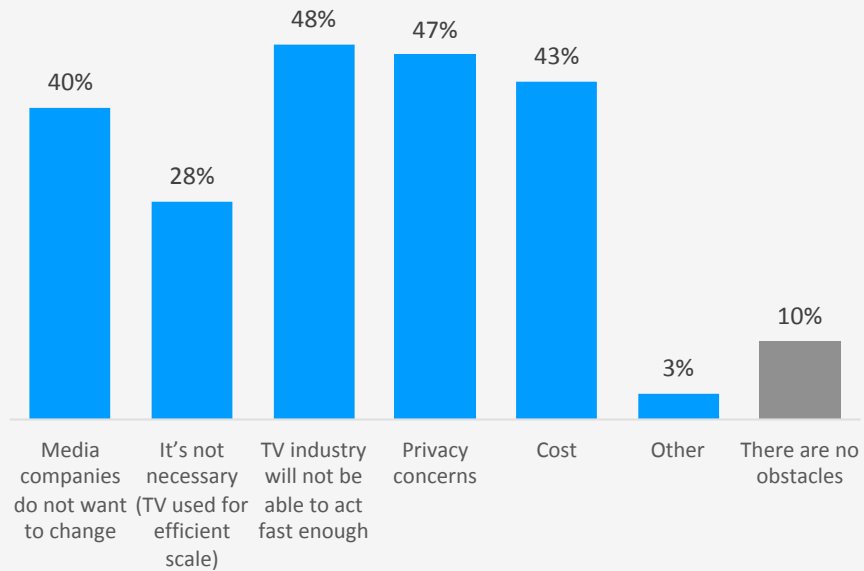
Which of the following, if any, will influence the shift towards audience-based TV advertising? (Please select all that apply.)



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 14

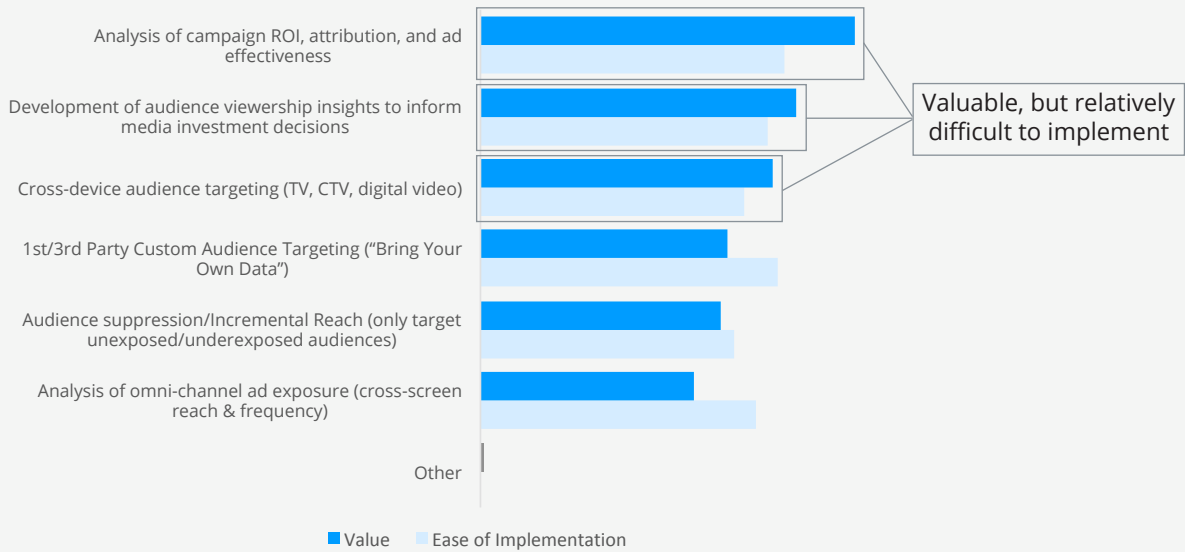
Which of the following, if any, are obstacles preventing the shift towards audience-based TV advertising? (Please select all that apply.)



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 15

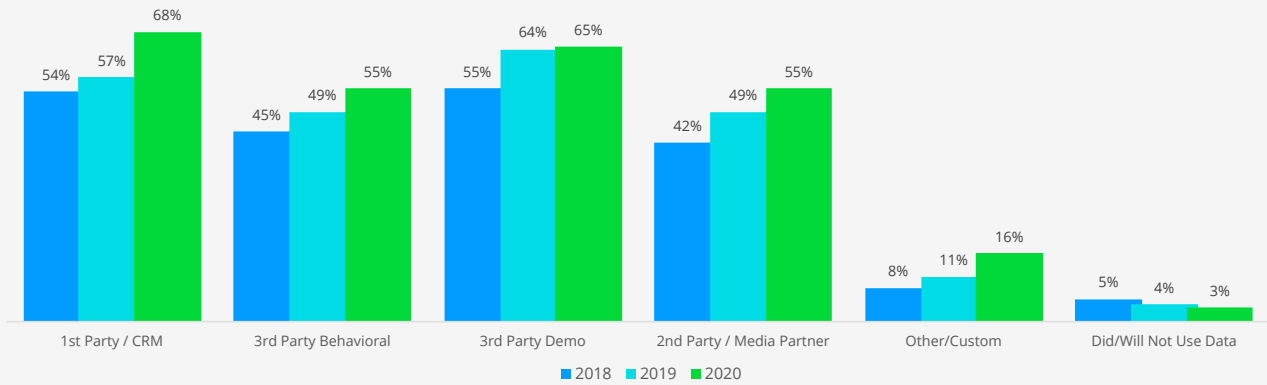
Please rank the following data-driven TV use cases in terms of value to your TV advertising and ease of implementation
(Summary of Rank 1-3)



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 16

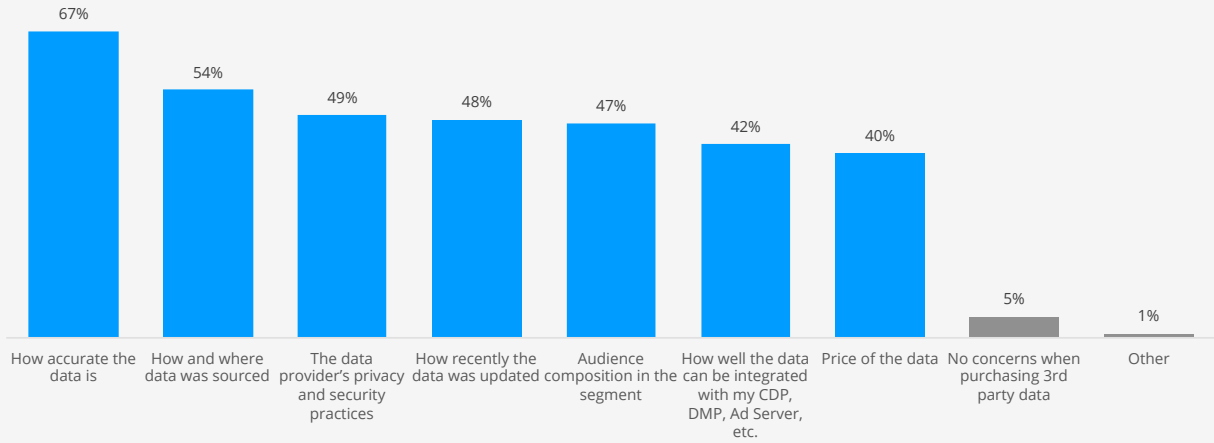
Which of the following data sets did you (2018) / are you (2019) / are you planning to (2020) use to build TV advertising audience segments?



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 17

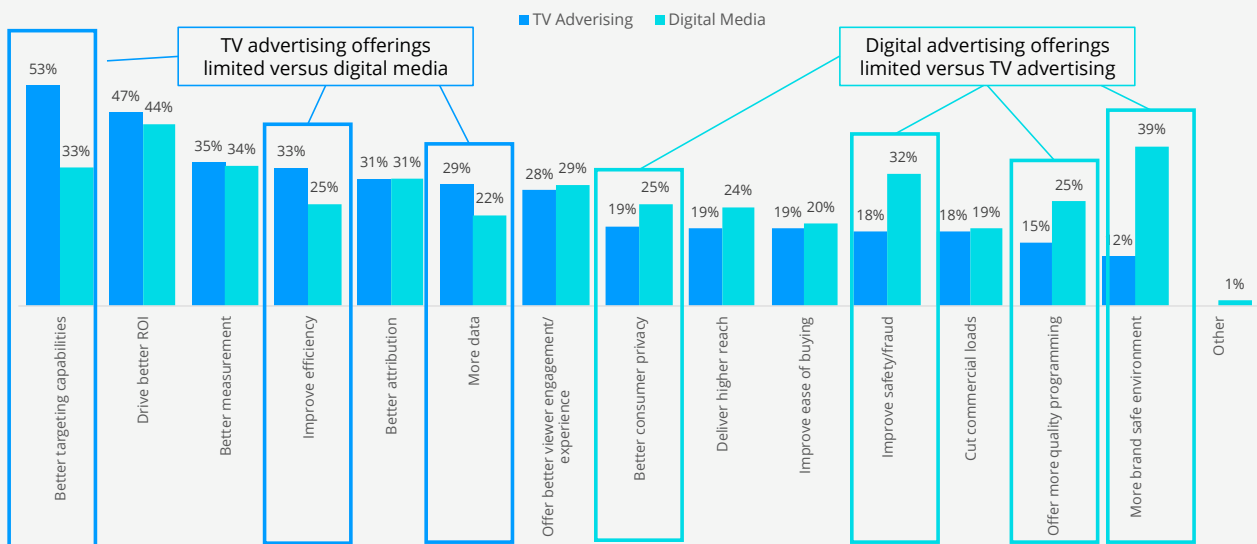
Which of the following concerns, if any, does your company have when purchasing 3rd party data (behavioral)?
(Please select all that apply.)



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).

Graph 18

What would make (digital media, linear TV advertising) a more effective marketing vehicle (Please select up to 5.)



Source: Blockgraph's The Future of Data-driven TV; survey commissioned from Advertiser Perceptions, April 2019, N=150 (Agencies, Marketers involved in TV Advertising).