Is blockchain the answer to digital advertising’s trust gap?

pwc
What might digital advertisers do with an extra $19 billion in their pockets? That’s how much the digital advertising ecosystem—which includes many technology, media, and telecom firms—likely lost to fraud in 2018.

Blockchain could be the answer to fraud and many other trust-related issues that plague digital advertising. It could enable real-time, trusted data, while providing consumers with more relevant ads and stronger privacy rights.

Blockchain in digital advertising could, in short, boost both the bottom line and the customer experience. There are also significant challenges, including several unique to digital advertising, but if done right, blockchain will be more than worth the effort.

**Mistrust takes a toll on digital advertising**

Digital advertising is booming, reaching $130 billion in the US in 2018, or just under 50% of total advertising spend, and the number should rise to $144 billion in 2019, according to PwC research.

Yet growth has also brought enormous complexity to the system. By one measure, today’s ad ecosystem has 23 different participants¹ involved in getting an ad from the marketer to the publisher to a consumer—then returning data from that ad back to the marketer.²

Each point where data flows among these 23 participants is a point of weakness, where fraud, error, or a reluctance to share could cause the flow to fail, making it difficult or impossible to accurately measure an ad’s impact. Some of these participants only exist in order to reduce the risk of potential fraud. They add complexity without necessarily ensuring accuracy.

Yet without accurate measurements, it’s challenging to create and target ads that will reach the right consumers in the right way. Uncertainty over advertising’s impact also means that the value of ads, and therefore the payments that buyers (whether marketers, agencies, or ad exchanges) make to publishers and other vendors, may be little more than a guessing game.

Adding to the risks, one or more ecosystem participants may not be practicing top-notch data governance, potentially leaving sensitive data open to theft or misuse.

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¹ Agencies, agency trading desks, DSPs, creative optimizing, media planning and attribution, retargeting, exchanges, ad networks horizontal, ad networks vertical/custom, targeted networks/AMPs, performance, mobile, SSPs, publisher tools, sharing data/social tools, ad servers, media management systems and operations, data suppliers, tag management, DMPs and data aggregators, measurement and analytics, verification/privacy.

² [https://www.slideshare.net/tkawaja/luma-display-ad-tech-landscape-2010-1231](https://www.slideshare.net/tkawaja/luma-display-ad-tech-landscape-2010-1231).
With so much mistrust surrounding digital advertising, it’s no wonder some big purchasers have cut or are threatening to cut digital ad spending.

The ad buyer’s challenges

- **LACK OF TRUST** in publisher-reported impressions and related charges.
- **RISING CUSTOMER EXPECTATIONS** for relevant messages.
- **INABILITY TO MINE CURRENT METRICS** for insights to improve future campaigns.
- **FRAUD** (click farms, bots, fake websites, and customer accounts) concerns translating into challenges for justifying the return on investment (ROI) and spend associated with digital advertising.
- **COMPLEXITY** in navigating the environment and choosing the best media mix.
- **THE NEED TO GROW CONNECTIONS** between advertising and marketing technology to follow a consumer through both ads and other marketing tools, such as promotions and discounts.

The publisher’s challenges

- **A LACK OF TRUSTED, TRANSPARENT METRICS** such as impression stats and charges to ad buyers, whose calculations and filters can be a “black box.”
- **THE NEED TO IMPROVE THE CUSTOMER EXPERIENCE** and inform customers about data usage by advertisers.
- **CREDIBILITY LOSS** with customers (B2B and B2C) due to ads that fail to meet brand guidelines and enhance the customer experience.
- **RISK OF COMPROMISING** the ad buyer’s brand health.
- **THE EXPENSIVE, MANUAL, TIME-CONSUMING EFFORT** to manage and sell a digital ad product portfolio in a way that meets ad buyer expectations and needs at scale.

The consumer’s challenges

- **POOR CUSTOMER EXPERIENCE** because of irrelevant, overwhelming ads.
- **LACK OF CONTROL OVER PERSONAL DATA** and a feeling of helplessness after security breaches.
- **LACK OF TRUST** in online content due to the rise of fake media.
- **FRUSTRATION** in the online experience (e.g., ads interrupt content consumption if not done well).
- **LACK OF EDUCATION** on the benefits of advertising, such as free or lower prices for content and service.
Mistrust in action

Imagine a hypothetical technology company launching a digital campaign around its connected car technologies. The campaign will include banner ads, video ads, audio content, sponsored posts, influencer blogs, social media posts, and more.

In the current ecosystem, with those 23 categories of participants in all the different channels, how can this company be certain its various ads are appearing in the right places, to the right people, at the right time? How can it measure the different ads’ impact, and know how many clicks come from real people, not bots or click farms? How can it be sure that no participant in this complex, confusing ecosystem will violate a consumer’s privacy rights, or open a breach through which a hacker could divert data?

Quite simply, in today’s environment, this connected car company can’t know with certainty who is consuming all its different ads, nor can it accurately measure the impact the different channels are having.

It is driving blind.
The blockchain solution

Picture a digital dashboard where ad buyers can verify—in near-real time—the specifics of how all their various ads in all the different channels are performing: which ads are driving engagement and desired outcomes, and by how much. This dashboard can even confirm the authenticity of the digital outlets where the ads appear.

These verified numbers will support analytics and automatic payments, based on previously agreed formulas. Records are stored in a tamper-proof manner, creating a shared source of record which is immutable and completely auditable. Different buyers and vendors can choose to share or not share data without fear of fraud or error.

This same system offers consumers the opportunity to share or not share personal data with the advertisers of their choice. Cryptography, combined with distributed, immutable, identical records, makes data breaches nearly impossible. With algorithms automating most of the work, information availability is close to real time.

The complex ecosystem that currently connects ad buyer to publisher to consumer would thus become simple, transparent, safe and fast. With a trustworthy, shared source of truth, over time, most common audits could occur with a click of the mouse. Lawsuits over miscalculated payments or data breaches might become a distant memory.

### How can blockchain help the Ad Tech industry?

Blockchain solutions have the ability to address the major pain points across the industry.

<table>
<thead>
<tr>
<th><strong>Unwarranted and fraudulent bot traffic forces advertisers to overpay and makes customer data more difficult to track.</strong></th>
<th><strong>Ghost Sites lead to advertisements getting placed on nonexistent or incorrect sites. The opposite can also occur for many publishers.</strong></th>
<th><strong>Lack of trust in the supply chain limits the data that is shared, reducing the ability to make informed business decisions.</strong></th>
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<tbody>
<tr>
<td><strong>A blockchain network could prevent fraudulent players from entering the advertising ecosystem.</strong></td>
<td><strong>Blockchain can track exactly where an advertisement is placed and determine if that location is legitimate.</strong></td>
<td><strong>Blockchain can enable enhanced data sharing without the risk of fraud.</strong></td>
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With increased confidence in the data coming and going to all parties, trust among consumers, ad buyers and publishers would grow. Consumers would receive and consume ads that interest them, with their data protected. Publishers would be able to accurately measure ads’ impact and adjust campaigns to meet the evolving needs of the marketplace. The digital ad industry’s growth could then move from fast to astronomical.

Sound like utopia? Here’s how it would work.

**Blockchain—a technology of trust**

Blockchain’s core technology is a digital add-only ledger, whose records are distributed among its participants. It has multiple layers of security built in, and it can easily host smart contracts, which orchestrate and automate many common transactions.

To see how blockchain might work in digital advertising, let’s return to our technology company that’s launching a connected car with a campaign that crosses multiple digital channels.

On this hypothetical blockchain ad network registry, multiple agencies, DSPs, ad networks, and other participants on the various channels are collaborating with the connected car company buying the ads. These participants have agreed on standards for tagging and measuring digital assets.

With those foundations in place, as the different participants measure ad impressions and related data, our blockchain enforces these measurements’ integrity: It runs algorithms, called consensus mechanisms, to check the tags and registry for authenticity. If the algorithms detect anomalies, they reject the request and do not record the data.

Blockchain gathers the verified records into blocks of data, which it records identically on both the connected car company’s servers, and on the servers of all the other participants in the blockchain. Cryptography helps secure these verified records and only allows users with permission to see them.

Due to blockchain’s structure, data blocks are immutable. Those individual participants who have permission (and only those participants) can access these verified, tamper-proof records through individual, customized dashboards.

Cryptography, along with privacy controls, enables both the connected car company and all other participants to protect sensitive data from hackers and from each other if they are competitors. These software solutions also allow the blockchain’s participants to share data safely and reliably with other participants as desired.

Smart contracts automatically determine payments between the connected car company, publishers and other vendors, based on factors such as where and when the ad was shown, how the ad was rendered, who saw the ad, and what the viewer did with it. This hypothetical blockchain also offers the option of using digital tokens, easily converted into dollars, as currency, so that payments can take place nearly instantly through the blockchain, at almost no cost.

Our connected car company’s blockchain also enables consumers to enter requests to see or not see certain ads, or to share or not share certain data—and these requests go immediately to every agency, publisher and other participants in the blockchain.

The connected car company now knows exactly who is seeing and reacting to which ad where. Consumers are receiving ads that interest them, with their privacy rights protected. Vendors could receive faster payments, based on verified results.

Data flows and transactions are fast, largely automated, transparent where needed, hidden by cryptography where not, and highly trustworthy for every participant—including consumers.

Blockchain is merely one dimension of this hypothetical system, which would also depend on agreement on data and measurement standards, as well as on advanced data analytics. But by enabling authoritative data to be stored and shared securely, blockchain is a critical element.

The digital advertising ecosystem could lose up to **$19 billion** in fraud. Blockchain offers a solution: a digital dashboard in near-real time where ad buyers can verify the specifics of how all their various ads are performing in all the different channels.
From here to there: the obstacles to a digital advertising blockchain

PwC’s recent global survey on blockchain in business identified cross-industry enthusiasm about blockchain (84% of survey participants reported that their organizations have at least some involvement with the technology) as well as the challenges holding them back. (See the table below.)

Regulatory uncertainty tops the list of challenges, since most jurisdictions have not clarified how blockchain should comply with evolving privacy and other regulations.

Trust may seem a surprising challenge, since one of blockchain’s main purposes is to create trust where none existed before. Yet participants still must trust each other enough to pool forces to build and use the blockchain.

When it comes time to put the blockchain network together, some participants may hold back because they fail to understand how well blockchain can keep their sensitive data secret. Others may fear an unjust division of costs and value.

### The biggest barriers to blockchain adoption

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<tr>
<th>Challenge</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>Total</th>
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<tbody>
<tr>
<td>Regulatory uncertainty</td>
<td>27%</td>
<td>11%</td>
<td>10%</td>
<td>48%</td>
</tr>
<tr>
<td>Lack of trust among users</td>
<td>25%</td>
<td>13%</td>
<td>7%</td>
<td>45%</td>
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<tr>
<td>Ability to bring networks together</td>
<td>21%</td>
<td>15%</td>
<td>8%</td>
<td>44%</td>
</tr>
<tr>
<td>Separate blockchains not working</td>
<td>11%</td>
<td>18%</td>
<td>12%</td>
<td>41%</td>
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<tr>
<td>Inability to scale</td>
<td>6%</td>
<td>12%</td>
<td>11%</td>
<td>29%</td>
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<tr>
<td>Intellectual property concerns</td>
<td>6%</td>
<td>9%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Audit/compliance concerns</td>
<td>4%</td>
<td>7%</td>
<td>9%</td>
<td>20%</td>
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</table>
Yet the larger the network, the more value a blockchain can create. In our hypothetical connected car company’s campaign, if only a few ecosystem participants in a few different channels join the blockchain, it will still create value. Its verification of digital assets’ authenticity, tamper-proof records, automated transactions, and determination of payments are powerful tools.

But this blockchain will only fulfill its full potential if a critical mass of this campaign’s vendors are on it, enabling the connected car company to have a more complete view of all the different ads in all the different channels.

Digital advertising and blockchain: industry-specific challenges

Blockchain challenges cross sectors, but they manifest themselves differently in each. Here are some of the biggest industry-specific obstacles that digital advertising stakeholders must overcome before they can benefit from blockchain’s ability to boost trust—and thereby grow revenue and improve the customer experience:

- **In advertising, data is the product.** Blockchain can protect different participants’ data, as well as their methodologies for extracting, transforming, loading, and counting data. But many companies, fearful of losing the intellectual property that defines them, may require extensive convincing before they trust blockchain.

- **A vast, complex ecosystem.** A highly fragmented industry will have to collaborate on blockchain itself, on measurement standards, and—if blockchain’s algorithms are to live up to their potential to combat fraud—on how to authenticate digital identities, properties and impressions.

- **A rapid pace of innovation.** A digital advertising blockchain will need to be adaptable and scalable enough to work with the many new processes and products that the industry is constantly rolling out—as well as evolving data and measurement standards.

- **Misaligned interests.** Many ecosystem participants have competing interests. Agencies and publishers, for example, are often competing to “own” the relationship with the buyer and may resist a more transparent, collaborative system.

- **The need for consumer buy-in.** If consumers do not understand the value of a digital advertising blockchain (and digital advertising itself), they may not agree to share their data.

- **Speed and size.** Most industry applications will need both low latency and extremely high volume, without sacrificing privacy or security.

- **Multiple pressure points for regulations.** A blockchain that covers so many digital channels and participants, with sensitive data flowing through so many connections, will require adaptable governance to meet evolving regulatory standards.
Action plan: steps toward a digital advertising blockchain

PwC research has identified four strategies for blockchain business success:

- Make the business case for evolution, not revolution.
- Build an industry ecosystem.
- Design deliberately.
- Navigate regulatory uncertainty.

Here are some ways in which the digital advertising industry can advance on all four strategies.

1. **Explain the power.**
   Blockchain is an emerging technology, and like any new technology, proponents need to clearly articulate its business value and the exact ways in which it will have an impact. For digital advertising, the business value lies in its power to automate and scale trust—efforts to explain this value to industry groups and business partners will support implementation.

2. **Start where it's easiest.**
   Some parts of the digital advertising ecosystem are more ready than others for blockchain. OTT (over the top) media services, for example, typically require users to login with unique credentials. These offer a layer of authentication that can be a starting point for trusted data and identities on a blockchain. In-app advertising often has a similar layer of authentication protections.

   Many OTT services also have predefined ad formats and metrics, further paving the way for blockchain.

3. **Start with a few trusted partners.**
   The more participants a digital advertising blockchain has, the more value it can provide—but it is not necessary for every possible participant to be on board at the start.

   A blockchain proof of concept can focus on a specific problem that a few trusted collaborators can solve, but the blockchain should be designed so that it can scale. That requires giving it the technical means to handle high data flows and transaction volumes, and choosing rules of engagement so that organizations that do not trust each other can participate later.
4. **Monitor and build on others’ success.**
Digital advertising has not been leading the blockchain pack, but it can learn from the leaders. Blockchains are either up and running or in advanced development in areas such as:
- fighting counterfeit product
- safeguarding the pharmaceutical supply chain
- music rights management and payments
- food safety
- credentials management

5. **Agree on standards.**
As blockchain scales up, it will have to manage data that travels between multiple participants—and perhaps the entire industry. Participants will have to agree on definitions, labels, units of measurement, and other standards for everything from viewability to prices and performance. Both buy-side and sell-side teams should participate in these discussions.

These standards require vigilant data governance, including respect for consumers’ rights and wishes. **Self-sovereign identities** (SSIs), which increase users’ control over their online identities, is one way to boost consumer confidence in their rights.
Digital advertising has a trust problem, for which blockchain could be a critical part of the solution. Blockchain’s ability to conduct trusted transactions, manage and record data securely, and increase automation could help reduce fraud, increase data reliability, protect privacy rights, enable better data flows among partners, and deliver the right ads to the right consumers in the right places.

When combined with artificial intelligence to support advanced analytics and automate even complex processes, blockchain’s potential grows still further.

To implement a digital advertising blockchain, the different stakeholders will have to overcome key challenges, starting with ecosystem fragmentation and competing priorities that make collaboration difficult.

Yet there is a clear path forward, and the reward is clear: a revolution in trust, the customer experience, and the effectiveness of digital advertising.

The technology is ready. It’s time to start today.
For a deeper conversation about blockchain in advertising, please contact:

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