THE 2015 PROGRAMMATIC OUTLOOK REPORT

WELCOME TO THE 2015 PROGRAMMATIC OUTLOOK REPORT

PubMatic

Rajeev Goel
Co-Founder and CEO, PubMatic

When we started PubMatic nearly ten years ago, the programmatic advertising business didn't yet exist. Today, programmatic has washed over the entire media industry. Programmatic is estimated to account for 47% of non-search advertising in the U.S., and $21 billion in overall spend globally this year.[1]

Programmatic has moved beyond just transactions and RTB – it's consuming the entire workflow for advertising. It's branching out into more ad formats, like mobile, video, native and audio. It's touching both direct and indirect sales channels. It's reaching more consumption channels: desktop, mobile, tablets, and even connected TVs. And it will undoubtedly play a role in new digital channels such as wearables or even self-driving cars.

All this growth and potential is sparking discussion throughout the industry on where programmatic is going, and how our businesses should evolve in turn.

What effects will programmatic have on the way publishers are structured and operated? How can marketers use programmatic to reach the audiences we seek more effectively on a widening array of channels? How can we measure results and make smarter, more agile decisions when our business is moving in real time? What can we do to reduce fraud and ensure quality control and brand safety?

There isn't a better time to start having real conversations about issues like these. That's why we produced this Outlook Report – to look beyond the methods and tactics of programmatic and address the broader business, technical and social implications of an approach to selling and buying media that has become the "new normal."

Rajeev Goel
Co-Founder and CEO, PubMatic

[1] MediaPost. "Magna's Programmatic Forecast Defines Digital Ad Opportunity," 30 Sep 2014.

TABLE OF CONTENTS

PROGRAMMATIC: THE NEW NORMAL

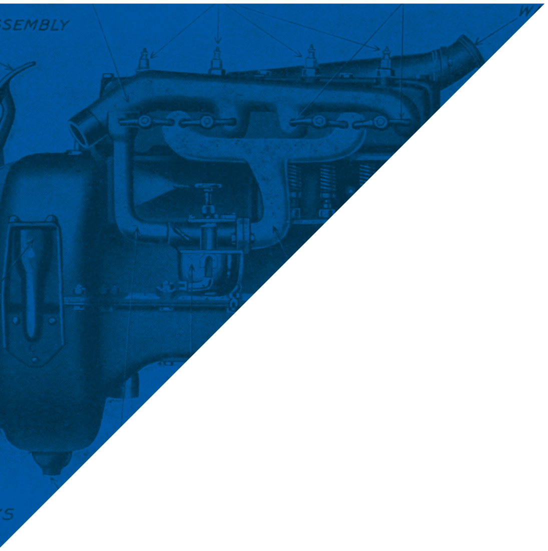
Kirk McDonald, President, PubMatic

When Henry Ford first started building his Model T, it took his workers more than 12 hours to put together a single car. The process was cumbersome, largely manual, and prone to errors; by the end of the first full month of production, only 11 cars were released. The labor on the assembly floor was so demanding, and the attrition rate so high, that if Ford wanted to increase his workforce by 100 men, he needed to hire 963. Inspired in part by observing meatpackers in Chicago, Ford decided to automate the production line as much as he could, beginning with installing conveyor belts to move


COOLING
FAN
ASSEMBLY

“Publishers have had a fear of programmatic–a fear of devaluing premium inventory, of exploiting user data, of creating obsolescence in their sales teams. Whether these fears are real or imagined, the truth is that resistance and denial are no longer an option.”

–Wenda Harris Millard, CEO, MediaLink[1]



the parts quickly between one station and the next. Soon, the time it took to make a single Model T dropped down to an hour and 33 minutes. As a result, Ford could make his car considerably more affordable and pay his employees more than three times their original wages.

Still, the automation of the auto production line was met with trepidation, with critics calling into question everything from the efficiency of the process to its impact on workers. The same concerns were raised when the stock exchange was automated, or when algorithms first emerged to replace travel agents. In both of these cases, the concerns proved futile: automation became the norm, and the industries that adopted it grew larger than ever.

The same is now true of advertising. Earlier this year, an *AdExchanger* survey showed that the overwhelming majority of the 400 marketers, ad agencies, and publishers queried were already managing at least 20 percent of their ad spend programmatically, more than two-thirds said they planned to double that expenditure over the coming year, and a quarter of all those asked replied that they sought to spend at least 80 percent of their budgets programmatically.[2] Similar numbers appear in other surveys. Programmatic, it’s clear, is now the new normal.

Which is not to say that we’ve overcome all of its challenges. As more and more users consume content on various screens, we remain committed to making their

[1] “Publisher Reinvention in Action” panel, Ad Revenue Conference 2014, 24 Oct 2014.
[2] AdExchanger Research. “The State of Programmatic Media”, May 2014.

experience more holistic, creating a reading experience that depends on the successful personal identification of each reader across platforms to make sure each user's engagement with content is seamless and uninterrupted.

This is not a mere technical hurdle. It's at the heart of the true promise of programmatic. As with all great industries, this one also will continue to thrive only if it benefits all involved, which means advertisers, media buyers, publishers, and consumers alike. The latter are perhaps the most important part of the equation: without sounding too hyperbolic, it is not much of a stretch to say that the future of the often beleaguered publishing industry depends on readers having an increasingly beneficial experience, which in turn depends on providing them with content and advertising that is relevant to them. This is what programmatic does, and by doing so it is doing much more than merely automating the process of selling ads.

The ability to deliver and monetize engagement through programmatic has benefited publishers of all types – from *The Atlantic*, which was founded in 1857 and now sees growing revenue from both its print and digital operations, to more recent innovators like BuzzFeed, Pinterest and Vice, each of which are proving that creative approaches to editorial and advertising can enable new (and lucrative) business models.

If you want to understand why media companies flourish even as the popular imagination would have us believe that print is dead, that no one reads anymore, and that the great journalistic enterprise is doomed, you have to look no further than programmatic. Automating the process of selling advertising and integrating it in creative ways with the content to make sure that both attract the right people at the right place and at the right time has turned publishing from a cumbersome and manual pursuit to one that is now able to focus on what it does best: engaging readers.

The pages that follow offer a view of the state of programmatic in the most fascinating moment in its evolution; not as a curiosity or a buzzword, but as the engine driving growth and enabling tremendous creativity. We tried to capture that energy while remaining clear-eyed about the challenges and hurdles ahead, and we look forward to seeing our industry join the ranks of so many others boosted to new heights by automation.

"Trust drives opportunity. I tell all of our members – all of our publishers – 'You should run to programmatic.' The automation, the unlocking of capital, the efficiencies that come with it are profound, and will help pay for the content of the future."

–Jason Kint, CEO, Digital Content Next[3]

[3] "The New Publisher" presentation, Ad Revenue Conference 2014, 24 Oct 2014.

Justin Re, Associate Director, Product Management, PubMatic

BIDDING GOODBYE TO ‘RTB’

For a long time, the term “programmatic” was effectively synonymous with “Real-Time Bidding,” or “RTB.” But as the industry has evolved, it becomes increasingly important to make a distinction between the two. Simply put, RTB does not equal programmatic. RTB is a technology protocol, and just one of many approaches to programmatic. It’s not a strategy or a business model, and to think of these two terms as one and the same seriously undervalues the programmatic ecosystem.

From the early days of ad tech, the term “programmatic” referred to transactions that flow over RTB pipes in an open market. With the advent of new and more complex programmatic solutions, however, we see more confusion around terminology, due in large part to the abundance of innovation in this industry.

"As a publisher who's watched over premium brands for a very long time, I don't believe programmatic poses any risk to what we do. I don't believe there's any risk to our ability to deliver premium content to a consumer, and I absolutely see no risk for advertisers to engage with publishers in any way, shape or form that they want to buy. Frankly, I see this as more of an opportunity than anything."

- Paul Caine, Global CRO, Bloomberg[1]

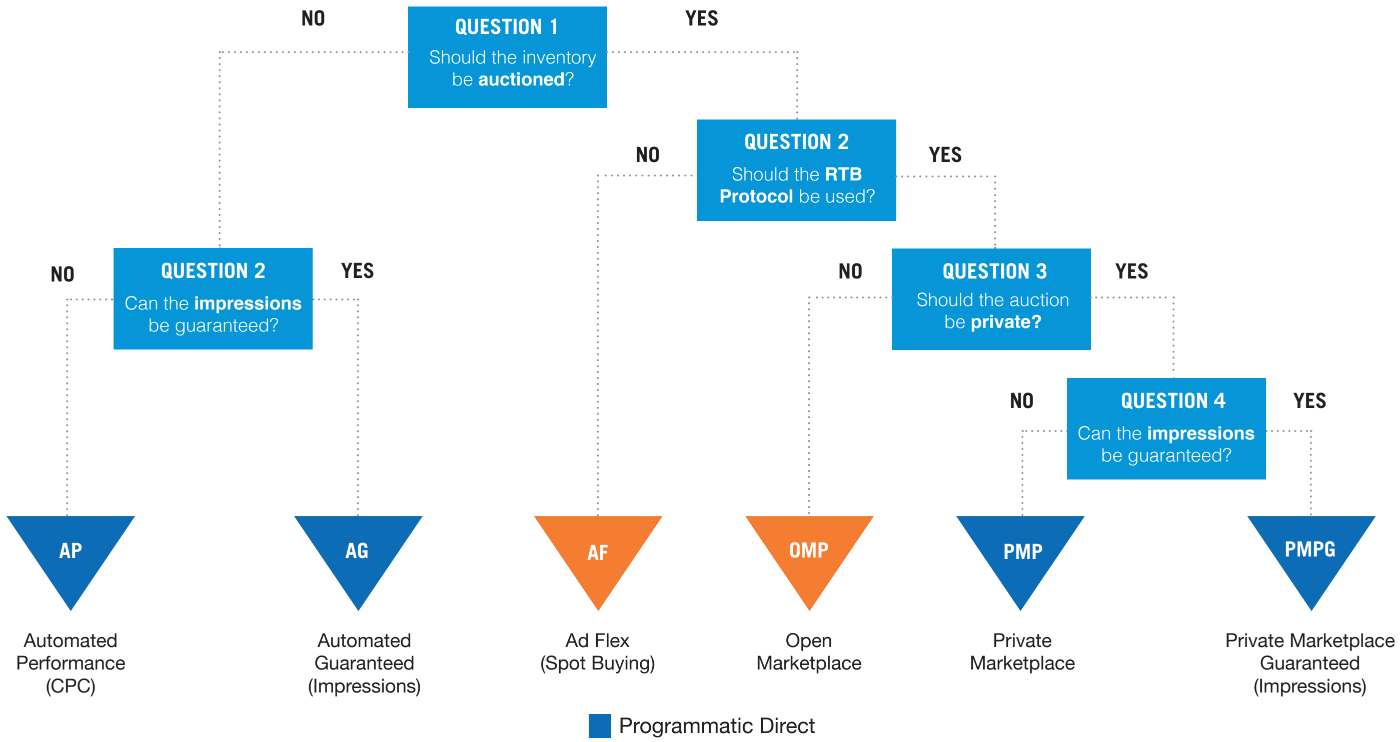
We are witnessing an explosion of new buying channels that better connect buyers and sellers, all with the aim of moving inventory higher up the value chain and replicating the traditional direct buying process without the legacy inefficiencies that go along with it.

Today, we've appropriated the term "direct" from the perspective of the traditional advertising industry, and "programmatic direct" is now an umbrella term for all electronically facilitated deals in which buyers and sellers are aware of one another to some extent. Of course, this means that the once-clear distinction between RTB and direct buying is no longer possible.

This is the first big clue that in the near future, the type of programmatic "pipes" used to transact will become largely irrelevant. There will be one pipe with a range of different configurations that publishers can choose based on their tactical needs. Until then, the chart on the following page can help to define the different buying types at a high level.

[1] "Publisher Reinvention in Action," panel, Ad Revenue Conference 2014, 24 Oct 2014.

A Guide to Programmatic Deal Types



THE MANY FLAVORS OF PROGRAMMATIC

There are six major programmatic deal types, although we have yet to see industry-wide consensus on how each is defined, or the appropriate goals and strategies that accompany them. In an effort to clarify, below are brief definitions of each of these six major deal types—from Open Marketplace RTB to Automated Guaranteed.

1. Open Marketplace RTB

Real-Time Bidding (RTB) is a technology protocol that enables the buying and selling of online ad impressions through instantaneous auctions, facilitated by ad exchanges or demand- and supply-side platforms. In the open marketplace, RTB impressions are available to all bidders.

2. Private Marketplace (PMP)

These are customized, invitation-only marketplaces that give publishers the ability (through an SSP) to designate certain inventory and sell it to a select buyer or group of buyers. Unlike a direct buy, which can be quite labor-intensive, buyers in a Private Marketplace use programmatic methods to purchase from publishers.

3. Private Marketplace Guaranteed (PMPG)

Similar to PMPs, a PMP Guaranteed deal is also a customized, invitation-only marketplace, however it is one in which a single premium publisher makes inventory and audiences available to a single buyer, thus guaranteeing a total spend and audience. This, in turn, effectively guarantees the impressions.

4. Spot Buying

Spot Buying transactions exist within an exchange environment with pre-negotiated, fixed pricing (CPM, CPC, etc.). Typically, these are given a higher priority than open marketplace or PMP transactions. These types of deals are the result of advertiser demand for a more predictable offering within the exchange space.

5. Automated Guaranteed (AG)

This is workflow automation, specifically the automation of traditional digital direct sales of publishers' most highly valued (e.g. premium) inventory. In Automated Guaranteed deals, the RFP and campaign trafficking processes are automated, inventory and pricing are guaranteed, deals are negotiated directly between sellers and buyers and facilitated by a technology platform. Direct integration with publishers' ad servers allow for real-time availability of impressions and direct line item insertion for trafficking. These campaigns run at the same priority within the ad server as other direct deals.

"We know that publishers have been reinventing themselves for decades. Programmatic offers them new opportunity: a different level at which to move, different ways for them to transform their business."

- Kirk McDonald, President, PubMatic

6. Automated Performance (AP)

This is workflow automation, similar to Automated Guaranteed. However, for these deals campaign performance is guaranteed, rather than impressions. The two main performance metrics for these deals are cost-per-click (CPC) or cost-per-install (CPI).

GOODBYE, 'RTB'

As more buying channels like Private Marketplace Guaranteed and Automated Guaranteed are introduced, and publishers and media buyers grow their understanding of their benefits and mechanics, we're likely to see the revenues running through them – relatively small today – increase as well.

It's no surprise that the success that many publishers see monetizing their inventory via RTB is fueling a desire to leverage that success across other channels. Similarly, the desire to manage all of these various channels and monetization strategies from a single, unified interface is also highly sought after. Standalone solutions, while often technically innovative, inevitably find it difficult to compete as the rest of the industry catches up and consolidation begins.

So, who will come out on top? The companies that can successfully bring the power of all of these buying channels to a single, unified customer experience.

THE PROGRAMMATIC PUBLISHER

Richard Sobel, Global Senior Director, Platform Solutions, PubMatic

Kelly McConnell, Director, Platform Solutions, PubMatic

As industries evolve, their business models and approaches start to clarify and refine. They discard less effective workflows and processes and replace them with greater efficiency. This is completely normal and a requirement for business growth. Programmatic is no different. As programmatic technology evolves beyond simple solutions for yield management and Real-Time Bidding (RTB), it is offering the tools needed to solve more sophisticated business problems – the automation of direct sales, more accurate audience targeting or more effective monetization strategies across a proliferation of screens and formats. As a result we can see new trends unfold in how publishers and media buyers integrate programmatic advertising into their business strategies.

The forms and functions of the various players in the advertising technology ecosystem are becoming more defined with each passing year – take, for example, the increasingly clear differentiation between exchanges, which value liquidity over margin and the ability to transact on volume, and the DSPs and SSPs, who act as technology providers to their customers. Similarly, as programmatic evolves, so too does publishers' understanding of it, as well as their

need to adopt more sophisticated solutions and strategies to tackle its increasingly complex challenges.

SSPs that are focused on publishers naturally have unique insights into the evolution and clarification of publishers' programmatic strategies. The segments outlined in the following section indicate not only the maturation of our industry, but also a variety of effective publisher strategies that have developed depending on where they currently are in their programmatic journey. As a greater number of publishers adopt programmatic, a greater number have been using programmatic and are further along in the lifecycle of adoption, implementation, and now strategic optimization.

What Works?

Defining success in programmatic advertising is difficult, but not for the obvious reasons. Technology partnerships, sales preparedness, and tagging structures all play a role, but those are all downstream from strategic decision-making about where programmatic fits into a media sales business. If strategy is where vision meets execution, then a publisher's vision for programmatic advertising is to leverage the secular trend of efficient media buying and incorporate it into the core of a media sales business. Determining the strategy to make the execution work is the largest challenge that defines what success means to that incorporation.

As publishers look to leverage real-time, data-driven decisions to optimize their media sales, there is differentiation in how each will approach programmatic based on balancing their goals for revenue and the consumer experience. There are some key factors that this differentiation highlights, and publishers looking toward improving how they leverage programmatic advertising should not only be aware, but also face these factors head on. We define these segments based on considerations of key business factors, what is impacted by the decisions made around those factors, the business agenda for internal management and market-facing approach, and the nature of the business as a media property. To land on the right approach, publishers should be asking themselves questions such as those listed below.

How is advertising and the inclusion of programmatic strategy impacting your customer experience?

Significant questions exist about how the consumer and advertising experiences should fit together. Why does it make sense to provide advertising as part of the consumer experience? What consumer experience interruptions are appropriate? How does the relationship with the consumer change based on insertion of advertising into users' experiences? How do marketer relationships impact the consumer relationship, and to what extent should those relationships be bent toward each other?

What is the best path to revenue?

The most fundamental set of questions for revenue strategy involves examining how monetization impacts your larger business. How much should your business rely on advertising? Does advertising disrupt other revenue streams, and to what extent is that disruption allowable? How important are relationships with marketers, and what accommodations can the business make based on those relationships?

What is your presence in the market?

Partner and client perceptions matter, and your business needs to make decisions that shape those perceptions in a thoughtful way. What defines "premium"? How aggressive should your sales team be? Are there partnerships that can make the relationship with marketers more successful? Should technology solution providers be vendors, or partners? How should marketers perceive your business, and why should they want to work with you?

What should be done locally, and what should be administered globally?

With an increasing number of channels and global markets becoming part of your daily business considerations, their integration with larger business objectives requires a good degree of clarity about how these integrations will work. Local resources can be extremely effective when properly infused into the market, but how independent should they be? Should the global team be centrally managed or should local markets have control of their destiny? What coordination is needed for the business to be successful at managing brand presence, global marketer relationships, and organizational consistency?

How do you balance efficiency and control?

As programmatic becomes a vital tool for advertising, the efficiency it provides needs to be balanced with the business rules and control that a team of human sellers can maintain. The decisions about how to manage that balance are as essential to your business as decisions regarding how to integrate programmatic. Programmatic can bring in a tremendous amount of revenue, but what restrictions are necessary to prevent negative impacts on consumer experience? How important is it to maintain pricing standards? How should the programmatic channel be balanced with existing sales business? Should programmatic stand alone as its own sales channel, or should it be part of a larger sales effort? How should your business shift organizational resources based on the increased efficiency gained from programmatic execution, and are there even larger efficiencies to be realized? What rules need to be built to allow the revenue programmatic brings into the business, and how tightly should they be constructed?

The Biggest Questions

As companies develop and evolve their programmatic strategies, these questions also evolve, requiring publishers to understand which segment of the market they operate in, and which they want to operate within, and how to alter or mature their strategies accordingly.

Technology companies must shift their focus to tailoring their approach with publishers in each segment, or possibly selecting specific segments to provide solutions for. More than understanding what it takes to solve the problems of the range of publisher concerns, the key question then becomes: *Is the solution suite designed to integrate into the business and actively address the challenges each segment faces?*

For marketers, it is less about taking advantage of opportunities, and more about identifying the partnerships worth forging. The range of sophistication among publishers and technology providers can make it worthwhile to structure principal partnerships with publishers in each segment, or in a variety of publisher segments. The key question then becomes: *What types of principal partnerships make sense for each segment?*

For publishers, the most obvious question is about segmentation alignment. However, this goes beyond simply identifying which segment your business lies in, and the key question comes down to: *How should I address the challenges of my segment in order to make my business more successful?*

In the chart that follows, we outline a number of publisher approaches that illustrate the many ways that different methods, structures, strategies and business models can add up to an effective programmatic strategy – and the challenges inherent in each. With this information, publishers can study the approaches of their peers and develop insights into the best way to match programmatic strategies and tactics to the unique requirements of their business.

WHAT KIND OF PUBLISHER ARE YOU?

As programmatic grows and matures – and more businesses build valuable experiences and insights in turn – the companies operating in this space are beginning to fall into clearer categories. Each of the segments below reflects a different approach to the many decisions that companies need to make when considering their programmatic strategies, such as balancing self-management with external support, integrating sales teams, or even the extent to which programmatic can or should become its own business channel.

1. Assertive Strategy

Characteristics

- Uses advertising as the cornerstone of capitalizing on their consumer connections
- Focuses on maintaining key marketer relationships for a larger share of spend
- Willing to sacrifice smaller advertisers at higher prices to bring value to key partners and clients
- Maintains a strong position on pricing and ad asset management even when pushed by key partners and clients
- Relies on ad tech solely as software providers and favors in-house strategy and execution
- Bases margins on a global approach to managing media assets and may or may not be gaining maximum margin

Challenges

- Defining quality is never easy, and these companies are constantly working to maintain a "premium" value proposition.
- Legacy sales teams face a steep learning curve, as they have difficulty changing historically successful methods and practices.
- They understand the importance of consumer relationship data management, but struggle to turn that relationship into meaningful new revenue streams.
- Significant change management is required throughout the business, and change management is never easy or rapid.

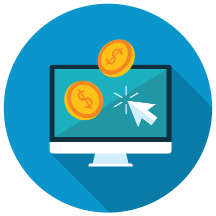
2. Evaluate and Evolve

Characteristics

- Believes that strong consumer engagement is the pinnacle of a digital presence
- Experienced at managing marketing partners and clients, but will bend on pricing to maintain market share and keep those partners spending in-house
- Relies heavily on ad technology companies for recommendations on strategy, best practices and market insights
- Aims to prioritize strategy around consumer engagement, with advertising margin simply as a means to an end

Challenges

- Figuring out programmatic requires prioritization of sales and revenue strategy that can disrupt the business.
- Executive management is not as comfortable experimenting with revenue strategy changes, but knows that change is essential to growth.
- They are very aware of the application of data for the consumer experience, but they do not apply that data to profiling those consumers for marketers.
- Sales teams are willing to embrace programmatic, but struggle with understanding how to integrate it fully.




3. Optimize Market Share

Characteristics

- Driven by advertising, even at the occasional expense of consumer experience
- Focuses on growing share across all possible markets
- Willing to aggregate incremental media to provide greater access as a service for marketers
- Uses technology companies as a means to an end, and usually leverages multiple partners to try to optimize for trading efficiencies
- Views price and inventory standards as secondary to media margin and profit

Challenges

- Consumer experiences are always in the balance.
- Aggregation of media requires a standard packaging structure that must rely on data, but that consumer profile requires costly data manipulation.
- Amassing incremental media assets can dilute the premium nature of the inventory.
- Driving a sales strategy on diversified media presents relationship management challenges and can invite brand safety questions.

4. All About Experiences

Characteristics

- Prioritizes the consumer journey, regardless of intent
- Views advertising as important, but ultimately secondary to providing a richer consumer experience
- Treats technology companies as vendors, but relies on their insights and strategy recommendations
- Balances media margin with the risk of jeopardizing the consumer purchase path

Challenges

- Integrating advertising requires significant executive support, but that support can be undermined when programmatic disrupts the consumer experience.
- A tremendous consumer relationship delivers an equally tremendous amount of consumer data, but the activation of that data must be done carefully, methodically and appropriately.
- Experience with key marketer partners and clients tends to fall into direct response territory, missing the branding opportunity.
- Packaging media is often a new enterprise, and the discipline can be difficult to learn without some guidance.
- Market knowledge is often hard to come by without a media sales presence, and developing that presence has not been part of the business plan.

5. Better Together

Characteristics

- Views advertising as providing a rounded experience for customers, but not always fitting into the strategic product plans
- Focuses on fulfilling the consumer's needs, in all aspects of the engagement journey
- Brings in technology companies for their market expertise, but faces considerable friction from internal product teams
- Media pricing fits clearly into the consumer experience and is considered carefully

Challenges

- Even occasional battles between product and sales can create significant internal political tension.
- Has a best-in-class understanding of the consumer, and can deliver a rich experience accordingly, but struggles with integrating that knowledge from a media sales perspective.
- Programmatic can disrupt strong brand relationships, and determining how to blend them with programmatic can require re-prioritization of sales strategy and training.
- Training sellers who are used to large brand integrations for programmatic and data-driven selling requires significant time, effort and knowledge.

6. Advertising is Adjacent

Characteristics

- Uncomfortably disrupted by programmatic advertising
- Unsure of strategy, and actively needs help putting the pieces together
- Pressured for greater efficiencies by key marketer partners and clients
- Happy to leverage technology companies for market intelligence and best practices
- Firm on pricing, and will accommodate efficiency requests based on larger spend commitments

Challenges

- Executive support for programmatic has been difficult and requires extensive education.
- Getting the sales team on board with programmatic will require leadership support, as well as training and a confident approach to the market.
- Consumer data has not been part of the strategy or conversation, and it requires both technology and a stronger understanding of the consumer profiles of the users.
- They are willing to work with technology partners, but have a hard time selecting the right companies to leverage.

7. Technology First

Characteristics

- High scale business including a third-party media sales channel
- Owns part or all of the technology stack to operate programmatic sales, including data management, auction and exchange administration, and/or buyer platform integrations
- Offers white-labeled technology to other publishers

Challenges

- Integrating programmatic with direct sales is difficult based on the overall scale of the business.
- Channel conflict between owned, operated and third-party media can create confusion for prioritizing sales.
- They often compete with third-party media customers for share of wallet from larger brands.
- They sometimes confuse features with functions when building or partnering for technology solutions.

THE VISUAL WEB

Liel Leibovitz, Ph.D., Visiting Assistant Professor of Media, Culture and Communication, New York University

Ever since 1995, when Sandra Bullock played a systems analyst persecuted by shadowy forces in *The Net*, whenever Hollywood needed to demonstrate that someone was a web wizard, it would show her or him hunched over a terminal, furiously clicking away at a keyboard. In large part, that's because that is what the web was about for the longest time: words. Whether presented in green on black, as in the old computers of the 1980s, or in the slicker designs of the early 2000s, it was understood that the Internet's premier commodity was text.

No more: the visual web is now upon us. With image-driven platforms such as Instagram, Pinterest and Tumblr rising in prominence, the Internet ecosystem is undergoing a deep transformation.

Consider this: of the fastest-growing apps in 2013, the top three – Vine, Flickr, and Instagram – are strictly visual in nature. These apps depend very heavily on mobile usage, which is slated to reach 15 exabytes of data per month by 2018. By then, it is anticipated that a full two-thirds of mobile data traffic will consist of video.

As with every change that comes about quickly and furiously, this shift from text to images, too, will require considerable adjustments. Some are obvious, and others will likely come as a surprise. A few changes, however, are likely:

- **The Web is about to get younger and more female-centric:** According to the Pew Internet and American Life survey, the largest group that browses the Internet solely on their mobile devices consists of young adults and women. This means that much of the web's visual content will be tailored to the tastes and interests of these

two groups. This, in part, is the story of Pinterest, which grew into a juggernaut only after young women began using it to share images they enjoyed.

- **Ads will become increasingly integrated into content:** When Tumblr introduced sponsored posts in 2012, many critics claimed that young users, allergic to anything that reeked of corporate involvement, would abandon the service and seek out the next hip thing. Instead, Tumblr registered a nearly 50 percent increase in visitors by the end of 2013. The reason is simple: the ads were clever, creative, and often indistinguishable from other content – a much easier task to achieve with an image. An adorable GIF of a minion (the little yellow creatures from the *Despicable Me* film franchise) dressed in a French maid outfit, for example, registered more than 315,000 notes in a few months: a major viral success. The traditional revenue model, then, seems secure in the new visually-driven economy.

- **User Generated Content (UGC) will continue to dominate:** Images are quicker to consume than words, and so any platform that wishes to attract and retain users will have to offer up a considerable amount of visual data, which is most easily achieved by empowering users to create it. Put simply, your vacation shots, selfies, and food porn will become ever more prominent.

Let me be clear: none of this suggests, as some curmudgeonly critics do, that we're headed for a benighted period of illiterate idiocy. Far from it: the new visual web, like every medium before it, will eventually find its language and evolve far past trifles. A recent campaign by Honda is a great example of what lies ahead: in a series of stunning short interactive films, the car maker presented compelling intertwined narratives and urged the viewer to switch from one to another. The result was one of the more thrilling examples of visual storytelling in recent memory; that it happened to be an advertisement shows that the visual web is likely to further bless the union of art and commerce.

That is, if our machines so permit. As we adjust to the predominance of visual content, we'll have to build a new infrastructure that is capable of handling images as well as text. Visual search engines, for example, are already moving away from metadata-based approaches – searching the text of the tags attached to the images, for example – and towards the use of computer vision and machine learning to extract data and context from the pixels themselves. As this change unfolds, researchers are beginning to notice things that have previously been largely irrelevant, such as shapes and colors, but that play a tremendous part in setting moods, conveying messages, and engaging users.

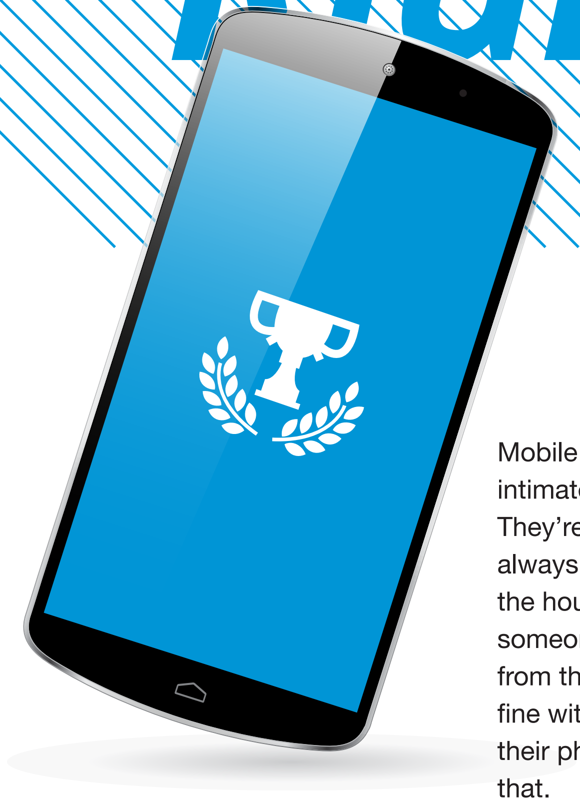
In a recent piece of research, for example, my former student Maxwell Foxman and I collected hundreds of photographs taken by the media in the downtown Manhattan park that was the headquarters of the Occupy Wall Street movement, and compared them to photos from the same location taken by Twitter users by feeding them into visual data analysis software. Although depicting the same events at the same location, the differences between both sets were stark in everything from the number of objects captured in the photo to the color palette applied and the shapes depicted. Publishers, marketers, and academics that use similar approaches are likely to be increasingly successful in creating campaigns that strongly engage the target audience as their understanding of the implication of the shapes, colors, and composition of images as a medium for communication continues to grow.

And this, perhaps, is the truly remarkable thing about the visual web: immediate and emotional, requiring no translation, and available wherever you go, it stands to deliver content we care about while doing away with the traditional distinctions between editorial and advertising and between publisher and reader, making the vision of a truly social network a concrete reality at last.

Heather Menery, VP, Emerging Solutions, PubMatic

GETTING MOBILE RIGHT

(Or At Least Not Wrong)



Mobile devices are literally the most intimate technology in people's lives. They're one of three things people always check for before they leave the house – wallet, keys, phone. Ask someone to spend a few days away from their kids and they're probably fine with it. But ask them to go without their phone... well, good luck with that.

The biggest mistake marketers can make is to overlook how deeply personal mobile technology is. It's unique among channels and technologies in that its use cases are far broader: people consume media on their mobile devices, which is familiar territory for advertisers, but they also communicate with friends and loved ones and plan their days and lives. Most of the time, people use their devices in service of completing a task – whether it's killing five minutes of boredom, or checking the time and location of their next appointment. As marketers, we have relatively less experience crafting and targeting messages for these contexts.

Consequently, when ads fail on mobile, they fail big. When you interrupt the flow of someone's day, or offer an annoying intrusion, the consequences are far graver than an irrelevant TV spot or wrongly targeted ad on the web. They mean more than just a lost opportunity to build awareness or drive transactions – they can negatively impact your brand.

> **"Content will attract the right kind of audience on the right kind of device, and if that's the case and they choose mobile, then the experience better be extraordinary."**
>
> - Greg Coleman, President, BuzzFeed[1]

These failures fall into roughly two categories – misunderstanding people's intent, and disrespecting their time and attention.

Misunderstanding Intent

The canonical dream of mobile marketing is to show the ad for Home Depot to the DIYer when they're close to the store. But this only has utility in certain cases – in most others, it can be intrusive and irrelevant. If they're passing by Home Depot in the morning on their way to work, it's unwise to send them a message they're unlikely to act on. But if they're on their way home from work, the opportunity for meaningful reach is real.

This is because location is really just one of many signals that marketers can use to determine and act on consumer intent. The true value of location data is additive – their latitude and longitude is just the baseline. Thanks to the growth of programmatic and the emergence of vast and connected datasets, we can computationally determine consumer intent in richer and more nuanced ways – we can develop an understanding of who people are, how they spend their days, and the psychology of their purchasing patterns – enabling us to target our messages more effectively and reduce the interruptions and annoyances that turn consumers off.

Disrespecting the User Experience

Mobile screens are small (but getting larger), and they're nearly always serving an audience of one. Early-generation smartphones failed to take off because they too often adapted the look and feel of desktop software to a vastly smaller screen – it wasn't until the iPhone rethought the user interface from the ground up that smartphones went from a niche gadget for executives to a must-have accessory for teenagers.

[1] "The Social, Mobile Consumer and What it Means for Publishers" panel, Ad Revenue Conference 2014, 24 Oct 2014.

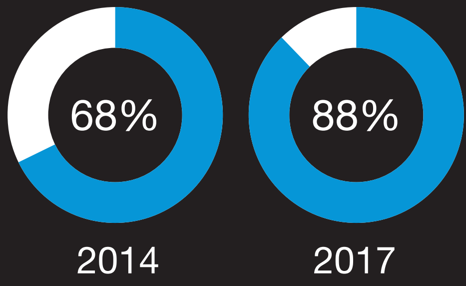
Software has adapted itself to the form factor, and developers who were "born mobile" have the know-how to build fluid, responsive and useful applications; now it's time for advertisers to do the hard work. Mobile advertising must do a much better job than other channels of weaving itself seamlessly into the user interaction. Given the intimacy of the mobile form factor, the risk of interrupting and annoying the user is far greater. The badly targeted ad, based on incomplete or incorrect understanding of the user, simply "feels" worse because it has intruded on the user's personal space. The same goes for ugly, inconvenient and clumsy ad formats – ads that are too big, are hard to close, and jar the otherwise fluid experience of using a mobile device.

Trust (But Verify) Your Technologists

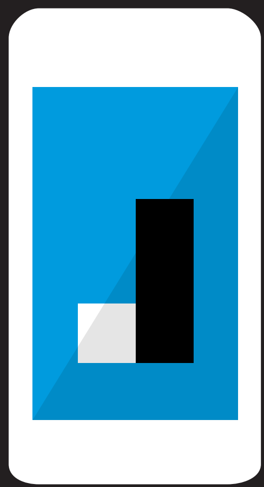
With mobile, the stakes are high. But the good news is that the marketing business is adapting fast. From a publisher's perspective, understanding the mobile landscape is important, but choosing the right technology providers is crucial. Programmatic offers the choice and flexibility to develop mobile strategies that respect the user and monetize well – and to adapt those strategies in real time based on their success (or lack thereof). RTB and programmatic are the perfect complement to walking this tightrope – helping marketers find precisely the audience they want, and reaching them in appropriate and impactful ways. Programmatic offers the controls to manage getting the right advertisers in the app or adjacent to the content, and RTB allows for the more strategic and precise targeting necessary to get the right mobile impressions.

In their rush to make the most of mobile, publishers should always bear in mind the intimacy of the channel, and the significant risks in getting it wrong. Building on that understanding, they should choose technology partners who share their views and whose interests are aligned with theirs. Especially in mobile, there is a difference between messages that just "get delivered" by any means necessary, and messages that feel welcome and at home in mobile users' hands. For technology providers to successfully walk this tightrope, they must commit to caring as much about their audiences' time and attention as publishers always have.

MOBILE: Did You Know?



Approximately 68% of mobile ads were bought programmatically in 2014; **that number is predicted to rise to 88% by 2017.**



Programmatic buying in mobile was expected to grow nearly 300% in 2014 alone, with U.S. advertisers spending 80% more on mobile advertising in this year than they did in 2013, an increase of $8.04 billion.[2]

Location and device ID deliver enhanced value. No data helps add value to mobile inventory more than these two data points. This is especially true of location, which produces a 20% to 40% increase in eCPMs for publishers, as it is high value for advertisers.

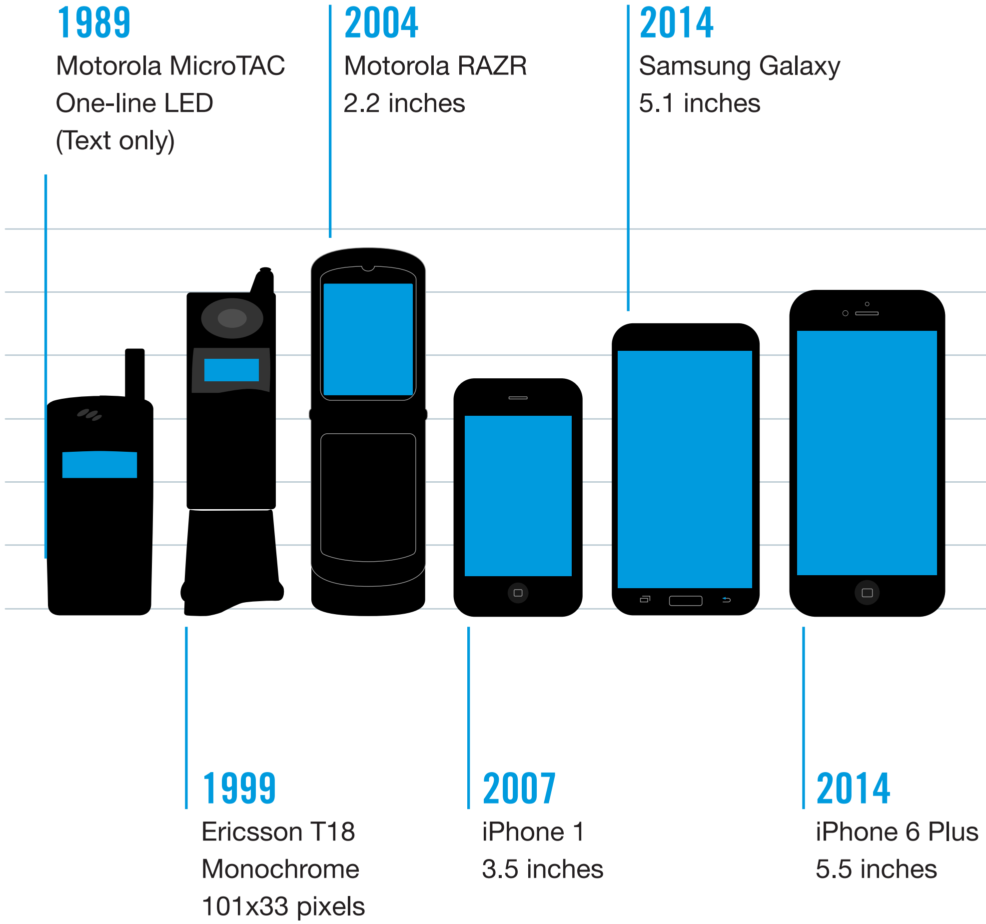
Adding latitude and longitude (lat/long) data to your mobile impressions can increase your eCPMs by as much as 124%.[3]

Adding both lat/long and device ID data to your mobile impressions can increase your eCPMs by as much as 275%.[4]

App inventory is now a must-have. Mobile application inventory is generally monetized 30-50% higher than mobile web inventory. This is because mobile app inventory increases the potential to produce more targeted, effective and engaging ads.

[2] IDC. "Worldwide and U.S. Real-Time Bidding Forecast," 2013.
[3] PubMatic proprietary data.
[4] PubMatic proprietary data.

SCREEN SIZES
Over the Years



REPORTS ON INVESTMENT: THE NEW R.O.I.

Anand Das, Co-Founder and CTO, PubMatic

19th century merchant John Wanamaker famously said that half the money he spent on advertising was wasted – but he didn't know which half. He's been dead for nearly a century now, and I would bet that he is turning over in his grave at the number of times his quote has been used in the past five years to describe the lingering challenges of advertising measurement, reporting and attribution. In fact, some of the most significant steps we've taken towards making advertising truly measurable and accountable in real-time have only happened within the last 10 years.

Programmatic, defined as the technology-driven automation of the buying and selling workflows in media, has made advertising more precise than ever before. Our industry's technical innovations have created incredibly complex real-time systems that offer advertisers and publishers ever-greater levels of control and responsiveness. But the irony of the programmatic age is that we measure its results using tools that date to the previous decade – or even the previous century. Programmatic has become the new normal, but our reporting and analytics remain stuck in the old normal. A lot of media planning is still done in Excel. Some non-programmatic media buys still are completed through *fax machines*.

Programmatic is growing in scale and complexity so fast that it's getting

harder every day for humans to keep up with it. Advertisers and publishers could use programmatic to be more adaptive and responsive – making real-time changes to strategy based on up-to-the-minute data and insights – but the tools to help manage and understand this data are not nearly as advanced as the platform itself. This is impeding the ability for advertisers and publishers to understand the performance and potential of their programmatic investments quickly and easily.

Your Reporting is All You Have

This problem must be solved; until we achieve unified attribution of every marketing message, through every channel and at every stage in the purchase funnel, reporting is the only tool in our belt that can express the value of our business decisions. It's the official record of our return on investment. As advertisers and publishers, our success depends on our ability to communicate results; we need to count our marbles faster, more meaningfully, and more accurately, and we need to use that information to make quicker decisions, double down on the winners and cut the losers.

Typically, programmatic reporting data can lag by many hours, or even a full day. This latency makes it challenging for publishers and advertisers to take action on that data quickly, insightfully or easily. This is compounded by the fact that the data isn't always available in the forms its users need, and pulling custom reports further adds to the latency between data and action. At the end of the day, most media reporting is still done manually.

We Should Expect More

As consumers, the technology in our lives is simple, fluid and responsive. If we're in an unfamiliar neighborhood and craving Chinese food, we can pull out our smartphone and ask where the nearest good restaurant is, using natural language. If we're trying to get in better shape, we can choose from any number of wearables and apps that track our activity and visualize our progress clearly and beautifully with suggestions on how to improve. These capabilities are no longer science fiction – in our personal lives, we expect technology to work this way.

It's time for us to expect the same from our business tools. In the past year, we have seen some progress, with solutions that are increasingly more intuitive and responsive, better data visualization, and simplified user interfaces. But these are only the first steps. In the future, we will need more sophisticated visualizations to help us identify patterns, trends and outliers in our clients' and customers' data – enabling faster, more informed decision making. We should be able to ask simple questions about complex, real-time data and get clear and actionable answers. We should accelerate innovation in our analytics and reporting tools to match the power and sophistication of programmatic itself.

As noted above, most of us can pick up our smartphones and verbally ask for directions. This capability is the result of decades of research to help computers better understand written and spoken language, to infer the meaning of a question and transform it into a machine-understandable query. In the programmatic world, we can tap into these advances to create a more conversational approach to analytics and reporting. Instead of constructing a complex query, we should be able to ask the simple questions that our bosses are asking us, such as "Who are my top five agency buyers?"

Programmatic gives us the epitome of "big data" – an unprecedented amount of detailed knowledge about the reach and effectiveness of media buys. And like all big data, its volume and complexity outpaces any human's ability to process it. But it's increasingly possible for machines to comb through all this data and produce insights and guidance of a quality approaching that of an expert human. The same kinds of algorithms that helped IBM's Watson beat its human competitors on *Jeopardy!*, or even the ones that recommend movies and books for you on Amazon or Netflix, can come to bear to help you make better decisions about your programmatic strategies. We can use predictive modeling to compare your own data to that of all your peers and competitors securely, and generate

"What we're really thinking about is how to use all the data we have to take the business to a level that people can't conceive. People keep talking about 'big data' in terms of targeting better and buying better, but maybe that's missing the point. Every one of those explanations says the ROI is still in the hands of the buyer. What data is going to do is fundamentally transform the media business; [publishers] are going to be about selling ROI."

- Bob Pittman, Chairman & CEO, iHeartMedia[1]

[1] "A Fireside Chat with Bob Pittman, Chairman & CEO, iHeartMedia," Ad Revenue Conference 2014, 24 Oct 2014.

insights and recommendations that are grounded in real data and highly relevant to you and your needs.

we will easily be able to integrate the prescriptive insights provided by these tools into our advertising and publishing development processes.

"Programmatic is a wonderful tool that puts a lot of analytics and a lot of buyer needs into the same hands."

- Paul Caine, Global CRO, Bloomberg[2]

Looking ahead to 2015, we can expect to see a shift from our current information-based reporting and analytics to tools that use artificial intelligence to combine forecasting and recommendations based on past trends – in other words, a shift from descriptive to prescriptive analytics and reporting. As a result, we can expect real-time reporting with natural language interfaces to be standard and expected. Further,

Consequently, data scientists and related specialist roles likely will grow in importance and have an increasingly powerful voice in conversations about pricing and packaging.

The combination of natural language processing, machine learning and predictive modeling will add up to some significant advances in how we use programmatic to drive substantial and meaningful results. If we can close the gap between data, insight and action, we will be able to tap into the speed and flexibility of our technology in an even more meaningful way.

PROGRESS IN REPORTING AND ANALYTICS CAPABILITIES: H2 2014

July 1, 2014
Metamarkets launched the "first real-time analytics platform for programmatic advertising," providing their exchange partners with the ability to share live analytics with their clients and partners.

September 16, 2014
Rocket Fuel announced the launch of Mission Control Insights, a new feature of its Mission Control platform that provides its managed-service customers with real-time access to campaign reporting and analytics.

October 28, 2014
PubMatic launched PubMatic Analytics, a real-time analytics and reporting solution that offers real-time data and, for the first time in the industry, natural language queries.

[2] "Publisher Reinvention in Action" panel, Ad Revenue Conference 2014, 24 Oct 2014.

SHOULD PUBLISHERS FEAR THE NEW WALLED GARDENS?

Matthew Shevach, Senior Director, Product Marketing, PubMatic

There is a large transition underway in the advertising technology business – from the complex and fragmented probabilistic advertising ecosystem that has evolved on the back of cookies and anonymous third-party targeting to that of a few large, concentrated and deterministic ad platforms that enable explicit consumer targeting based on actual identity. While we understand the implications of this from the perspective of individual privacy, the growing presence of large first-party ad platforms with powerful self-interests has a strong (and not always welcome) influence on the way publishers and advertisers engage and do business.

There are others emerging, but for the purposes of this conversation let's look at what we can call "The Big Four": Google, Facebook, Apple and Amazon. They have unparalleled reach with consumers across desktop and mobile. They have personal and identifiable relationships with their users on a massive scale. Smartly, they have created their own systems for consumer lock-in by providing a seamless user experience, increased relevancy, enhanced e-commerce capabilities, and more. And they build profiles that are augmented by their view of consumer behavior across these spaces.

Consumers are required to use their real identity on Facebook, Google, Apple and Amazon, either because the utility of the service depends on it, or because it is tied to payment credentials that require validation. There is no way to stay anonymous within the deterministic ecosystems that currently exist. Consequently, the days of using anonymous cookies to target and attribute advertising, where technology provides an "educated guess" about the user that relates to each cookie, are drawing to a close. Each of the big four providers have integrated their own unique user identification platform into their advertising systems so that they can address ads to each consumer in a deterministic fashion. No guesswork here. They know exactly who you are.

It's no question, then, why these four already have the lion's share of ad spending – but is this just the beginning? Google, Facebook and Amazon already have a concerted effort in place to monetize their relationships with other publishers by applying their vast and detailed user profiles across other publisher environments.

So, what about the rest of us? If you aren't Facebook, Google, Amazon or Apple, you need to leverage third-party technology to enable activation of first-party data for ad targeting in order to compete with each other and the large first-party providers. Despite access to valuable first-party data, the majority of ad targeting data is applied on the buy side, leaving most publishers' first-party data falling short of its promised value.

Further, many of these publishers are having their first-party data "captured" by Facebook through their distributed network of "like" and "login" buttons. In some cases, the buy side ad tech ecosystem can take advantage of "data leakage" tactics from publishers to enable smart buyers to reach the same audience more cheaply on other sites, ultimately devaluing premium publishers' inventory.

"What our clients want from us is to provide that agnostic platform that can function with any walled garden, in this case, or any data audience provider because no advertiser is going to want to put all their eggs in one basket – or one garden."

- Manu Warikoo, SVP Product, Mediaocean[1]

[1] "Consolidation in the Industry: The Future of the Tech Stack" panel, Ad Revenue Conference 2014, 24 Oct 2014.

Advertisers have benefited from the explosion of audience targeting data that is available in the advertising ecosystem. Although some have been slow to adopt the shift from purely contextual advertising to one that combines context, behavior, location, time, and many other factors, there are other advertisers who have embraced this shift and are moving quickly to add their own first-party data to the mix.

"If you're a publisher, what do you want? You want access to Facebook's data and monetization, Google's data and monetization, Twitter's data and monetization, AOL, etc. You want to know that your inventory can be tagged with their data, and if they can monetize it at a higher price, great. You want to have that discovery possibility, and then that monetization."

- Rajeev Goel, Co-Founder & CEO, PubMatic[2]

Currently, advertisers enjoy a multitude of targeting, analysis and attribution systems that can provide consistent insight into the performance of advertising across nearly all media solutions by leveraging third-party ad tech for identifying audience and context, serving ads, measuring performance, and generating insights. But still, third-party technology providers are primarily reliant on probabilistic user identifications for the purpose of targeting and analyzing performance.

While the dominance of a few major companies is a common market structure in many other industries, from airlines to processed food – even the candy business – the continued preeminence of four major ad platforms has unique implications for advertisers. These ecosystems exist as "walled gardens" with most (if not all) targeting, tracking and measurement of ad performance contained within. Advertisers get some benefit from the scale and high-quality data provided within each garden, but it becomes difficult to target or attribute campaigns across different ecosystems.

It is unlikely that this market structure will change significantly in the coming years, but there are some possible directions that could affect how advertisers engage with the major players:

Growing consumer concern over the privacy of their personal data will lead to opt-in requirements for providers that identify them deterministically. This development would keep third-party technology providers from proceeding down the deterministic path. Cookie-less solutions for identification, such as fingerprinting, could deliver some value, but the large deterministic players would remain in the driver's seat.

The large first-party deterministic ad platforms will continue to expand, reaching TV, radio, digital out of home, and wearables. This will extend their access to consumer behavior from the digital realm to the physical world. Consequently, this replicates the "walled garden" effect within some of the most promising new venues for advertising.

The "rest" of the publisher ecosystem will stay on the defensive. Business realities will force them to either subjugate their properties into one of the major players, or develop their own deterministic approaches to user identification. Unfortunately, the latter is not feasible for most publishing organizations.

Consequences of Walled Gardens

The broad base of publishers and the ability for advertisers to run unified campaigns across all media environments could be "held hostage" by the dominance of a few large

[2] "Consolidation in the Industry: The Future of the Tech Stack" panel, Ad Revenue Conference 2014, 24 Oct 2014.

players who own the capability to identify users accurately. Furthermore, what if these large corporations force smaller entities to choose between them, mandating that no technology or media platform be connected to more than one of them? How would an advertiser be able to track the attribution of a consumer activity that started on Facebook, continued on Google and finally resulted in a purchase on Amazon?

This concentrated power in the hands of a few could also stifle innovation and growth of new technology or media entrants into the market, and force consumers into a world where all of their activity is tied to their actual identity and their choice of alternative content providers is narrowed to a very limited few.

Publishers would need to set up shop within one of the walled gardens, charge for services, or slowly wither away on the small share of ad dollars they can attract. This would likewise cripple the ability to match audience data for targeting, measurement, and attribution of advertising performance across the different identity systems.

Do we want a world where only a few big media companies own the entire ecosystem for publishing and advertising?

Should the ability to identify consumers and their behavior deterministically be available for the good of all, or controlled by a few companies for the benefit of their shareholders?

Will future media technology oligopolies have a similar position in the market to that of AT&T or Microsoft in our past?

One could envision an open access requirement that provides for portability of user identity across these walled gardens and enables advertisers to track and measure their advertising campaigns consistently regardless of where they are run. Publishers would be able to leverage this open ecosystem as well, and get back to focusing on developing content and audience the way they have always intended. Ad technology companies would be able to continue with their competitive spirit of innovation, helping publishers compete on even footing with the big four media tech titans. And consumers would have their content choices preserved by enabling the diversity of publishers to stand on their own merits and build a business and channel to consumers without being beholden to Google, Facebook, Apple or Amazon.

What do you think? How do you want to access the content of the future?

"At the moment when we're starting to see real scale, real sophistication, and we're able to drive real outcomes – this is awesome, isn't it? – we might be going back to closed ecosystems? It's not going to happen. Marketers will come back with a voice and say 'No.'"

- Joe Zawadski, CEO, MediaMath[3]

[3]"Consolidation in the Industry: The Future of the Tech Stack" panel, Ad Revenue Conference 2014, 24 Oct 2014.

IS THE AD FRAUD ARMS RACE WINNABLE?

Nadine Stocklin, General Counsel, PubMatic

Advertising fraud. It's a topic that most in our industry would prefer not to discuss, but it's always on our radar – by way of the frequent press on it, the trade associations and conferences we attend that have raised the importance of the issue, or the advertisers, publishers and advertising technology companies that can sometimes be the victims of such acts.

As members of our industry are already aware, advertising fraud – and the safeguards, tools and solutions we've all built to tackle and protect against it – had an active life in the press this year. While each new article about click fraud, URL masking, or botnets is quick to remind us of previous scandals, few seem interested in highlighting how far we've come as an industry in terms of brand safety and brand control, or what steps really need to be taken in order to combat this serious, ongoing issue. True, the tactics adopted by bad actors continue to evolve, part of a virtual arms race in which determined fraudsters innovate new methods for scamming advertisers and publishers alike – nearly as fast as we can construct and implement new safeguards to protect against them.

The fact remains that countless dollars are wasted on fraudulent advertising each year. The World Federation of Advertisers estimates that up to 20-50% of programmatic impressions are "void of value," and the *Wall Street Journal* has reported that 36% of all Internet traffic is considered fake.[1] [2] According to

[1] Ad Age. "Marketers Double Programmatic Spend Despite Worries About Transparency and Fraud," 4 Sep 2014.
[2] Wall Street Journal. "A 'Crisis' in Online Ads: One-Third of Traffic Is Bogus," 23 Mar 2014.

a comScore study released earlier this year, as much as 31% of display ads are never seen by their intended audiences, and Solve Media estimates that more than 40% of all web traffic is "suspicious."[3]

These numbers speak directionally to the current state of the marketplace. However, we can learn a lot by looking at other industries that have successfully navigated these initial hurdles of technology automation.

Take finance, for example. Although we all know (to some degree or another) that buying with credit cards and purchasing online can be risky, it's probably safe to say that your initial reaction to the American Express customer service representative that calls about suspicious charges on your credit card – the ones that turn out to be fraudulent rather than an impulse purchase on your last vacation – is more of relief than anger. Chances are, if you are angry, that anger is directed at the actual bad actor in this scenario – the person or people actually committing fraud by using your credit card without authorization. Why don't we blame the company in these scenarios? Three little words: assumption of risk.

When a credit card company or bank calls to verify charges on your account, that service comes with the knowledge that – in most cases – you're not going to be held accountable for those charges. In other words, those companies and institutions assume the risk on your behalf.

While the financial industry addresses fraud through a mix of government- and self-regulation, the advertising industry is fighting the fraudsters with a combination of new business practices and technology innovation. One example is the "money-back guarantee" offered earlier this year by WPP's Xaxis. In an effort to reassure its customers and help fight the ongoing advertising fraud battle, Xaxis issued a guarantee for 95 percent fraud-free traffic, 90 percent viewability, and the company checks brand safety factors to prevent ads from appearing near content that an advertiser could find offensive. According to the company's SVP of Business Development, Larry Allen, Xaxis is "reporting in the end on all three measures and offering money back if [they] don't deliver."[4]

Others in our industry have taken steps to ensure inventory quality and a fraud-free environment through partnerships with companies like Peer39, DoubleVerify and Integral Ad Science, acquisitions and aquihires of fraud technology companies like Spider.io (in the case of Google), and ongoing innovations in fraud-battling technologies.

[3] Marketing Land. "Massive Web Traffic Fraud: Digital Advertising Confronts 'Crisis'," 24 Mar 2014.
[4] Adweek. "Xaxis Fights Fraud With Money Back Guarantee for Brands," 7 Aug 2014.

Even more recently, AppNexus announced that it would use its own fraud-detection mechanisms as well as those from DoubleVerify and Integral Ad Science to identify and cut off payment for fraudulent or otherwise invalid impressions. Crucially, it partnered with Rubicon Project and PubMatic to ensure that payment for fraudulent impressions is stopped in its tracks. There is perhaps no better sign of how seriously the industry is taking advertising fraud than when three companies that are often thought of (whether correctly or incorrectly) as competitors join forces with the common goal of combating the problem. Another industry player, DataXu, also announced recently that it guarantees that 97% of the ads it sells are not fraudulent, and will refund the cost of any fraudulent impressions that DataXu is deemed to have sold using quality measurement technology from DoubleVerify.[5]

Unfortunately, we work in an industry where it's impossible to eliminate the risk of fraudulent advertising entirely, whether it rears its head as click fraud, URL masking, bot traffic, ad insertion, or any of its other ugly forms. We're locked in an ongoing arms race with the fraudsters, who are very likely to find a newer, faster way to steal our cheese as soon as we build a better mousetrap.

It's our responsibility as an industry to self-regulate, and the good news is that we have the means to do so. Through the right balance of business and technical innovations – accelerated by a climate of openness that enables effective strategies to be implemented industry-wide – we stand a good chance of preserving our business by keeping the tide of fraud at bay.

[5] Wall Street Journal. "Fraud Free Is Suddenly A Selling Point For Online Advertising", 6 Nov 2014.

HOW DOES ADVERTISING FRAUD WORK?

WHAT ARE THE MOST COMMON TYPES OF ADVERTISING FRAUD, AND HOW DO THEY WORK? BELOW YOU'LL FIND SEVEN FRAUDULENT PRACTICES FREQUENTLY SEEN ACROSS DISPLAY, MOBILE, VIDEO AND SOCIAL ADVERTISING.

Ad Insertion: Also known as "ad injection," this occurs when programs inject unauthorized ads onto legitimate web pages.

Bot Traffic: When a publisher buys traffic from a third party but receives page views generated by bots rather than real consumers.

- According to Solve Media, a fraud protection firm, 59% of agency media buyers surveyed saw bot traffic negatively impacting campaign performance at the start of 2014.[6]

Click Fraud: When an automated script or computer program imitates a legitimate web user by clicking on a pay-per-click (PPC) ad for the sole purpose of generating a charge for that click.

- At the start of 2014, fraud was on track to cost U.S. marketers $11.6 billion in advertising, a 22% increase over 2013.[7]

CMS Hacking: When fraudsters hack into publishers' websites to create fake pages under a legitimate domain and then offer this inventory on exchanges, where buyers believe they are purchasing premium inventory.

Page Fraud: When numerous different ads, some of which are buried on top of one another or hidden within 1x1 pixel iframes, for example, are loaded onto a single page, but sold individually as though they are all viewable.

Robot Retargeting: Bots programmed to mimic human behavior to the extent that the bot gets retargeted for searching to click on ads, driving up pay-per-click (PPC) activity that has no value.

URL Masking: Hiding the actual domain of a website from the web browser's address bar behind a different, generally more desirable domain.

According to ad quality firm DoubleVerify, up to 23% of ads purchased in real-time ad marketplaces use misrepresented URLs.[8]

Ghostery, which provides products to fight URL masking, found that 40% of all URLs in automated auctions are masked.[9]

[6] Solve Media. "Solve Media Bot Survey," 2014.
[7] MediaPost. "Click Fraud Costs Marketers $11b, IAB Issues Key Report," 30 Jan 2014.

[8] [9] Ad Age. "Your Ad Ran Here (Not Really)," 30 Oct 2014.

THE FUTURE OF PROGRAMMATIC CAMPAIGNING

Nicholas Titmus, Director of Advertiser Solutions, EMEA, PubMatic

Storytelling has long been at the core of how brands connect with audiences. The emergence of digital media challenged advertisers to double down on stories, so they could deliver even more consistent, compelling and contagious consumer experiences. However, it is no longer just about the story – today, true success depends on how advertisers tell their stories. In an always-on marketplace full of fickle consumers, advertisers must move beyond traditionally campaign-centric approaches and become real-time content producers and distributors.

Major brands like Proctor & Gamble, American Express and Mondelez have led the way by emphasizing how fundamental programmatic is becoming to their advertising strategies. In order to target their consumers more effectively, brands are shifting the majority of their budgets to programmatic trading to enhance their audience verification and reach.

But why are some of the world's leading brands suddenly making such a heavy investment in programmatic? They are most likely excited about the ability to target their audiences more accurately in a real-time environment, but the fact remains that programmatic may be setting the stage for a "new era" of brand advertising, so to speak – one in which they use programmatic not just to improve efficiency, but also in increasingly clever and engaging ways.

This is what the "next normal" of programmatic will be about, and brands will lead the way. To accomplish this, brands will nail the balance of art, science and technology required to do great storytelling in a programmatic world.

For thousands of years, the art of storytelling has been integral to the human experience. With the rise in programmatic across all forms of media, creative is no longer a static ingredient in a campaign. Brands have the potential to leverage audience demographic, intent, qualifying and other known data points to help them reach their target audiences with truly dynamic creative. The result is a paradox called the "mass customization" of marketing – improving relevance and engagement by tailoring messages in ever more precise ways and delivering them programmatically, in real time.

How will this happen? Science. With the emergence of programmatic trading came the tug-of-war between traditional advertisers and ad tech companies – will we be “Mad Men” or “Maths Men”? Brands will find a compromise: using data to inform and enhance their storytelling. Brands can utilize pre- and post-impression data to target users when and where they are consuming content. Coupling this with the art of the creative, it’s likely that we will move towards a predictive and dynamic storytelling model where data signals improve and optimize the campaign throughout its life.

With the art of creative fused with the science of data, the final ingredient for success is the technology. A wave of computation is crashing over the world of business, and the media industry is no exception. The way brands tell stories across video, mobile and desktop has been revolutionized. Today, brands are able to move away from isolated campaigns to fully integrated multi-screen solutions. The growth of unique identifiers and enhancements in programmatic video and mobile finally is allowing brands to use sequential advertising techniques to reach users wherever they are most likely to engage. This can include everything from messages that follow consumers from phone, to tablet, to desktop, or real-time “second screen” advertising between TV and mobile devices.

These types of technology innovations are allowing brands to move from an advertising model characterized by isolated ads, served one channel at a time, to campaigns that surround consumers throughout their digital life – with programmatic enabling and driving transactions “under the hood.”

The art, science and technology of programmatic trading are opening new doors for brands, connecting stories to consumers in ways we could never imagine – and with the speed and accuracy only dreamed of previously. Publishers are now fully embracing programmatic. And with more premium formats and inventory becoming available through solutions like Automated Guaranteed and Programmatic Direct, a whole new world of opportunity for brands to shift budgets to programmatic is appearing.

What does the future hold? With Real-Time Bidding (RTB)-based programmatic transactions expected to grow by 51% by 2017,[1] we look forward not only to welcoming more and more brands to the programmatic advertising ecosystem, but also to seeing the storytelling innovations that they bring with them.

[1] IDC. “Real-Time Bidding in the United States and Worldwide, 2010-2017,” Sep 2013.

THE 2025 PROGRAMMATIC OUTLOOK REPORT

It may seem like digital advertising is moving at light speed today, but the truth is that when it comes to the impact of technology on marketing, we're merely at the end of the beginning. New technologies and business models will always emerge, and they will surely raise new issues that we will need to address. This industry won't be boring for a very long time.

To the right is a preview of the topics you might see covered in PubMatic's Programmatic Outlook Report in the year 2025.

Pre-order your copy today!

10 Ways to Quicken Your Heart Rate Targeting Strategy

Advertisers have seen great results from targeting messages to consumers' heart rates. Here's ten clever ways they're turning heartbeats into profits.

Retailers Under Fire for Conquesting Location Awareness Data in Self-Driving Cars

Regulators stumped about legality of steering consumers clear of rival stores.

Consumer Backlash Against Augmented Reality Ads in Parks

Activists are urging municipal governments to prevent insertion of advertising messages into dedicated greenspace.

Finding Latent Thrill-Seekers with Wearables

Here's how Europe's leading spaceport is using galvanic skin response and other vital signs to target people who don't yet know they want to be space tourists.

Marketing in the New Living Room

Self-driving cars have made our daily commute the hottest platform for marketers; here's how you can help your brand enliven the time we relax before and after work.

Top Media Technologists Close to Interop Agreement

Industry moves from "data as currency" to "data as diplomacy" as major platforms realize the economic potential of sharing their consumer profiles.

Sweden's Wineries Lead the Way in Sensing Signage

"You look like you could use a drink." How one rogue winery used expression-detecting billboards to triple sales in a single year.

Programmatic Sales, Direct-to-Brain Distribution Drive Record Quarter for Media

Stocks rally as sales automation and neural implants push publishers to the top of the league tables.

AUTHOR BIOGRAPHIES

Anand Das
Co-Founder & CTO, PubMatic

Anand Das is PubMatic's Chief Technology Officer, overseeing PubMatic's system architecture, development, scalability, and engineering. Prior to co-founding PubMatic and becoming CTO, he was a Senior Engineer at PANTA Systems and Senior Software Engineer at VERITAS India. He has filed for three patents in systems software, storage software and application software. Anand holds Bachelor's and Master's Degrees from the University of Pune in Computer Science.

Rajeev Goel
Co-Founder & CEO, PubMatic

Rajeev Goel co-founded PubMatic in 2006 to give premium publishers a real-time selling platform to manage their revenue and brand strategy. While in college, Rajeev co-founded Chipshot.com, an online retailer of custom-built golf equipment, where he led product management and engineering while growing the company into a $30 million run-rate business. Before founding PubMatic, Rajeev was a Product Marketing executive at SAP. Rajeev holds a Bachelor's Degree in Economics, Political Science and Spanish from The Johns Hopkins University and a Master's of Computer and Information Technology from the University of Pennsylvania.

Liel Leibovitz, Ph.D
Visiting Assistant Professor of Media, Culture and Communication, New York University

Liel Leibovitz is a Visiting Assistant Professor of Media, Culture and Communication at New York University's Steinhardt School of Culture, Education and Human Development. Leibovitz received his Ph.D from Columbia University in 2007. He has taught at Barnard College and is the author or co-author of several non-fiction books as well as contributor to newspapers and magazines such as the *Los Angeles Times*, the *Atlantic Monthly*, *Dissent*, and *Tablet*.

Kelly McConnell
Director of Platform Solutions, PubMatic

Kelly McConnell is Director of Platform Solutions at PubMatic, where she leads a team of Sales Engineers and acts as a consultant. Since joining PubMatic in 2010, Kelly has been focused on helping publishers find success with programmatic advertising, initially as an individual contributor, then leading a team of Strategic Account Managers. Prior to PubMatic, Kelly worked in ad operations and business development at Vibrant Media. Kelly is a graduate of Columbia University.

Kirk McDonald
President, PubMatic

Kirk McDonald joined PubMatic in October 2011, bringing more than two decades of experience across a range of premier media brands including Time Inc., CNET, Ziff Davis and Condé Nast. Before joining PubMatic, Kirk was President of Digital at Time Inc., Chief Advertising Officer of the Fortune|Money Group, and Senior Vice President of Sales, Marketing and Client Services for DRIVEpm and Atlas, both key units of Microsoft's advertising business. Kirk also spent nine years at CNET as the Senior Vice President of Network Sales.

Heather Menery
VP of Emerging Solutions, PubMatic

Heather Menery is VP of Emerging Solutions at PubMatic. Heather joined PubMatic in 2013 from Velti, where she worked as the Advertising Exchange Sales Director. Prior to Velti, Heather worked at JumpTap, later acquired by Millennial Media, and Enpocket, later acquired by Nokia. Heather is currently an Adjunct Instructor at NYU's School of Continuing and Professional Studies, teaching "Mobile Marketing: Reaching the Third Screen," and was selected by *Mobile Marketer* as one of the Mobile Women to Watch in 2011.

Justin Re
Associate Director of Product Management, PubMatic

Justin Re is Associate Director of Product Management at PubMatic, focusing on PubMatic's Automated Guaranteed (AG) and Private Marketplace (PMP) products. He brings over 10 years of experience in product to PubMatic, previously working for Adslot, Nitro PDF and as CEO & Head of Product for Outcast, Inc. Justin holds a Bachelor of Design in Multimedia Design from Monash University, Australia.

Matthew Shevach
Senior Director of Product Marketing, PubMatic

Matthew Shevach is Senior Director of Product Marketing at PubMatic. Matthew brings more than 15 years of experience in display, mobile and video advertising products to his role at PubMatic. Matthew recently joined PubMatic from Retailigence, where he was Senior Vice President of Ad Solutions. Matthew's previous experience includes product, marketing and business development roles at DoubleClick, Claria, Tribal Fusion and Adap.TV. He holds a Bachelor of Science in Computer Engineering and Engineering & Public Policy from Carnegie Mellon University.

Richard Sobel
Global Senior Director of Platform Solutions, PubMatic

Richard Sobel is the Global Senior Director of Platform Solutions at PubMatic, leading the company's consulting and solutions team. Prior to heading PubMatic's consulting division, Richard led the company's product marketing and platform strategy efforts. Richard joined PubMatic in 2012, previously holding leadership positions at Time Inc., Kaplan Inc., and The Walt Disney Internet Group. He holds a Bachelor of Arts in English and American Literature from Brandeis University.

Nadine Stocklin
General Counsel, PubMatic

Nadine Stocklin joined PubMatic in May of 2012 as the company's first General Counsel. Nadine comes to PubMatic with over a decade of legal experience. Most recently, Nadine was the Associate General Counsel at QuinStreet, a publicly traded online marketing and media company. Before QuinStreet, Nadine worked at IAC Search & Media. Nadine holds a JD from the University of California, Los Angeles, and a Bachelor of Arts from the University of California, Berkeley.

Nicholas Titmus
Director of Advertiser Solutions, EMEA, PubMatic

Nicholas Titmus is Director of Advertiser Solutions, EMEA for PubMatic. Nick joined PubMatic in 2012 from Yahoo!, where he served as Business Development Manager. Prior to Yahoo!, Nick held in several roles at Booking.com, the world's largest online hotel reservation provider. Nick is a graduate of the Sheffield Hallam University in the UK.

CREDITS

Terri Walter, Chief Marketing Officer, PubMatic
Editor-in-Chief

Paige F. MacGregor
Corporate Communications Manager, U.S., PubMatic
Managing Editor

Special thanks to the following individuals for their contributions to the 2015 Programmatic Outlook Report:

Matt Corwine, Chief Strategist, Emphatic

Troy Stange, Lead Designer, Emphatic

For more information, please contact OutlookReport@PubMatic.com.

PubMatic

ABOUT PUBMATIC

PubMatic is a long-term innovator in the programmatic advertising market, and the company is driven by the desire to provide publishers and media owners with the tools and intelligence they need to drive a holistic revenue strategy across every ad, every screen and every channel. PubMatic's full-service global Supply-Side Platform (SSP) bridges the gap between a premium publisher's direct sales of guaranteed inventory and indirect sales of non-guaranteed inventory. The platform enables publishers to offer their inventory to over 400 global media buying partners, including demand side platforms, ad networks and exchanges, and agency trading desks. Publishers have on-demand access to the software, tools and services they need to drive the highest value for their digital media assets and provide consumers with a more personalized advertising experience.

Since 2006, PubMatic's publisher-focused technology platform has expanded into a multi-screen solution that includes Real-Time Bidding (RTB) and Private Marketplace (PMP) for desktop, mobile (web and app), and video, as well as Automated Guaranteed and an end-to-end mobile solution complete with ad serving capabilities. Most recently, PubMatic launched PubMatic Analytics for publishers and media buyers, an industry-first tool that offers real-time data and actionable intelligence, and features natural language processing.

PubMatic's One Platform, proprietary technology, and advanced multi-screen capabilities are utilized by a global roster of comScore publishers, including more than half of the U.S. comScore 100. Ranked by Deloitte as one of the fastest growing companies in the U.S. Internet sector for three consecutive years (2012-2014), PubMatic has more than 550 employees operating 24/7/365 from offices worldwide, with headquarters in Redwood City, California.

To learn more about PubMatic Analytics or the company's One Platform solution, visit www.PubMatic.com, or connect with PubMatic on Facebook, Twitter, and LinkedIn:

https://www.facebook.com/PubMatic

https://twitter.com/PubMatic

https://www.linkedin.com/company/167624