

THE FUTURE OF CLEAN ROOMS AND DATA COLLABORATION



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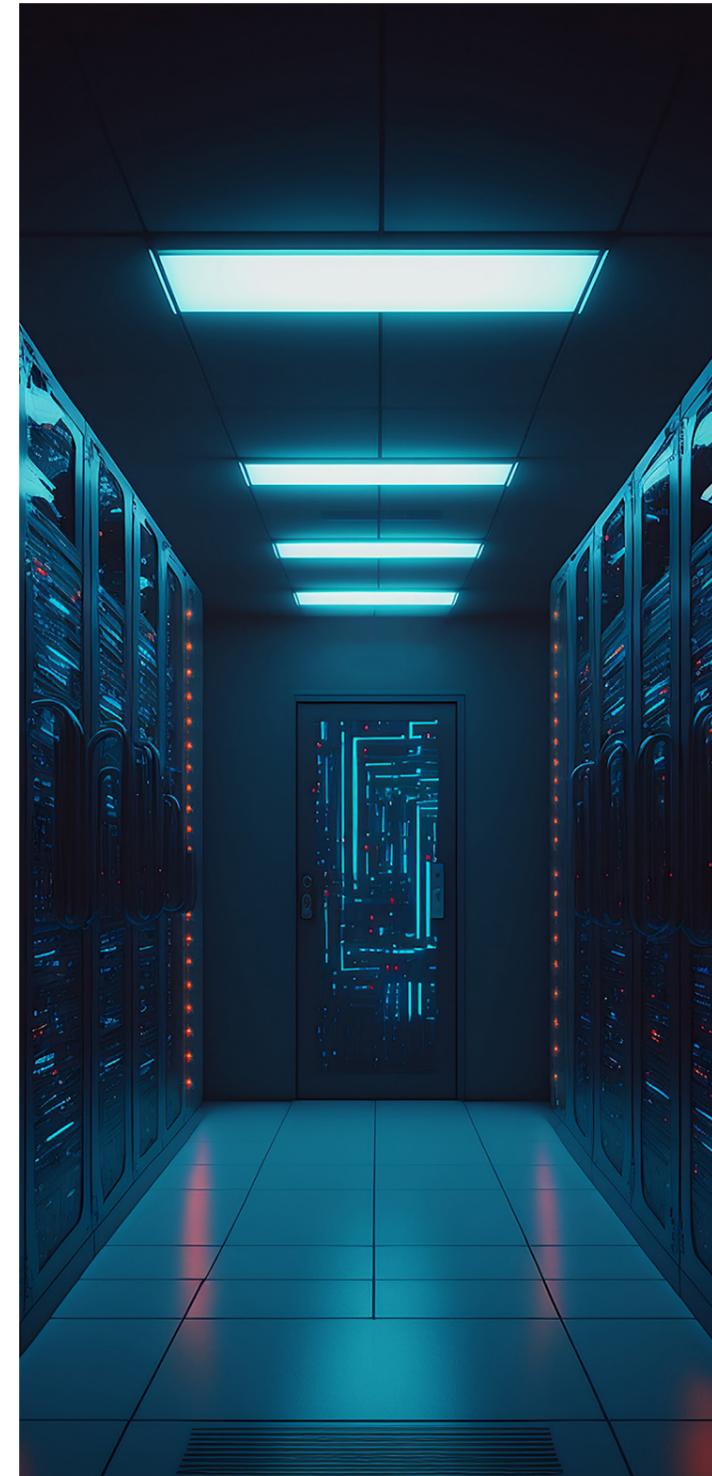
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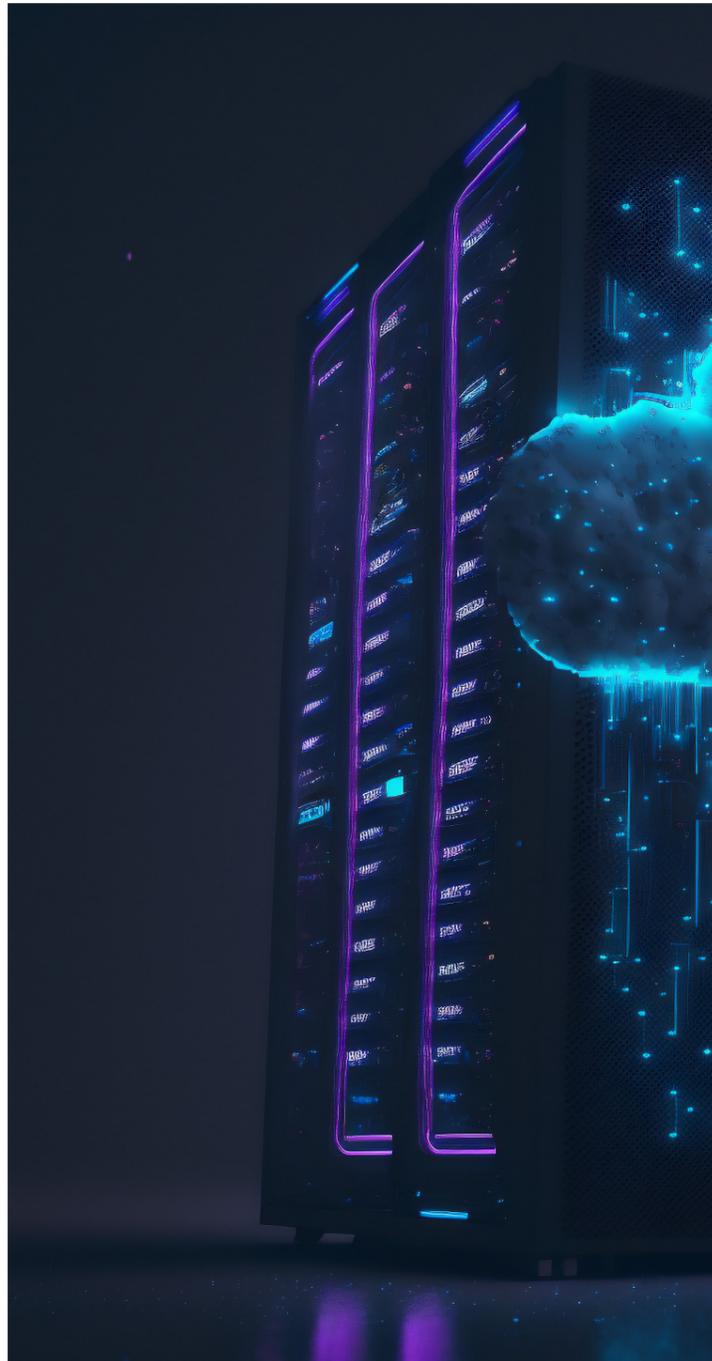


The Coalition for Innovative Media Measurement (CIMM) is a non-partisan, pan-industry coalition of companies from across the media and advertising ecosystem, focused on supporting improvements, best practices and innovations in measurement and currency development, the use and application of new metrics and approaches to understanding the value of media, and data collaboration and enablement.

As part of our program, CIMM commissions papers, thinkpieces and perspectives from industry analysts, experts and thought leaders – to provide insights and occasionally provocative perspectives on critical issues of interest to our Coalition of members. The studies always involve original research, but unlike our larger studies, are not peer reviewed and do not generally involve a Project Steering Group.

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I. Executive Summary

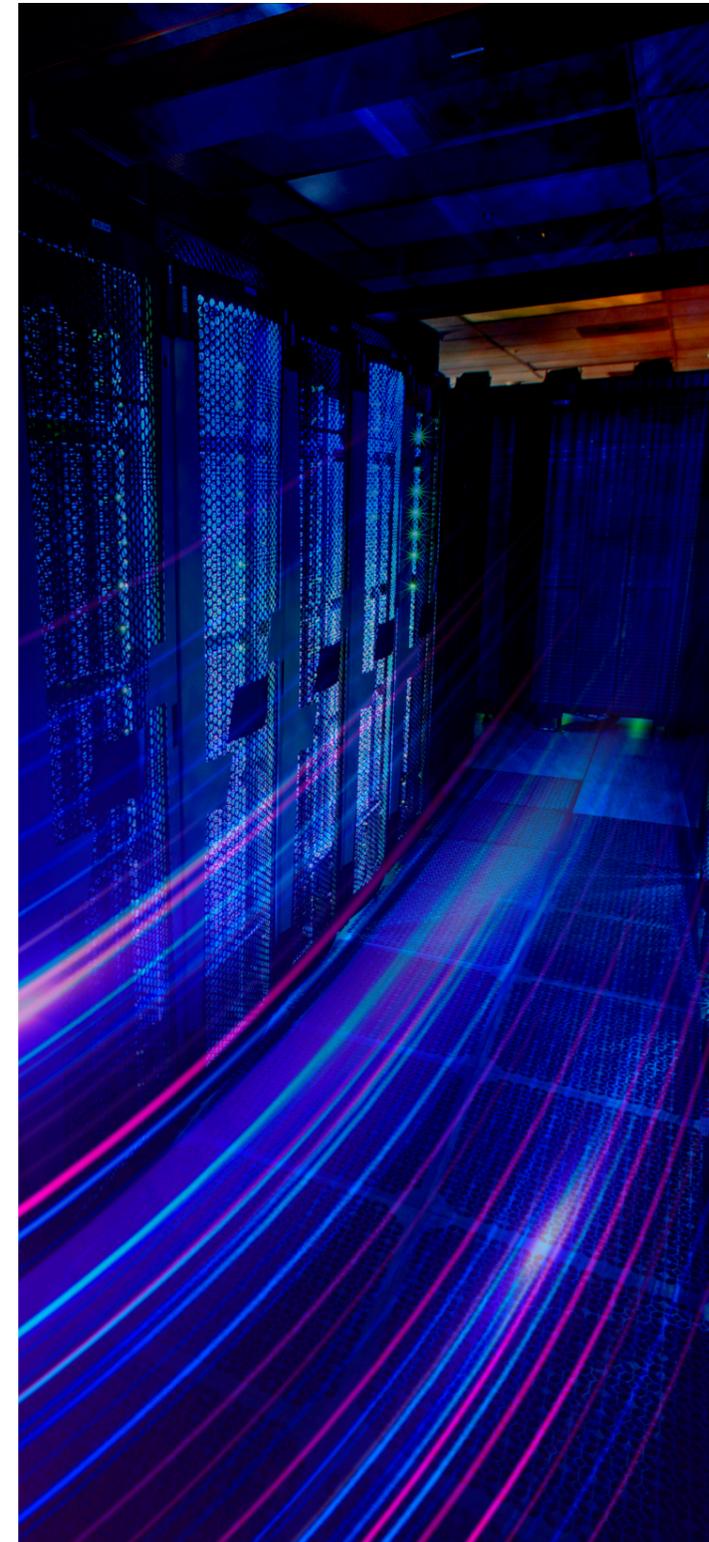


The practice of data collaboration in the world of TV and video advertising is evolving in the face of changes to consumer privacy laws, regulations, and accepted norms.

Today, the industry is investing heavily to transition to a new way of managing and supporting data collaboration to set itself up for a more sustainable future, with leaders across the advertising ecosystem asking themselves:

“What does it mean for our industry to rearchitect itself around a sustainable, value-creating data collaboration infrastructure with respect for consumer privacy as a central tenet?”

Data clean rooms – as a model of data mining, matching, collaboration, activation and more – are being cast in industry conversation as the central component of a new architecture for the TV industry, answering this question and creating a new foundation for innovation and growth.



However, as this research highlights, this new infrastructure remains immature, in terms of technology, understanding, adoption and scale.

Key Findings

Data clean rooms (DCR) do provide solutions to a range of data-driven and data-powered use cases across the TV and video advertising landscape but are not a panacea. For a variety of reasons, adoption remains uneven across the industry, with large data-rich media owners and platforms leading the charge, supported by a sophisticated but often poorly understood base of innovative technology suppliers and vendors.

In the future, industry participants envisage a marketplace built on multi-party data collaboration with limited data movement between buyers and sellers, providing advertisers with a holistic view of their investments, helping media sellers to find novel ways to differentiate and generate revenues, and supporting innovative new use cases.

I. Executive Summary

However, to deliver on this promise, the industry needs to take steps to address a range of important challenges, including:

- **Technology challenges:** variability in DCR offerings, sophistication and interoperability, fragmented DCR adoption.
- **Data and identity challenges:** both the identity and data vendor landscapes also, often necessary components of the DCR ecosystem.
- **Fragmented data matching:** this, due to the inherent nature of the TV industry where media companies have an incomplete view of their consumers, platform operators have an incomplete view of inventory, and small media owners are currently underserved with potential solutions.
- **Business considerations:** currently, publishers struggle with the volume of bespoke requests from the buy side, while buyers are limited in having a holistic view of their investments because of the siloed, fragmented nature of publisher clean room activations.

Clearly, individual media owners and platforms are investing heavily to stand up their own clean rooms and integrations – but we believe that there is a case for collaboration to support the development of this new infrastructure.

In part, because the current approach could exacerbate other issues on the horizon: the evolving privacy legislative and regulatory landscape, how the industry writ large addresses consumer consent management and technology innovations as yet unseen and unknown.

Key Recommendations

To make progress, the TV and video industry should do several things:

1. perform ongoing assessments of the ROI of clean rooms through a use case lens.
2. uplevel and invest in the talent necessary to support DCR investment and usage.
3. participate in shared industry initiatives around standards-setting.
4. get comfortable sharing learnings and best practices for others to learn from.
5. create opportunities for smaller players on the buy and sell-side to thrive.
6. get serious as an industry about ecosystem-wide consumer consent management.

Acknowledgements

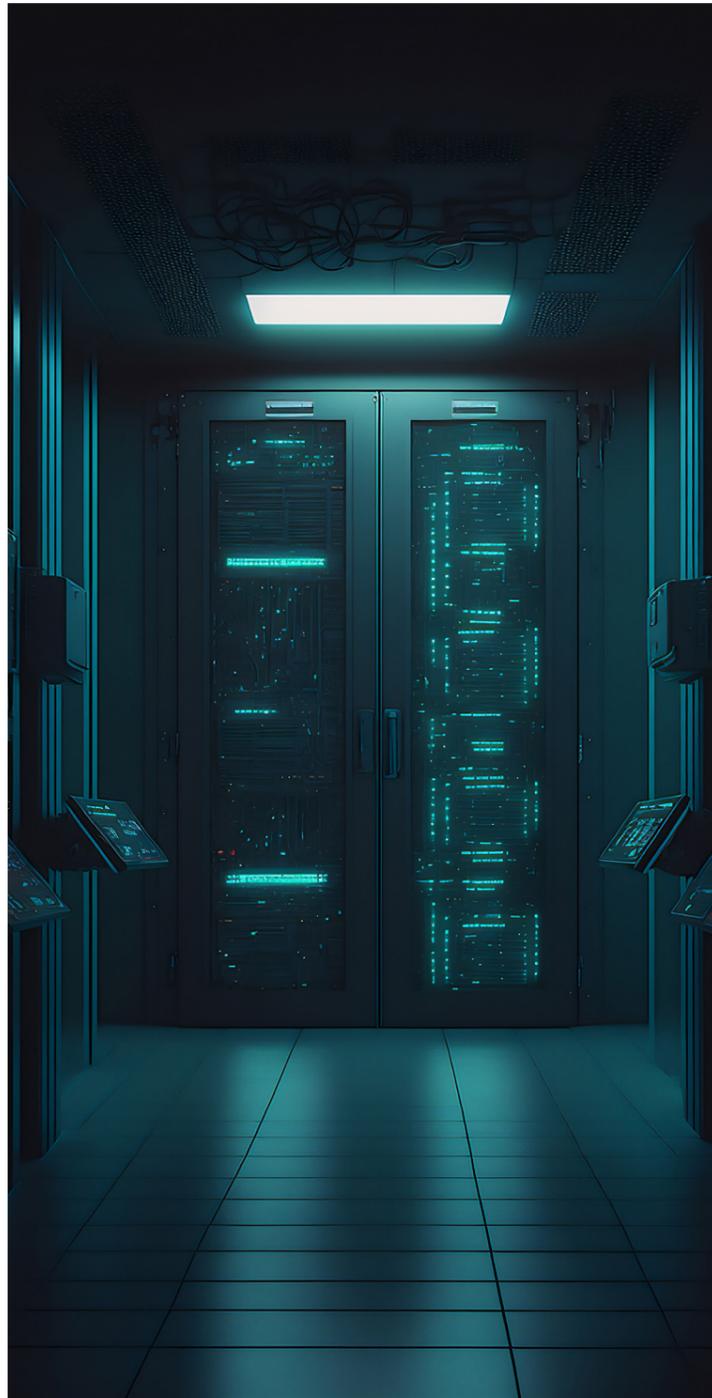
We would like to extend our thanks to the following companies who participated in this research either as interviewees or seminar participants:

A&E	Google	Merkle	Roku
Ampersand	Habu	NBCU	Samba.TV
Blockgraph	Havas	Netflix	Samsung Ads
Comcast	Hearst (TV)	Nielsen	Snowflake
Comscore	InfoSum	Omnicom	TransUnion
DirecTV	Inscape	OpenAP	VideoAmp
Disney	LiveRamp	Paramount	Warner Bros Discovery
Epsilon	Mars	Philo	WPP
Fox	MediaWallah	Publicis	

[Disclaimer – views and recommendations in this paper don't necessarily reflect those of any of our research participants]



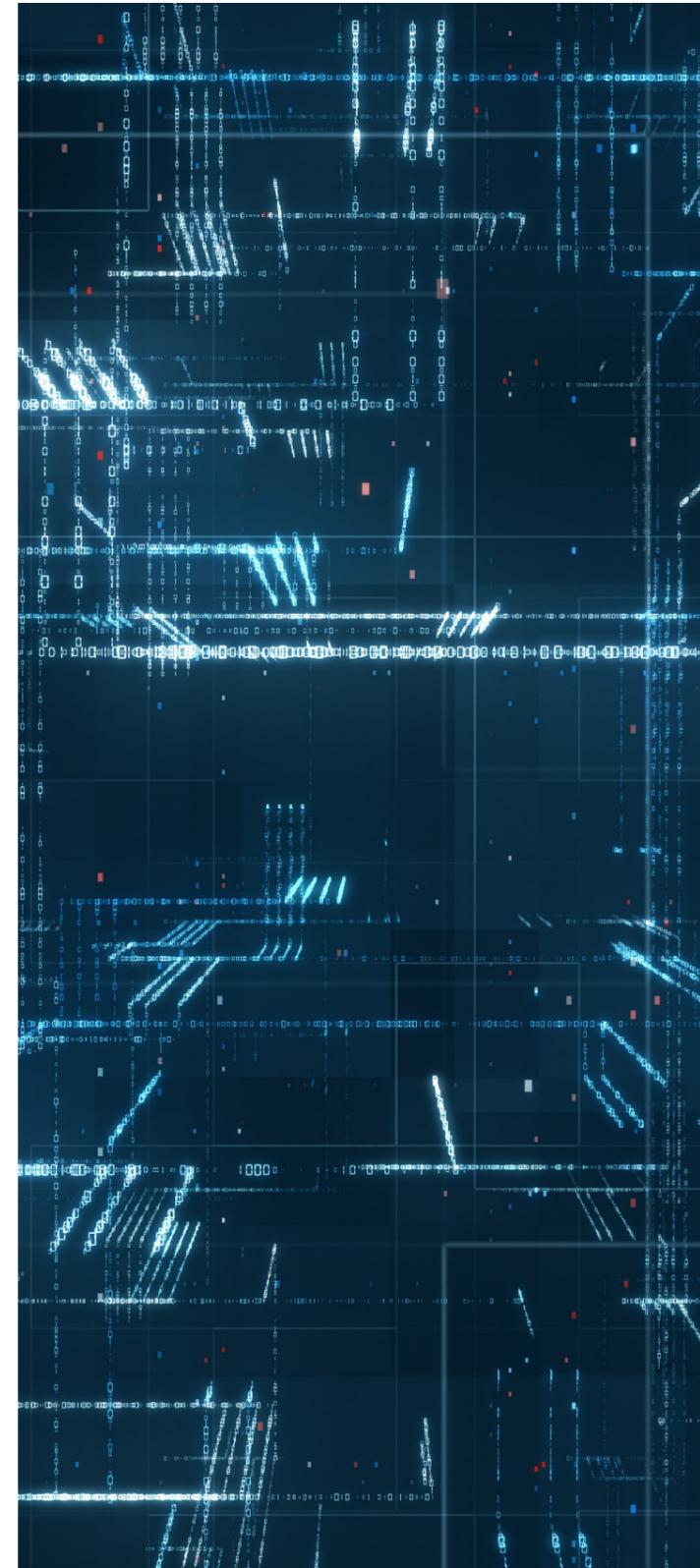
II. Background & Context



Project objectives and research approach

The research was executed with five core goals in mind, with the lens of the TV and video advertising industry as a specific overlay:

- Assessing the current market situation: Map out a conceptual overview of the current landscape, in terms of what's being put in place and how the major components fit together.
- Understand and describe the main current (and potential) use cases in the TV market and outline what problems clean rooms do (and don't) solve.
- Develop a robust future vision of the potential of the new data collaboration ecosystem, in terms of how it can support key commercial activities and deliver value for the industry: what would a sustainable and successful future state for this new data collaboration infrastructure look like?



- Identify gaps, barriers, and obstacles to realizing this future.
- Lay out practical steps and priorities that buyers, sellers, and providers could take collectively and collaboratively to unlock the full potential of this new infrastructure.

The research process included the following inputs:

- Approximately 25 long-form qualitative interviews (45-60 minutes) with leaders across the industry, including publishers (e.g., broadcasting companies, streamers); MVPDs and VMVPDs, agencies, brands, technology providers (e.g., data clean room providers, cloud providers, identity and identity resolution providers, industry working groups).
- Three virtual round-table sessions (8-12 participants each, from across the industry) to discuss interim findings, gather feedback, flesh out working hypotheses and gather additional inputs.
- Desk research pulling from published research, POVs, case studies, proposals, etc.

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Context: What is a clean room and how does it support data collaboration?

A data clean room is designed with its [physical counterpart](#) in mind – that is, to serve as a controlled environment that can't be penetrated or contaminated by uninvited entities.

In the case of data clean rooms specifically, the focus is on keeping user data isolated, private, and secure, with a range of controls in place to enable specific permissioned use cases (such as insights development and campaign measurement) between agreed-upon parties. Data is not shared.

Exhibit 1: Data Clean Rooms Serve as A Data Collaboration Layer Between Relevant Parties



Source: IAB.com blog, "How Retailers Are Using Data Clean Rooms", April 2023

The IAB Tech Lab's recent paper, [Data Clean Rooms Guidance and Recommended Practices](#), outlines the core capabilities that a clean room should possess:

- **Data Isolation:** A DCR allows the parties to isolate from one another or the DCR Provider itself from their raw data. In other words, raw or plaintext data cannot be observed or learned by any participant or DCR Provider unless the participants agree. A DCR ensures that a party retains full control over how their own data is used or available to other participants in a DCR environment.
- **Privacy Enhancing Technologies (PETs):** DCRs integrate technologies to minimize data movement, risk of exposure of personal data, and misuse of data for re-identification of individuals. These are best accomplished by applying Privacy Enhancing Technologies (PETs) like encryption and double blinding while storing input and output data, confidential computing, use of differential privacy in running queries, injecting data noise, maintaining k- anonymity thresholds, and others. A DCR must deploy a combination of one or more PETs to accomplish the privacy needs of participating organizations.
- **Privacy control mechanisms:** A DCR implements the principle of least privilege, which is, that a user only has access to specific data and resources required to complete a

task and no more, by applying the following controls:

- Limiting the number of queries allowed, even when differential privacy is being used.
- Limiting the time for which access to compute operations are allowed, expiring the data access after a certain time window.
- Limiting the type or complexity of queries that can be executed
 - Restricting reuse of one data set with other participants
 - Requiring rebuild of input data sets for each operation.
- Apply statistical noise on query results.
- Limit the outputs or granularity to only those necessary insights that are required for the task.
- **User Access Controls:** DCRs also provide permissions and scoped access controls to define, monitor, and control who can perform what specific action, for what purpose, at what granularity, for how long.

The data clean room approach as outlined above, is designed to serve as a more secure and privacy-friendly replacement to traditional models of data sharing and data collaboration, such as the direct transmission of raw customer files from one party to another.

III. Research findings



Synthesis of the interviews, roundtables and industry research led to the emergence of seven trends that highlight specific areas of tension, transformation, and opportunities for growth.

 Traditional Models of Data Collaboration Need a Revamp in The Face of Increasing Risk

 Data Clean Room Technology Promises Various Benefits to the TV and Video Ad Industry

 Data Clean Rooms Have Broad, Though Not Universal, Applications

 Market Maturity is Varied Across the Advertising Ecosystem

 Industry Adoption and Scaling is Currently Hampered by a Range of Challenges

 Several Unknowns Could Also Shape Future Direction

 A Vision for The Future: Decentralized Data Collaboration Without Data Movement

Traditional Models of Data Collaboration Need a Revamp in The Face of Increasing Risk

Conceptually, technology used by one party to protect and obfuscate user-level data access by outside parties is not new – for example, Google’s Ads Data Hub and Meta’s Facebook Advanced Analytics work in this way.

However, the broader application of data clean rooms in advertising and marketing use cases (beyond what the walled gardens generally require their customers use) is much more novel as the industry as a whole has been relatively slow to change and develop these capabilities, in part because previously data availability was far more limited and the commercial opportunities appeared to be limited. Clearly, this is now changing.

So why data clean rooms now?

Several factors are driving the market toward new ways of working when it comes to valuable data assets.

But most industry participants agree that large, data-rich publishers and platforms have led the charge in the adoption of these technologies, for two main reasons:

1. Privacy concerns and legislative and regulatory compliance requirements. Today’s privacy landscape is complex and evolving. Around the world, the picture is highly varied, but [more than 70% of countries now have some form of data protection and privacy legislation in place.](#)

For media platforms, the need for better data protection was clear: actual and reputational harm in the event they experienced a leak or other issue with their customers’ data is a massive issue.

The potential risks were high enough to drive significant investments in clean room technology as early as several years ago. As Youssef Ben-Youssef, Head of Ad Platform at Roku Inc. notes, “We are a DTC company, a household brand. We have 1st party relationships with viewers and users; the onus to carefully manage the customers’ data is much higher than for the usual ad entities.”

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2. Protection from loss of control and potential misuse of data.

Publishers have long been asked by buy-side representatives like ad agencies to share data for a range of reasons including audience insights generation, reach/frequency analysis and campaign performance reporting.

But traditional models of data sharing resulted in loss of control once the data file left the owner's walls. Once shared, how that data is then used or further shared is outside of the original owner's purview.

"Buyers have always wanted more granular data from publishers and they have wanted to give it, but before all this new technology existed, the only way to satisfy even a modest request for more transparency was to literally give it to the buyer. Once data was handed over, the publisher can't claw the data back," explains the president of product and operations at a leading industry body.

Data Clean Room Technology Promises Various Benefits to the TV and Video Ad Industry

Today, clean rooms offer a range of benefits to buyers and sellers, supporting various use cases:

1. Enabling publishers to respond to buy-side requests without loss of data control.

These benefits are critical, and at the core of why major publishers were early adopters of clean room technology. Clean rooms allow them to flex and adapt to buy-side needs with deep control and specificity that far exceed what simple contractual terms could ever provide.

With the kinds of use case-based provisioning (theoretically) available in (some of) these platforms (for now), publishers can feel confident that they are meeting client needs as safely as is currently possible.

For Dana McGraw of Disney, for example, this means, "We are able to give advertisers access to the insights they need and should have and, if they have their own data, it allows us to be able to match audiences against the Disney Audience Graph at scale, with all the proper privacy protections in place to allow for collaboration without data movement."

2. Creating competitive advantage through proprietary user data and content.

As consumers continue to migrate to newer forms of content consumption like streaming and ad buyers continue to want deeper audience definitions, publishers clearly see an

opportunity to differentiate on the quality of their audience data and the value of the content those audiences interact with. The more sophisticated they are in managing these assets in the face of buyer interest, the likelier they are to command what they deem an appropriate premium.

And for the buy-side, the same principles apply: smart use of data (without losing control of the data) can create advantageous business results. This has led many to clean room technology to participate in the data collaboration ecosystem while mitigating the potential for competitors to get direct access to anything not meant for their eyes.

3. Speeding up and streamlining outmoded manual processes in the era of big data.

Businesses, regardless of sector, find themselves challenged to move as quickly as today's consumers and the TV advertising ecosystem is no exception. Traditional ways of working must give way to new ones, and clean room infrastructure provides a view into what's possible.

Michele Stone, VP, Advanced Advertising Product & Planning of Paramount explains, "How do we activate in a big data world? There's a slew of possibilities these technologies could allow for. Activation capabilities that have been so manual for so long could be

improved across a range of parties. Better match rates, less hops, I see a lot of opportunity there."

We are entering this business at a point in time where the streaming industry is scaled and our decisions can be based on scale opportunities versus what was happening 5-7 years ago. We will be in on the ground floor on capabilities and infrastructure, and we'll be informed by what's happening in the marketplace.

*-Senior Executive,
Streaming Service*

Data Clean Rooms Have Broad, Though Not Universal, Applications

Clean room technology has wide-ranging applicability across data-driven uses cases in television and video advertising. Today though, there is consensus that we are still at a relatively early stage in the development and usage of clean rooms at scale, and that the maturity of the various use cases varies widely.

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As one Senior Executive at a major US TV network described it, “Buyers are interacting with us through clean rooms in a nascent way. It is not the predominant transaction model today. It’s more about experimentation going on rather than wholesale conversion to “this is the way we work”.” It’s also worth noting that this technology is not, nor does it need to be, a panacea for reasons that will be discussed in a later portion of this research. That said, below are a wide range of use cases that clean room tech can help enable:

- **Planning and insights:** several buy-side representatives we spoke to agreed that the opportunity to use the technology to facilitate more effective pre-campaign planning was critical in an increasingly fragmented media ecosystem. Example use cases include:
 - Overlap analysis - designed to help a buyer and seller understand the overlap of their respective users.
 - Advertiser audience enrichment.
 - Look-alike modeling.
 - Cross-publisher planning/ allocation.
- **Activation and optimization:** buyers want to be able to take the work they’ve done through the planning process and light up the audiences

they’ve developed in live media environments, including:

- Media targeting (direct audience match, modeled audiences, etc.) within publisher- and platform-specific environments.
- Media targeting across publishers and platforms.
- Mid-flight optimization based on audience performance.
- **Measurement:** agencies and their brand clients will often note that holistic and accurate measurement is fundamental to their ability to invest and optimize their ad dollars intelligently. And current models are either breaking (e.g., MTA models losing signal as cookies and MAIDs are deprecated) or were never ideal in the first place. As Kate Sirkin, EVP, Global Data Partnerships at Publicis Epsilon notes, “the types of measurement that a set of companies have been using for CPG clients... their methodologies have traditionally been black box, closed and not easy to extrapolate to cover blind spots or forecast future performance.” Measurement use cases are diverse and can include:
 - incremental lift analysis.
 - ROI/ROAS analysis.

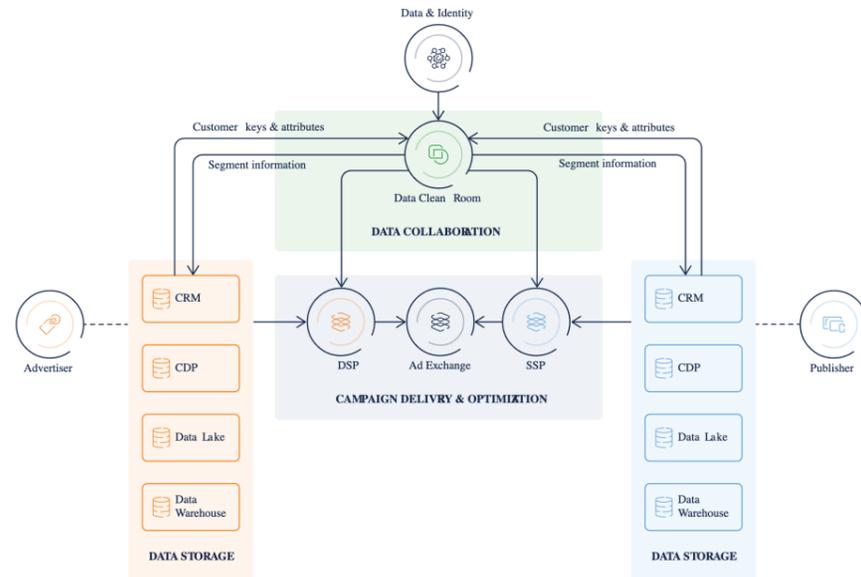
- Cross publisher/platform attribution.
- Reach and frequency analysis.
- Campaign and audience verification.
- **Creative Testing and Insights:** while discussed less frequently in clean room conversations, one agency activation lead spoke about the real opportunity with creative as well: “Pre-market testing could be done in clean rooms. Creative iterations, real time assembly and decisioning, A/B testing. For example, on retail sales: how well your shoe sells with difference prices, templates, etc.”

We did some work for a QSR who was convinced their frequency was too high. We looked at foot traffic to help them understand that actually needed higher frequency. They had been using their gut as a standard.

-SVP, Data Science, leading publisher



Exhibit 2: Data Clean Rooms Operate Within a Larger Data and Tech Ecosystem



Source: InfoSum

Market Maturity is Varied Across the Advertising Ecosystem

As already discussed, publishers have led the charge on data clean room adoption. And they are generally viewed as being the furthest along and most sophisticated in their applications of the technology. When it comes to different market constituencies around the TV and video ad ecosystem, we found that:

- **Large publishers with deep data assets are often years into the journey.** As previously noted, for a variety of reasons big media companies and platforms have been early movers in adoption of

clean room technology. One leading publisher outlined the company’s multi-faceted reasoning, beyond the obvious privacy concerns, this way: “We wanted to be able to give advertisers access to insights they need - and should be able to have - as they are paying us money. But we also wanted to let them access their own data on our platform without our needing to be responsible for it. And we wanted a more accurate way of measuring and understanding performance.”

- **Smaller sell-side player adoption is much more limited.** This is for a few reasons but ultimately, it’s a question of investment relative to return. Many lack the wealth of first party data

their larger compatriots boast - they therefore tend not to compete on the same playing field when it comes to building deep or bespoke audience definitions for buyers to engage with. They also tend to be significantly more resource-constrained and far less likely to be able to throw an army of engineers and data scientists at lighting up a clean room (or multi-clean room) solution.

- **Agency holding companies have led the buy-side charge in clean room adoption.** The holding companies, too, are mid-stream on their clean room journeys though their approaches are certainly not uniform. Several, including Publicis, IPG and Dentsu, are themselves owners of data and technology through acquisitions in the data brokerage space (e.g., Dentsu’s acquisition of Merkle, Publicis’ acquisition of Epsilon, IPG’s acquisition of Acxiom). Others, notably Omnicom and Havas, have explicitly chosen not to invest in such ways, citing their desire to be fully tech and data agnostic. Regardless, multiple large publishers noted that they are focused on holding company level agreements over agency ones as it streamlines and simplifies what is typically an extremely time-consuming and labor-intensive process for all parties.
- **Brands, on the whole, have been slower to move.** It was a relatively common refrain among interviewees: brands have not adopted the technology with such gusto as big

publishers, at least to date (and in the US market). This is for a variety of reasons: they may face industry-specific considerations like regulatory particularities or issues with off-premises data movement; or, they may not have deep 1st party data stores which could limit relevant use cases. But beyond these potential factors may be simple inertia. This, coupled with the challenge of making a business case for the investment of dollars and people resources for something new and unproven without a clear understanding of eventual ROI is likely at play. One CPG we interviewed (who possesses plenty of data) did note that with the variety of clean rooms she’d engaged with the costs were outsized.

For advertisers who are building their media or marketing analytics solutions in-house, who are usually very savvy, they’re willing to invest in DCR. They want, for example, ad exposure data to measure publisher level efficiency and effectiveness. For advertisers who heavily rely on agencies and/or 3rd party measurement firms, they not necessarily willing to invest.

-Measurement and Data Science lead, global media and entertainment company

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- **Industry groups have pursued education, standards, and shared infrastructure.** OpenAP, which was founded, and is owned, by several large TV networks, is releasing its OpenAP Data Hub (built in partnership with Snowflake) as a cross-publisher clean room environment. And the Joint Industry Commission (JIC), formed to help the industry develop a set of standards and business requirements for new currencies, has specifically called out “support for multiple clean rooms and identity crosswalks” as being “[best in class](#)” for currency providers. Says Ed Davis, President, Product & Operations at OpenAP, “As the

industry coalesces around data clean rooms and associated clean room technology, a new ‘common language’ and shared understanding of risks and mitigations have emerged across the TV advertising landscape. This is accelerating our ability to both discuss, and paper, the Agreements that underpin having data be more ubiquitously available to drive effective TV advertising.” The IAB Tech Lab for its part, has released both a [recommended guidance and best practice](#) report and a set of [proposed standards for clean room interoperability](#) in service to defined advertising use cases.

Industry Adoption and Scaling is Currently Hampered by a Range of Challenges

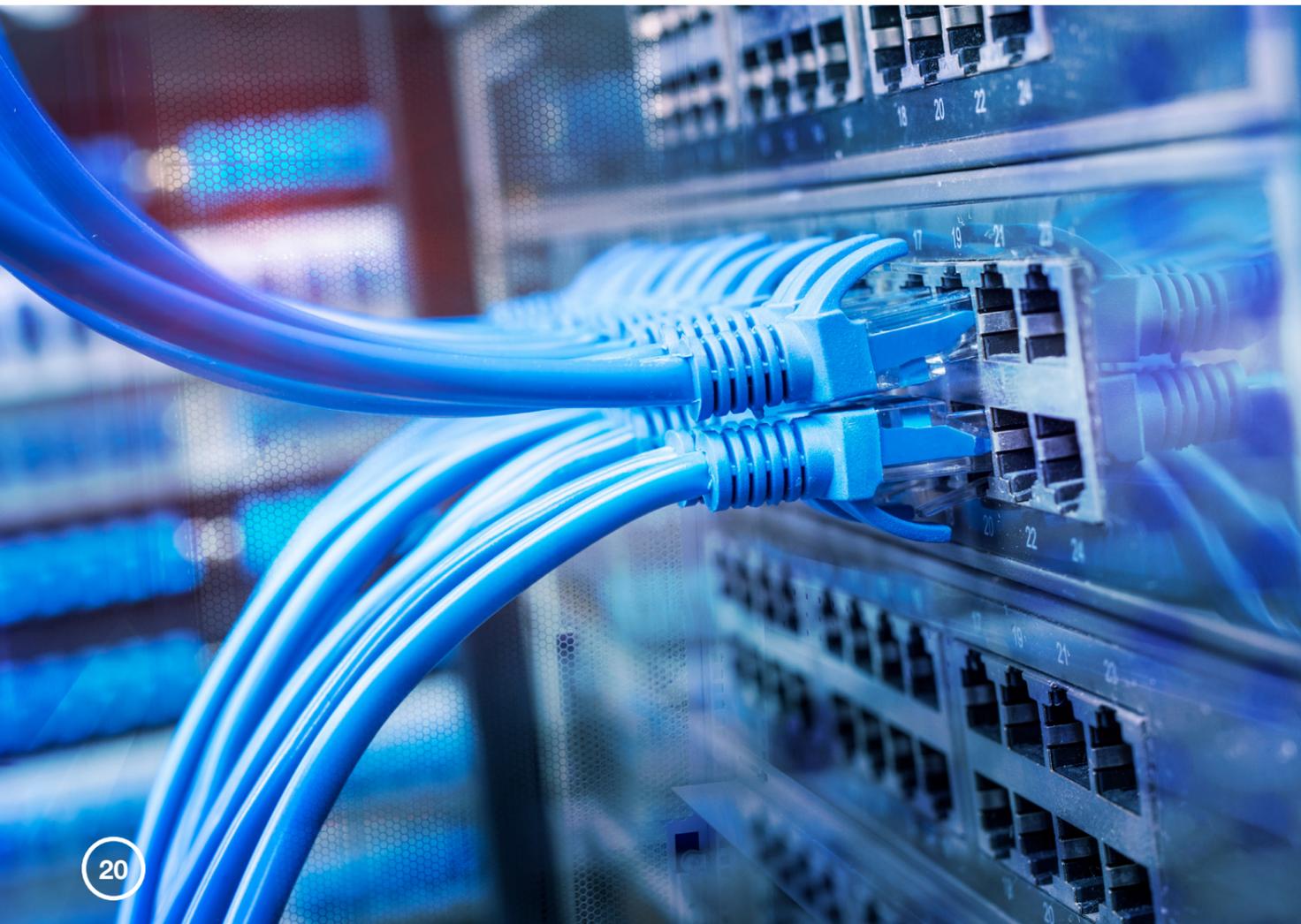
Unsurprisingly, early adopters are facing a range of challenges that make it difficult to stand up and scale clean rooms efficiently and cost effectively. These issues fall into two broad categories. The first set is related to the practical realities of the technology and data ecosystem of today. And the second set arising out of the business and relationship dynamics between media companies and agencies/brands and out of the very nature of the TV industry itself:

Challenges with the data and technology landscape:

- **There are A LOT of players in the data clean room space, which can cause market confusion.** Beyond Google, Meta, and Amazon, DCR applications can be found in a variety of places these days, from TransUnion to LiveRamp to Infosum and it can take significant digging to suss out the differences and areas of overall in offerings and functionality. And cloud provider Snowflake has provided ample ground for industry innovation by offering clean tech infrastructure on top of which companies are building applications. This includes clean room specialists like Habu, cross-publisher solutions like OpenAP, individual media companies who’ve invested in building bespoke tools and more. But with the

proliferation of options comes industry confusion. As Nancy Marzouk, CEO and Founder, MediaWallah, explains, “With providers like Snowflake and AWS having offerings in the market, the question becomes, if it’s not that difficult to stand up a clean room, will you have too many clean room environments? And then we can’t take the data collaboration as far as it needs to go because there’s too much noise.”

- **The clean room providers vary in sophistication and applicability of their offerings.** Because the landscape of clean room technology is variable in what is provides, and because the maturity and focus of different solutions can vary, customers must do their homework to determine whether potential solutions do in fact check all the relevant boxes needed to ensure data security, consumer privacy, control and the relevant functionality needed to meet business requirements. Additionally, such variability across providers can make it very laborious to technically implement clean room tech. Notes one exec at a leading MVPD, “The clean room technology being immature is painful. How do we get a return on the investment? Right now, a precise activation use case is clear and valuable; with planning and measurement it’s unclear to us how much value we get in return relative to the investment we must make.”



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- **Use of clean room technology is highly fragmented and individualized.** The near-universal rule of clean room relationships today is one buyer to one seller. That is, deals are structured and managed on a 1:1 basis. And while this has proven an instructive starting point, it does not set the industry up for a scaled, widely adopted model for data collaboration. Rather, it add another problematic and unsustainable layer of silo-ing on top of an already fragmented ecosystem. One agency executive stated bluntly, “There is a massive lack of interoperability today.”
- **The identity space is messy, which clean rooms don’t solve for.** Clean rooms are often used in conjunction with identity spines

and technologies, supporting intermediary matches provider between seller and buyer. But that space, too, remains immature and in flux as signals like mobile ad IDs and 3P cookies deprecate and concerns around other signals being lost (e.g., IP) hover on the horizon. As well, providers aren’t universally transparent in how their solutions work. Notes Andy Fisher, Head of Merkurs Advanced TV at Merkle, “A common way of ID matching is: two entities agree on the basics of cleansing for records and then they agree on a hashing algo, they hash, then they put that into the clean room. But in the case where one side has PII and the other side only has IP addresses, if the keys can’t be joined, the clean room doesn’t help.”

- **Data is non-standardized and quality is highly variable, complicating the picture.** The data ecosystem, too, is lacking standards of quality, transparency, and definitions. By way of example, two data providers may treat the concept of a “household” differently. This can make the use and/or comparison of one data to another (or across several) sets very, very difficult. One identity resolution provider outlined, “We do a lot of the resolution when creating cross walks between a customer and publisher or any other 3P data, and, for example, can see the age of the data. If it’s from the past 90 days, we can say confidently that it’s accurate and current. This, versus is if I run a 365-day lookback window we know the data is no longer accurate.”

Challenges with the dynamics between buyers and sellers:

- **Sellers must do significant, bespoke work based on buy side requirements.** In the current market, sellers feel they must do bespoke work for each buyer, which is onerous and unsustainable. And for smaller publishers, this is simply prohibitive today. Notes one, “We don’t have the money to invest in this. We can do some of the things an individual partner might want but we don’t have resources to stand something up to satisfy all.” This isn’t merely a technical challenge: currently, it can take months to clean
- **Buyers face disconnected publisher clean room relationships, hampering a holistic view.** Buyers must be able to see and work across publishers to most effectively use their advertising dollars to drive business performance for brands. This starts with being able to plan across publishers to create a media plan optimized toward a desired set of outcomes. It also includes measurement across media partners to be able to optimize current and projected performance. And finally, it includes activation against desired audiences where cross-publisher reach and frequency management is critical. But the current state of siloed, fragmented clean room instances from one publisher to the next does buyers no favors. Mike Fisher, Executive Director, Investment Innovation at GroupM, notes, “There needs to be an open-minded approach for moving data between walled gardens. Our job cannot be done without interoperability – seeing and operating holistically is critical.”
- **The nature of TV distribution creates inherent data and inventory fragmentation.** Explains Jason Manningham, CEO of Blockgraph, “TV is different than digital because of the nature of distribution. Digital is

the internal legal hurdles necessary to stand up even one instance of a clean room-enabled data collaboration agreement.



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either through the Chrome or Safari browsers, or in app environments it's on Android or iOS. But in TV, there are SEVERAL modes and players." Sell-side footprints in the world of TV advertising are often inherently incomplete because of this market reality. Large data-rich content companies like NBCU have more direct consumer and viewing data than ever before with the launch of their own streaming platforms, but there's much that is outside of their purview, such as that which is distributed through (v)MVPDs. And those very distributors share a similar problem: they have 100% of the data on their users but only control some of the advertising inventory those users interact with. This makes for a patchwork of applicability of any direct targeting or measurement strategies.

Is it expensive? Transitions are expensive. When you are paying for two different worlds at once, it's expensive. I don't wake up in the middle of the night worrying the industry will fail because the tech was too expensive. I worry it's going to take a long time to get to the level of comfort to unlock the opportunity.

*-Senior Executive,
major US TV network*

”

Several Unknowns Could Also Shape Future Direction

Beyond the challenges outlined above, there are several important caveats and considerations that could turn future developments in new and unseen directions:

- **The legislative and regulatory environment:** How the patchwork of proposals at the state and federal level in the United States and around the world play out over the long term remains a big open question. And decisions made subject to regulatory and/or legislative could have big unforeseen implications to what is allowable – and how things could work – in the future. Per one senior executive at a large MVPD, “Legislation is my biggest concern

when it comes to unknowns. If we do get a federally mandated opt-in, it completely changes the dynamics of the business. There's a lot of risk here and I am not sure people really realize it.”

- **Consumer privacy and consent management:** Several interviewees raised concerns about the messy, fragmented, non-standardized state of consumer consent management across the industry. Individual players we spoke to were happy to outline how their organization managed this, but when asked about how consent is managed beyond their walls, the picture was far murkier. As one leading tech and content provider explained, “There plenty of room for problems in a complex supply chain.” This perspective is shared

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by privacy professionals, [who've raised the alarm on this issue](#). If a breach or some other unintended consequence of this new model of data collaboration hits the front page, it could impact what any number of industry participants is allowed to do, feels comfortable doing or both.

- **Technology advances as yet unseen and unknown.** Several people we spoke to, including those bullish on data clean room tech, felt it important to raise the prospect of future solutions replacing the ones of today. There wasn't clear consensus on what these new data collaboration tools or approaches could look like, nor what implications they could have for current models. A senior executive at one TV and video currency/measurement provider captured the general sentiment thus: "I have a feeling in the 5 years there will be some technology or approach that supersedes the clean room. I need to leave open the possibility that something new might emerge that I can't foresee."

A Vision for The Future: Decentralized Data Collaboration Without Data Movement

Interviewees shared a range of perspectives on what the future of data collaboration could look like, but even recognizing there may be new, as yet

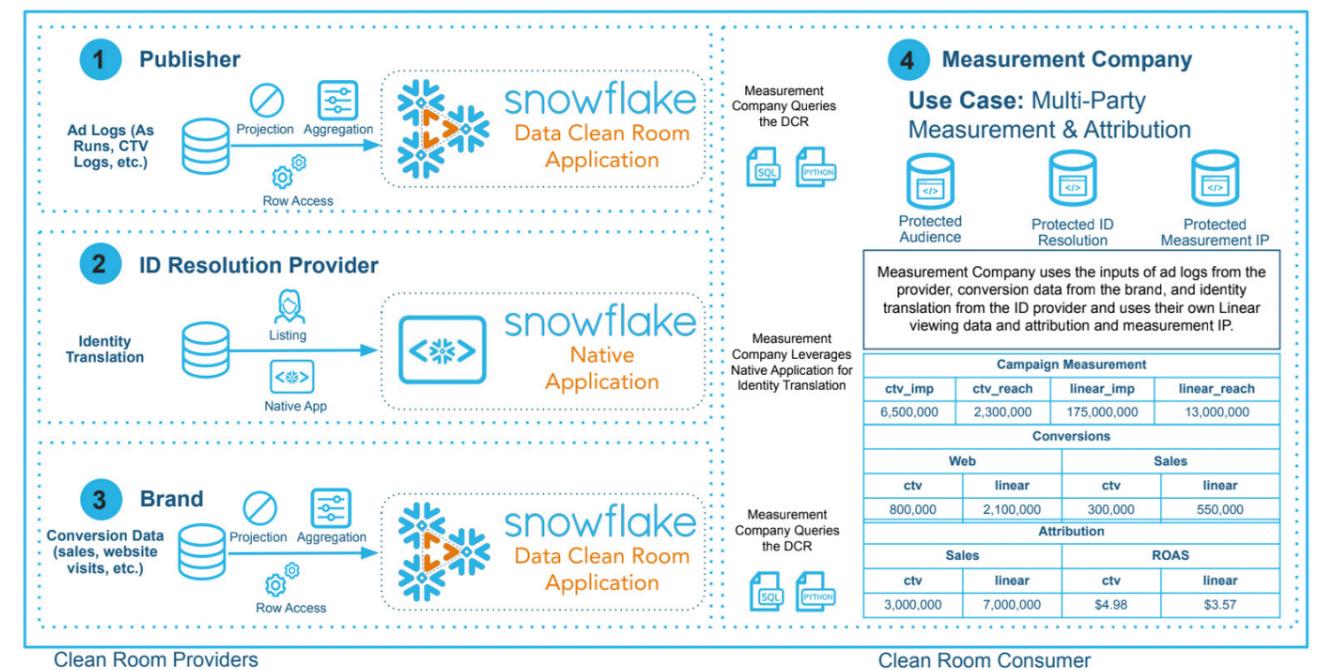
unknown tech innovation, there was consensus that data clean rooms are critical to realizing the next evolution of data collaboration across buyers and sellers. The days of shipping data files back and forth are growing short, and that's a good thing. And despite the messy reality the industry is experiencing today as data clean room tech is put in place, it's broadly viewed as necessary and valuable. As one executive at a top tier MVPD outlined, "The opportunity with clean rooms - or whatever tech enables data collaboration in the future - is to systematize control for allowable use of the data we own." In the future:

- **The data clean room technology landscape will be far less crowded, more connected.** Many we interviewed believed that the clouds (where so much data – from brands and publishers alike - is already housed) will inevitably lead over time; sophisticated users will build bespoke solutions on top of clouds like Snowflake, Azure, and AWS; and less sophisticated ones will turn to more packaged offerings to light up whatever specific or limited use cases are needed. But fundamentally, the fabric of technology supporting data collaboration will necessarily become more connected and interoperable. As Youssef Ben-Youssef, of Roku Inc. outlines, "All of this tech will mature where it will be much easier to map user data between one entity and the other with less info actually shared.

It will be very easy to say, "I have this agreement with this partner for only this use case so only these specific attributes will be exposed."

- **Multi-party data collaboration will become the new normal.** In the future, data collaboration is likely to evolve to include more multi-party-style arrangements. That is, it will move beyond the typical 1:1 structure of today's business and technical agreements to one where multiple parties will be able to interact, without data movement and with all the requisite individualized controls in place. Today, such arrangements are the exception rather than the norm as the tech, broadly speaking, must continue to evolve and as buyers and sellers continue to crystalize how they're willing to work, both with one another and alongside competitors.

Exhibit 3: An Example of a Multi-Party Data Clean Room Use Case



Source: Snowflake

III. Research findings

- **Buyers will be able to construct a complete picture of their investments.** The buy-side is uniform in its desire to have access to a more complete picture of its media investments - across publishers - for planning, transacting, optimizing and measuring performance. And they are open to working with publishers using these new models of data collaboration to get there. Said Justin Rosen, SVP Data & Analytics at Ampersand, “A consistent, representative, scaled solution across the TV ecosystem that enables brand marketers and even agencies to quickly, nimbly and straightforwardly generate reports that are meaningful to them. That’s where we want to be.”
- **Sellers will be empowered to leverage the value of their media and data, safely.** Large media organizations, once thought doomed to become the next walled gardens, will find ways to participate with their peers while creating competitive differentiation for themselves through the quality of their assets and the unique solutions they can bring to clients. One senior exec at a leading global media and entertainment company noted, “We are finding ways to allow our attribution and reporting to be shared against other publishers. I never thought I’d see us working in this way with



other media/tech companies, but we are working with a major one now to be able to plan across our and their inventory and manage frequency. We are trying to allow buyers to get where they want to go.”

- **New use cases will emerge thanks to safer data collaboration.** While there is broad consensus that the future of data collaboration will enable a sustainable model to light up tried and true use cases in planning, measurement and more, new solutions can also inspire net new thinking and unlock previously unexplored opportunities. Explains one ads and product strategy executive at a mid-tier broadcaster, “We are seeing this happen already. We are supporting things we’ve never done before such as reach and frequency on our DTC plus TV everywhere platformers. We’re also

seeing agencies doing rudimentary measurement themselves with the data, bypassing a traditional measurement provider for a quick measurement insight. They are harnessing power of the data sooner rather than later.”

In the future state, everything that has user level targeting could be run through a clean room. No data should have to be moved around, shared, combined. It’s not necessary anymore. You don’t need to know every single thing about your partners’ data to get a relevant message in front of your partners’ users.

*-Devon DeBlasio,
Global Vice President,
Product Marketing, Infosum*

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IV. Recommendations



The TV Advertising Industry Should Focus on Six Key Priorities to Support Progress

Despite the technological and operational challenges, interviewees were optimistic about the future of data collaboration using new models and technologies. The consensus is, this is not a question of “if” but “when”. But the evolution the industry needs to go through to get from today to tomorrow is viewed as neither simple nor smooth given the myriad factors outlined. There is consensus, however, that industry participants across the ecosystem – from publishers to brands and agencies to technology providers – can help push this evolution by taking some key steps. Most notably, the ecosystem must:

Priority 1: Take a use-case based approach to assessing the cost/benefit of clean room investment.

While energy around the clean room opportunity is high, this may not mean that every constituent should expect it needs to activate a clean room under every circumstance. Given the immaturity of the space, every conversation today should begin centered around a specific client need before identifying the right tech and approach required to support it. As one agency executive noted, “It may be a question of who is actually doing the work. Take Disney and VideoAmp for example – Option 1, if we run something on Disney, they can reach out to VideoAmp directly and they can set up a clean room with their tech and we get the output. I don’t think we need a clean room for that specific use case. Option 2, we set up a clean room with Disney – and then we figure out campaign by campaign how we measure. We are still trying to figure out the ROI of different approaches we could take.”

Priority 2: Uplevel current skillsets and invest in new ones, as dictated by need. There is wide-ranging agreement that clean rooms necessitate a (sometimes significant) investment in talent, depending on the breadth and depth of clean room relationships and use cases at play. Yet the presence

of such resourcing varies widely, hampering the speed of adoption and usage. “Recently we had an instance with a big agency that was all for doing this (clean room execution) last year, at their request, and this year they asked to do a direct data integration the old-fashioned way. Why? I don’t think they have the right techies to use the solution. They were talking the talk but when it came to building the instance and starting the execution it was much more complicated what they thought,” – SVP data science, large streaming platform.

Priority 3: Lean into industry initiatives to collectively formalize standards and best practices.

There is broad agreement that the development of shared standards is useful, if not wholly sufficient, to drive broader industry adoption. And plenty of work is underway here: industry trade organization, the IAB Tech Lab, has proposed [interoperability standards](#) and the JIC has released a set of [formal requirements for cross-platform video currencies](#). These efforts are critical to enabling broader adoption and usage of new data collaboration models in the near term, but will likely serve as a baseline rather than a complete “answer” on how these new tools and models should work. Mike Fisher of GroupM aptly explains: “We need to align on the

IV. Recommendations

bare minimum of what we are willing to accept across planning, buying, measurement and currency. The JIC is a great starting point for collaborative conversations to begin and unfold, and we think it's ultimately a place for networks and digital sales leaders to iterate and build."

I am not actually sure we will have industry standards that are compelling or strongly adopted. What we're more likely to have is a similar understanding of use cases and configurable settings. Repetition drives things forward more than standardization Today, though, there's a chicken and egg problem. How quickly does the tech advance, how quickly does the understanding of the tech and implementation advance?

-Go To Market Lead, Clean Rooms/ Identity/ Audience, leading martech platform

Priority 4: Celebrate wins and learnings, publicly. A tendency towards secrecy is understandable in a highly competitive market -- so it's not surprising that we see a dearth of great clean room case studies and learnings out in the wild. But it's exactly what's needed to help move the market's adoption curve forward, [beyond the innovators to broader adoption](#). For example, shares one senior agency executive from a leading holding company, "Could the bigger guys - like a Disney, for example - share its learnings from its experience with clean rooms to date to help the smaller guys over some of the teething pains Disney went through?"

Here's the problem with our industry. Everyone thinks they're competitors and at the end of the day I'd argue everyone is a complement to each other. If we all just cared about being in service to the marketer and helping them with their end problem that'd be great progress.

-Senior Executive, Streaming Service

Priority 5: Foster opportunities that enable smaller players to thrive. A healthy ecosystem is one that lets a diverse group of participants play, including those that fall outside the top tier of scaled media companies and platforms (certainly viewers don't ONLY engage with this content). For a given small network or streamer, the ROI of a standalone clean room investment may not be there (this assuming there are 1st party data assets to support the need). So consider potential publisher consortium opportunities where clean room tech is used to create privacy-safe *cross-publisher* insights/ audiences/measurement frameworks, or other kinds of audience solutions entirely (e.g., Permutive). For smaller advertisers, the same ROI calculus and 1st party data availability questions are relevant. If the answer warrants clean tech, your agency's clean room investment may be a reasonable place to turn to for now.

Priority 6: Make consumer consent management an *industry* priority. Today, [consent management](#) is treated as a compliance issue, with a company's legal team dictating how, where, and when notice is given and consent obtained. While necessary, this siloed company-by-company approach seems insufficient over the long term: modern consumers face a dizzying number of such requests and feel the pinch of a terrible consumer experience while industry opens itself up to potential problems in terms of effective *cross-publisher or -advertiser* information flow related to consent. To head off potential problems, industry participants should get involved, getting educated about the role and value of [universal opt outs like ADCP](#), joining initiatives like [YourAdChoices](#), encouraging healthy conversation and debate on this topic at industry events, and more.



