MMA
MOBILE MARKETING ASSOCIATION

How Cross-Device Marketing Works

A Mobile Marketing Association White Paper

November 2016

If the early 21st century is symbolized by anything, it is probably the proliferation of screens -- way beyond what most of us ever would have imagined.

While screens have been central to consumer experience for decades, few among us – even a decade ago – could have foreseen a world in which consumers shift seamlessly throughout their daily lives from smartphone to TV to desktop to tablet.

Along the way, of course, consumers not only catch a wave of content that can be surfaced on multiple devices, but leave clues to their wants and desires – perhaps researching a purchase on a price comparison site on a laptop, asking friends what they think of it on Facebook on a smartphone, and completing the purchase on a tablet while watching TV, which may be the place they heard about the product in the first place.

In the U.S., people now spend 65 percent of their digital media time on mobile.[1]

In the U.S., traditional computers take up only 25 percent of screen time.[2]

80 percent of online millennials follow a cross-device path to purchase.[3]

According to an early 2016 report from comScore.[1]

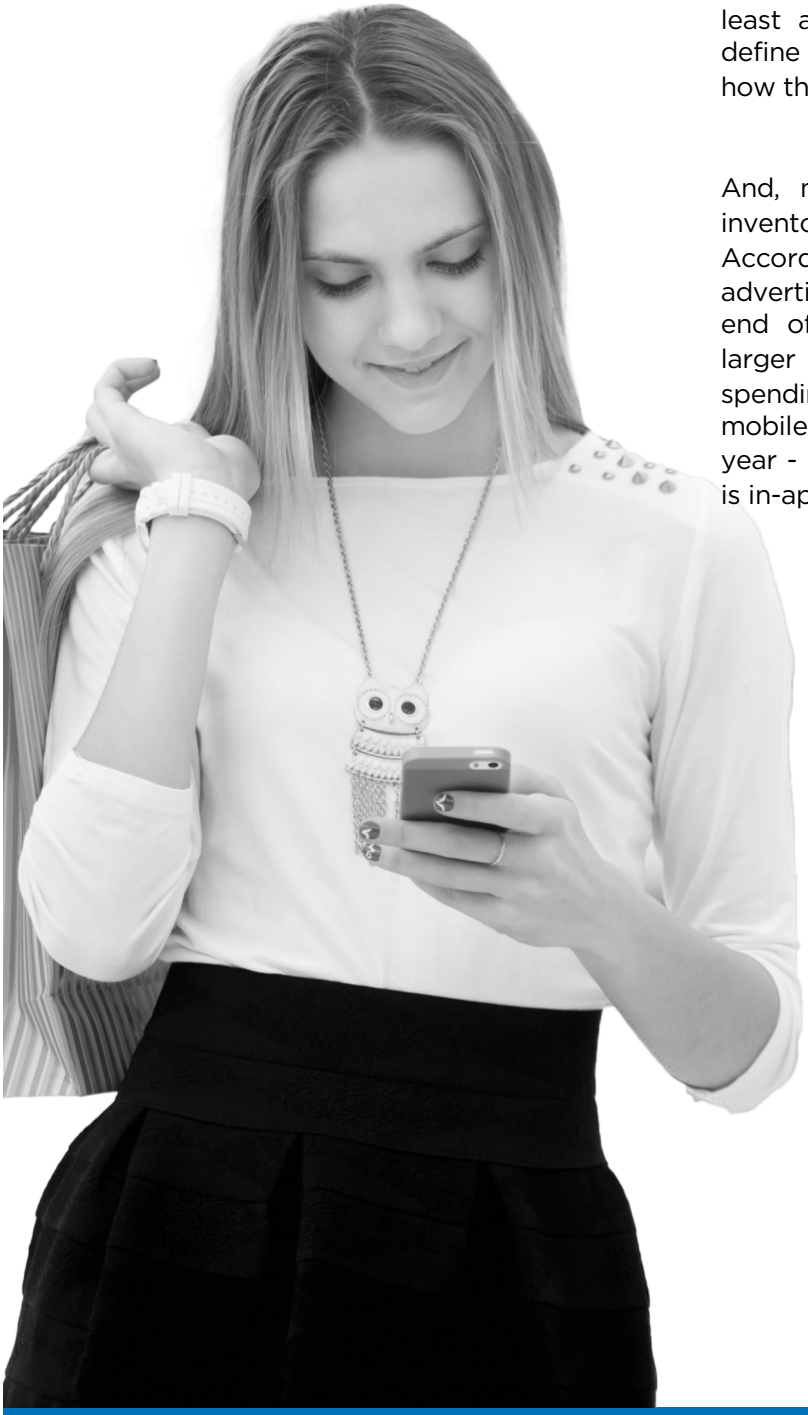
Statistics from Millward Brown's annual AdReaction study.[2]

According to a March 2016 study of U.S. adults from Google and Ipsos Connect.[3]

Consumers have adapted to this new reality, and clearly love the ability to access content, connect with friends and shop from screens any time, anywhere. According to an early 2016 report from comScore, people in the U.S. now spend 65 percent of their digital media time on mobile. The desktop computer – once the centerpiece of our digital lives – now only accounts for a third of digital media time. Statistics from Millward Brown's annual AdReaction study paint an even starker picture. It says that in the U.S., traditional computers take up only 25 percent of screen time, and that number drops even lower in other parts of the world. Consumers are shopping in a cross-device way as well. According to a March 2016 study of U.S. adults from Google and Ipsos Connect, sixty-one percent of Internet users and more than 80 percent of online millennials follow a cross-device path to purchase.

Given just how rapidly consumers have embraced a cross-device world, it's not surprising that marketers are struggling to catch up. A 2015 report from Signal found that only six percent of marketers were satisfied with their cross-device solutions. With this Mobile Marketing Association white paper, we hope to give marketers a practical look at where cross-device marketing stands today, its promise for the future and how it can be a part of the arsenal that marketers can be more confident about. There are still many hurdles before – or if – marketers reach the Holy Grail of getting a complete view of each of their customers no matter where they travel. However, there are many techniques available today that they can leverage that will reveal much more about the customer journey than ever before.

The engine that makes cross-device marketing possible is programmatic buying.



Even as programmatic grows industry-wide, it has a special place in cross device because it's the underlying technology that enables the connection of identifiers across devices. So, while some marketers look to programmatic for the efficiencies that come with automation, in cross-device, it's at least as much about targeting -- being able to define the right people no matter where, when and how they are involved with a screen.

And, make no mistake, a lot of programmatic inventory is moving across mobile devices. According to eMarketer, $15.45 billion in advertising will be served programmatically by the end of 2016, about half on Facebook, a figure larger than radio, newspapers or magazine spending. Sixty-nine percent of that spend is in mobile display -- a 37 percent increase over last year - and roughly three quarters of that spending is in-app.

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Data Definitions in a Cross-Device World

Data, of course, is what makes the cross-device world go around, but on mobile, it is sourced differently than it has been at earlier points during the evolution of digital marketing. In this section, we'll run through some of these definitions.

The first thing to know is that cookies, the primary consumer tracking device on desktop, are not much of a factor here, and probably never will be.

For one, they don't work within mobile apps, which is where consumers spend a majority of their mobile time. Second, even when a cookie is placed within the mobile web, it expires whenever a user closes his or her browser. Third, they are not cross-device, giving a far more limited view of the customer than what is possible today. In fact, you could argue that what defines cross-device is that it's the opposite of the limited consumer view signified by the cookie.

By linking together various identifiers on multiple screens, cross-device makes it possible to understand actual people, where cookie-based tracking only understands an individual browser, for however long as the cookie **"lives"** before expiring.

With that being said, here are definitions that matter in a cross-device world:

Device Graphs

Device graphs plot all of the different devices that can be attributed to an individual user. To that extent, they might as well be called "person graphs", since they usually are plotting one person's path across multiple devices using IDs and other devices. For instance, if someone uses the same Instagram account across a laptop, smartphone and tablet, it stands to reason they are one unique individual.

Deterministic Data

This is personally identifiable data (PII) from log ins, subscriber data and other information that consumers willingly offer up, giving marketers and publishers an extremely high level of confidence that the user is verifiable, no matter which device they are using. If the same Spotify account is logged onto from a smartphone and a tablet, it's highly probable it's the same person.

Probabilistic Data

This data, while one step removed as compared with deterministic data, is still highly valuable. It relies more heavily on extrapolating by examining patterns to associate several devices with one individual. For instance, if devices are being connected to the same Wi-Fi hotspot or another type of network routinely, those are probably devices being used by the same person, although the evidence isn't as certain as data derived from a log in.

Household Data

As the name implies, household data tracks usage of a device within a household. Compared to deterministic and probabilistic data, household data is a blunt instrument, since it doesn't distinguish between individual users within a house, each of which may have vastly different habits. The most predominant screen – TV – is an example of the use of household data, since even the refined data from set-top boxes still can't determine who is watching what program.

Cross-Device Attribution

As device usage has become more sophisticated, so has the marketing industry's concept of how companies can measure attribution. Traditional reliance on tracking attribution on only one device, and often in the last click before a transaction, is slowly giving way to an environment in which marketers – using deterministic and probabilistic data – can piece together the intricate puzzle of the path to purchase, from where and when people research a product, to what tips the scale toward actually buying something.

Walled Gardens

What may be obvious in reading about the distinctions between deterministic and probabilistic data is that only a few players have access to enormous deterministic data sets, among them Google, Facebook, Amazon and a handful of other players like Verizon, which gained additional deterministic data when it purchased AOL in 2015. While we'll discuss this in greater detail further on, this has led these major players to be referred to as "walled gardens" because others don't have access. That does not mean, however, that other players don't have deterministic data, and, as we'll also see further on, the combination of deterministic and probabilistic data can have a power uniquely its own.

Finding Your Market: A Far-Reaching World Outside the Walled Gardens

The Cross-Device Ecosystem

As marketing has become increasingly technology-based, it has reshaped the marketing ecosystem, with each sub-ecosystem – like the one dedicated to mobile – having its own characteristics. In this section, we will walk through the different constituencies involved in the cross-device ecosystem (*sans* the marketers and agencies who would contract with them) with the caveat that not all marketers in mobile use all of these types of companies. A marketer with an internal data management platform may have less use for an outside data vendor; a company with a strong deterministic data set may feel less need to overlay probabilistic data, and so forth. However, while building out their cross-device ecosystem of partner companies, all marketers should ask themselves the following questions:

> What is the purpose of employing certain types of companies?

> What data do you already have?

> What data do you need?

> How do you ensure platforms connect you to the right audiences efficiently and effectively?

> How will these partners help you know whether your marketing is working?

(continued on page 7)

While no one questions the enormous footprint that just a few other players have in cross-device marketing – particularly when it comes to highly accurate, deterministic data, there are plenty of other instances, and places, where marketers can reap cross device's rewards.

One example is both traditional and non-traditional publishers, to which some users provide deterministic data (PII) – by way of subscriptions to magazines, email newsletters, and so forth. Others simply drop in but don't log in, creating probabilistic data. (It should be noted that these two sets are not necessarily mutually exclusive.)

Take, for instance, Meredith, originally founded in 1902, and now a fully 21st century media company, with print and digital properties range from *Better Homes & Gardens* to *Family Circle* and allrecipes.com.

Though PII -- or subscription data -- wasn't referred to as deterministic back in 1902, a company like Meredith – as with other traditional publishers – has actually been collecting this kind of first-party data since the very beginning, with magazine subscriptions. But in today's world, that CRM data also includes Meredith properties for which users can choose to login, such as allrecipes.com, where consumers can set up an online recipe box that also includes other features such as a digital shopping list.

Finding Your Market: A Far-Reaching World Outside the Walled Gardens (continued)

(continued from page 6)

Below are the types of companies in the ecosystem, and the functions they provide:

Publishers

While cross-device marketing depends on buying audiences rather than media properties, publishers continue to hold sway in cross-device, in many cases, because of their broad reach and ability to attract interest-based properties. Keep in mind that in the digital era the term "publisher" applies to virtually any property that accepts advertising, from a wholly mobile app like Snapchat to the digital properties of a TV network like ESPN.

Supply-Side Platforms

SSPs automate the process of selling ads on behalf of publishers, allowing them to connect to buy-side platforms such as their mirror image – demand-side platforms – in ad exchanges and ad networks.

Demand-Side Platforms

DSPs are one of the vehicles through which advertisers and agencies buy advertising, and often facilitate audience-based buys rather than just specific media properties. In a cross-device world, DSPs play a crucial role because they help allow advertisers to target users across the digital world.

Data Management Platforms

As the name implies, data management platforms handle data in a variety of different ways – integrating and analyzing information from a number of different inputs to create and store data sets that can be used on behalf of marketers, publishers, or agencies.

Agency Trading Desks

These operate within agencies or agency holding companies working independently to buy and re-sell inventory. Working closely with DSPs, they allow for real-time purchasing in a scenario similar to a stock exchange.

Ad Exchanges

Ad exchanges sit between SSPs and DSPs, with publishers putting their impressions into the pool and buyers purchasing them via DSPs. They usually operate in real-time and can allow for all sorts of variables, such as dayparting, behavior and device types. Private exchanges, also known as Private Marketplaces or PMPs, operate similarly but give publishers more control over pricing and who they are selling impressions to.

Why do all of these different parts of the ecosystem matter? Because while they are not solely used for cross-device marketing, it couldn't happen without them. No two consumers follow the same patterns in terms of what devices they have, apps they use and sites they visit; all of these entities are focused -- in whole or in part – not only on facilitating programmatic buying, but finding consumers where they travel in the digital world, something that would be nigh impossible if every buy was done individually on a publisher-by-publisher basis.

While not the size of a gargantuan like Facebook – which also tracks member activity outside the platform -- it nonetheless has reach not to be trifled with: a consumer database of 125 million users and 80 million digital consumers each month. Companies such as Meredith also partner with outside Data Management Platforms [See sidebar "The Cross-Device Ecosystem" beginning on previous page] to both manage their own data and expand upon it. A DMP might integrate a company's online and offline data, connect PII data to cookie data, or integrate data from newly-acquired properties, as Krux did upon Meredith's acquisition of Allrecipes a few years ago.

meredith

A consumer database of

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&

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* Source: Meredith Corp.

Another -- wholly digital -- example is Foursquare, the location-based technology company. It operates two social platforms – Foursquare, a recommendation app, and Swarm – which now contains the user experience most of us are familiar with from the platform's origins; it allows people to check in at different locations, receive real-world perks and more. The company has logged more than 10 billion check-ins since its launch, and has amassed 50 million active users across the two apps, mobile and web. You don't have to be a registered user to access it; anyone can search its growing list of recommendations for shopping, nightlife, food and so forth. Through Pinpoint, Foursquare's programmatic platform, advertisers can reach 149 million U.S. consumers.

Meanwhile, there are other large platforms that give marketers a deep look at customers, using a blend of deterministic and probabilistic sources to provide scale that still maintains accuracy.

Marketing analytics platform DataXu layers third-party and in-house data to provide marketers with a choice of targeting options. This allows marketers to gain a holistic view of their audience without compromise.

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Source: Foursquare

RadiumOne, which helps brands connect consumer intent signals from paid, earned, shared and owned channels, takes yet another approach. By capturing consumer signals from its mobile analytics, sharing analytics and smart links tools and combining with additional customer data, the company is able to see a full view of the consumer journey. This results in a deterministic view of the consumer based on matches between a user's web-based cookie IDs and app-based device IDs in a privacy-compliant manner. With this insight, marketers can more accurately determine how much to invest in targeting consumers along their journey across desktop, smartphone and tablet devices.

The hunt for the 360-degree view of the customer may be riddled with silos, but at least many of the silos themselves are big.

Those outside the walled gardens also point to the power of context. While, in a programmatic world, marketers are buying audiences instead of individual media properties, context still matters. If, for instance, a maker of pasta sauces is looking to target women, ages 25 - 54 in the northeast who are interested in quick weekday meals, it's one thing to reach them on a property where these women are a known quantity because of deterministic data; but the power of reaching these same women using probabilistic data – or a combination of deterministic and probabilistic -- at a time, place and device where they are actively in the hunt for recipe ideas – such as on their smartphone in the supermarket at 5:30 p.m. – cannot be underestimated. Even as Facebook and Google are able to follow their users when they travel outside their own properties, strong contextual content remains important.

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Yes, we do spend a lot of time in walled gardens, but not even the biggest power user spends all their time within them. By some estimates, the average consumer accesses 20 to 30 apps in a typical month that are not part of a walled garden; it stands to reason that getting a truly comprehensive look at the customer journey in most cases requires a more holistic look than any one channel can give. Therefore, marketers looking to employ cross-device marketing have to make decisions on how to proceed with rapidly-growing, but still imperfect data.

For many marketers, what tips the scales in favor of relying on probabilistic data is scale. Though the size of data sets varies vastly depending on the objectives of individual advertisers, the capabilities of certain data providers and so forth, there's no question there's just more of it than there is deterministic data. As long as reach continues to be a primary metric for media planning, scale cannot be ignored.

In a cross-device world, what marketers sacrifice in relying heavily on probabilistic data is accuracy. While a deterministic data provider can tout close to 100 percent accuracy, probabilistic data purveyors have inherent difficulties in developing unique IDs since their data is one-step removed from a log in or other data willingly given to a property by a user. The question is how big the accuracy gap is and, unfortunately, the answer can be muddy. Probabilistic data usually starts from a sample that then extrapolates outward to cover people that "look like" the sample.

Looking for Mr. Good Data

One of the biggest concerns in cross-device marketing – let alone ad tech – is picking the right partners among a sea of companies that all claim to have premium solutions. In cross-device, this is of major concern when it comes to assessing the quality of data. While everyone acknowledges that no data set is 100 percent accurate – particularly when it comes to probabilistic – there are certain questions marketers can ask that will help them pinpoint whether the partners they are considering hiring are worth the goods. Here are a few of them:

What's the sample size?

In probabilistic data, as the reach goes up the accuracy goes down. With reach an important media objective for many marketers, they have to make decisions about how to balance reach vs. accuracy, discerning at what point a sample size is being used to extrapolate too broadly for their comfort level. This also becomes important when it comes to attribution, and advertisers need to ask themselves whether user data has a big enough base to be statistically relevant.

What's the shelf life of user IDs?

Even in an environment where cookies – which are fast to expire – are not the coin of the realm, it's important to get a feel for how persistent the user IDs might be in a given data set. As always, deterministic user IDs are more likely to be accurate than those that are determined through probabilistic means – most people don't create multiple Pandora or Gmail accounts, so those user IDs may be good for years. Ones based on probabilistic sources, such as Wi-Fi networks or IP addresses probably won't have the same longevity. There are a lot of ways in which data can mislead. People move, they buy new routers, they shed some devices and pick up others. All of these scenarios can affect the persistence of IDs.

Does the data pass the smell test?

Sometimes common sense is all you need to ferret out a specious claim. If crunching numbers shows you that the user base in question has a suspiciously high number of devices or user IDs, that should raise red flags. Don't ignore them.

Using these methods, which are being continually refined, some say that probabilistic data can reach 80 to 90 percent accuracy; others say that's overly optimistic and a sign of the imperative to over-sell data quality. A more realistic figure may be in the 50 to 80 percent range. [See sidebar, "Looking for Mr. Good Data" at left.]

Whatever the case, the good news is that the accuracy of probabilistic data is increasing, though it is still, in all likelihood, a few years off from approaching – though not equaling – what deterministic is capable of. The bad news is that waste has always been part of buying reach, and despite the advancement of targeting in the digital era, there's no true end to that in sight.

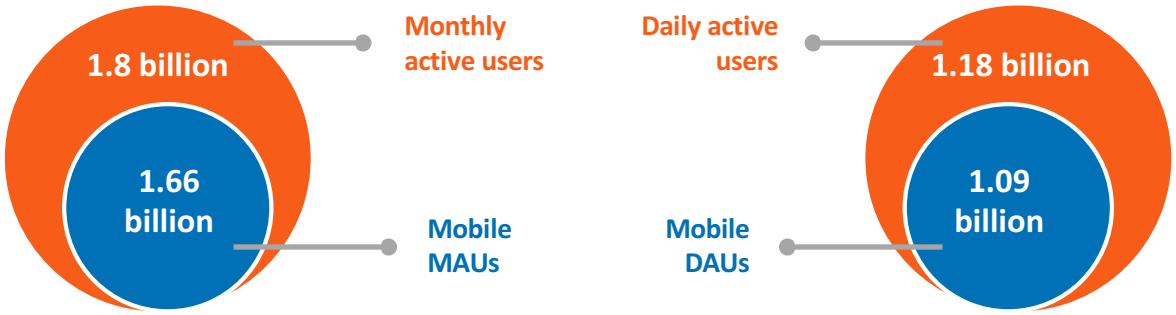
Finding Your Audience: The Walled Gardens – A Peek Inside the Most Fruitful Deterministic Data

Obviously, from an accuracy perspective, there's nothing like the unified picture of individual consumers that can be constructed by Google, Facebook and a handful of other properties whose monthly active users are in the hundreds of millions, or billions. In this section we'll discuss the deterministic approach.

Facebook

As of the third quarter of 2016, Facebook had almost 1.8 billion monthly active users, 1.66 billion of them also mobile MAUs, and it also had 1.18 billion daily active users with 1.09 billion also being mobile DAUs. Mobile ad revenue now makes up 84 percent of total revenue. That's a lot of people, and a lot of devices, to keep track of. But, because Facebook users have to be logged in to access Facebook content – and many are perpetually logged on – the social network offers a large window into individual behavior. Following a shopper down the path of a considered purchase, like a kayak, can potentially yield the following. Facebook can track visits that a user may have made to kayak enthusiast pages within Facebook on a mobile device, see more detailed research taking place on a desktop computer at work (because Facebook can track user activity off of the platform), and then see the transaction actually take place on a tablet at night.

The key vehicle by which Facebook implements cross-device marketing is Atlas, which it bought from Microsoft in 2013; its first big change to the ad-serving platform came a year later when it began shifting Atlas away from cookies and toward people-based marketing, a sign post that the industry's former reliance on cookies was moving to the programmatic buying of audiences, irrespective of specific devices. Atlas – with Facebook IDs at the center – can deliver on KPIs across everything consumers are doing and across multiple formats, browsers, devices and publishers inside and outside of the Facebook platform itself.



Source: Facebook earnings reports

Google

For Google, one sign that the industry is moving to cross device marketing and analytics is that it has sun-setted the converted clicks metric it has been using since 2001 in favor of its three-year-old cross-device conversion metric. It became the default for AdWords customers in the summer of 2016. The change acknowledges the necessity of tracking across devices and being equipped to measure today's more complex attribution funnels.

And Google – even within its owned walled garden – can make for a complex, and gargantuan, place. Some seven of its properties – Search, Maps, YouTube, Android, Play, Gmail and Chrome – have over one billion monthly active users. Of course, the deterministic data derived from those users is different than Facebook (which also has one-billion plus products in WhatsApp, Groups and Messenger.)

First, not all of those properties require users to log in to use them, including the biggest, Search. Second, as walled garden ecosystems, they are very different from one another. The vast majority of Facebook users may access it from a mobile device, but on the other hand, it doesn't have a mobile OS, or app store, and it has no conversion powerhouse, like Search. Big footprints, different beasts.

Another way that Google and Facebook differ from each other is in how they derive their data. While Facebook has a 100 percent deterministic solution, Google's cross-device solution – depending on what it's being used for – can be a mix. And, despite its huge reach, the scope of Google's deterministic data may be a bit smaller since it has less persistently logged-in users.

Google uses both probabilistic and deterministic data in its cross-device tracking tools. It builds its probabilistic data with deterministic as a base.

In 2015, Google's Neal Mohan told AdExchanger: "We use people who have signed in to Google accounts on various devices as seed data and we extrapolate from there."

In September 2016, Google announced it is rolling out cross-device targeting, a 100 percent deterministic solution that will be available via the Google Display Network and DoubleClick Bid Manager. In a blog post, the company said this allows it to "close the loop on across devices."

So, if deterministic data is better, does that mean it's more expensive, or that all things being equal – including price -- it should be the default? Not necessarily. Again, it comes down to an individual brand's budget and KPIs. A mass market play may want to take advantage of probabilistic's scale. Or a more targeted campaign may call for using the heavily deterministic data used to target the gaming audience on Google Play. There are simply too many variables to make a clear call.

Seven Google properties have over **1 Billion** monthly active users*

* Source: TechCrunch

The Elephant Outside the Room: TV

There is one screen that has gone unmentioned thus far in this white paper – and it's a big one: TV. For the purposes of cross-device marketing as it stands today, TV may seem barely worth mentioning since TV-inclusive cross-device marketing is but a sliver of the overall pie. However, both the influence that TV still commands with consumers – and the steady march of technologies that will make TV truly connected – make it worth addressing even at this early stage in its evolution towards being a technology-driven marketing platform.

In the industry-wide excitement over mobile, it's crucial to realize that even people in younger age groups still watch a lot of traditional TV; according to Nielsen, in the fourth quarter of 2015, U.S. consumers ages 18 -24 watched 16 hours and eighteen minutes of traditional TV per week. While that figure is steadily declining, streaming is picking up the slack. The same report showed that 18-34 year olds spend more than 13 hours each week on TV-connected devices (including gaming consoles), but the majority of that time is spent watching video.

So when will cross-device marketing include the biggest screen of them all? To some extent, in a cobbled-together fashion, it's already happening. If, for instance, you are launching a campaign with the objective of stimulating app downloads – and that were to include TV commercials, it's pretty easy to see what the correlation is between TV and conversion on a mobile device.

* Source: Nielsen

But, in fact, programmatic TV is mature enough that it has set technical standards which have been agreed upon by 17 industry players -- ranging from DataXu to AOL to Omnicom Media Group to CBS – in 2016. Called the ABCD guidelines – for Automated Linear Broadcast Cross Device Standard – they are a sign that all parts of the TV buying ecosystem are preparing for TV's full entry into cross-device marketing.

Additionally, major players including AT&T and NBC are moving into programmatic linear TV sales, if not cross-device – and, yes, set-top boxes are increasingly being mined for their deterministic data. eMarketer, which released its first forecast about programmatic TV this year, predicts spending will grow by more than 125 percent this year to $710 million. That's still only one percent of the U.S. total, but the research firm also expects it to be six percent of overall TV spending by 2018. While still a small fraction of programmatic digital video's $5.51 billion haul, it's a sign that things are trending in programmatic TV buying's direction. It stands to reason that at some point TV will be central to cross-device marketing.

Where Does Cross-Device Go From Here?

The relative absence of TV from cross-device marketing at this time points both to its promise and to the fact that for this truly to be a *de facto* way that many marketers do business, there is still a long way to go.

And then there's the stretch question: will marketers ever have a truly universal view of the consumer, as he or she hops from device to device, publisher to publisher and inside and outside of the walled gardens?

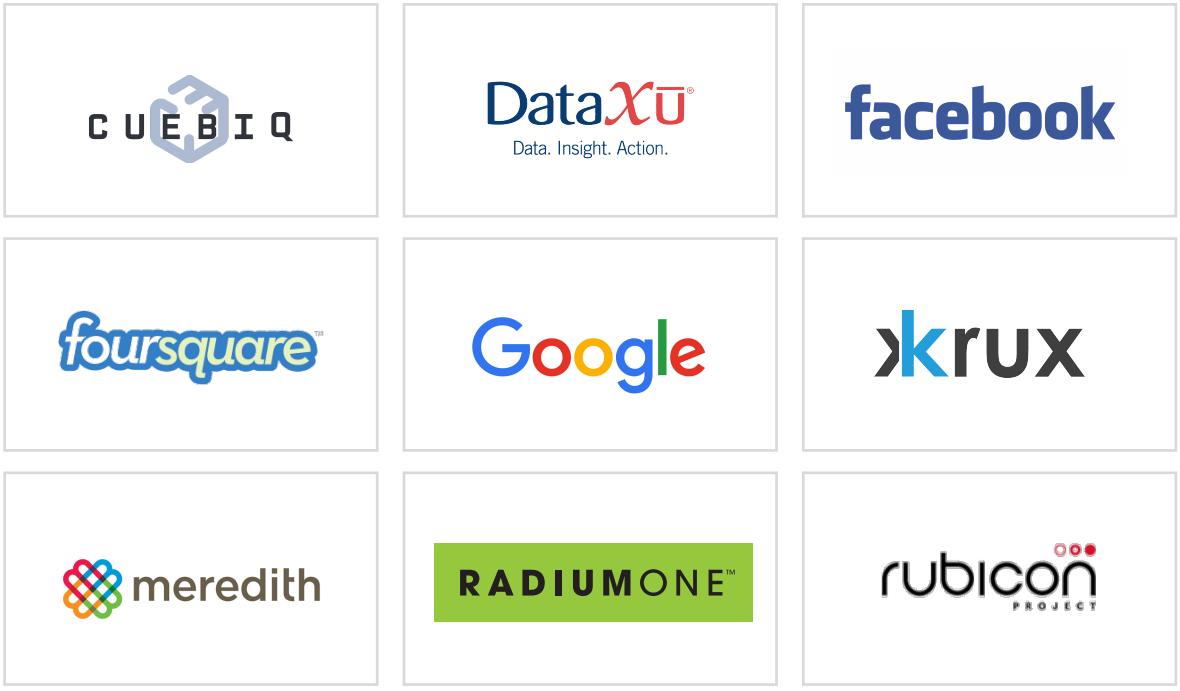
The answer? Probably not. There are too many headwinds, from privacy concerns to the fact that the digital world is forever shifting, to have that happen. The big deterministic players, understandably, are protective of their data, both because it is what makes them such powerful marketing platforms and because of their pacts to protect user information.

Still, the marketplace is moving steadily forward in its aspiration to reach consumers in ways that are both screen-agnostic and highly sensitive to where those devices sit in the individual's path to purchase, and as probabilistic data improves, it will no doubt increase not only the preponderance of cross-marketing efforts, but also their efficacy. And, as much data as exists now, we are still in the midst of a proliferation of devices including wearables, connected appliances and more, that will expand our knowledge of consumers. Each of these can add pieces to the overall puzzle.

What will the puzzle look like going forward? For some individuals interviewed for this white paper, the end goal is to use cross-device as a way to capture and cater to lifetime customer value. If it is possible to "know" a consumer as one moves through different stages of parenthood, home ownership and other particulars, cross-device could be the engine that powers the right marketing for the right consumer at the right time – and on the right device.

A more near-term goal is for cross-device to simply become the default, the predominant way that marketers reach consumers -- not a niche only pursued by the most cutting-edge marketers, but just the way marketers connect with their targets.

Thanks to the following companies for their invaluable insights and support that made this white paper a reality:



For a cross-device animation presented by the MMA and DataXu:

CLICK HERE