Acknowledgements
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About US

The Interactive Advertising Bureau (IAB) empowers the media and marketing industries to thrive in the digital economy. It is comprised of more than 650 leading media and technology companies responsible for selling, delivering, and optimizing digital advertising and marketing campaigns.

Working with its member companies, IAB develops technical standards and best practices, and fields critical research on interactive advertising, while educating brands, agencies, and the wider business community on the importance of digital marketing. The organization is committed to professional development by elevating the knowledge, skills, expertise, and diversity of the workforce across the industry. IAB advocates for its members and promotes the value of the interactive advertising industry to legislators and policymakers through the work of its public policy office in Washington, D.C.

Founded in 1996, IAB is headquartered in New York City and has a West Coast office in San Francisco.
About Our Sponsors

The IAB Programmatic+Data Center is a unit within IAB, founded to enhance existing IAB resources, and to drive the data agenda for the digital media, marketing, and advertising industry. The Programmatic+Data Center’s mission is to expand the programmatic universe, increase the understanding of how data drives business, and make them easily accessible to all.

IAB Programmatic+Data Center is focused on:
• Gathering industry thought leaders to drive and set the data agenda
• Funding industry research to provide benchmarks and actionable insights on data management across platforms including programmatic, mobile, and the internet of things
• Developing industry best practices, guidelines, and standards for privacy, data security, measurement, and consumer data protection
• Creating educational materials including certification, infographics, videos, webinars, and seminars to demystify data for marketers and advertisers
• Hosting data-focused events that feature industry luminaries discussing data related topics

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Accenture Interactive, a Strategic Partner of the Programmatic+Data Center, is reimagining business through experience. We drive sustainable growth by creating meaningful experiences that live at the intersection of purpose and innovation. By connecting deep human and business insights with the possibilities of technology, we design, build, communicate and run experiences that make lives easier, more productive and rewarding. Accenture Interactive is ranked the world’s largest digital agency by Ad Age and has been named a Most Innovative Company by Fast Company. To learn more, follow us @AccentureACTIVE and visit www.accentureinteractive.com.
The purpose of this report:
Programmatic advertising has become a key element in most digital ad budgets for its scale and efficiency in targeting and placing digital advertising. As a result, more brands are bringing the management of programmatic in-house. This shift is changing the role that brands and agencies play in this arena and the structure of how they are managed.

With programmatic's rise, the IAB Programmatic + Data Center aims to help inform its clients how programmatic is evolving the digital media landscape. The purpose of this report is to discuss the role that programmatic plays in the broader digital media ecosystem and how it is evolving, especially with the changing regulatory environment around data privacy. The insights from this report were gleaned from a variety of sources, including interviews with subject matter experts, a quantitative IAB survey, and additional secondary research from industry leaders.

Countries of Focus:
The IAB conducted a survey with six European countries: France, Germany, Italy, Portugal, Spain and the UK. These markets range in size and were extrapolated to represent Europe as a whole. Where we refer to a European average, it will include the data of these six countries (unless otherwise noted).
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Executive Summary

• Programmatic advertising has been on a meteoric rise. Programmatic's share of digital ad spend worldwide is expected to grow to 68% this year. Europe is already deeply entrenched in programmatic with most European countries’ digital ad spend greater than 80%.
  ° Programmatic is poised for additional growth as mobile and digital video usage continues to rise.
• Brands desire more control over programmatic, and we are seeing a trend towards brands in-housing some or all of this function. The majority of European brands surveyed have moved some function of programmatic buying in-house. Almost a third (31%) of European organizations have completely moved this function in-house, and 43% have partially moved programmatic buying in-house.
  ° Almost three quarters of European organizations have completely or partially moved programmatic in-house, which is more than organizations in either the U.S. or Latin America.
  ° In-housing of programmatic allows brands more transparency over the operation, which improves audience reach and increases cost efficiency and campaign effectiveness.
• Within European brand organizations that have brought their programmatic in-house, most are taking a hybrid approach and partnering with an agency on some elements of the operation.
  ° Many organizations are either currently working with or would consider working with a partner on technology infrastructure and campaign analysis/optimization.
  ° However, there are some functions, like algorithm creation and KPI (key performance indicator) development, that these organizations prefer to keep in-house.
• Europe was at the forefront of establishing regulations to protect consumer privacy and data. The General Data Protection Regulation (GDPR) was implemented in the EU in May of 2018 and as a result, Europe has become the gold standard in data privacy regulations.
  ° While many European organizations have noted an improvement in data quality and improved consumer trust, there are still questions on how effective GDPR has been. This is likely attributed to the fact that guidelines are nebulous, and without a governance model, most organizations are struggling with what constitutes compliance.
  ° There were concerns that regulations would negatively impact consumer trust of brands and limit brand profitability, yet those concerns have been largely unfounded. In fact, an unexpected benefit of regulations is that brands are now working with cleaner data. While regulations have culled down the number of customers who can be targeted, those that remain are more relevant and interested, resulting in a more effective ad spend.
• The future of the regulatory environment continues to evolve, but the anticipated limit or disappearance of cookies and third-party data magnifies the need for companies to manage their own first-party data. Thus, the ability to implement effective programmatic advertising hinges on an organization’s ability to obtain and manage their customer’s data.

• The digital ecosystem is constantly evolving through innovation and technological advancements, which will create new opportunities and needs within programmatic, both for brands and agencies.

• The COVID-19 pandemic has impacted brands across the world, with many limiting or shutting down operations. As a result, short-term spend on advertising has decreased and/or been repurposed, though it is unclear what impact, if any, this pandemic may have on long-term advertising.
  ° Some struggling brands, like those in hospitality or travel, have almost eliminated advertising. Others that are still operating, like grocers, Consumer Packaged Goods (CPGs) and telecommunications, are creating more relevant ads to reflect the current environment.
Defining Programmatic Media Buying

Programmatic allows a brand to target consumers, tailor messaging, and purchase relevant ad space more effectively by leveraging data in an automated process. For instance, an ad for swimwear being served to a 19-year-old female college freshman three weeks before Spring Break, while reading her favorite beauty blog.

Programmatic media has had a relatively brief history. It all started with the banner ad, which ushered in the advent of ad servers, which begot ad networks, Real-Time Bidding (RTB) ad exchanges, and ultimately, programmatic. It is staggering to see how much more effective ad targeting has become in a span of 20 years.

Programmatic allows brands to market to different audiences by segmenting across categories like age, gender and geography, and behaviors like media consumption. As different segments are identified, a brand can then tailor messaging for that particular segment while sending differentiated and relevant messages to particular groups simultaneously. All of this is executed algorithmically through an automated process, which means that it is done in real time without relying on human touch. As a result, brands are only paying for relevant ad content, delivered to the right people at the right time—which results in a more efficient and effective ad spend. One digital executive described programmatic as, “buying against a target, not buying content or properties. It’s a target we can measure and then quantify the impact.” It is no wonder that brands have turned to programmatic media buying over the traditional “spray and pray” approach where - brands cast a wide net and hope for the best.
The Growth of Programmatic

The terms “customer-centric,” “authenticity,” and “personalization” are perennial marketing buzz words. Everyone is trying to market to customers in a way that feels authentic and relevant. But in order to do that, we need to know about our customers—that is, we need data! As brands started to capture more and more data from their customers, they became capable of segmenting their customers into groups and developing messaging to these particular groups. With this came the need to deliver these messages in an efficient way. The old process of manually buying and placing ads limited the extent to which brands could target their communications. But with the advent of programmatic, brands are able to deliver targeted messaging to a relevant audience by automating the transactions of media via a technology platform, in real time, while reducing human error.

Programmatic has proven its value to the industry, and organizations are devoting more of their digital ad spend to it. In fact, according to the Zenith Programmatic Marketing Forecasts 2019 Report, programmatic’s share of digital ad spend worldwide is expected to grow to 68% this year. The total dollars spent on programmatic worldwide has seen a 54% increase in the last five years. Worldwide, more than two of every three display ad dollars is being spent programmatically.

While the U.S. spends far more than any other country on programmatic digital ad spend, four of the top eight countries in programmatic are in Europe (the UK, Germany, France and Italy). They, like many other countries, are continuing to accelerate their growth in this medium.

Source: Zenith Programmatic Marketing Forecasts 2019
Many European countries allocate far more of their digital ad dollars to programmatic than the global programmatic ad spend average of 68%. The UK, in fact, is leading the charge globally with an estimated 89% of digital display ad spend devoted to programmatic in 2020. France and Germany also allocate the majority of their display spend to programmatic at 80% and 73%, respectively.

The shift in spend towards programmatic is outpacing the increases in overall marketing spend, which means that programmatic is getting a bigger slice of the ad spend pie. And the medium continues to evolve; consequently, organizations must be nimble and frequently revise their approach. As one global digital executive said, "As technology and data evolves, the ability of programmatic continues to evolve. Where we were two years ago looks very different from today and will look very different two years from now."
Growth in Mobile and Video Boosts Programmatic

Mobile is the most programmatic format and mobile ad spending represents the majority of programmatic transactions in Europe. Mobile ad spend will account for more than 75% of digital ad spend worldwide in 2020, and the share of mobile is expected to grow to 80% by 2023. These numbers are slightly higher in Europe, as the percentage of mobile traded programmatically had already reached 80% by 2017. As mobile grows, this will only increase the focus on programmatic.

The UK and Germany comprise two of the top five mobile ad spend markets worldwide. The UK is the third largest market, though its spend is dwarfed by the U.S. and China who are the leaders in mobile ad spend.

And beyond these markets, across the globe, European countries account for a substantial proportion of global growth in mobile ad spend in 2020. France is poised for 24% growth in mobile ad spend in 2020, with Italy, Spain, and Sweden increasing their ad spend by almost 20%.

Programmatic is also expanding its reach in video. Projected digital video ad spend share worldwide is expected to be 75% this year (up more than 8 percentage points from 2019).

The top five programmatic video ad spend markets include the UK as the third largest, with Germany, France, and Italy also among the top ten markets.

Managing Programmatic Media Buying

As the prominence of programmatic rises, there is a desire for more control. As is the case with many elements of advertising, more and more brands have decided to bring the capability in-house. Almost a third of organizations surveyed in Europe have indicated that they have completely moved programmatic buying in-house. This is almost twice as much as organization in the U.S. (18%) and Latin America (16%). Meanwhile, 43% of European companies have partially moved programmatic in house and plan to continue. This is in line with what we’re seeing across the U.S. and Latin America.

Intent to bring Programmatic In-House - Europe

- Completely moved in house and plan to continue: 31%
- Partially moved in house and plan to continue: 43%
- Tried to bring in house, but outsourced to partners: 16%
- No plans to bring in house: 10%

Note: EU data do not include UK
If we look at the aggregate of organizations that have partially or fully brought their programmatic in-house, Europe is leading that trend with almost three quarters (74%) of organizations indicating this shift towards in-house. The U.S. is slightly behind at 69% and LatAm is lagging at 63%. It is interesting that while the U.S. is the largest programmatic market, they are not the leaders in in-housing. However, this may be due to the size of the U.S. and the difficulty of managing the volume and number of partnerships in that market. A country like the UK, which has only a tenth of the volume of the U.S., wouldn’t require the same complexity, and therefore might be easier to transition to in-house. Additionally, as we will explore further in this report, Europe has been at the forefront of data regulations with GDPR. The access to and control of data plays an integral role in programmatic effectiveness. European organizations may be farther along in managing their data, and thus might be more prepared to bring this function in-house.

**Benefits of In-Housing Programmatic**

In-housing of programmatic functions allows for brands to have more control over their operations and more transparency. Overall, programmatic allows for more effective targeting, which increases efficiency and effectiveness. Not surprisingly, campaign effectiveness and cost efficiency were noted as the two most important objectives of in-housing programmatic, which was consistent across all three regions. “It’s an issue of transparency. We had a contract through our agency, but they didn’t have a transparent programmatic offering. Without transparency, we can’t improve ad effectiveness.” said one CPG executive. Extended audience reach was the third most important objective for Europe. Interestingly, ROI attribution, though listed as the number one objective in the U.S., is the least important objective in both Europe and LatAm.

*Note: EU data do not include UK*
While the benefits of in-housing are many, transitioning the operations to in-house is no small feat. It takes planning and a multi-phased approach, which oftentimes takes years to complete. As was commonly called out in the industry interviews we conducted, this type of transition requires buy-in across the organization and especially from top management. As one ad exec stated, “It took a long time to convince the c-suite that we had to bring it in-house. We started with just one function and had to prove that it worked before we could bring other programmatic functions in. It was a journey.” It also requires flexibility, as organizations’ needs evolve, and it is only once they’ve started down this journey that an organization truly understands the requirements. “Our digital marketing platform was archaic, so we had to rebuild the tech stack from scratch. It wasn’t until we started to rebuild it that we realized we had to completely rebuild our MarTech and AdTech to support the new platform,” a hospitality executive shared.

### Structuring In-House Programmatic Teams

Within the organizations that have brought their programmatic operations in-house, most are still taking a hybrid approach and partnering with an agency on some elements of their operations, which is similar to what we’re seeing in organizations across the world. As the chart below demonstrates, many organizations are employing more than one strategy for their programmatic buying. While they may have their own team run some campaigns entirely in-house, they may also choose to work with a DSP and/or agency to execute other campaigns on their behalf. In Europe, about half of organizations are saying they have their own team running campaigns in-house and via a direct contract with a DSP. There are some differences across regions. In Latin America, organizations are executing more programmatic with a direct contract with a DSP versus in-house. And in the U.S., almost a fifth of organizations are working with a DSP who also executes campaigns. By and large, though, these regional differences are not significant.
Managing Programmatic Functions

As organizations are thinking through the division of labor, what we found, according to a recent IAB survey for Europe, is that there is still reliance upon partners for many programmatic functions (see table below). Across functions, many organizations are either currently working with or would consider working with a partner to execute key functions of programmatic buying. For example, more than half of European organizations have or would relinquish control of technology infrastructure (outside of algorithm creation). Similarly, about half of organizations have or would rely on a partner for functions related to campaign analysis and optimization.

“While I read a lot in the press about programmatic, I expect my agency team to be coming to me with new ideas on what to test. Before we were just trying to keep the fire burning and get the right programmatic team in place, now it’s about being future-facing,” stated a digital ad executive.

That said, there are some functions that organizations would prefer to maintain control of. Foundational functions, like building the technology infrastructure or KPI development, are important for most organizations to keep in-house. While the decision on what technology to use is typically made in-house, the actual technology is likely outsourced to a vendor. Similarly, most organizations want to manage partners and contracts directly. With other functions—like Campaign Planning, Execution, and Analysis—we find there is a split, with about half of organizations being willing to relinquish control to a partner and the other half preferring to keep those functions in-house.

However, this data demonstrates that there is a hybrid structure at play. While bringing functions in-house increases transparency and efficiency, the support of an outside partner remains crucial. In fact, as the COVID-19 pandemic has demonstrated, many brands are relying more on their agencies for data analytics on modeling consumer behavior, as well as an outside perspective on how other brands are handling the pandemic. As one energy executive noted, “At first, we were asking [our agency] how to get data. Now that we have it, we are asking them for help on how to use and interpret this new data.”

Note: EU data do not include UK
When comparing Europe to other regions, Latin America evaluated these functions similarly in terms of their desire to work with partners versus manage in-house. The U.S., on the other hand, appeared to have a stronger desire for partner support across functions (see table below). The U.S. has been at the forefront of programmatic implementation so they may have more comfort relinquishing control to agency partners than other countries with less programmatic experience.

<table>
<thead>
<tr>
<th>Technology Infrastructure</th>
<th>EU</th>
<th>US</th>
<th>Latin America</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Currently working w/ Partner</td>
<td>Consider working w/ Partner</td>
<td>Currently working w/ Partner</td>
</tr>
<tr>
<td>Data science / Algorithm creation</td>
<td>17%</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>Building technology</td>
<td>31%</td>
<td>28%</td>
<td>27%</td>
</tr>
<tr>
<td>Data management</td>
<td>37%</td>
<td>28%</td>
<td>33%</td>
</tr>
<tr>
<td>Managing Partners and Contracts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publisher data relationships</td>
<td>20%</td>
<td>19%</td>
<td>22%</td>
</tr>
<tr>
<td>Publisher inventory relationships</td>
<td>22%</td>
<td>16%</td>
<td>28%</td>
</tr>
<tr>
<td>Ownership of DMP contracts</td>
<td>15%</td>
<td>16%</td>
<td>23%</td>
</tr>
<tr>
<td>Training and education</td>
<td>23%</td>
<td>26%</td>
<td>24%</td>
</tr>
<tr>
<td>Ownership of DSP contracts</td>
<td>15%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Campaign Planning, Execution, Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campaign optimization</td>
<td>27%</td>
<td>30%</td>
<td>34%</td>
</tr>
<tr>
<td>Trafficking creative / Ad operations</td>
<td>23%</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>Audience planning and validation</td>
<td>21%</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>Campaign analysis and reporting</td>
<td>27%</td>
<td>29%</td>
<td>30%</td>
</tr>
<tr>
<td>Strategic Direction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KPI framework</td>
<td>15%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Campaign strategy and direction</td>
<td>28%</td>
<td>27%</td>
<td>16%</td>
</tr>
</tbody>
</table>

The Implementation of GDPR
The digital landscape is young and evolving quickly; this space is ever-changing and proving difficult to regulate. Not surprisingly, there are sensitivities around how organizations are collecting and using consumer data. Europe has been at the forefront of establishing regulations to protect consumer data and privacy.

After years of negotiation, the General Data Protection Regulation (GDPR) was implemented in the EU in May 2018. The goal of GDPR was to align existing data protection protocols and increase the level of protection for individuals, thereby giving customers greater control over their data and more transparency about the data being collected. Europe has set the standard for how organizations should manage their data, to which organizations globally are adhering.
There is unanimous agreement among European organizations surveyed that GDPR compliance in programmatic is important. As the survey data indicates (see below), there is concern across all elements of data privacy: data collection, consumer consent, and data security, with the top concern being the quantity and quality of the data collected under GDPR compliance.

However, this data illustrates that there isn’t one area of focus but an overall concern with compliance. This is likely because guidelines are somewhat nebulous, and most organizations are struggling with what constitutes compliance. Across the globe, the interpretation of privacy guidelines has varied, with no consistent governing body to monitor implementation. The result is that things have been left to interpretation. “The guidelines were intentionally left vague because there is no governance model so it is left up to the organization to decide how to interpret things. As a result, I think we are all handling things a little differently,” shared a digital executive. As these regulations became reality, many organizations felt ill-prepared and even two years later, lack clarity.

The Impact of GDPR

Now that regulations have been in place for two years, organizations have adapted to the new regulatory environment. By and large, the feedback has been positive. In a recent IAB survey, European organizations shared their feedback on different elements of GDPR. More than two thirds of organizations strongly or somewhat agreed that their data quality has increased while fraudulent traffic has decreased since GDPR. Similarly, 67% of organizations agreed that they had gained more user trust.

And GDPR has not appeared to stem the spend in programmatic as 70% of organizations surveyed either strongly or somewhat agreed that they had increased their programmatic spending and direct buys. Fortunately, almost three quarters of organizations agreed they had trusted partners to help with GDPR, which further corroborates the importance of agency partnerships.
However, the feedback is not unilaterally positive. First, there seems to be some lack of clarity around the impact of GDPR by some organizations. Almost a quarter of organizations responded neutrally (neither agree nor disagree) to statements about an increase in data quality and reduction in fraudulent traffic. Similarly, 27% of European organizations neither agreed nor disagreed that they had gained user trust since GDPR. This further suggests that the lack of clarity and governance of GDPR may have dampened the impact of these important regulations. “While it would take a lot to be prescriptive, given all the nuances, there isn’t a focus on being clear and concise, so advertisers and data partners are caught in the swirl,” shared a digital executive.

Similarly, when asked about the loss of volume due to GDPR, while almost half of organizations (49%) agreed they had lost volume, though almost a third (31%) neither agreed nor disagreed.
Access to consumer data is paramount to programmatic advertising, so adhering to these regulations remains a focus for brands and agencies. At this point, however, the impact of GDPR has been relatively minor altogether. While there were concerns that these regulations would negatively impact consumer trust for brands, and a brand’s own profitability, those concerns have been largely unfounded, according to industry interviews. Neither has there been a strong consumer backlash (in terms of inquiries or complaints) or an impact to profitability. “We thought it was going to be another Y2K and everything would go to pot. It turns out, the anticipation was worse than the reality,” stated a CPG executive.

Access to Data Remains a Concern
Continued access to and use of third-party data is uncertain. As heightened regulations became a reality, many organizations realized that the onus is on them to establish and manage their first-party data better. Many have gone to great lengths to build a DMP and refresh their first-party data. Furthermore, the use of and access to third-party data is disappearing, as is evidenced by Google’s announcement to phase out the use of third-party cookies by 2022 (Apple’s Safari and Mozilla’s Firefox have already implemented similar measures). While there are solutions that can still allow for ad tracking (like Google’s Privacy Sandbox), it is unclear what will and will not be available. As a result, there is a greater emphasis being placed on an organization’s ability to access and manage their customer data. “First party data is the most critical data. As standards on third party data change, we need to take control. If we don’t own the data, we can’t leverage the data,” said a digital executive in hospitality. Not surprisingly, those who have in-housed more of their programmatic operations seem better prepared than those who have not, because of the control they have implemented over their data.

While regulations are an ongoing challenge, they have also revealed some benefits as well. Whether first- or third-party, organizations are now working with “cleaner” data. While regulations have culled down the number of customers who can be targeted, those that remain are more relevant and interested, resulting in a more effective ad spend. Also, only targeting qualified customers can result in building a better sense of trust between brands and their consumers. “We are transforming our relationship with our customers. Our ads are more thoughtful and targeted. We want our customers to learn that if they’re getting an ad from us, it is worth looking at,” stated a digital leader.
Predictions for Programmatic

Future Regulatory Impact
As the future of the regulatory environment continues to evolve, the anticipated limit or disappearance of cookies and third-party data just magnifies the need for companies to manage their first-party data. This will allow them to more effectively implement programmatic advertising. Similarly, organizations will require more data transparency from their partners, such as DSPs, to understand what data is being accessed and how it is being used.

Looking forward, brands feel optimistic about the future of regulations and the power it puts back in the hands of consumers. However, in light of future regulations, organizations are craving clarification on how regulations impact them, rather than being left to interpret things on their own. “[These regulations] are not a light switch, they’re a dimmer. We can still be compliant with minimal business disruptions if we work together [with regulators],” shared an industry executive.

With this regulatory uncertainty, native contextual ads are expected to increase in popularity. These are ads that are relevant to the content they are displayed with and which share a cohesive and seamless design with that content. These ads do not require cookies or customer data, so they are GDPR compliant. Additionally, they are designed to blend into content while relating to the topic a viewer is interested in, thereby feeling personalized to that viewer.

Expanding Programmatic Platforms
The digital ecosystem is constantly evolving, with new innovation and technological advancements. With it, programmatic will continue to mature as well, inevitably creating new opportunities and needs for brands and agencies.

The rise of CTV (Connected TV) and OTT (Over-the-Top) has changed the way people watch TV and see advertising. With video content being consumed across web, mobile, and other connected devices, programmatic TV is going to gain more prominence with its data-driven approach for buying and delivering ads.

Additionally, we are seeing the soaring adoption of voice-activated devices, with voice-first browsing becoming a common behavior. This presents a unique opportunity for brands to get into the consideration set earlier in the path to purchase, and create a seamless sale, all without the need to physically interact with a device. Programmatic placement for voice-activated platforms will become a valuable way to interact with a relevant audience.
Finally, Digital Out of Home (DOOH) has been growing in prominence. With the advent of LED billboards, messaging and content is dynamic and much more eye-catching than static billboards. At the moment of this writing, DOOH is experiencing a temporary headwind due to COVID-19, which we expect will dissipate once the impact of the pandemic subsides. At that point, DOOH’s growth trend should resume and accelerate.

In 2019, IAB reported that programmatic represented 40% of the overall $10 billion DOOH ad revenue in the U.S. When you layer on the capabilities of geo-location technology, and wearables, the notion of true omnichannel advertising, which follows you from home to out-of-home, becomes a reality. Programmatic will play a crucial role in integrating this data to deliver targeted ads to the right audience in a way that was hitherto impossible.

Technology Enhancements to Programmatic
There are two technology advancements expected to enhance programmatic, which we would be remiss not to mention. First, machine learning has already found its way into programmatic through highly complex algorithms that connect ads with buyers more effectively than manual ad placement. A.I., however, will further improve upon ad effectiveness by predicting customer buying patterns and placing ads at the most relevant times and places, all without human input. A.I. will allow us to not only optimize ad spaces but also to measure and improve upon them in real time.

Secondly, blockchain, while still a nascent technology, can help reduce ad fraud by improving upon programmatic's transparency and eliminating middlemen. These improvements and innovations in technology continue to strengthen the relevancy and veracity of ads, thereby improving consumer trust and safety.

In conclusion, programmatic is illuminating a bright future for advertising as it helps to mitigate two age-old issues: inefficiency and waste. As the retailer John Wanamaker allegedly put it, “Half the money I spend on advertising is wasted; the trouble is I don’t know which half.” Programmatic is the first technology that can resolve these issues across the value chain by reducing waste by advertisers, reducing ineffective messaging for customers, and allowing publishers to monetize the attention that they generate. Overall, this improved efficiency and reduced waste results in a more relevant connection to the customer with higher customer satisfaction.
Key Takeaways

• While the U.S. spends the most on programmatic advertising, Europe as a whole represents a large proportion of programmatic spend. The UK alone spends the third most in advertising, and Germany the fifth most, worldwide. Thus, they play a very influential role in shaping the practices of programmatic.

• While in-housing programmatic is on-trend, there is still a need for external support, either in an agency or tech partner.
  ° These findings demonstrate that brand need for external partners is not being eliminated, but rather may suggest the need for specialty expertise and operational support to scale personalization.
  ° Given the increase in data transparency and attribution that programmatic provides, this heightens the need for a strong analytics capability in particular and many organizations turn to agency partners for this capability.

• While there is a desire for external support in some programmatic functions, organizations are more likely to keep the strategic direction of their campaigns in-house. However, as the data suggests, this is not a hard and fast rule. In fact, organizations with multiple brands may choose to maintain control over some of their brands, while relinquishing control to a partner on others.

• Europe set the standard in privacy regulations with GDPR and while the impact has been mostly positive, it has been mitigated by the lack of clarity and a governance model. Europe will likely play a leading role in the evolution of these regulations and given how much these regulations impact programmatic, they are poised to lead the evolution of programmatic as well.
  ° Similarly, it is clear that restrictions to the access of third-party data is inevitable. As a result, the organizations who build and manage a robust customer database will best adjust to new restrictions.

• The future of programmatic is rapidly changing with the proliferation of technological advances. Brands and external partners who embrace these new technologies and capabilities will be more successful in adapting to this ever-changing landscape.
  ° These advances also offer more opportunities for partners to specialize in emerging areas.

• Overall, the benefits of in-housing are many, with the biggest being the ability to drive better consumer experiences through increased connectivity and collaboration across marketing. This is particularly so where media is integrated in campaign development, rather than treated as a stand-alone function. In-housing drives data integration and improves planning, thereby improving data transparency, ad efficiency, and campaign effectiveness.
As previously noted, agencies still play an important role in programmatic, even with organizations that in-house some programmatic functions. However, that agency role is shifting to more of a supporting role, which may suggest an opportunity for deeper specialization within agencies.

- The COVID-19 pandemic has led to many changes in advertising overall. While some brands are limiting their short-term media spend, those same brands are also leaning more heavily on programmatic as consumers remain inside and online. The long-term impact is unclear, and this could result in an increase in programmatic as consumers are developing stronger online habits, like doing more shopping online.
  - This pandemic also illustrates the importance of a well-integrated programmatic team when it comes to quickly responding to unexpected events.
  - Whether in-housing or working with an agency, those teams that have clear and transparent processes can pivot and adapt more easily.