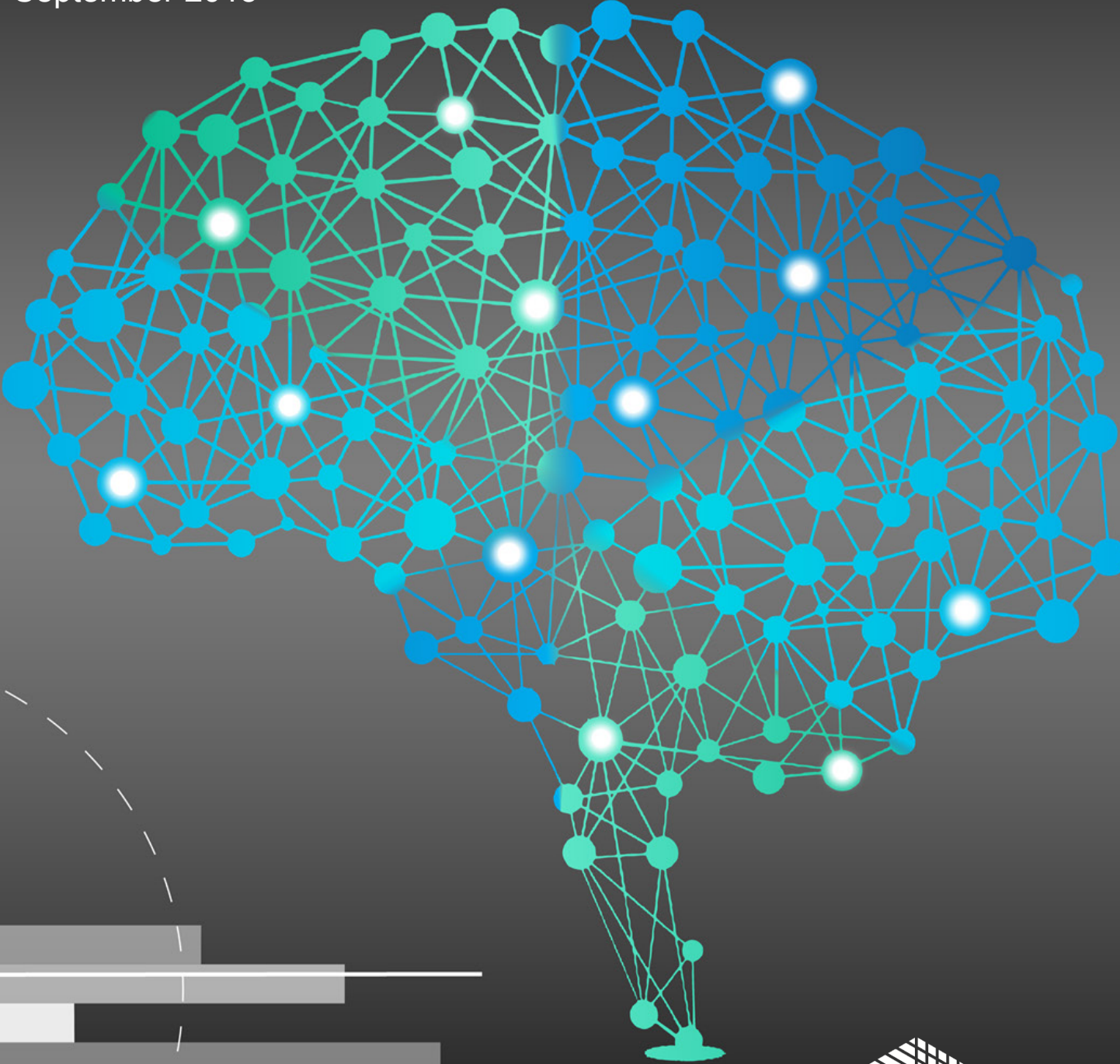


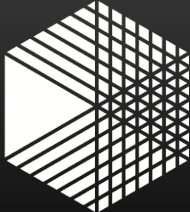
Programmatic 2015

Roadmap for Growth

September 2015



MAGNA



GLOBAL

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About this Document

The MAGNA GLOBAL Programmatic Intelligence series is published twice a year.

The spring publication covers the most important trends & drivers of the global programmatic market and how MAGNA GLOBAL expects those themes to play out.

The fall publication gives an update on the global size and growth of the programmatic market by country and media format.

Key Findings

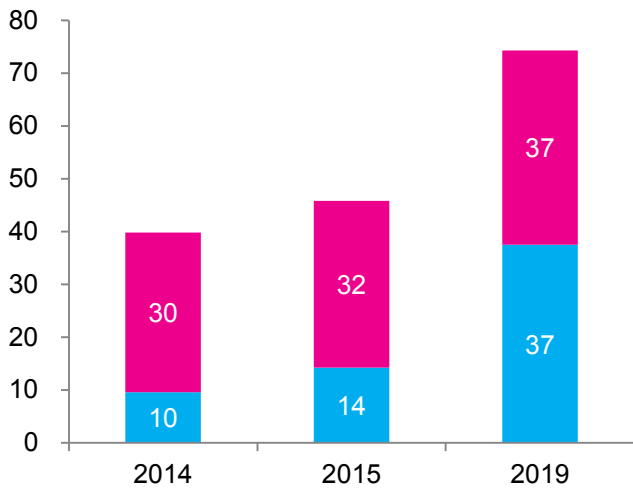
The global programmatic market will grow from \$14.2 billion in 2015, to \$36.8 billion in 2019. By 2019, programmatic transaction methods will represent more than half of spend in the Programmatic Universe (banner display and video) for the first time, up from 2015's 31% share of total banner display and video.

Growth in 2015 is expected to be 49% y/y, following 2014's 64% global programmatic growth.

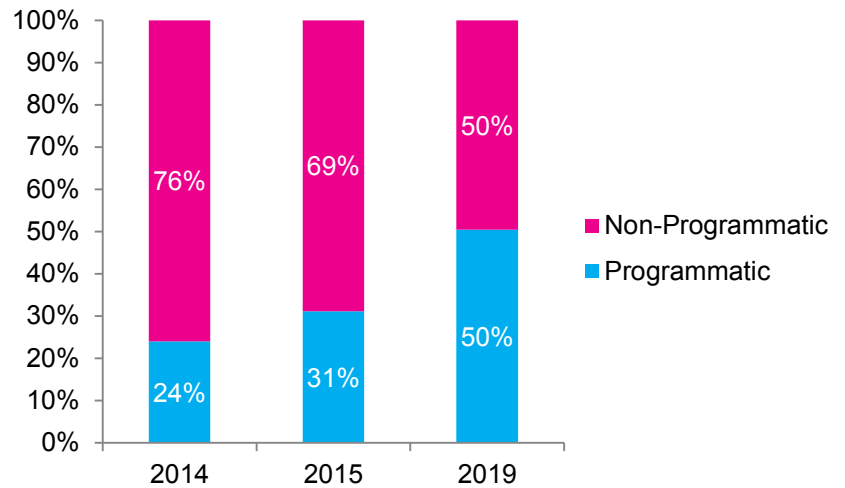
The largest share of programmatic spend comes from desktop banner display inventory today, but by 2019 video will represent over half of all spend.

The United States remains the largest programmatic market by spend in the world by far, representing over half of all global programmatic spend. It is followed by the UK, Japan, China and Germany. Together, these largest five markets represent just over three quarters of global programmatic spend.

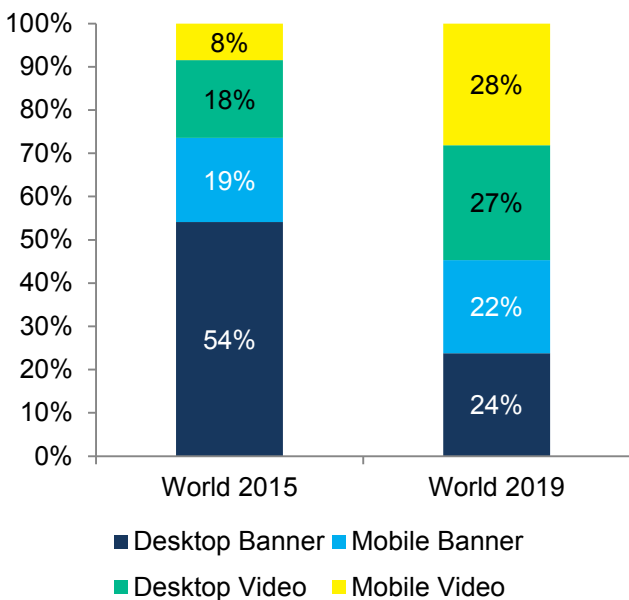
Global Programmatic Spend (\$bn)



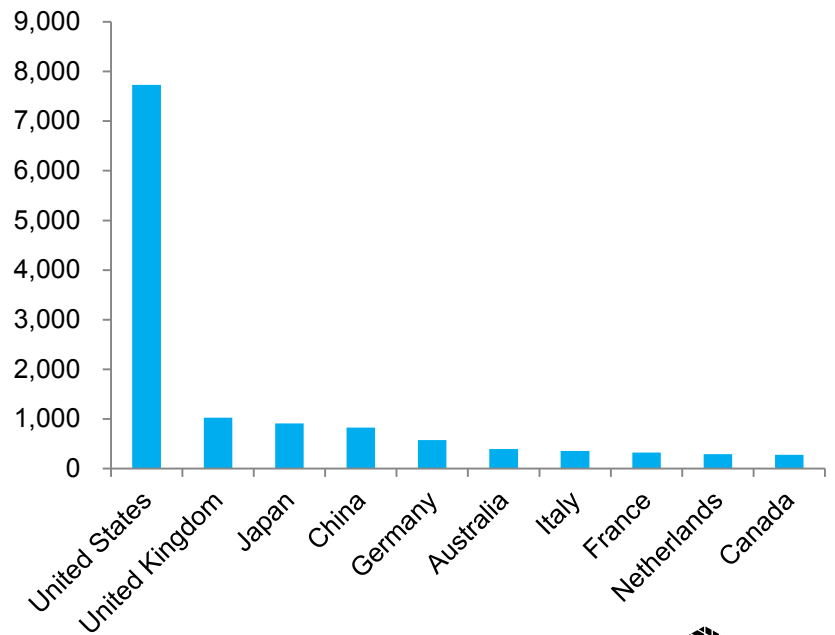
Global Programmatic Penetration (%)



Global Programmatic Spend by Format



Programmatic Spend by Country (\$mm)

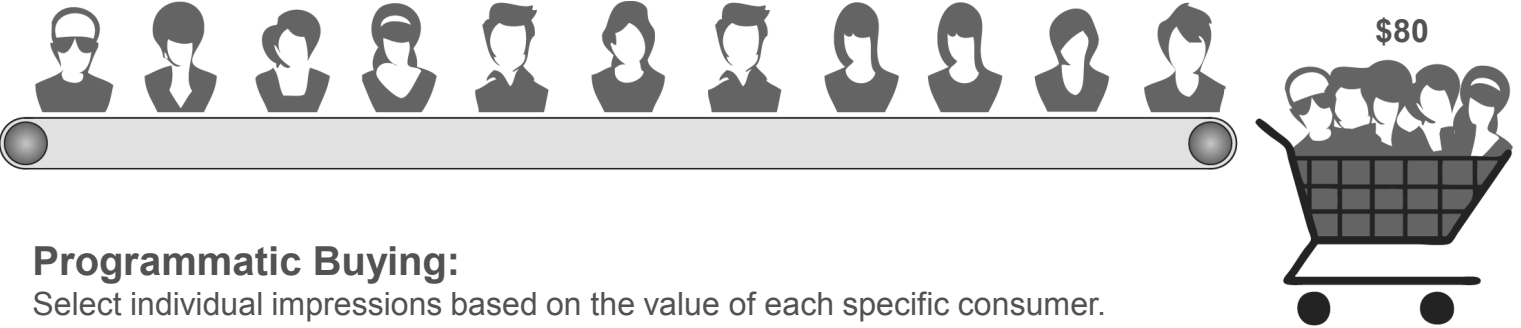


What is Programmatic Trading?

Programmatic trading is quite simply the buying and selling of ad inventory in an automated fashion. It allows for the targeting of specific impressions rather than buckets of impressions, and, in this way, is more efficient than traditional ad inventory purchase methods, meaning fewer wasted dollars.

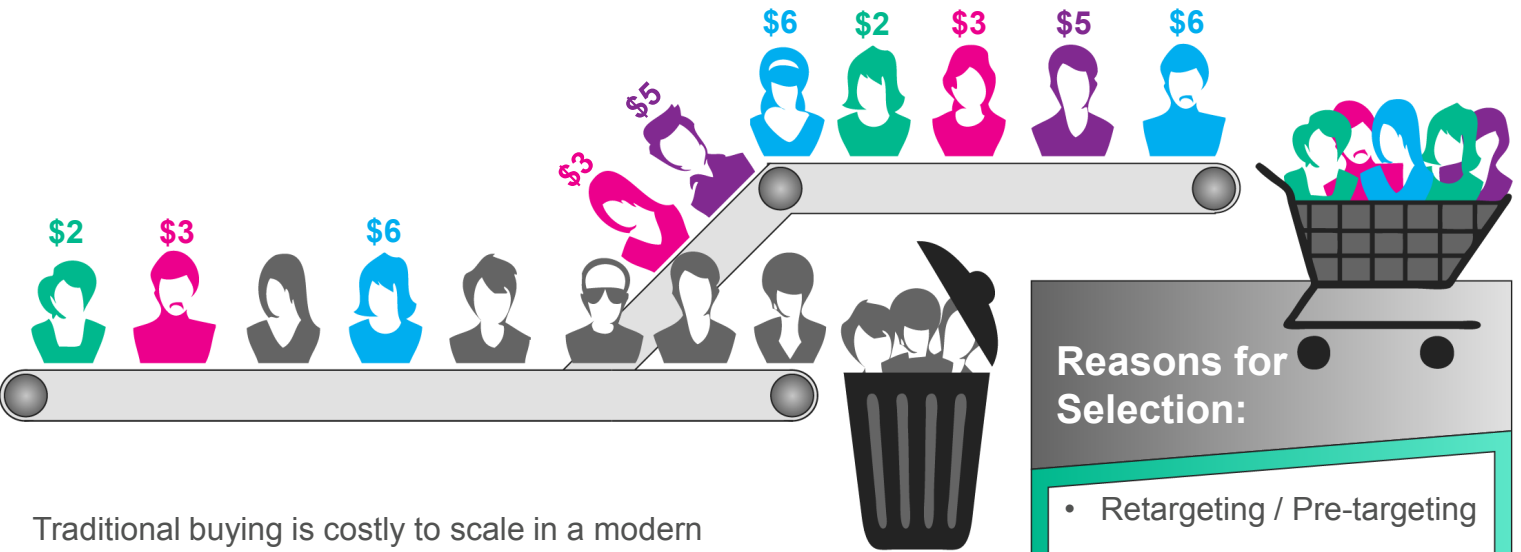
Traditional Buying:

Purchase a bucket of impressions based on assumptions about a website's readers.



Programmatic Buying:

Select individual impressions based on the value of each specific consumer.



Traditional buying is costly to scale in a modern online advertising environment.

Programmatic buying allows for consumer targeting at scale. Efficiencies are increased by outsourcing most of the heavy lifting to computer search algorithms.

Reasons for Selection:

- Retargeting / Pre-targeting
- Location
- Demographics
- Interests
- Behaviors
- Custom/Lookalike Targets
- Extended Reach












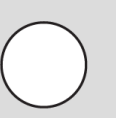


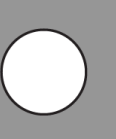


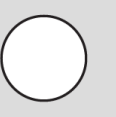
How MAGNA GLOBAL Defines “Programmatic”

“Programmatic” includes *all* spend transacted through a technology platform rather than a traditional I/O process. MAGNA GLOBAL further breaks down spend into two categories: RTB and Non-RTB programmatic.

RTB includes any transaction executed on an individual impression basis and in which pricing is determined in real time. This includes open auctions, invitation-only auctions, Deal ID transactions, some private marketplace transactions and any other transaction where price discovery (whether through highest bid or another mechanism) occurs in real time.

The term “programmatic” has been used in various ways since its inception and continues to evolve. The difference between RTB and non-RTB (automated) transactions within programmatic can be recognized by whether the transaction is...

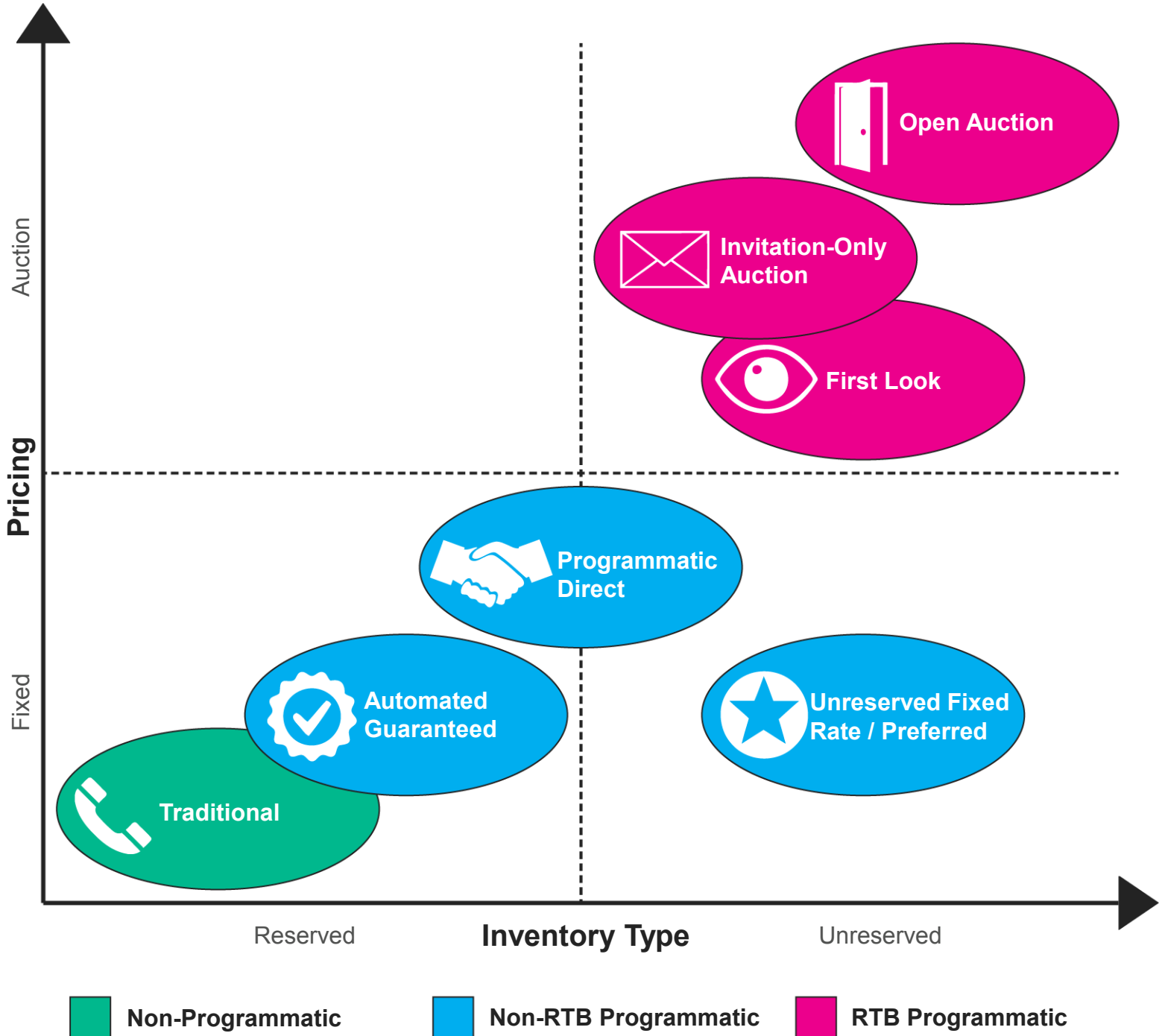
Non-RTB includes transactions executed through technology platforms where significant information about inventory and pricing is known in advance. This includes “automated guaranteed” transactions, reserved inventory transactions, unreserved fixed-rate transactions, preferred deals, non-digital programmatic transactions, and, more generally, any transaction where a technology platform is used but price is not determined in real time.

		RTB	Non-RTB
	Driven by advanced technology and streamlines the traditional media-buying workflow...		
	Integrated with, and empowered by, media usage and consumer data...		
	Capable of addressing discrete impressions as opposed to packages of impressions, in a cost efficient way...		
	Targeting specific demographic groups or behavioral groups while being vendor-agnostic and content-agnostic...		
	Able to be priced in "real-time," allowing for a feedback loop and continued optimization in campaign settings...		
	Matching demand and supply from multiple vendors and multiple buyers through bidding mechanisms.		

Programmatic Transaction Types

MAGNA GLOBAL's definitions of programmatic transaction types mirror the ways that many brands and publishers categorize their own budgets and inventory (auction vs. non-auction based pricing, reserved vs. non-reserved inventory). In addition, they are designed to be future-proof and able to grow to accommodate

expected future evolution in transactions. There is a plethora of transaction terminology in the market, however, and the chart below demonstrates how some other transaction terminology fits into the MAGNA GLOBAL programmatic breakdown.

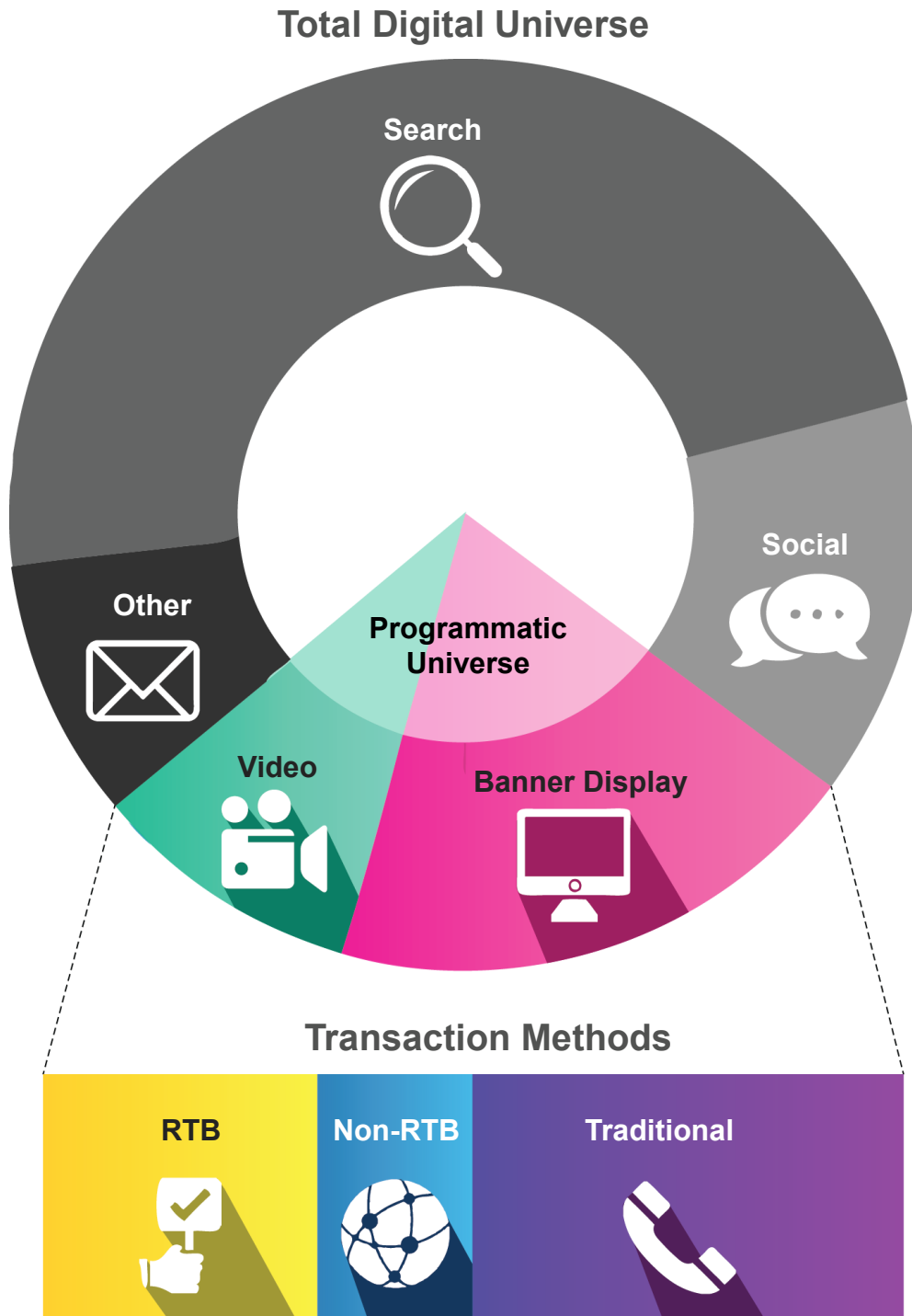


Appendix
 Conversation with Hulu
 LATAM
 APAC
 EMEA
 N. America
 Global
 Definition & Drivers
 Key Findings

The Programmatic Universe

The Programmatic Universe is a sub-set of total digital spend, and includes *only* banner display and video spend. All shares and penetration values in this report are given as a percentage of the Programmatic Universe, and not of total digital spend. Going forward, when this report refers to the Programmatic Universe, it is referring to banner display plus video.

In a change from 2014, MAGNA GLOBAL has decided to exclude social media advertising from the Programmatic Universe. While social media advertising is display-related advertising, MAGNA GLOBAL excludes it for the same reason that search is excluded: it is essentially 100% programmatic and would only dilute the informational content of this report's findings.

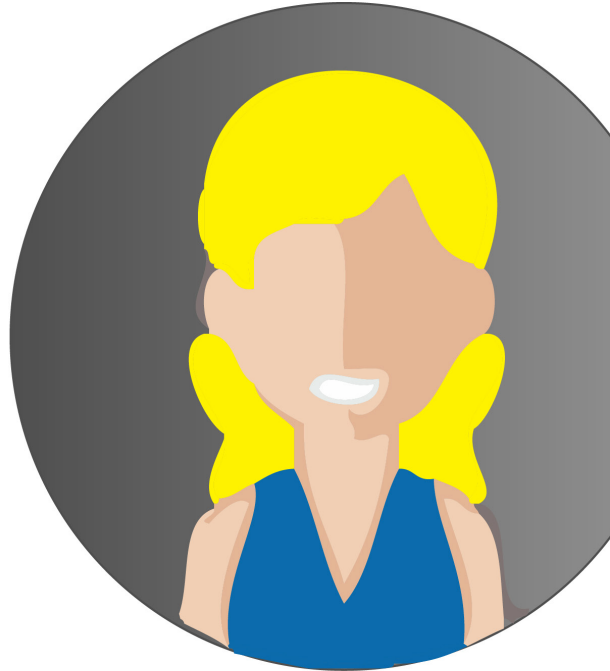



The Social Advertising Process

To better understand why social is entirely programmatic, one can examine the social campaign process below. Regardless of the social network or the purchase platform, a brand targets

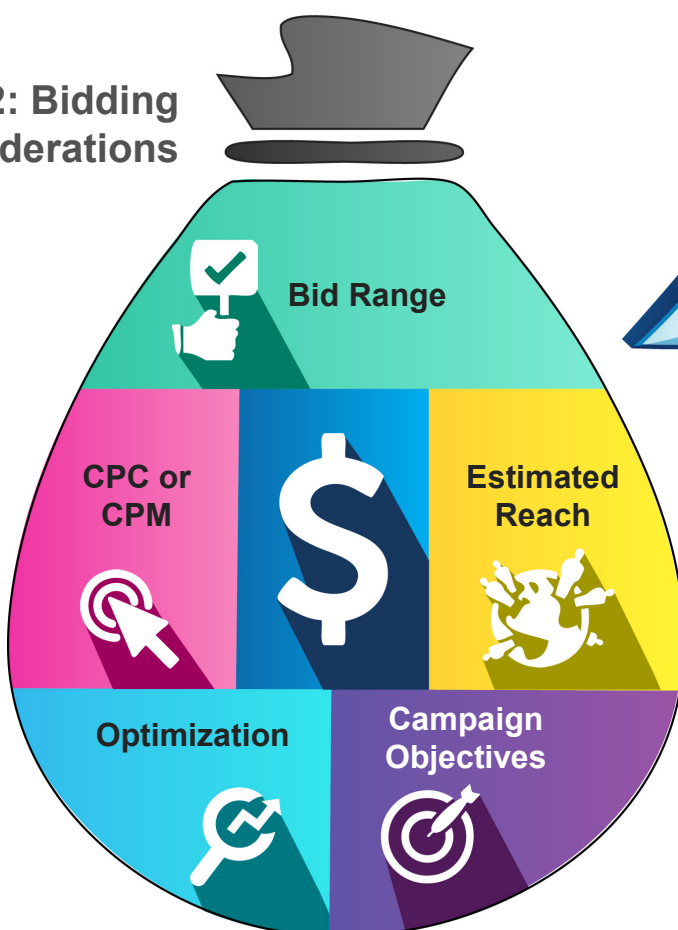
an audience through demographic and behavior criteria, and then sets bidding considerations for a campaign. This aligns very closely to our framework for a programmatic transaction.

Step 1: Targeting an Audience



-  Location
-  Age
-  Gender
-  Interests
-  Behavior

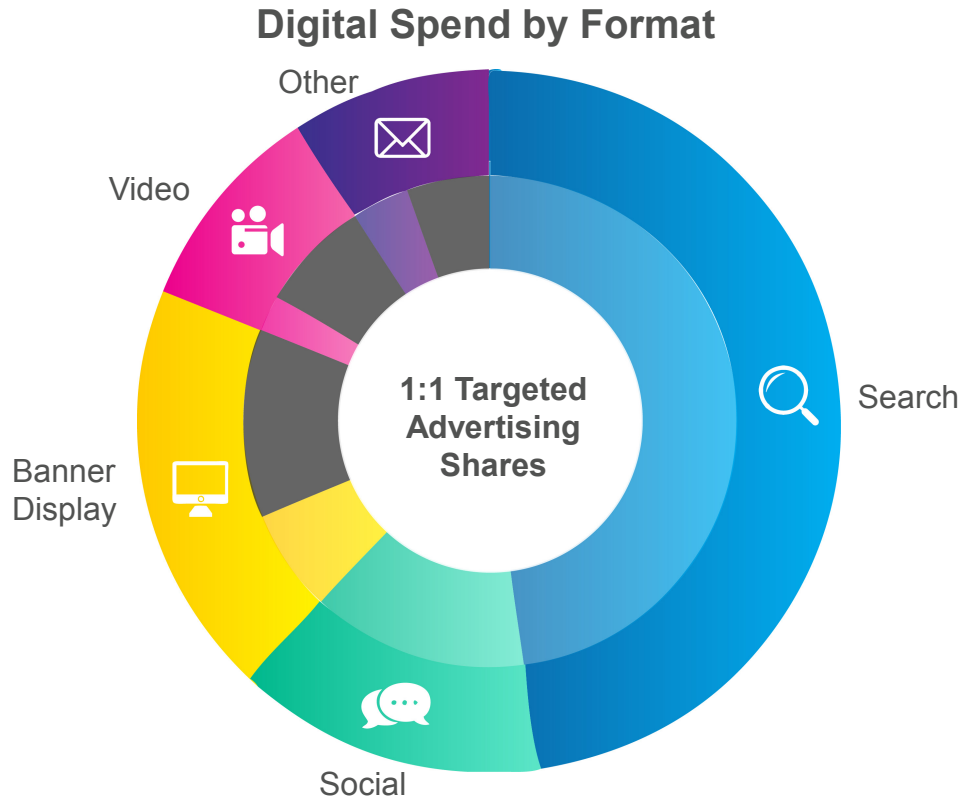
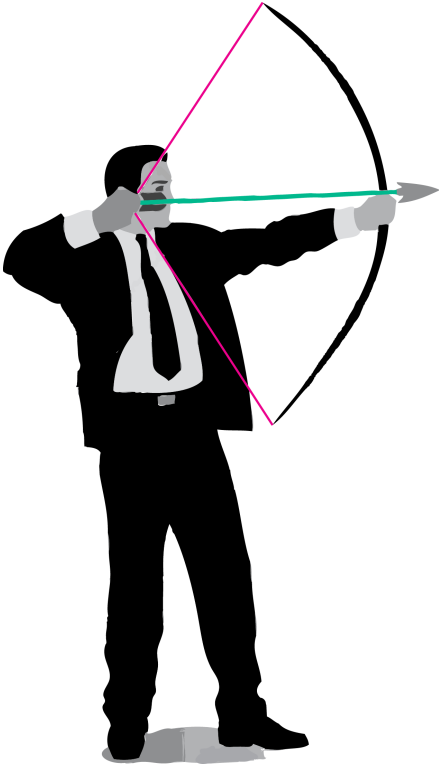
Step 2: Bidding Considerations



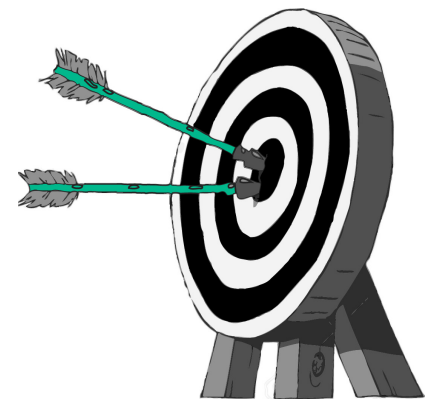
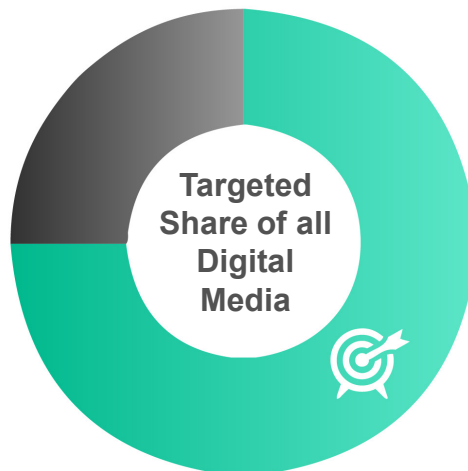
Targeted Advertising is the New Normal

Many observers of the programmatic process still view the 1:1 targeting aspect of programmatic trading as a new or minority transaction method. While this is true in the Programmatic Universe, brands view their digital budgets holistically.

Since search, social and email advertising are all targeted on a 1:1 basis, brands are accustomed to programmatic methods. Advertising that can not target individual consumers will be an increasingly niche aspect of digital campaign planning and execution.



As can be seen below, while 1:1 targeting constitutes only 1/4 of transactions in the Programmatic Universe, as a share of total digital spend, it represents 3/4 of brand digital budgets.



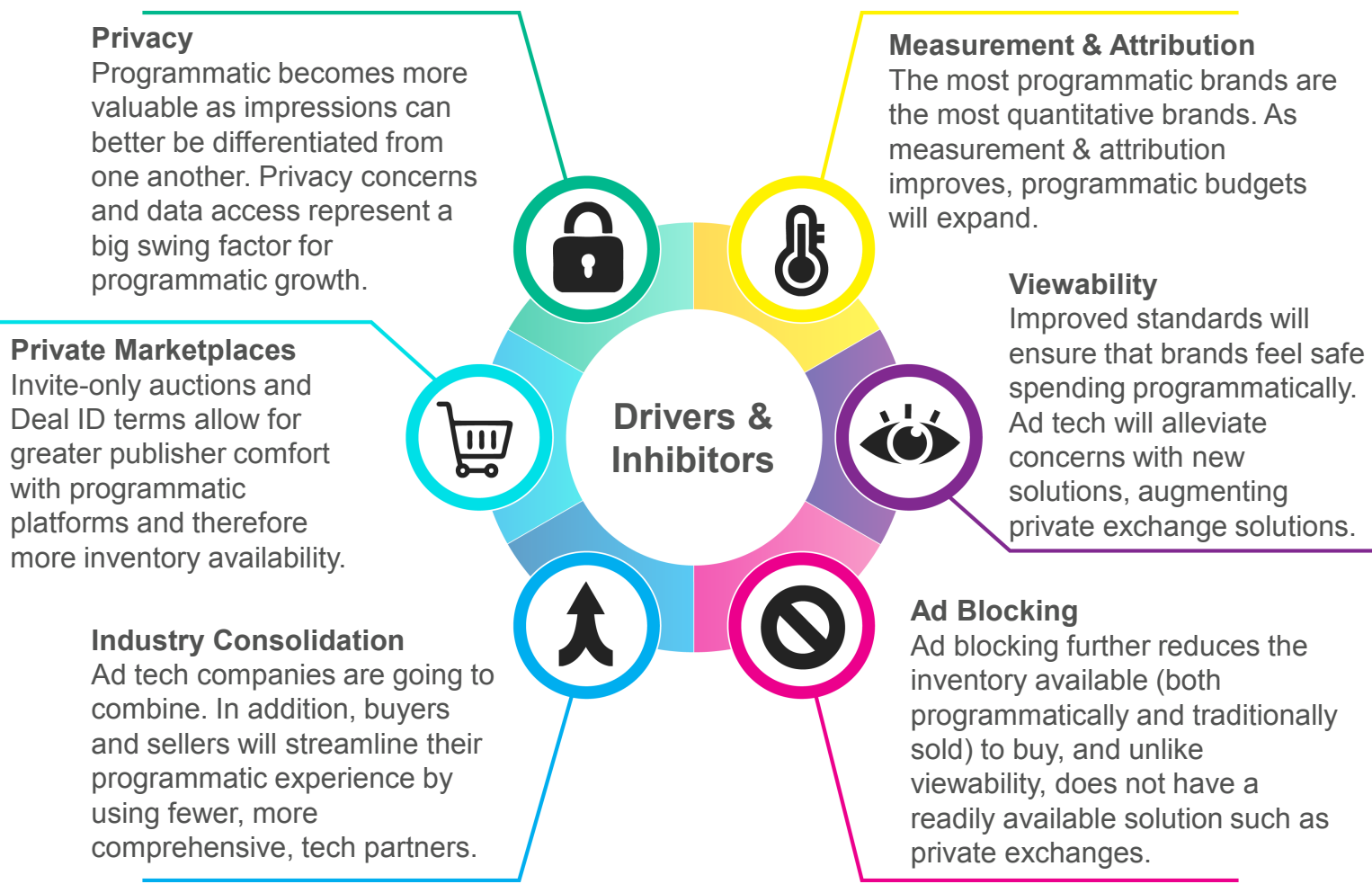
■ 1:1 Targeted Advertising
■ Non-Targeted Advertising

Programmatic Drivers and Inhibitors

The programmatic ecosystem has evolved significantly over the past five years of global programmatic development.

Drivers have advanced from brands becoming educated about programmatic possibilities, to streamlining their programmatic processes and negotiating private exchange access terms. Inhibitors have moved from misperceptions about programmatic equating to remnant, to cross platform targeting struggles and concerns about low viewability.

A new focus in the programmatic space (and the digital advertising space as a whole) is ad blocking. Estimates of internet users employing ad-blocking programs vary from low single digit percentage as a share of all internet users, to as high as 25%. Beyond the inventory and pricing effects of ad blocking usage, the greatest percentage of ad blockers report that they use the service due to privacy concerns. Because targeting data is the lifeblood of the programmatic ecosystem, usage of ad blocking could have a long-term impact on the space if it continues to grow.



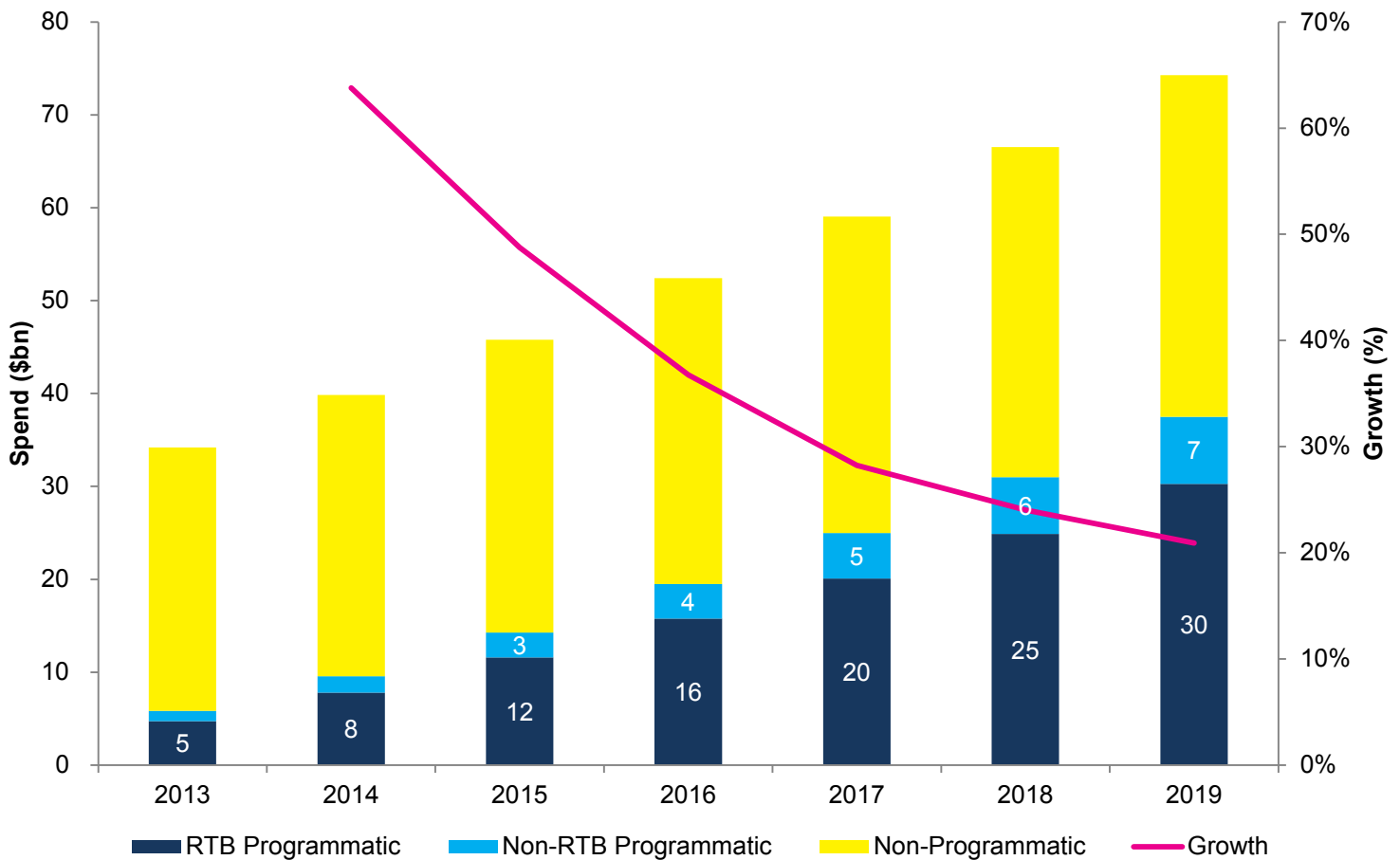
Global Programmatic Spend

The global programmatic market will grow from \$14.2 billion this year in 2015, to \$36.8 billion in 2019. This represents 49% growth expected y/y in 2015 following 64% growth in 2014. By 2019, programmatic transaction methods will represent more than half of spend in the Programmatic Universe (banner display and video) for the first time.

This \$14.2 billion represents spend from 41 markets, from the highly developed (the United States, Western Europe, Australia), to the emerging programmatic markets (Poland, Vietnam, Romania, Korea). New programmatic markets under MAGNA GLOBAL coverage include Belgium, Italy, Switzerland, Finland, Norway and Uruguay.

While programmatic spend is up from only \$6 billion on a global basis in 2013, it still represents a small share of total digital budgets and overall budgets. MAGNA GLOBAL expects total digital spend in 2015 to be \$159 billion. Global programmatic spend of \$14.2 billion represents just 9% of this total. In context of all media spend of \$513 billion on a global basis in 2015, programmatic trading remains a small but rapidly developing portion of campaign budgets.

Global Programmatic Spend and Growth



Spend by Method / Format

The aforementioned \$14.2 billion of programmatic spend in 2015 represents 31% of the global Programmatic Universe. This is split between RTB programmatic (25%) and non-RTB programmatic (6%).

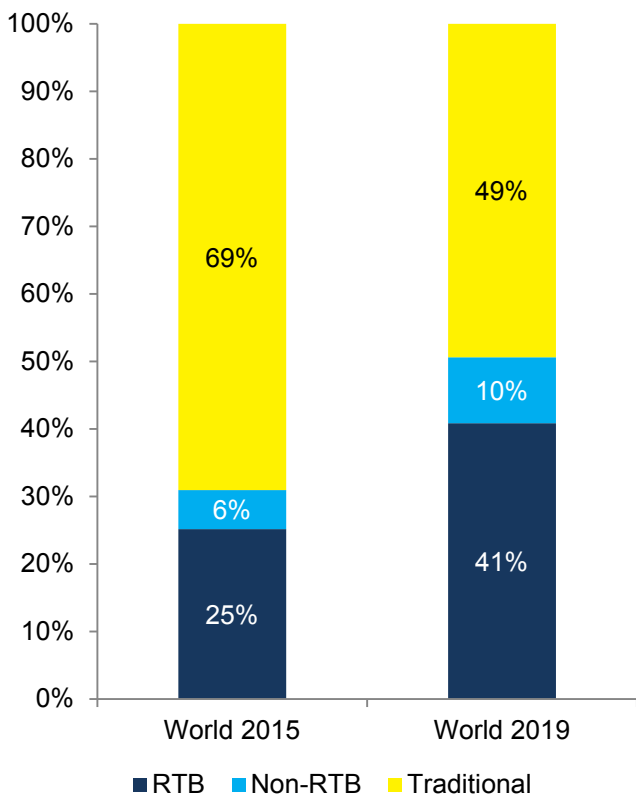
RTB includes transactions where pricing is determined in real time, for example open auctions, invitation-only auctions, Deal ID transactions, private marketplace transactions, YouTube True View, etc.

Non-RTB programmatic includes transactions where significant information about inventory and pricing is known in advance, for example automated guaranteed transactions, reserved inventory transactions, unreserved fixed rate transactions, preferred deals, and other transactions via process automation platforms.

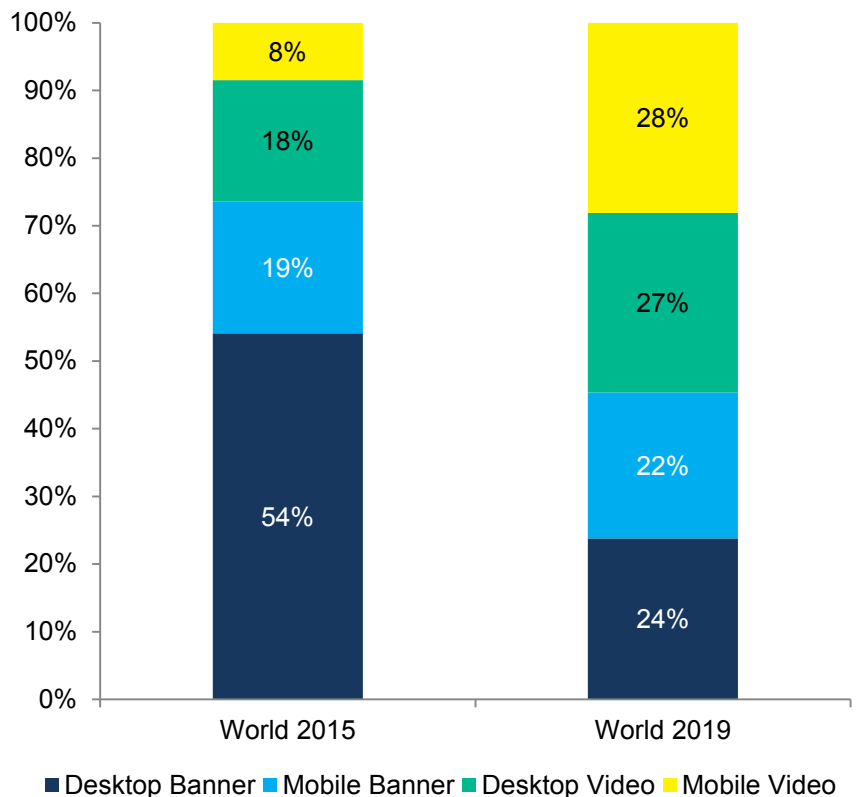
By format, global programmatic spend is still primarily desktop banner display (over half of total spend). Developing formats (mobile banner, desktop video, mobile video) are expanding rapidly, however, and by 2019 the split will be much more equal.

While tech challenges remain for mobile programmatic transactions and targeting, MAGNA GLOBAL expects significant mobile programmatic expansion by 2019. The most important driver of this programmatic growth will be the increase in total mobile digital budgets. Mobile spend is the fastest growing sub-segment of overall digital budgets (higher than social and video), and as a result mobile programmatic spend is expected to expand regardless of penetration rate increases.

Programmatic Spend by Method



Programmatic Spend by Format

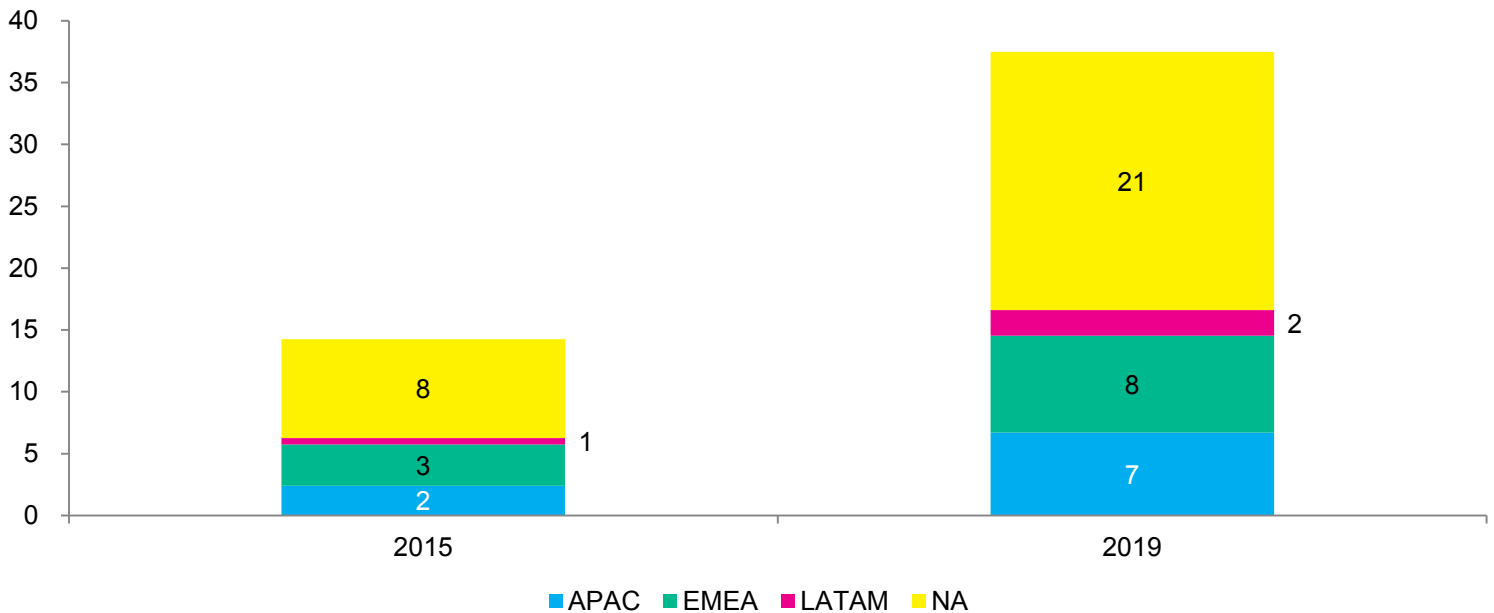


Spend by Region / Device

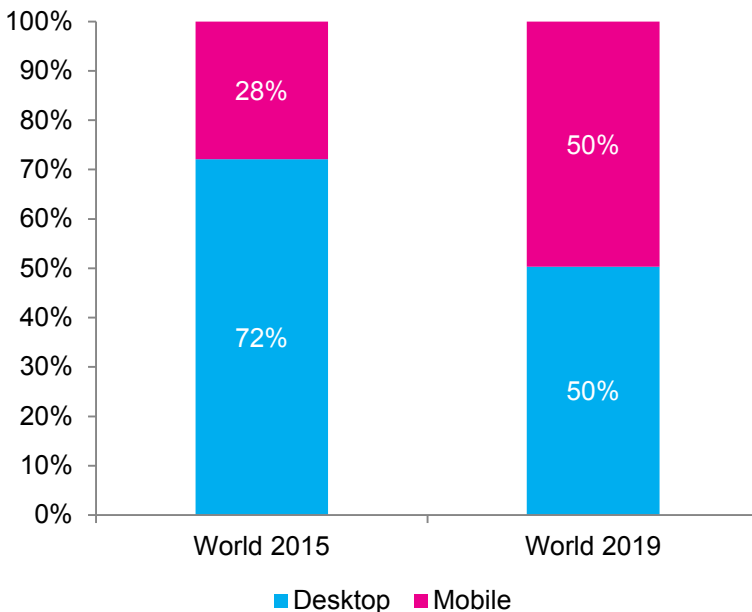
By region, programmatic spend is still biased towards highly developed markets. North America represents over half of the total programmatic pie, and this share will remain very stable throughout our forecast period at around 55%. Many markets with much higher digital growth will not see their Programmatic Universe grow sufficiently to make a dent in the US share, despite significant

increases in programmatic penetration. Furthermore, the largest non-US digital markets (Japan, China), are not seeing the same rapid increases in programmatic penetration seen in the US, Europe and Australia because of entrenched transaction processes and fragmented inventory sources and tech solutions.

Programmatic Spend by Region (\$bn)



Programmatic Spend by Device



Mobile programmatic spend will expand from 28% of total spend in 2015 to half of total spend by 2019. This will be driven by markets like Australia, Hong Kong, Singapore, Japan and the US, where mobile will represent a large share of the total pie by the end of the MAGNA GLOBAL forecast period. Mobile targeting and tracking is more difficult from a technological point of view at the moment, but MAGNA GLOBAL expects the gap between programmatic capabilities on desktop and on mobile platforms to decrease through the forecast period.

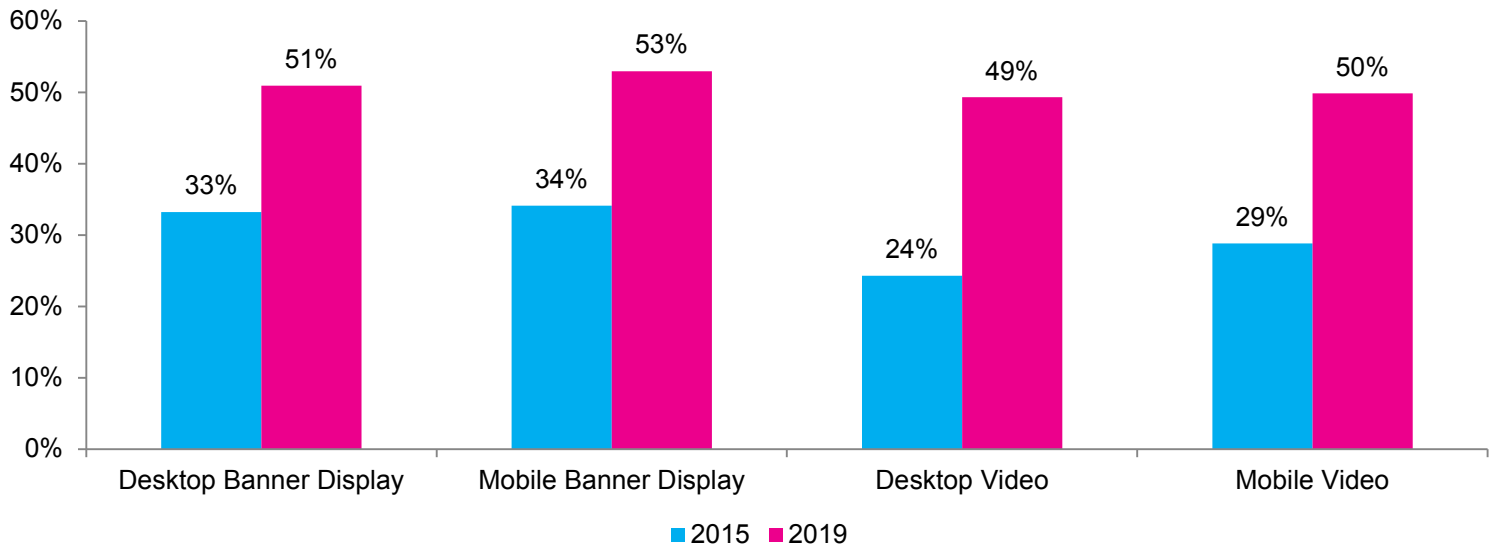
Global Programmatic Penetration

Programmatic penetration varies significantly by format, between 24% for desktop video and 34% for mobile banner display. If these penetration values were examined by transaction type, however, they would differ more significantly. While open and invite-only exchange transactions are most common for desktop banner display, the video and especially mobile video penetration values are supported by emerging markets where

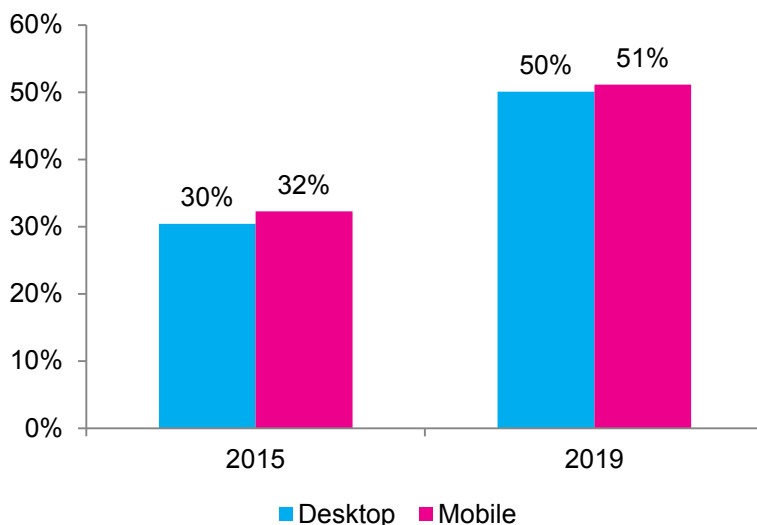
automated auction-based platforms like YouTube True View via AdWords (included in programmatic totals) represent a large share of undeveloped video ecosystems.

Penetration will increase through our forecast period as programmatic grows to represent over half of total spend.

Programmatic Penetration by Format



Programmatic Penetration by Device



Desktop remains the majority of total programmatic dollars (72% of total dollars in 2015), but mobile penetration is similar. While there are significant additional tech hurdles for accurate targeting and attribution on mobile devices, the concentrated inventory offerings in many markets allow monolithic programmatic entities like YouTube to represent a high share of total spend. This differs from a market like the US where there are many prominent publishers offering both banner and video content across multiple platforms.

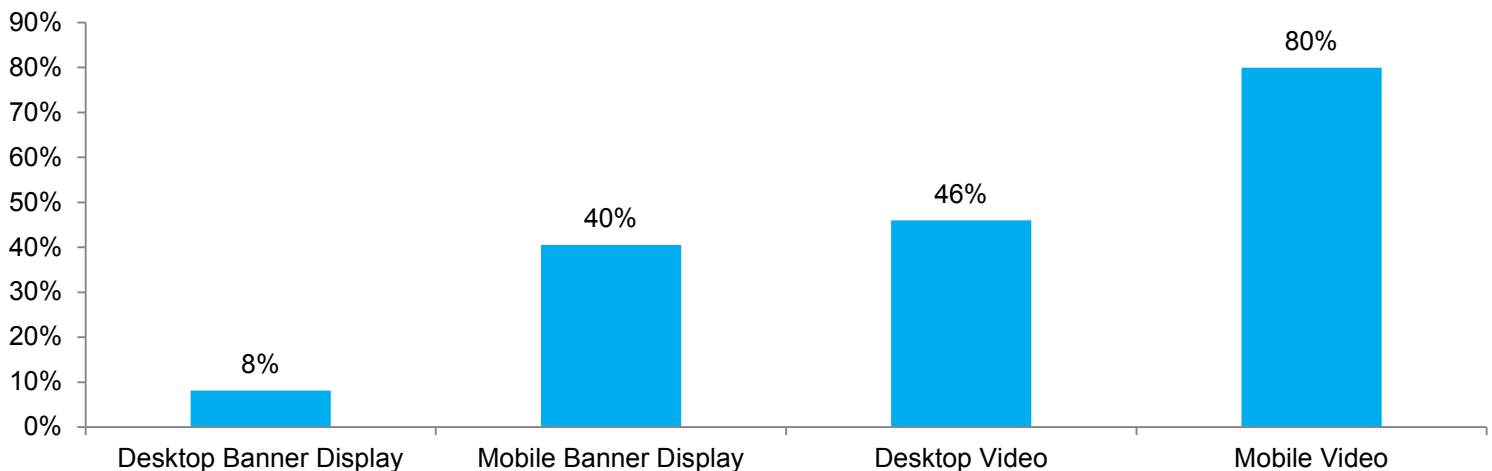
Global Programmatic Growth

Growth varies significantly across format and device. Desktop banner display is seeing the lowest programmatic growth, as expected. In many highly developed markets, the overall desktop banner spend is decreasing, and as a result, increases in programmatic penetration still only translate to slow growth. As transaction categories move towards mobile and video formats, growth increases. Mobile video will see an 80% CAGR between 2014 and 2019, which implies that by 2019 it will represent nearly 20 times as much spend as was represented by mobile video in 2014.

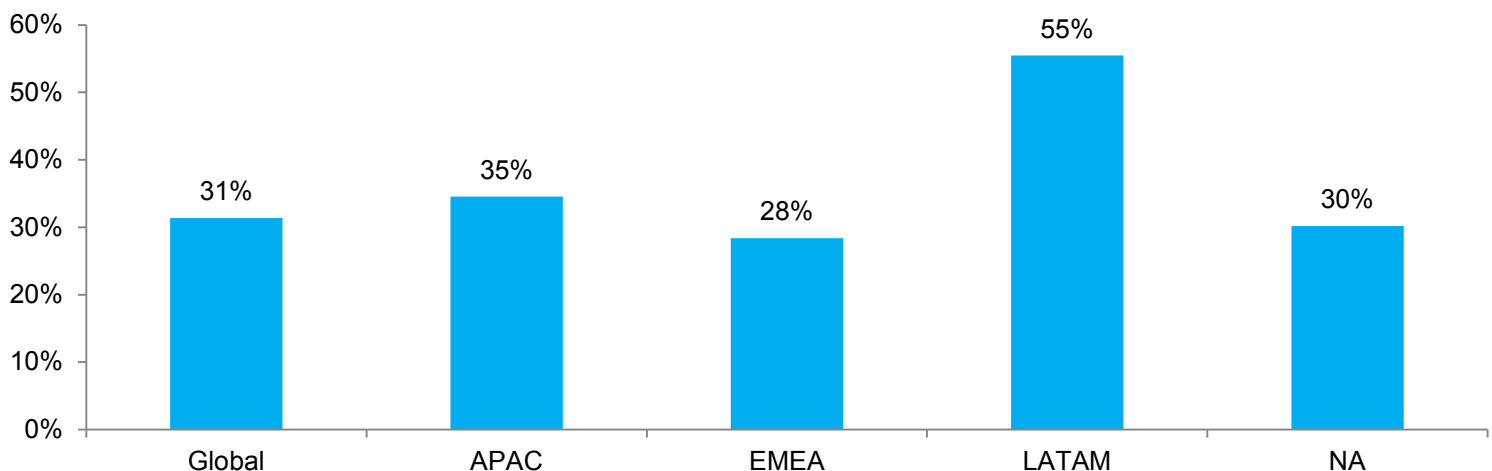
By region, LATAM is expected to grow the fastest. It is the smallest overall region by a significant margin, and therefore additional dollar spend translates to higher growth rates than in developed regions like North America and EMEA.

Growth will be the slowest in Europe through our forecast period. This is a reflection both of the slower overall growth rates of the markets and digital markets, but also of the advanced development of those markets. It is more difficult to continue to see high growth rates from an already established position than it is for emerging markets to catch up to many of today's developed programmatic markets.

Programmatic 2014-2019 CAGR by Format / Device



Programmatic 2014-2019 CAGR by Region



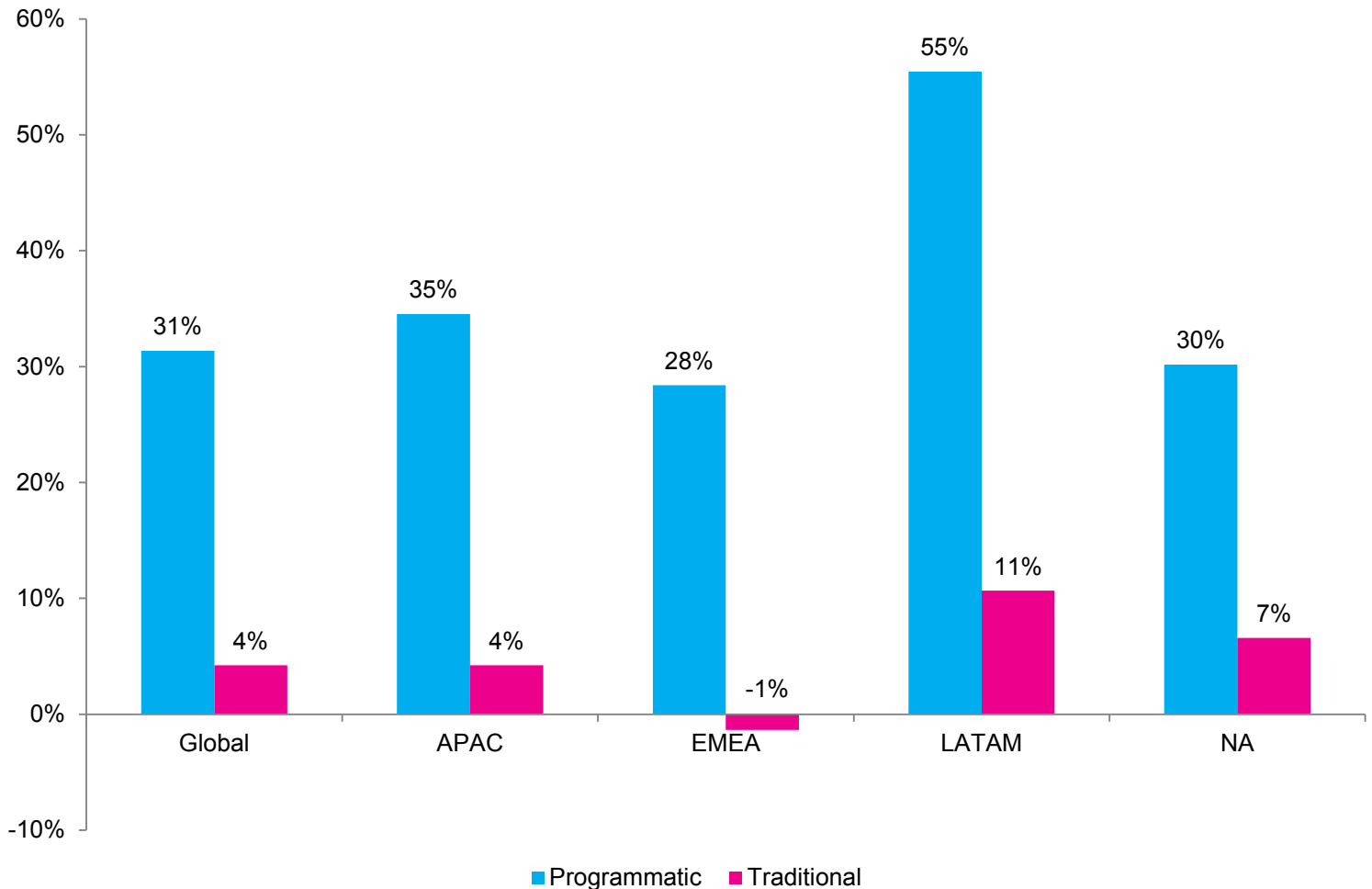
Programmatic Spend Growth vs. Traditional Growth

While it is not a surprise that programmatic is growing everywhere on a global basis, it is more interesting to compare programmatic growth to non-programmatic growth within the Programmatic Universe.

Globally, non-programmatic spend within banner display and video is barely growing (3% CAGR through 2019) despite significant increases in total video. Almost all of the growth is coming from programmatic transaction methods.

This pattern holds true across all global regions. In EMEA, traditional spend within banner display and video is actually shrinking, despite increases in total video spend. Beyond the forecast period, it would not be surprising to see traditional spend across all regions to be shrinking as banner display continues to decline and video becomes a mature rather than a growth format. With the exception of LATAM, traditional spend growth in 2019 (the last year of the forecast period) is essentially flat or negative across all regions.

Programmatic vs. Traditional Growth by Region (2014-2019 CAGR)

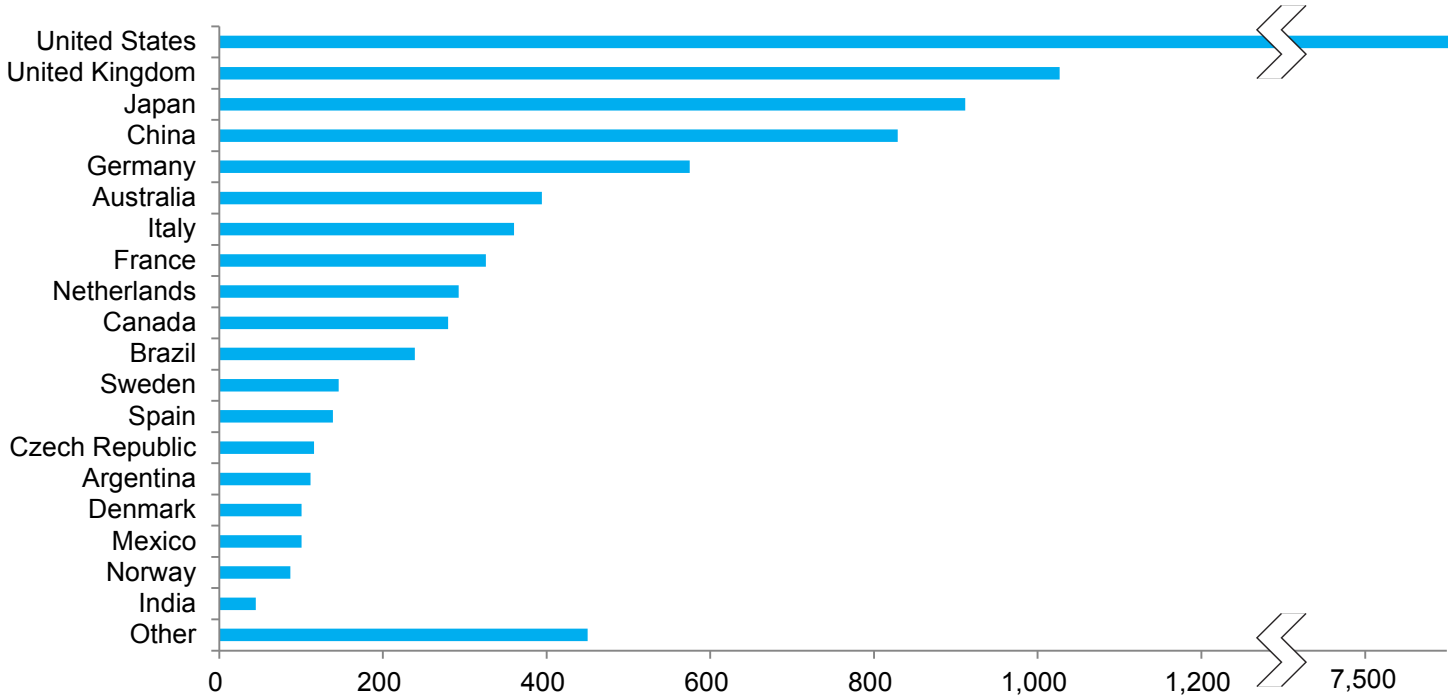


Global Spend and Penetration by Country

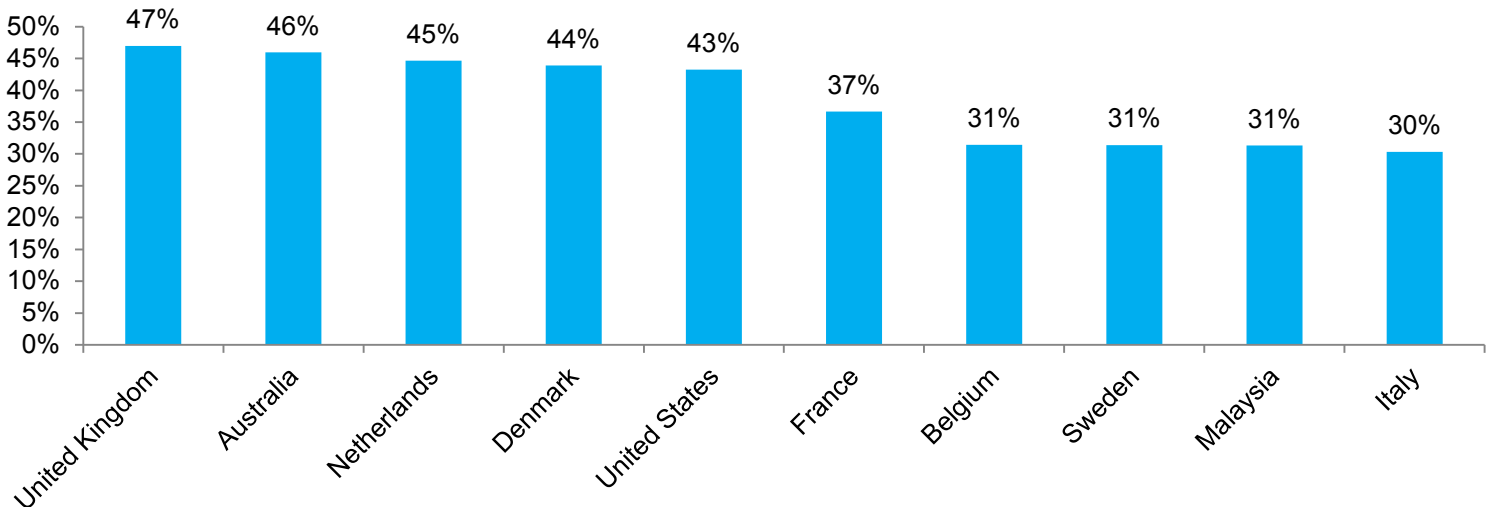
The United States dominates global programmatic spend, with \$7.7 billion of total spend. It represents more than half of total global programmatic spend. The US is followed by the UK, Japan, China, Germany and Australia, although the development of those markets varies significantly.

While the UK and Australia are even more programmatically developed than the US as a share of total spend, Japan, Germany, and to an even greater extent China, are less developed but the extremely large size of their digital advertising markets mean small penetration values translate to very large amounts of spend.

Programmatic Spend by Country (\$mm)



Programmatic Penetration by Country (2015)



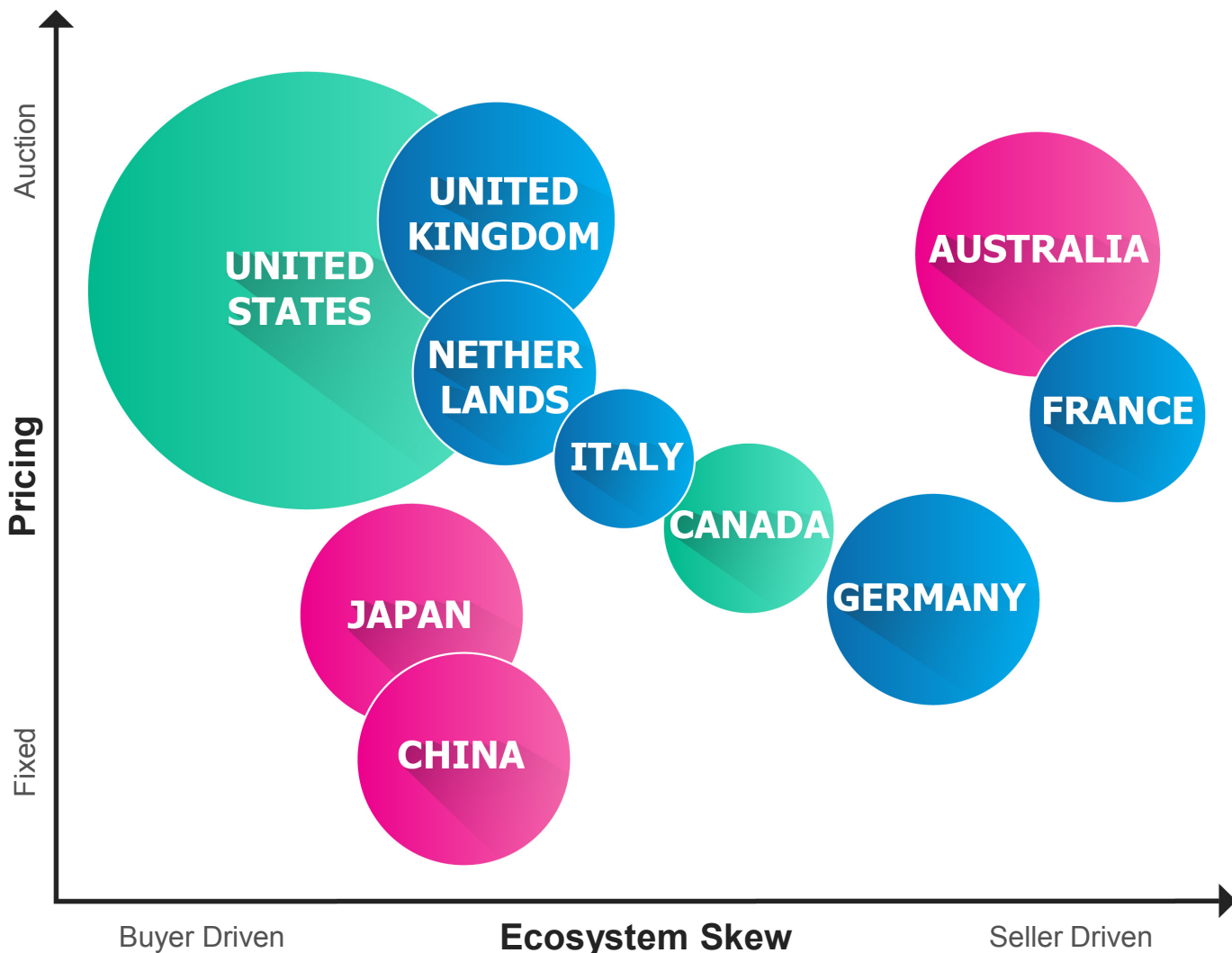
Relative Development by Country

Because the majority of *all* digital inventory is traded through a targeted, auction-based process, it is natural that ad tech would seek solutions for transitioning the portion that isn't traded programmatically to programmatic methods. For this reason, the degree to which inventory within the Programmatic Universe in a country is traded on an auction basis can be used as a proxy for the advancement of the market.

The ecosystem skew (whether sellers or buyers are driving the evolution of the programmatic market), on the other hand, speaks more to the power and concentration of inventory owners in a

market, and the way in which those owners choose to wield their power. To some extent, programmatic trading has been focused on improving buyer experience in every market. On a relative basis, however, having concentrated inventory owners who welcome programmatic methods in a market can jump-start programmatic growth. Concentrated owners resistant to programmatic trading (such as in LATAM), on the other hand, can permanently hinder growth.

Below are the ten largest programmatic markets globally mapped against each other on these two dimensions.



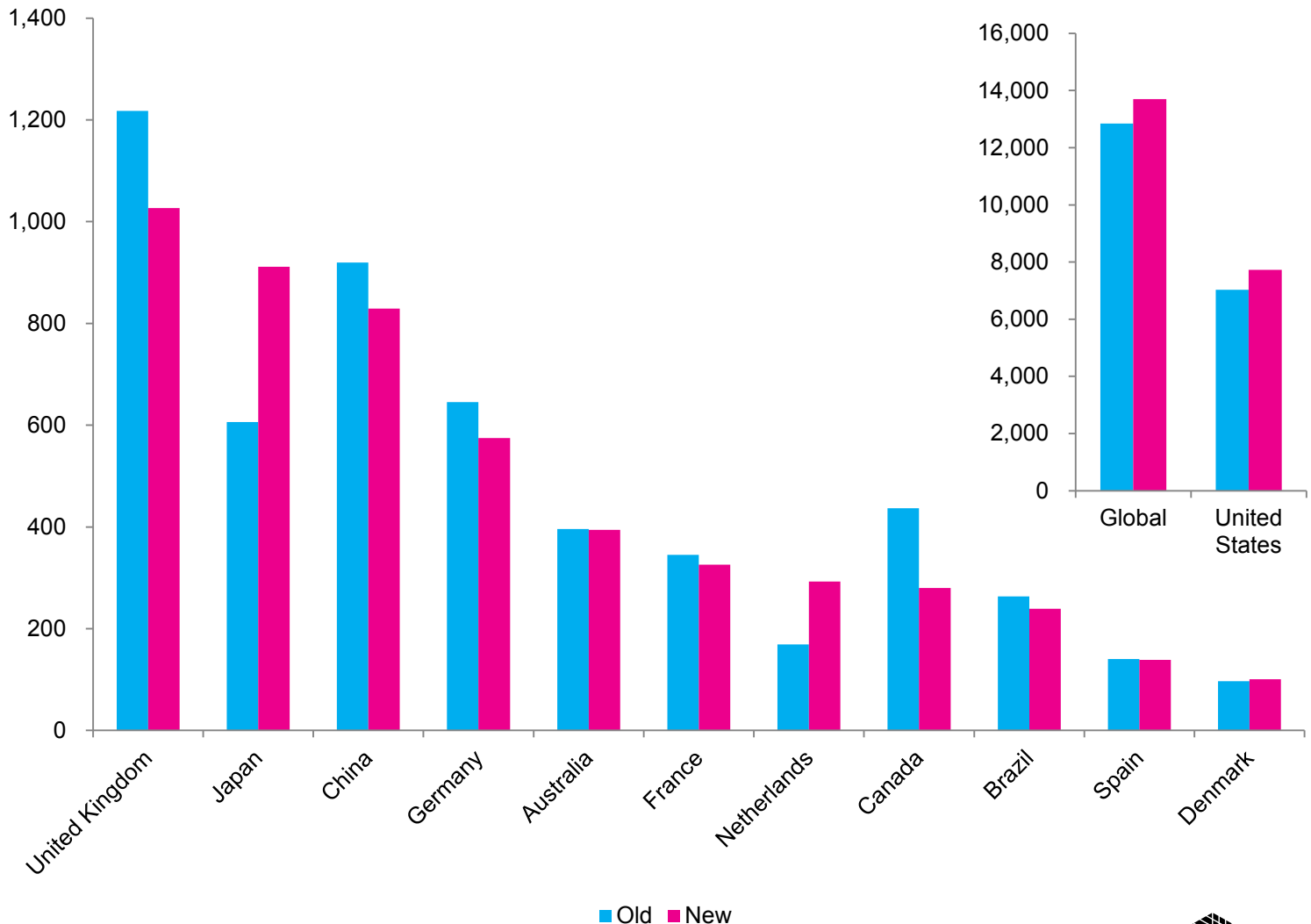
MAGNA GLOBAL Programmatic Spend Revisions

Global programmatic spend expected in 2015 is \$13.7 billion, up by 6% from previous MAGNA GLOBAL expectations of \$12.8 billion.

The largest country revisions from our September 2014 MAGNA GLOBAL Programmatic Forecast on a dollar basis are in the US (2015 values increased by 9% to \$7.7 billion), followed by Japan, which saw mobile and video numbers increase significantly from our previous forecast (penetration is low in Japan compared to significant digital spend, so small variances in penetration translate to large spend differences). The largest percentage changes were in the Czech Republic, Argentina and Canada.

The total numbers are different from those published under 'Total Programmatic' in the September 2014 report. That is because last year the MAGNA GLOBAL Display-Related Universe was banner display + video + social. This year, MAGNA GLOBAL has removed social media and our new Programmatic Universe is only banner display and video. The above comparisons are apples-to-apples, however, as all social spend has been removed from the old estimates.

Programmatic Market Size Revisions 2015 (\$mm)

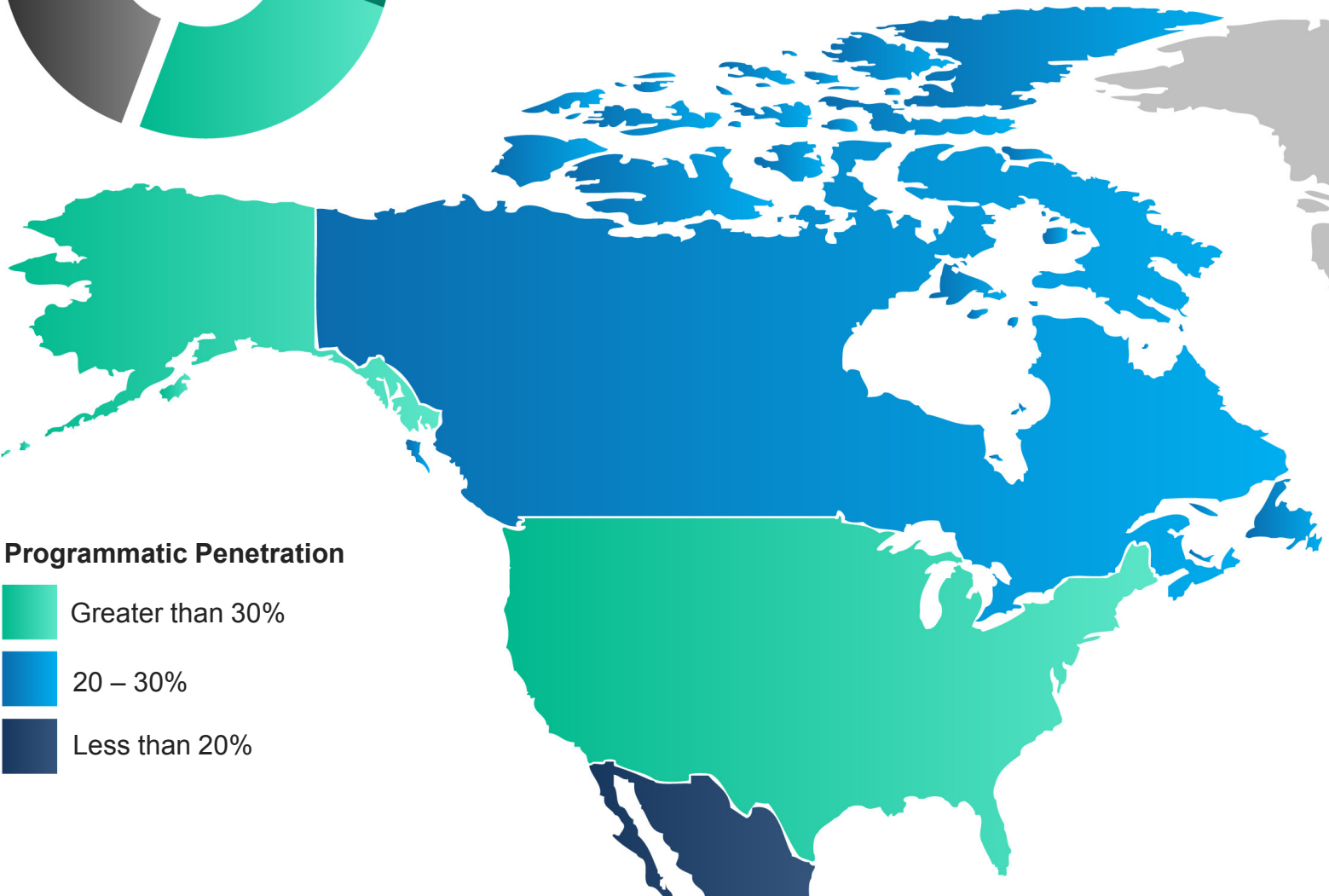
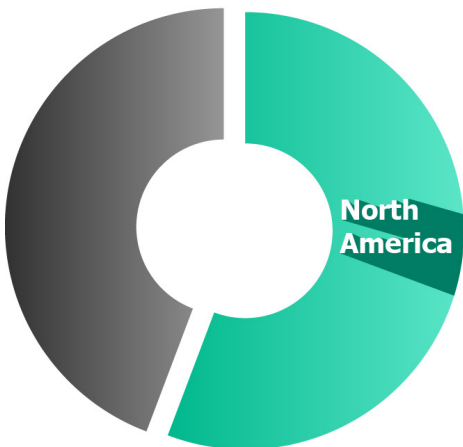


Focus on North America

North America is the largest programmatic region, despite the fact that it only comprises two countries: the United States and Canada. Most of the largest ad tech players in the programmatic ecosystem come from North America, and because of the size of the digital market, most programmatic innovations are developed in the US and exported globally.

The majority of global programmatic ad tech originates in North America. Despite many countries in the EMEA region being comparably developed, tech companies gravitate towards where the market opportunity is largest. North American programmatic revenue of nearly \$20 billion is twice as large as EMEA's \$10 billion programmatic market.

Share of Global Spend



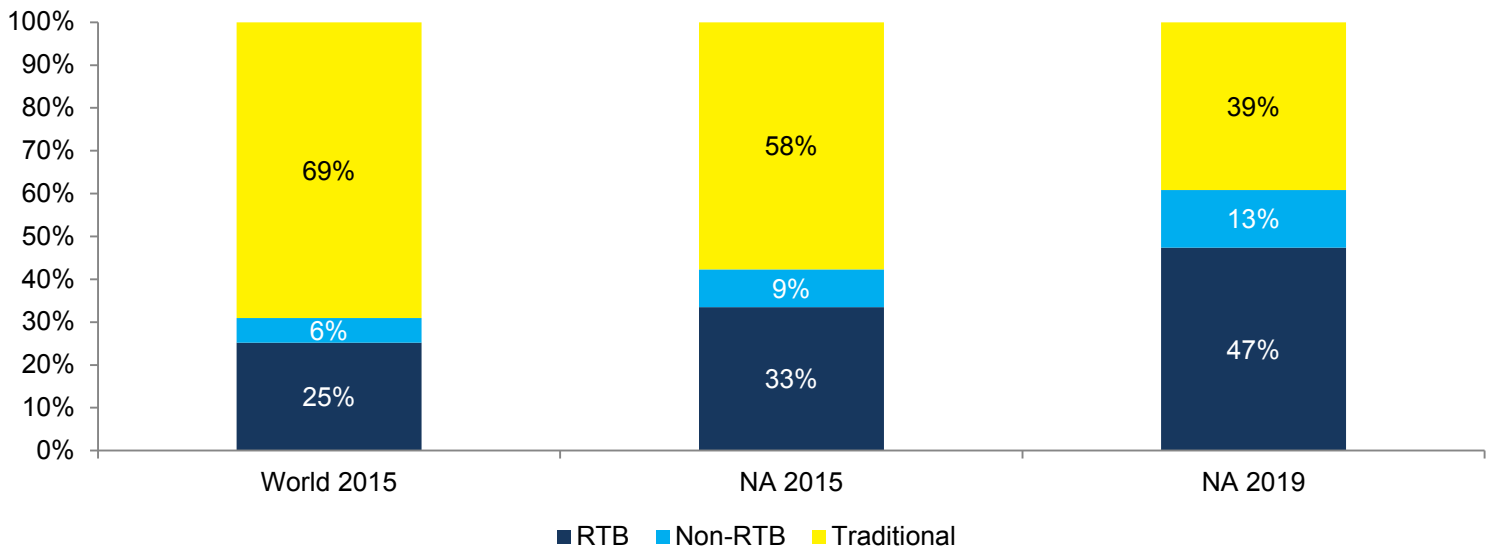
North American Programmatic Spend

North America has over 40% programmatic penetration within the Programmatic Universe, with the majority being RTB Programmatic (auction-based price discovery and real-time transaction timing). This will expand to represent just over 2/3 of the total Programmatic Universe by 2019. The North American regional numbers are substantively the same as those of the United

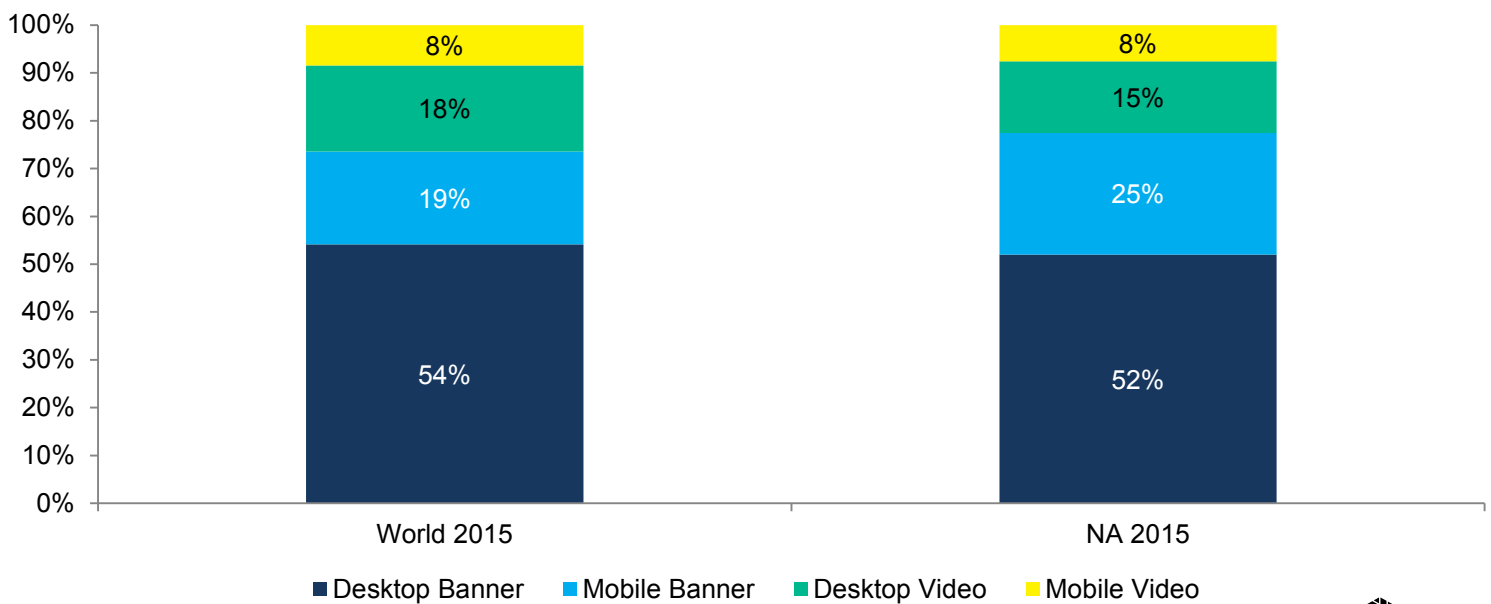
States, given that the US represents more than 90% of the North American programmatic total.

The split of programmatic spend by format mirrors the split seen globally, with higher mobile banner programmatic penetration offset by lower values in desktop video.

North America Programmatic Spend by Method



North America Programmatic Spend by Format

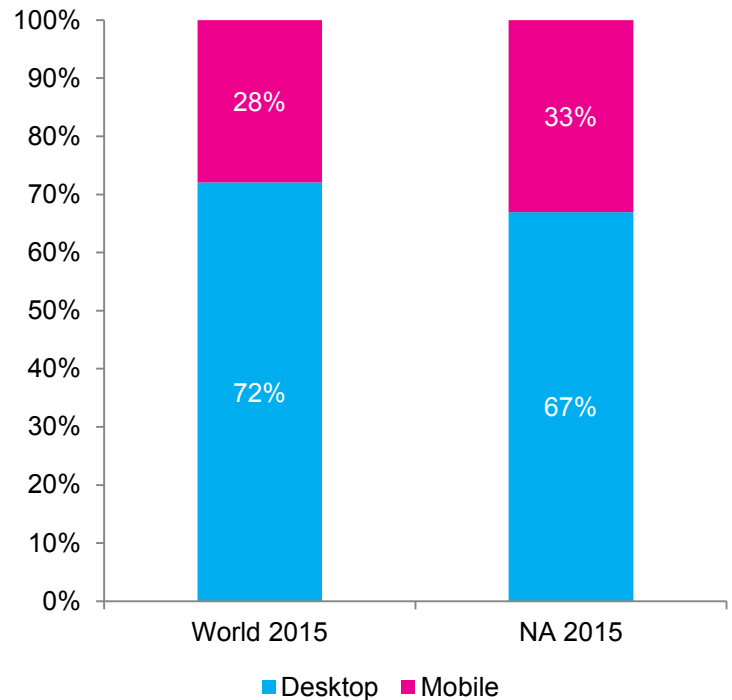


North American Spend Breakdown

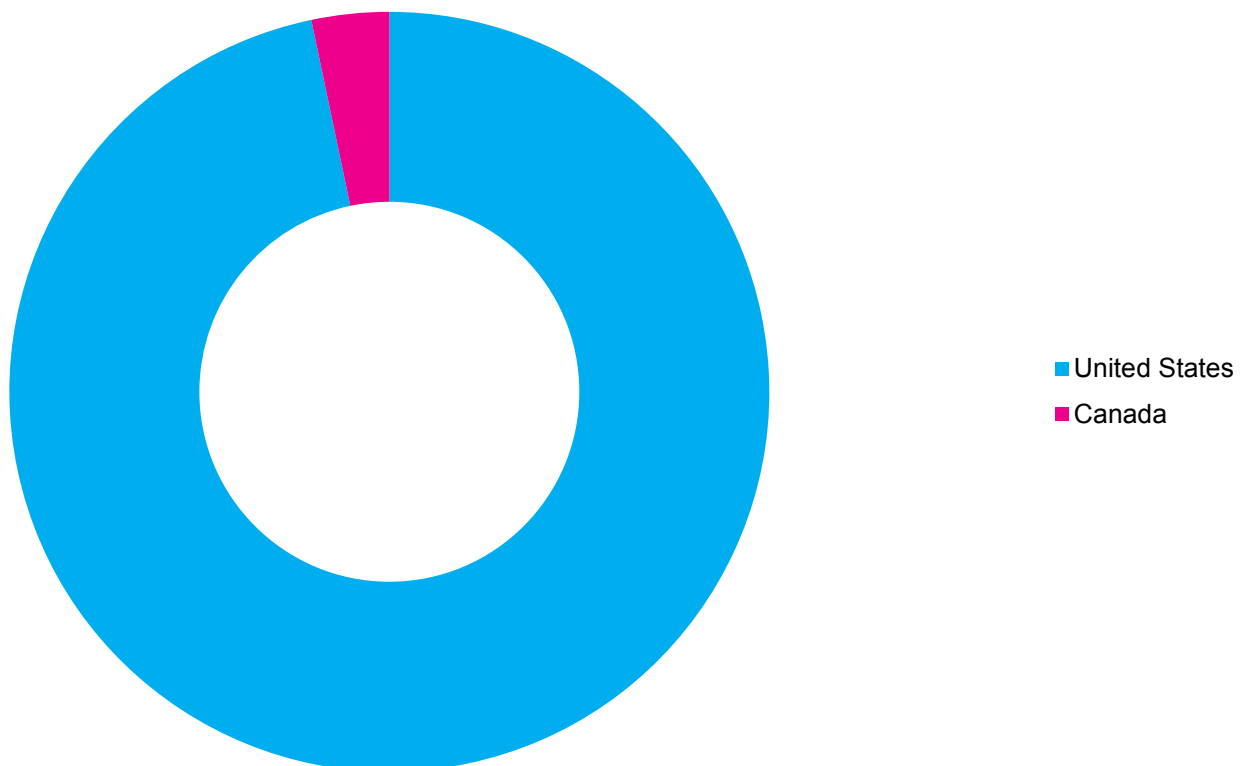
The mobile penetration in North America slightly outstrips global penetration, with 33% programmatic spend representation this year. This will expand to 55% by 2019, as mobile formats (especially video) expand to represent a significant portion of the Programmatic Universe.

The transition to mobile is spurred partially by the theme in some very advanced markets (such as the US) of one user, many screens. This drives innovation in cross screen planning, in advanced currency metrics across desktop and mobile platforms and beyond, and in targeting and measurement. To these campaigns, no single video channel is an end in itself, but rather getting the right video in front of the right user at the right time.

North America Programmatic Spend by Device



NA Programmatic Spend by Country 2015



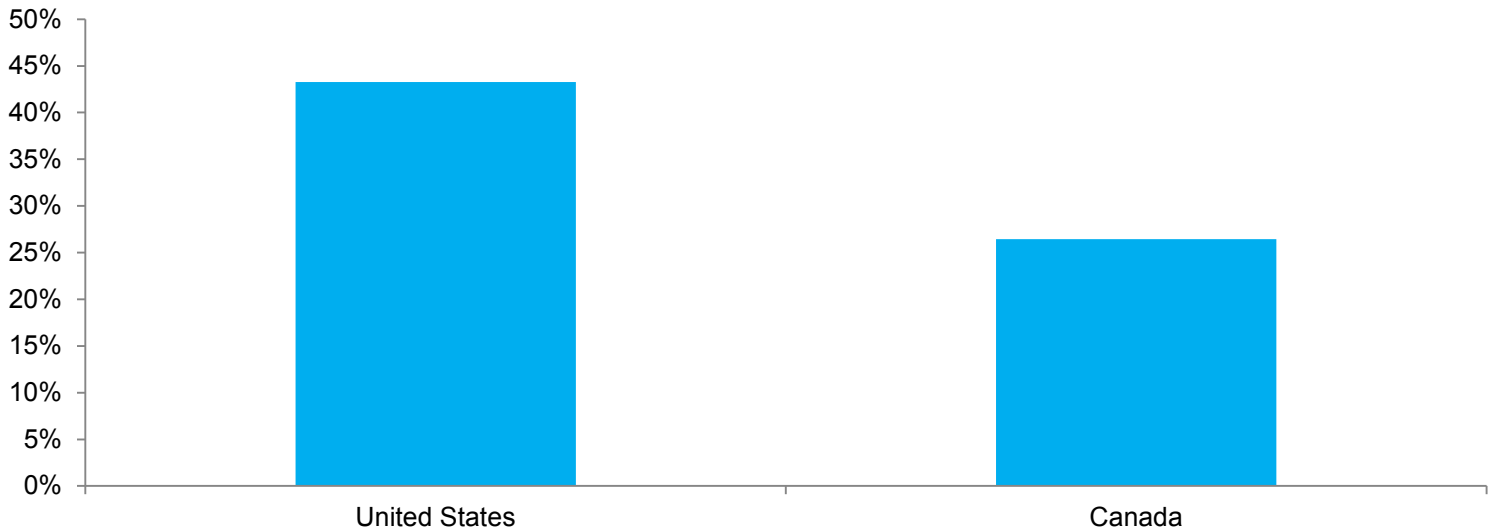
North American Penetration and Growth

Not only does the US have a higher programmatic penetration as a share of the Programmatic Universe than Canada, but it is also expected to grow faster throughout our forecast period.

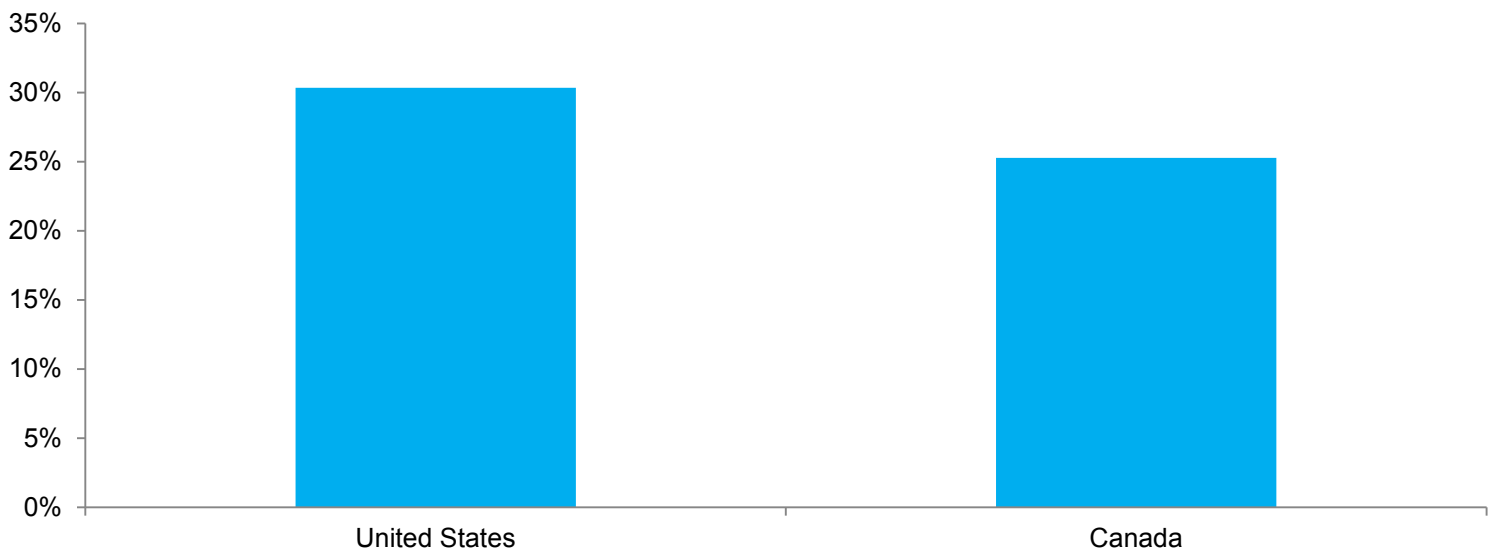
Canada has many of the same tech players as are found in the US and the Canadian digital market is of a similar stage of development. Canada meets many conditions required for a robust programmatic market: concentration of powerful brands who want to leverage the power

of programmatic at scale, willing publishers (the Canadian Premium Audience Exchange has been around since 2011) and an evolved ad tech ecosystem. Despite this, the development of the Canadian programmatic market continues to lag.

NA Programmatic Penetration by Country 2015



NA Programmatic CAGR 2014-2019 by Country



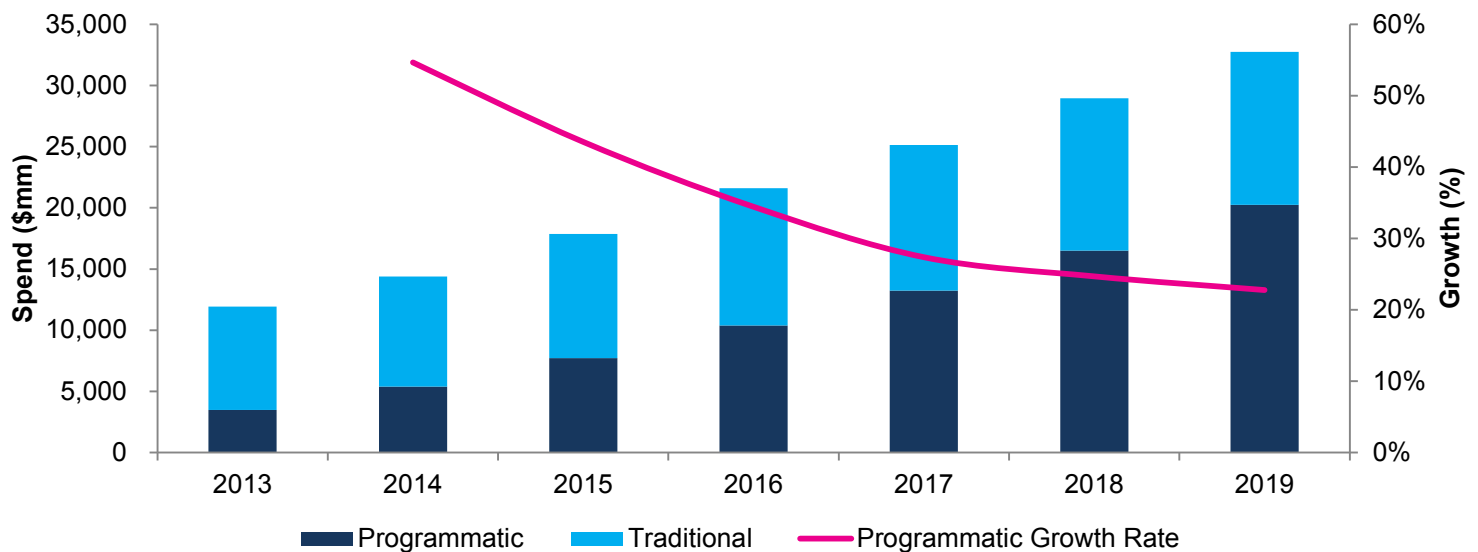
United States

Programmatic spend growth in the United States is expected to be 43% in 2015, with the lowest growth in desktop banner display (18%), and much higher growth in mobile video (104%).

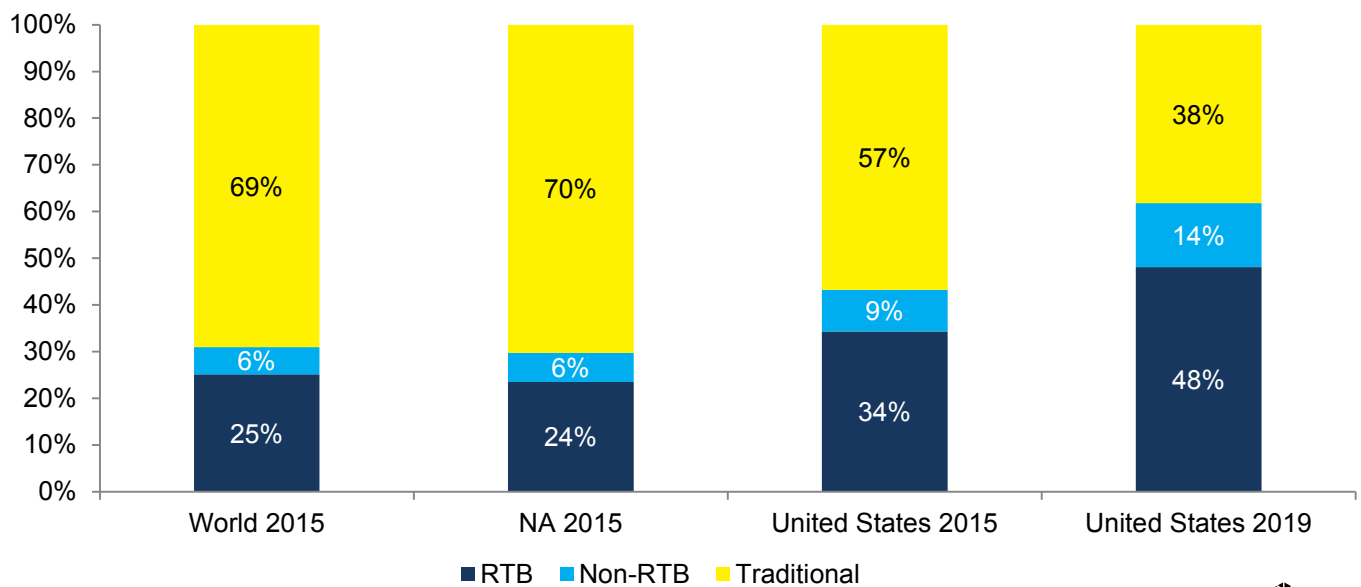
This growth will result in a US market that remains #1 globally in terms of programmatic spend, and one that remains in the top five of programmatic penetration through 2019 (when over 60% of the total Programmatic Universe will be executed programmatically).

The biggest programmatic challenges in the US expected to steer the development of the programmatic space in the next year include multi-touch attribution struggles. Most attribution technologies still can not account for the full impact of video with windows that are too short, logic that too heavily weights the impact of cheaper banner display ads or fails to account for the impact of brand advertising spend. Spend will always follow measurement.

Programmatic Spend and Growth



Spend by Method



United States

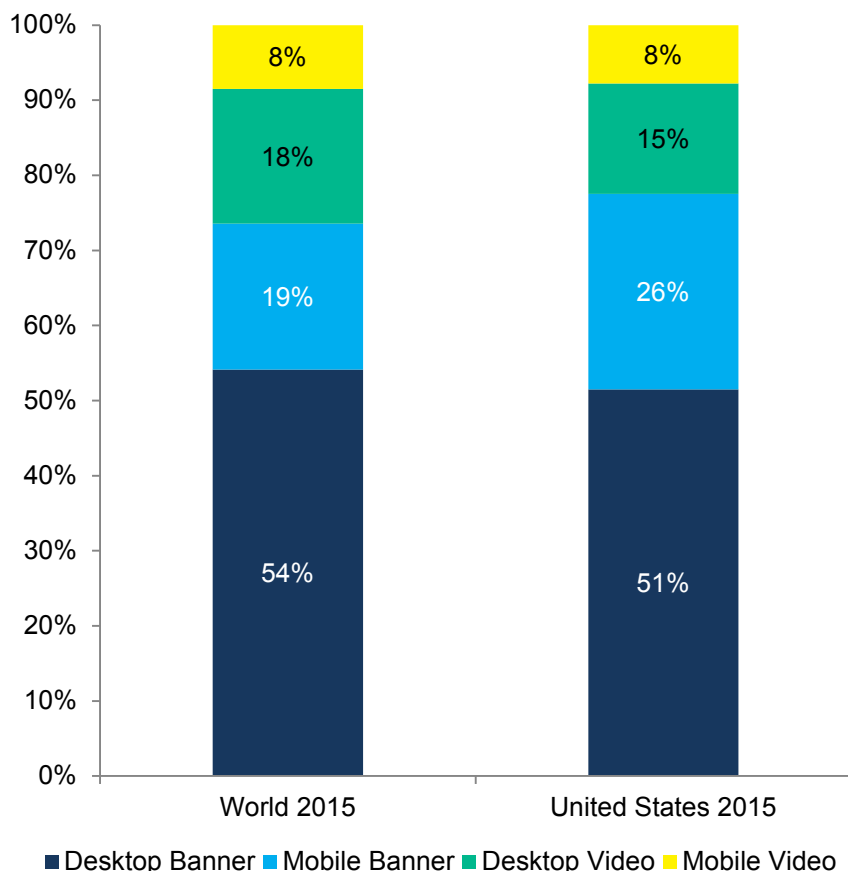
US spend by format and by device is substantially the same as that of North America, as previously mentioned. By 2019, however, the split between formats will change significantly. Desktop banner display's representation will decline to 17% of total programmatic spend from its current 51%. Mobile video will represent the highest slice of spend at 30% of the total. This will be followed by mobile banner display and desktop video in the mid-20% range. While all markets are making the shift towards mobile and towards video and away from desktop banner display, the US is and will remain ahead of all but a few large markets in making this transition.

The largest drivers of the US programmatic landscape in 2014 (viewability, private transactions, privacy and measurement /

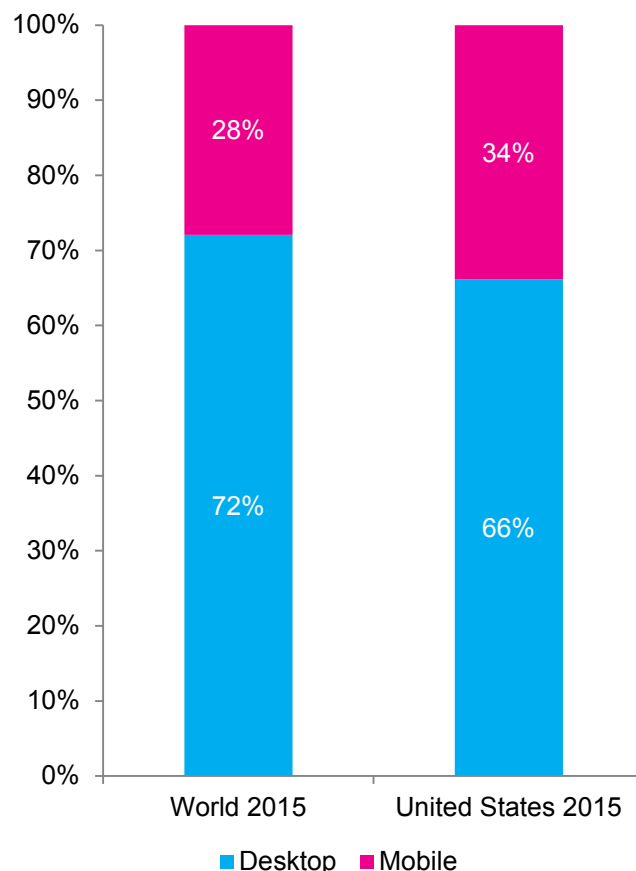
attribution) still steer the space this year, along with industry consolidation and an evolving data landscape (as mentioned in MAGNA GLOBAL's Spring 2015 Programmatic Intelligence Report).

The US programmatic landscape will trend towards 100% viewability, but there is no specific threshold at which behaviors substantially change. Viewability is increasingly part of a brand's buying model, however, and factors into incentives and goals that are set for all players in a programmatic transaction (brand team, agencies, tech partners).

Programmatic Spend by Format



Programmatic Spend by Device

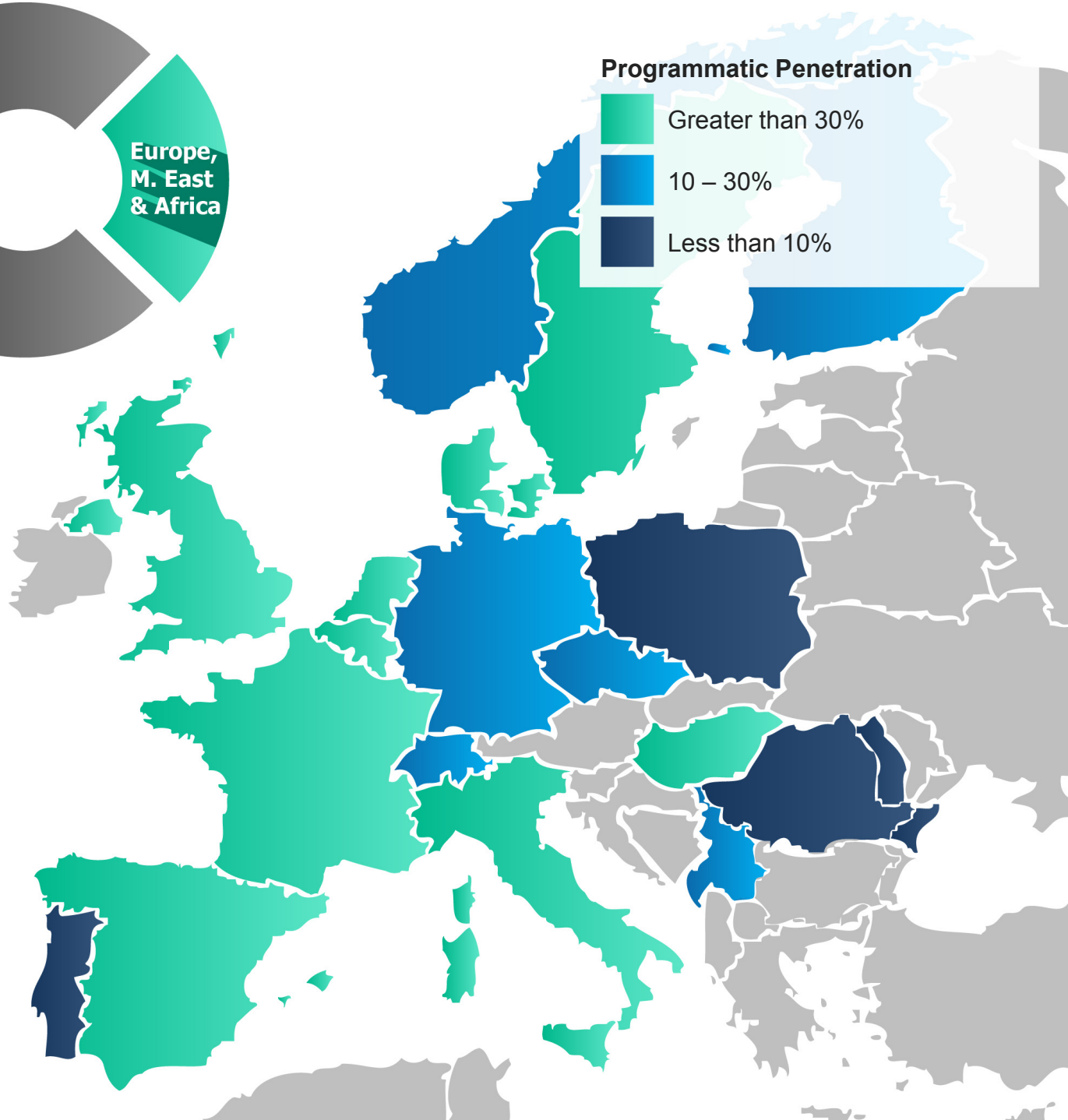


Focus on Europe, Middle East & Africa

The Europe, Middle East and Africa region is the second largest global programmatic region (\$3.6 billion, representing 24% of programmatic spend). It displays a wide range of programmatic

development, from cutting edge markets (the United Kingdom, Denmark, Netherlands) to those in the very early stages of programmatic growth (Poland, Portugal).

Share of Global Spend



- Appendix
- Conversation with Hulu
- LATAM
- APAC
- EMEA
- N. America
- Global
- Definition & Drivers
- Key Findings

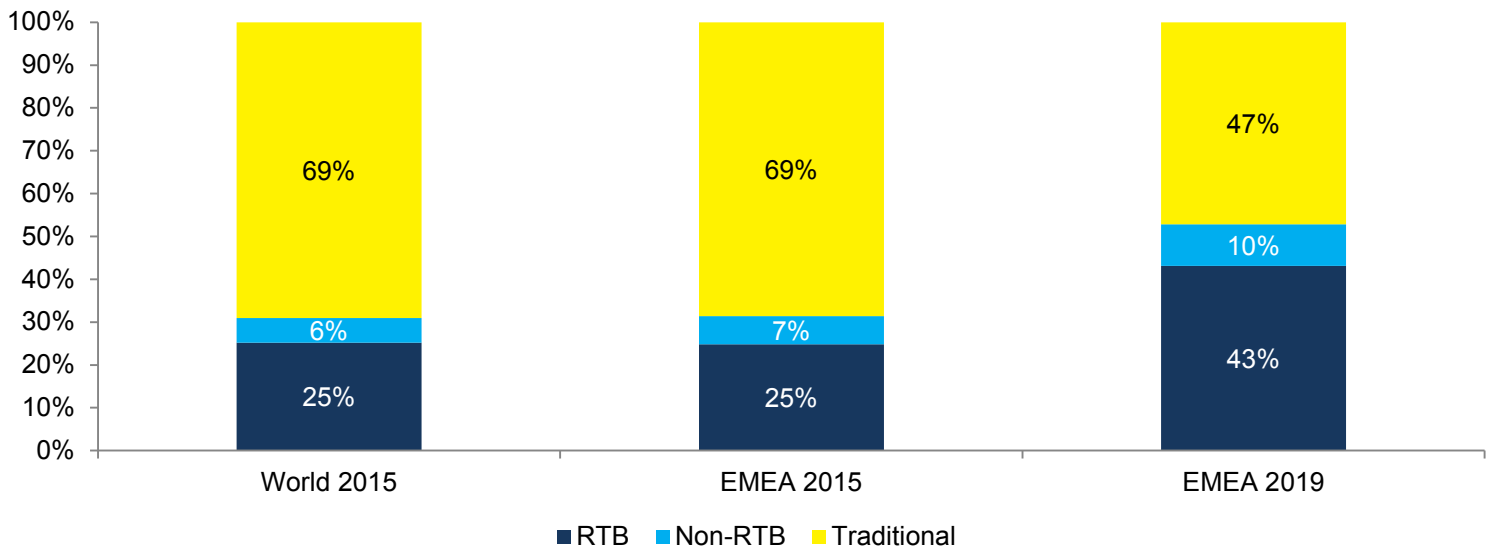
EMEA Programmatic Spend

The programmatic penetration in EMEA is very similar to that of the global programmatic market. Programmatic spend by format and device, on the other hand, is significantly different than the global profile, with a disproportionate amount of banner display on desktop platforms.

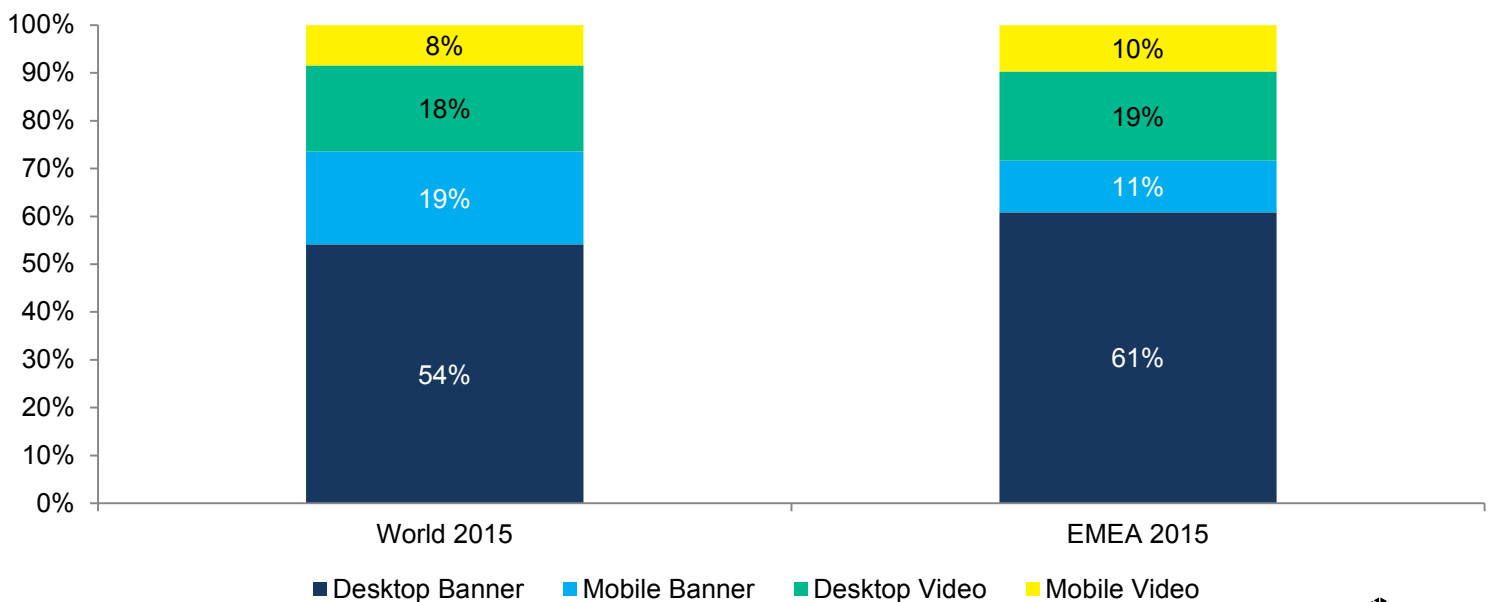
By 2019, desktop banner will have shrunk to just 32% of total spend, similar to mobile video with 30%. Desktop video and mobile banner will remain behind.

While the European big 5 markets (UK, Germany, France, Italy, Spain) are explored in depth later, there are many diverse programmatic markets in EMEA. The Netherlands is one of the most advanced global markets, with ad tech, brands and publishers well beyond the programmatic education / exploration phase. Tackling malware and fraud, improving transparency and data controls and offering new formats and named data are some of the priorities this year for ad tech, brands and publishers respectively.

EMEA Programmatic Spend by Method



EMEA Programmatic Spend by Format



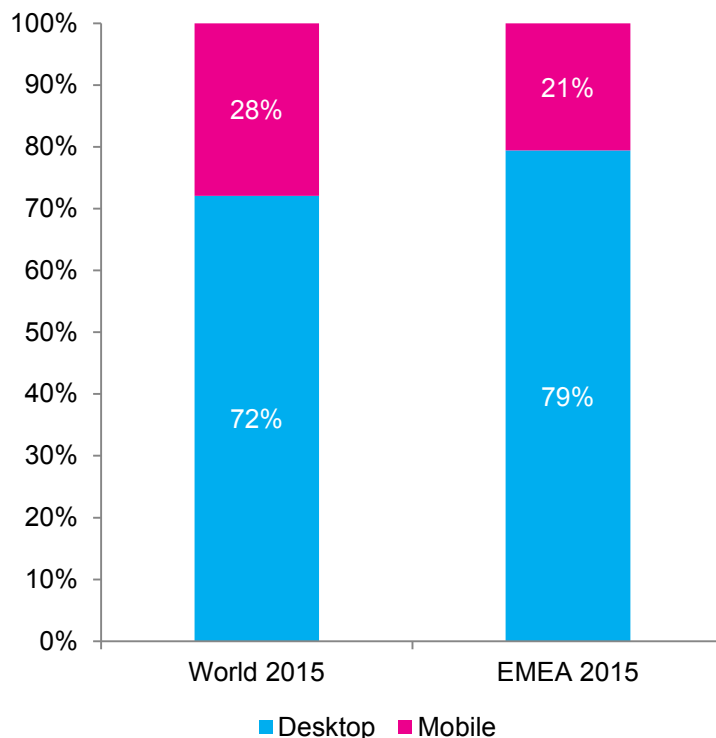
EMEA Spend Breakdown

The EMEA programmatic landscape is primarily dominated by the European big 5 markets (UK, Germany, Italy, France and Spain) although the Netherlands and Sweden come in above Spain in terms of total spend.

Northern European markets in general are very highly developed, including Denmark with the second highest global penetration in 2015 (behind only the UK). Because many of these markets evolved before standardized programmatic approaches became global, however, they have individual quirks. Swiss publishers tend to have their own technologies and policies to handle programmatic advertising which makes it hard to gain full accessibility to the theoretically available inventory.

Finally, some lagging EMEA markets, such as Portugal, have structural headwinds. Much of Portugal programmatic spend is operated remotely through European hubs, and the lack of data available in Portugal is a limitation on growth.

EMEA Programmatic Spend by Device



EMEA Programmatic Spend by Country 2015

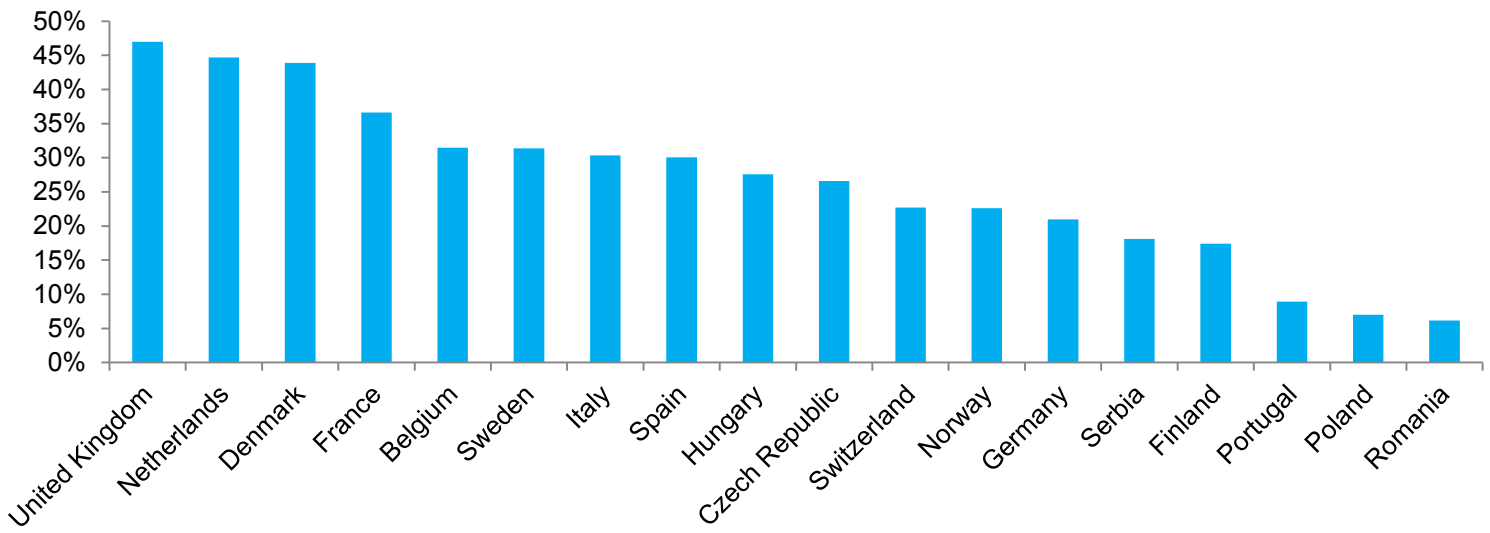


EMEA Penetration and Growth

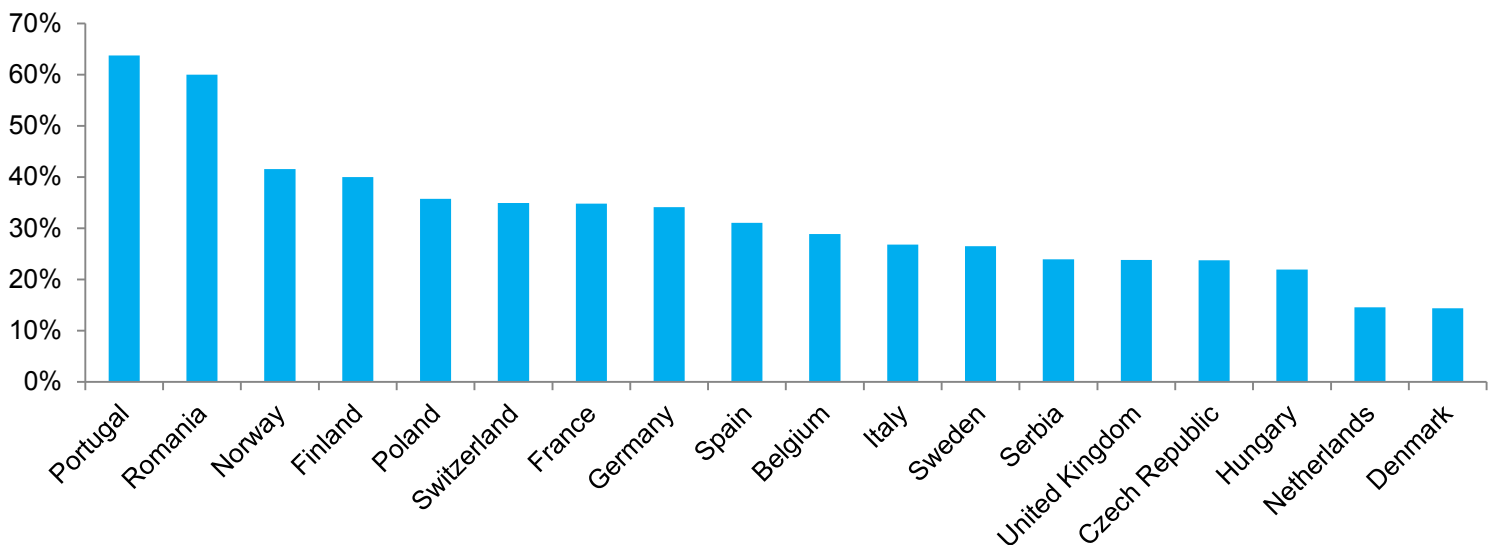
Penetration by market in the EMEA region falls broadly into a Western & Northern Europe vs. Eastern Europe delineation in terms of development and growth trajectory. There are some exceptions, though, such as Hungary and the Czech republic being more developed than Norway, Germany and Finland.

The relationship between programmatic penetration and CAGR expectation is almost perfectly inverse, with smaller and less developed markets seeing much higher growth as they experience catch-up spend for the next few years of market development. Serbia is a rare market with both low programmatic penetration and low expected growth on a relative regional basis.

EMEA Programmatic Penetration by Country 2015



EMEA Programmatic CAGR 2014-2019 by Country

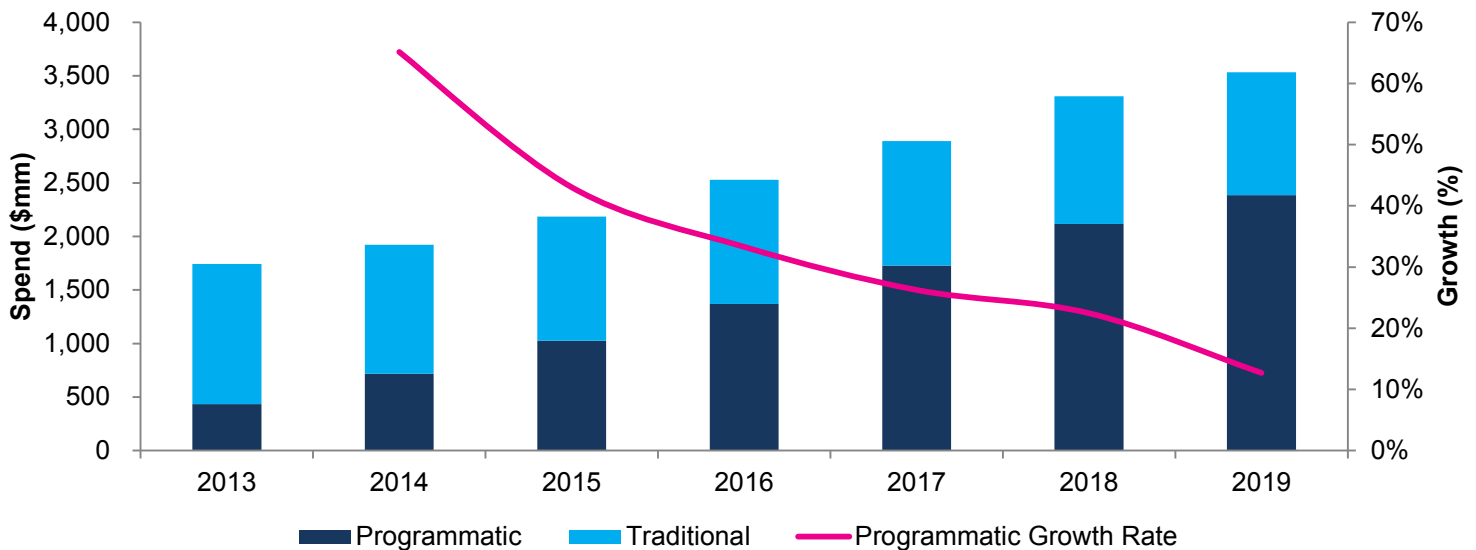


United Kingdom

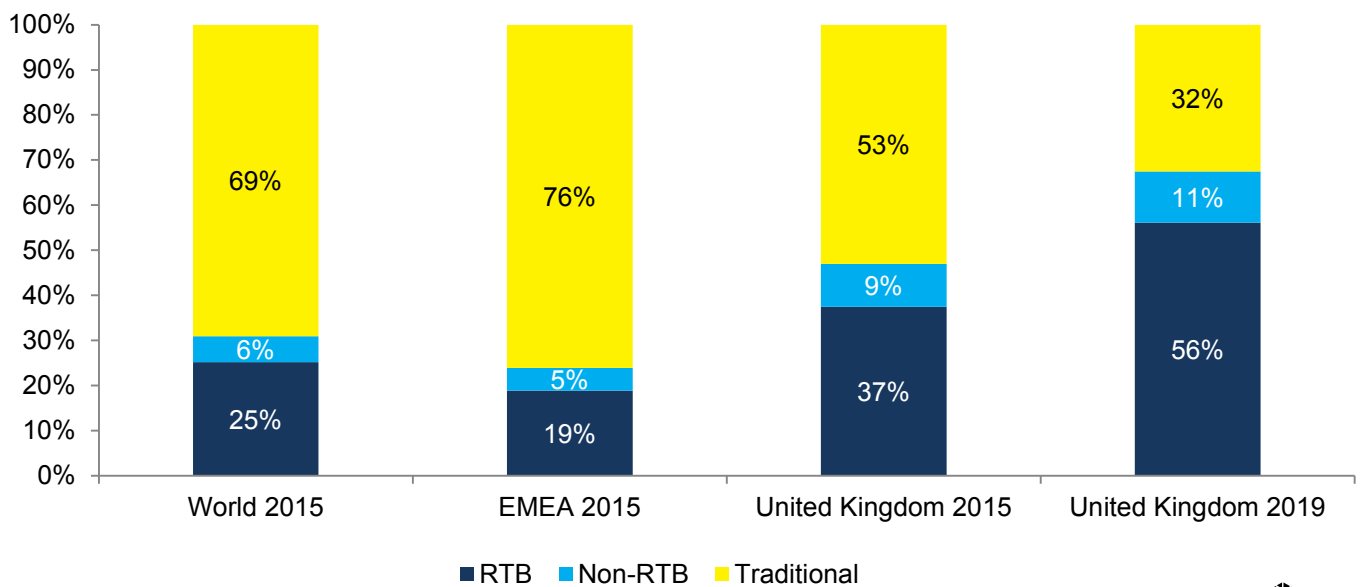
The UK is the largest market in the EMEA region, with the highest programmatic penetration. Traditional transaction processes within the Programmatic Universe are already the exception rather than the rule. As a result, growth this year is expected to be a relatively low 43%, falling to just 13% growth by 2019.

Because the UK has been a mature programmatic market for a long time, UK publishers have significantly progressed in building digital business models and are well educated in programmatic methods. While the UK emerged as a buyer-dominated programmatic landscape, the supply vs. demand sophistication is now much more balanced.

Programmatic Spend and Growth



Spend by Method



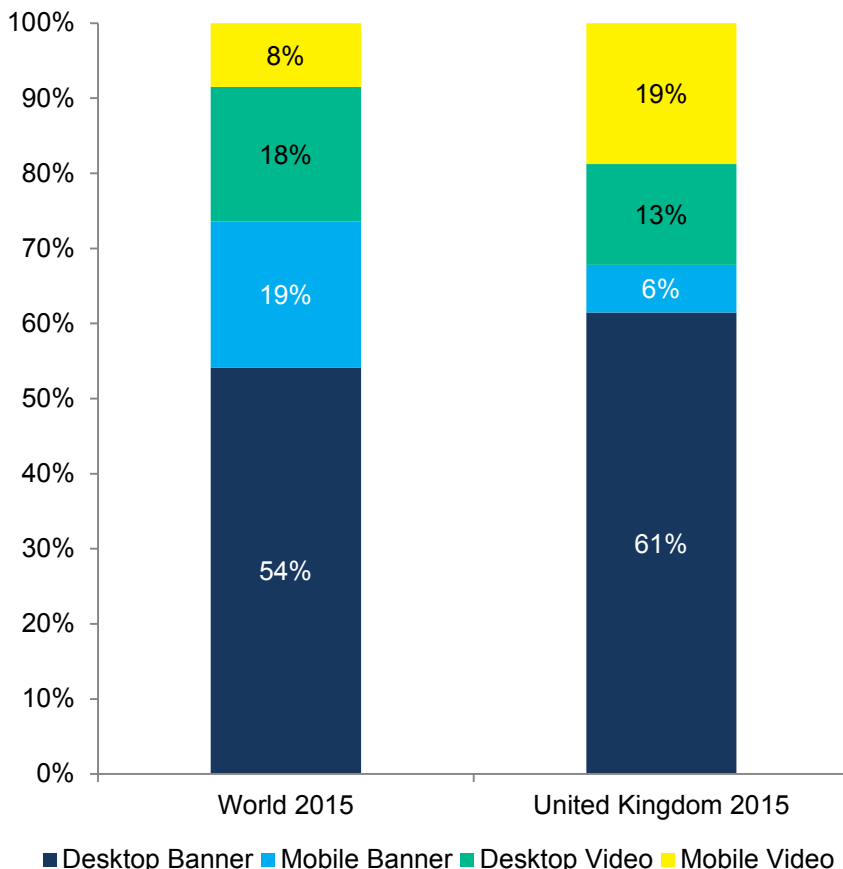
United Kingdom

The UK is predisposed to being a highly developed programmatic market: digital is the largest media format overall and digital passed television in 2014 (it will not happen in the US until 2016). The close business relationship between the US and the UK makes for easy transitions across the Atlantic for ad tech players. In addition, publishers are open to programmatic methods and some of the largest have adopted the French cooperative model (The Guardian, the FT, Reuters, The Economist, CNN, etc.). Finally, there is more data availability and fewer restrictions compared to the rest of EMEA. While the focus on privacy is still greater in the UK than it is in the US, legislation is not as restrictive as that seen in the rest of Western Europe.

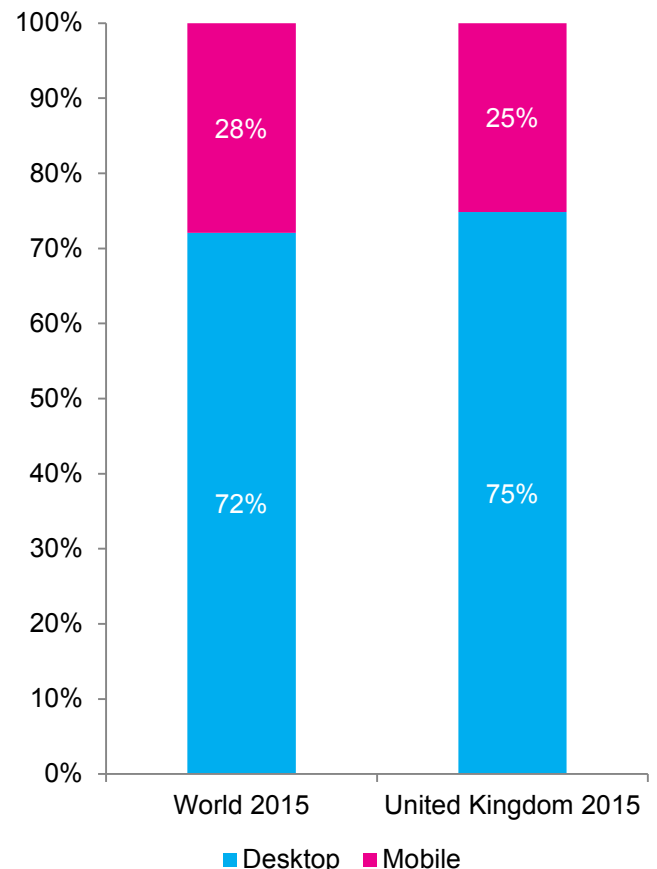
By format, the UK is still biased towards desktop banner display over mobile banner display as compared to the global average. By 2019, however, most spend will have shifted towards mobile video (it will represent 54% of total programmatic spend). Banner display in aggregate will only represent 27% of total programmatic spend by 2019, reflecting the general shift away from banner display in the Programmatic Universe overall (both programmatic and traditional transactions).

On a device basis, mobile will grow to represent nearly 60% of all spend by 2019, following consumer behavior over the same period.

Programmatic Spend by Format



Programmatic Spend by Device

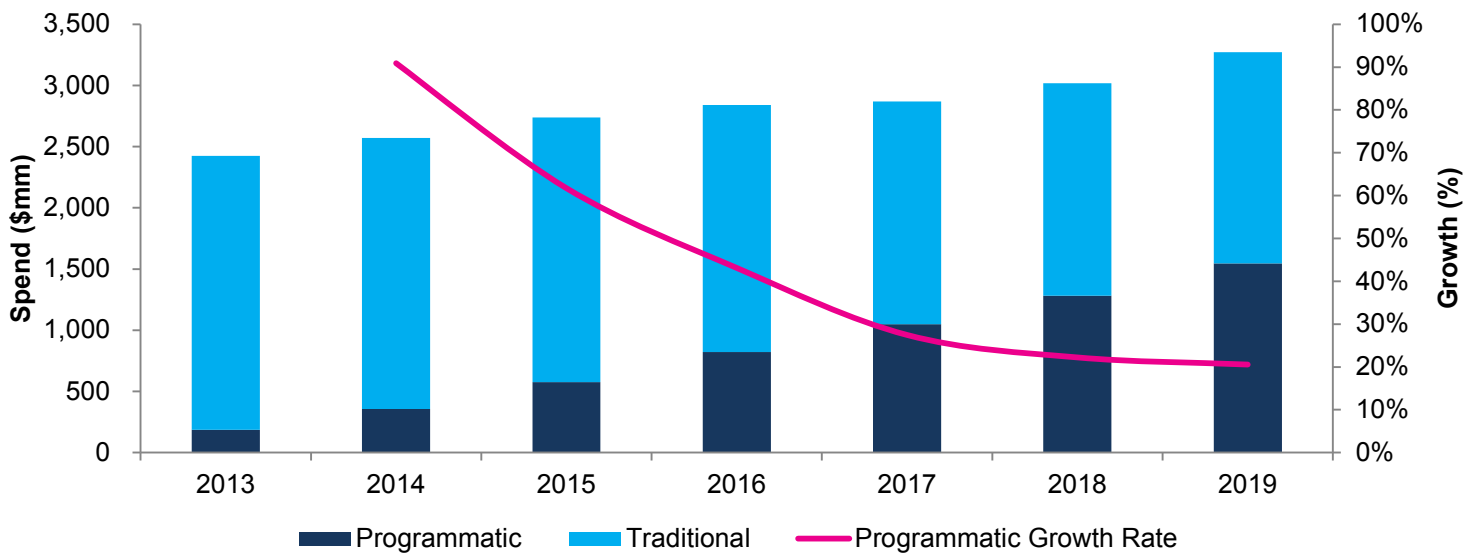


Germany

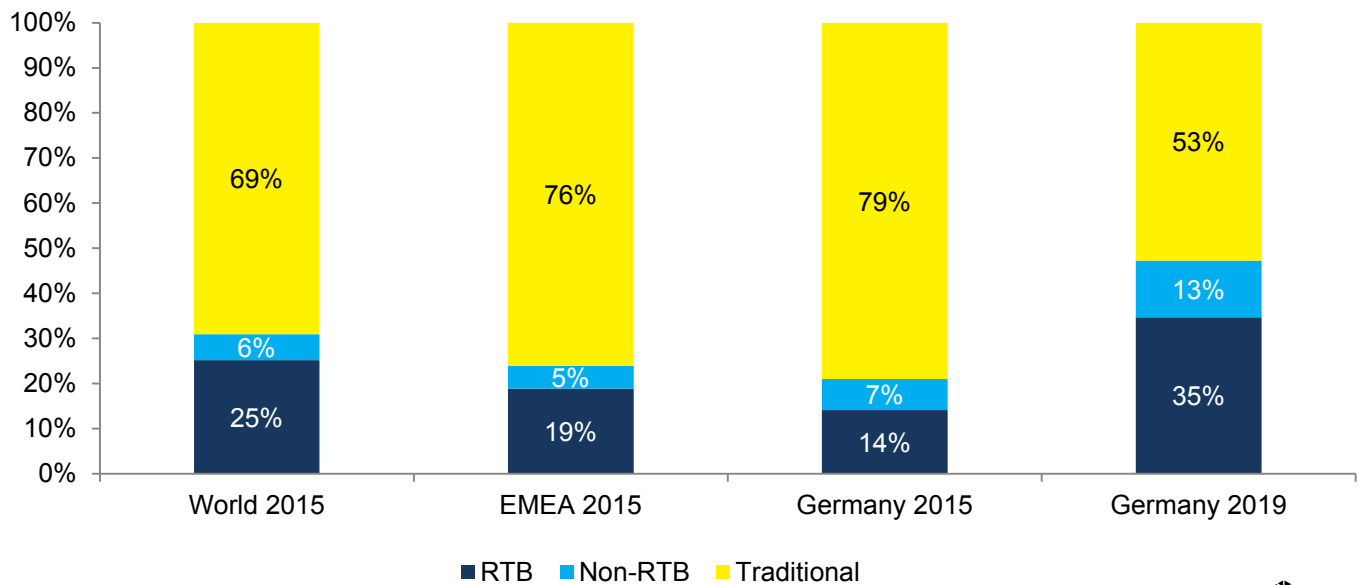
Germany is the second largest digital market in the EMEA region, ~2/3 the size of the United Kingdom's digital advertising market. Programmatic development in Germany lags development in the UK, however; Germany's \$575 million programmatic market is only 55% as large as the programmatic market in the UK.

Unlike many underdeveloped markets, however, MAGNA GLOBAL expects the German market to experience catch-up in development and by 2019 for programmatic transaction methods to represent nearly 50% of all dollars in the Programmatic Universe.

Programmatic Spend and Growth



Spend by Method

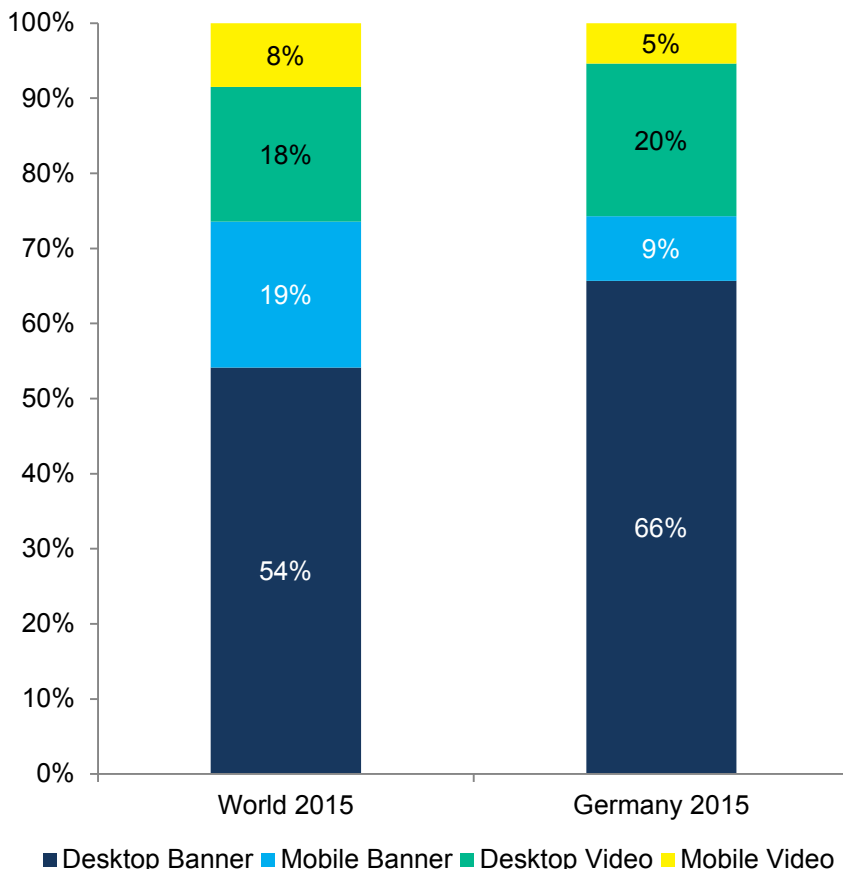


Germany

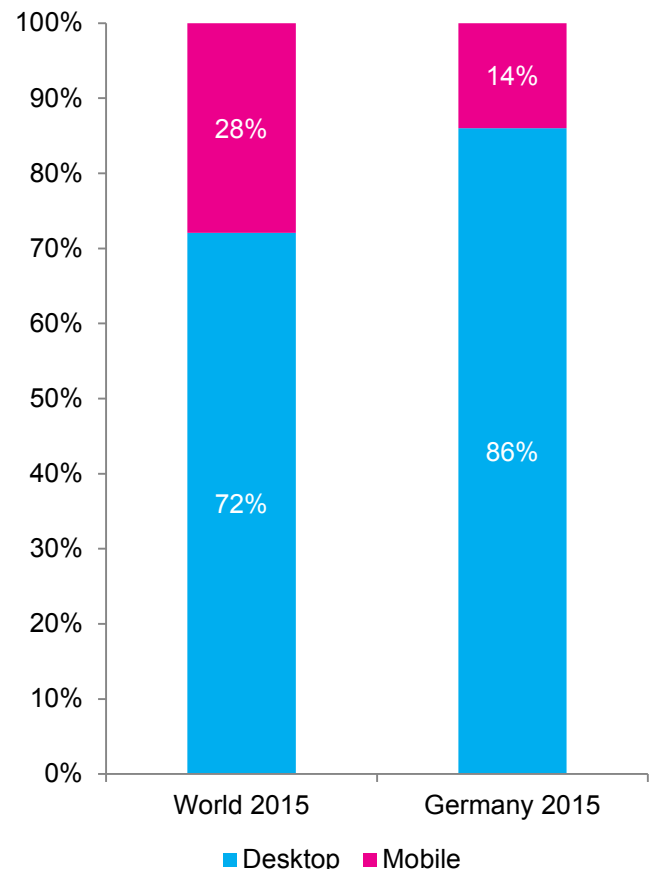
Hints of the growth potential of the German market are seen in the sophistication of programmatic offerings available in Germany, especially relative to the development of the overall market. Private exchange solutions have existed in Germany for some time. In addition, while SevenOneMedia and IP Deutschland have been historically reluctant to offer significant inventory programmatically, the early stages of publisher cooperatives (similar to the French model) have been seen in Germany. These signs all point to a market that is finally moving towards programmatic acceptance, and MAGNA GLOBAL expects stronger growth to follow.

There are several reasons why to this point penetration has been so low. German programmatic participants, especially on the publishing side, prefer to wait rather than participate in the experimentation phase of programmatic development. Despite large digital budgets in Germany, not much experimentation has occurred. Products need to be refined before they can be widely implemented in the German markets. In addition, Germany has some of the strictest privacy laws in Europe, and the general consumer population is wary of targeted advertising. Together, these influences have maintained the status quo longer than it has held up elsewhere.

Programmatic Spend by Format



Programmatic Spend by Device

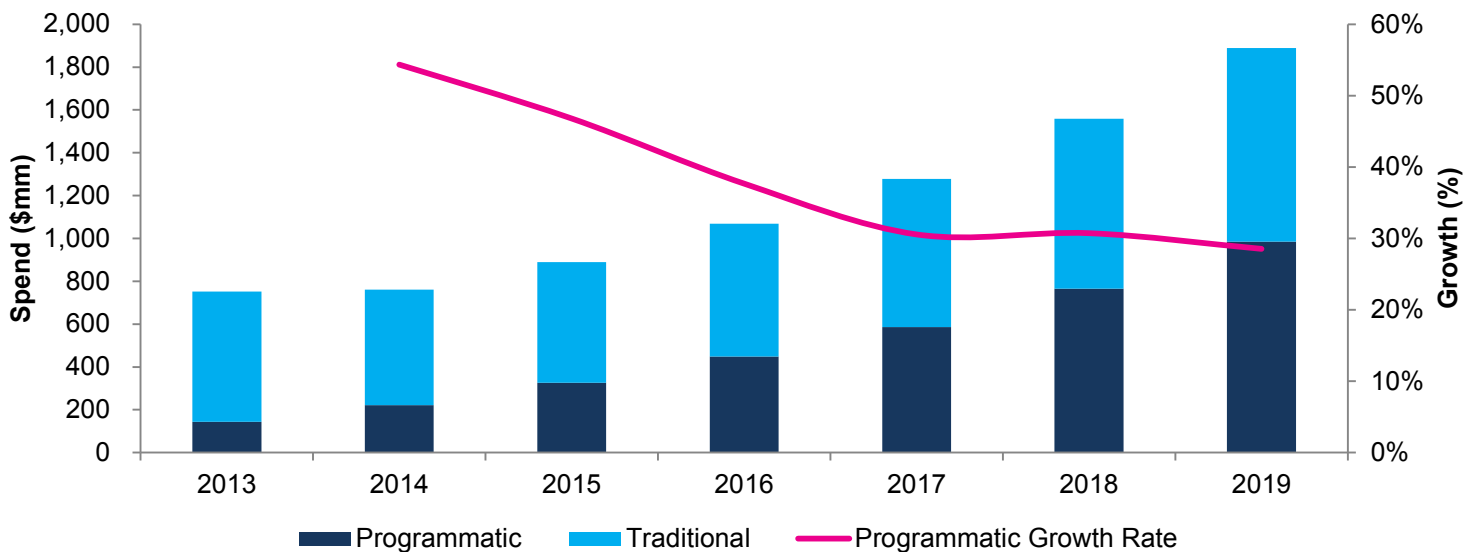


France

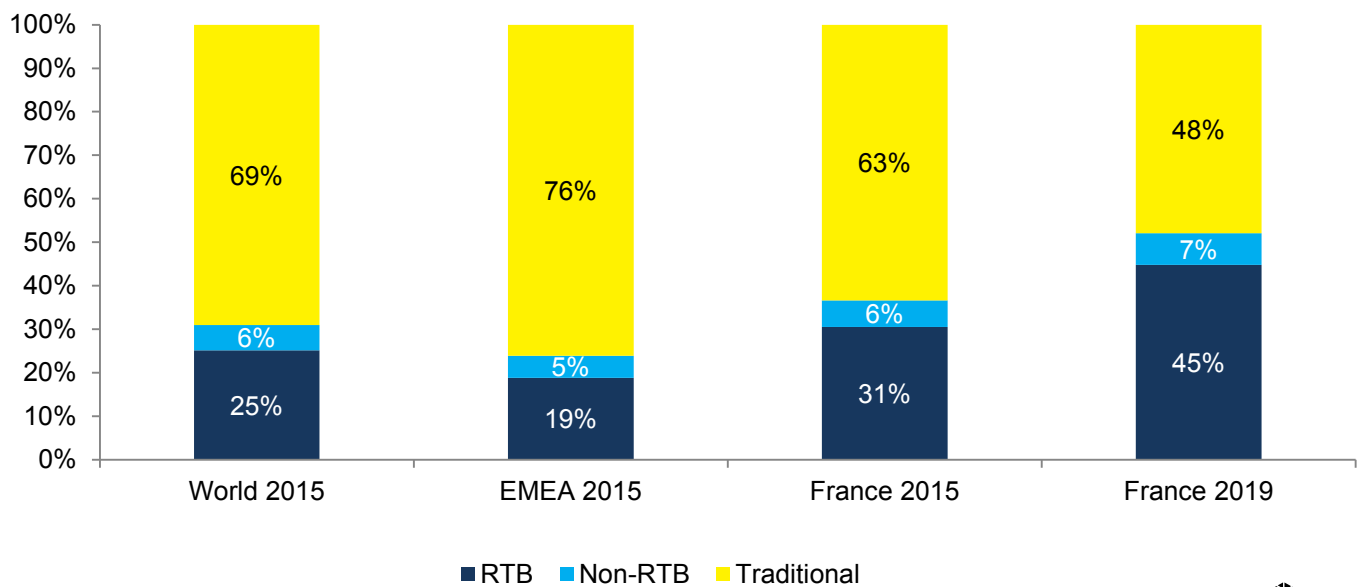
The French programmatic market will reach \$325 million in 2015, up 47% y/y. Outside of the US, France is one of the biggest markets for programmatic experimentation. French publishers were far ahead of the global curve in adopting programmatic sales methods, and established multiple publisher cooperatives. These include La Place Media, Audience Square as well as Orange, The Place to Bid (Adverline), Adexchange.com (Hi-Media) and 3WRegie.

On the more specialized side there is Quantum as well as Sublimeskinz, and mobile-focused InMobi and Yanco. Early in programmatic development of a market, publisher willingness to make inventory available is a big stumbling block towards programmatic growth. France did not experience those headwinds.

Programmatic Spend and Growth



Programmatic Spend by Method



France

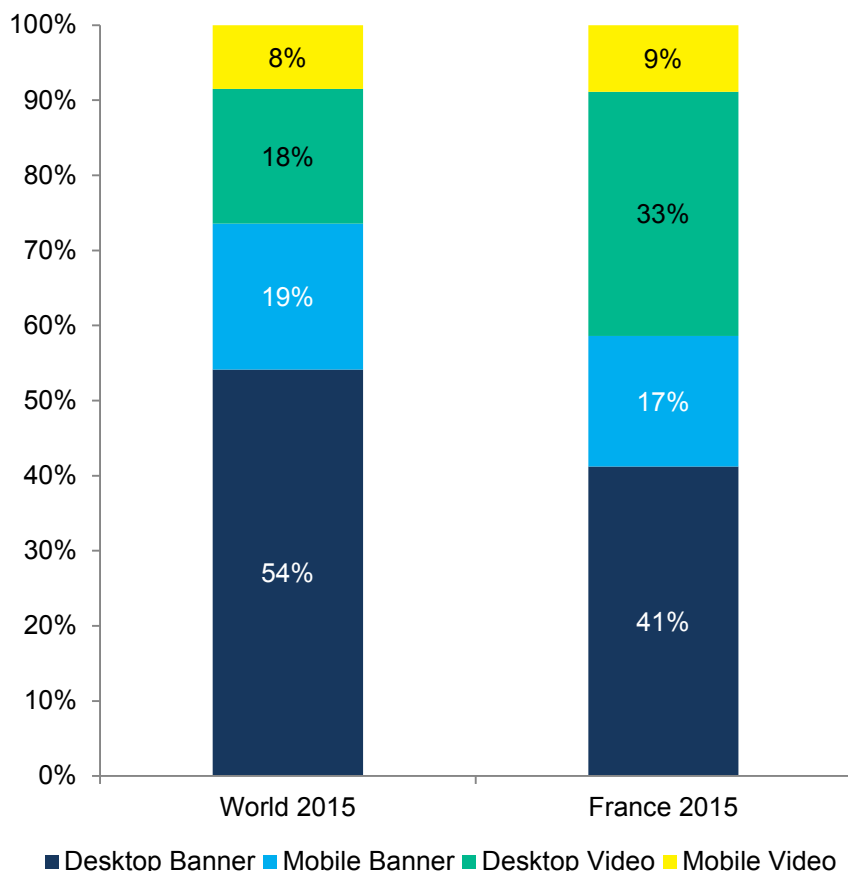
France's programmatic spend split by format and device diverges significantly from the global average. Desktop video makes up a much larger share of the total than it does globally. Video is expected to expand significantly, and by 2019 programmatic video will represent ¾ of the total programmatic pie in France. Banners, both on the desktop and mobile side, will grow more slowly. On a device basis, mobile will grow but will continue to lag global development; 2019 mobile spend is only expected to represent only 44% of total spend.

Because publishers are so willing to make inventory available to programmatic platforms, the inventory available to French brands is higher than in much of Europe. Brands have the capability to dedicate brand advertising dollars to

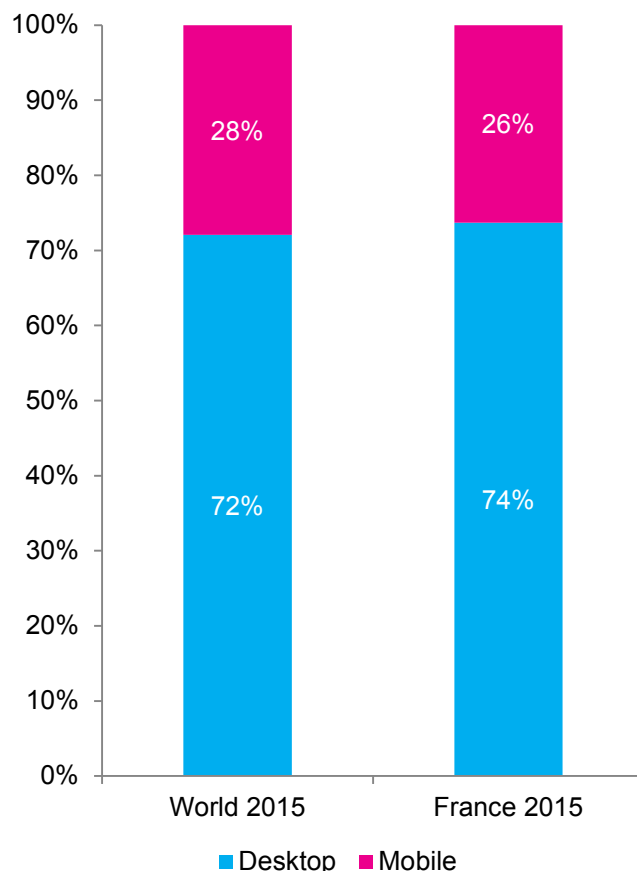
programmatic campaigns as they can transact higher up on the inventory value pyramid. Finally, the tradeoff for French publishers in moving to programmatic methods was to disproportionately limit themselves to private exchanges. Auction-based private exchange abound, but open exchange programmatic makes up a small share of the total programmatic pie in France. The restrictive 3rd party data legislation does not help to ameliorate this limitation.

It is unclear at this time how the expansion of the Sapin Law regarding advertising transaction transparency (expanded to digital advertising this year) will impact the programmatic ecosystem and growth trajectory.

Programmatic Spend by Format



Programmatic Spend by Device



Italy

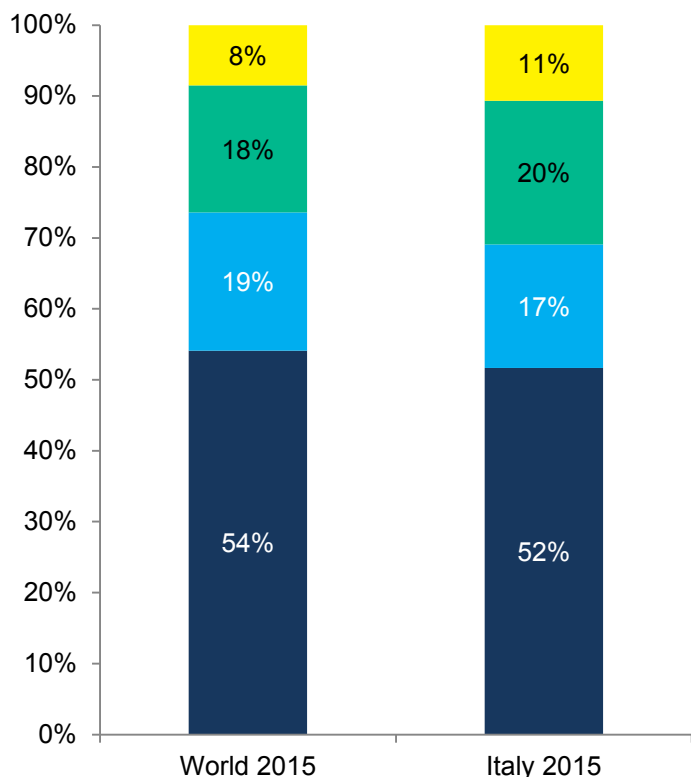
The Italian programmatic market is of a similar size to the French programmatic market, despite a Programmatic Universe that is 33% larger. Italy's \$359 million of programmatic spend in 2015 is up 66% y/y from 2014. While desktop banner display still dominates programmatic spend in Italy, by 2019, mobile formats will represent 44% of total spend, and video will represent 52% of total spend.

The programmatic landscape in Italy is concentrated with many powerful publishers. Unlike France, however, media owners have not been as progressive in transitioning to programmatic methods. Inventory access has been an issue in Italy.

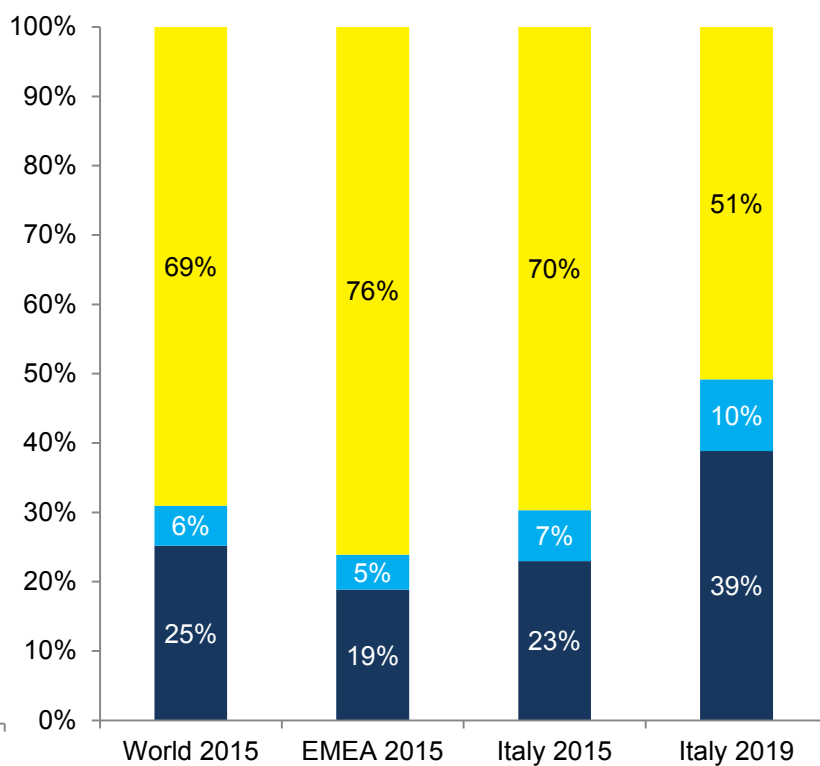
Italian brands and publishers are very focused on safety and transparency. Italian publishers operate primarily in private marketplaces and through invitation-only auctions. Brands are very focused on transparency in regard to media, data, platforms and fees. In addition, the conservative approach to the programmatic space has resulted in a focus on viewability and in-target audience metrics relative to the rest of Europe. Many campaigns include ComScore VCE, Nielsen OCR, Integral AdScience or comparable third party measurement service.

Because of this conservative approach, only a few advertising sectors such as eCommerce, Insurance, Gambling and Travel among others have fully embraced programmatic transaction methods.

Programmatic Spend by Format



Spend by Method



■ Desktop Banner ■ Mobile Banner
■ Desktop Video ■ Mobile Video

■ RTB ■ Non-RTB ■ Traditional

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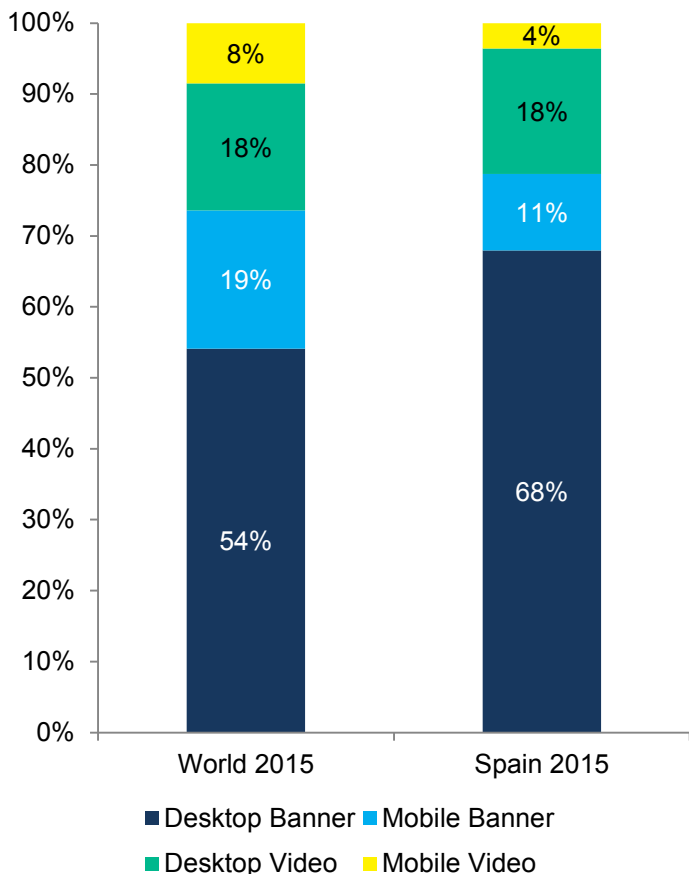
Spain

Spain's programmatic market will reach \$139 million in 2015, up by 43% from 2014's \$97 million of total programmatic spend. While Spain's digital market is much smaller than the rest of the European big 5 markets (France, the next largest, is nearly 2.5x the size) and ad spend per capita lags that of much of Western Europe, programmatic penetration is similar.

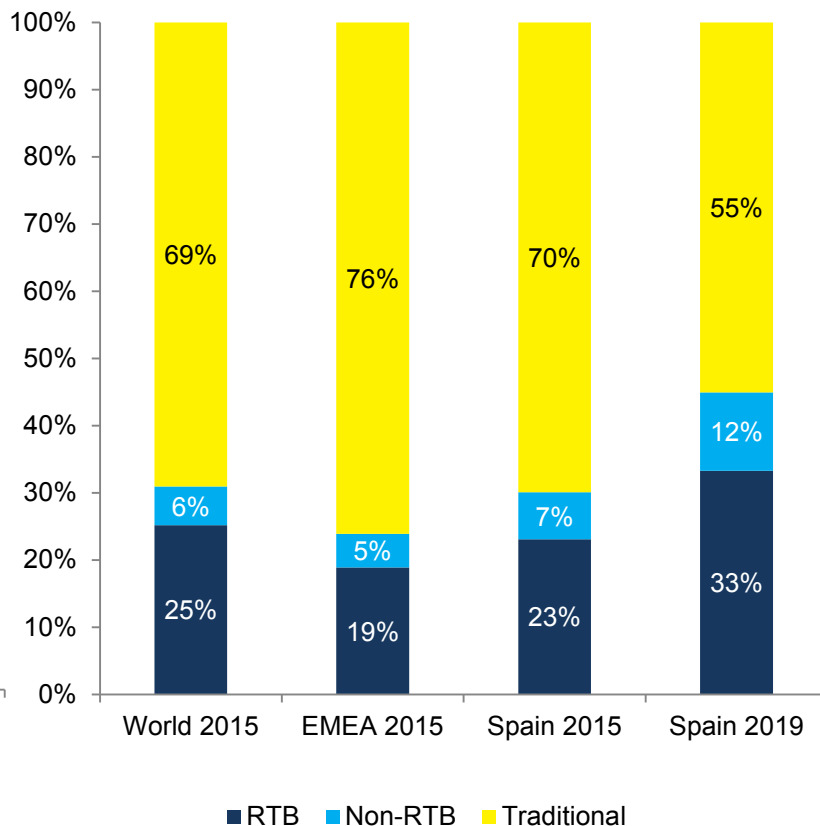
Publishers in Spain are strong and protective of their inventory; they are not as far along in the programmatic development curve as in some Spain's neighbors in Western Europe. Many brands still believe that programmatic is for performance-based advertising only and retargeting. In combination with restrictions on 3rd party data, Spain's programmatic penetration is similar to that of Italy and trails France and the UK.

The most important focus points for Spanish programmatic development over the next few years are the continued education of participants in the programmatic ecosystem towards the possibilities of programmatic advertising and its potential as a transaction method rather than a retargeting tool. In the longer term, Spain has seen some interesting inroads into programmatic trading beyond digital formats. Clear Channel is working on a Spanish prototype for a digital out of home programmatic platform for potential export to the rest of Europe.

Programmatic Spend by Format



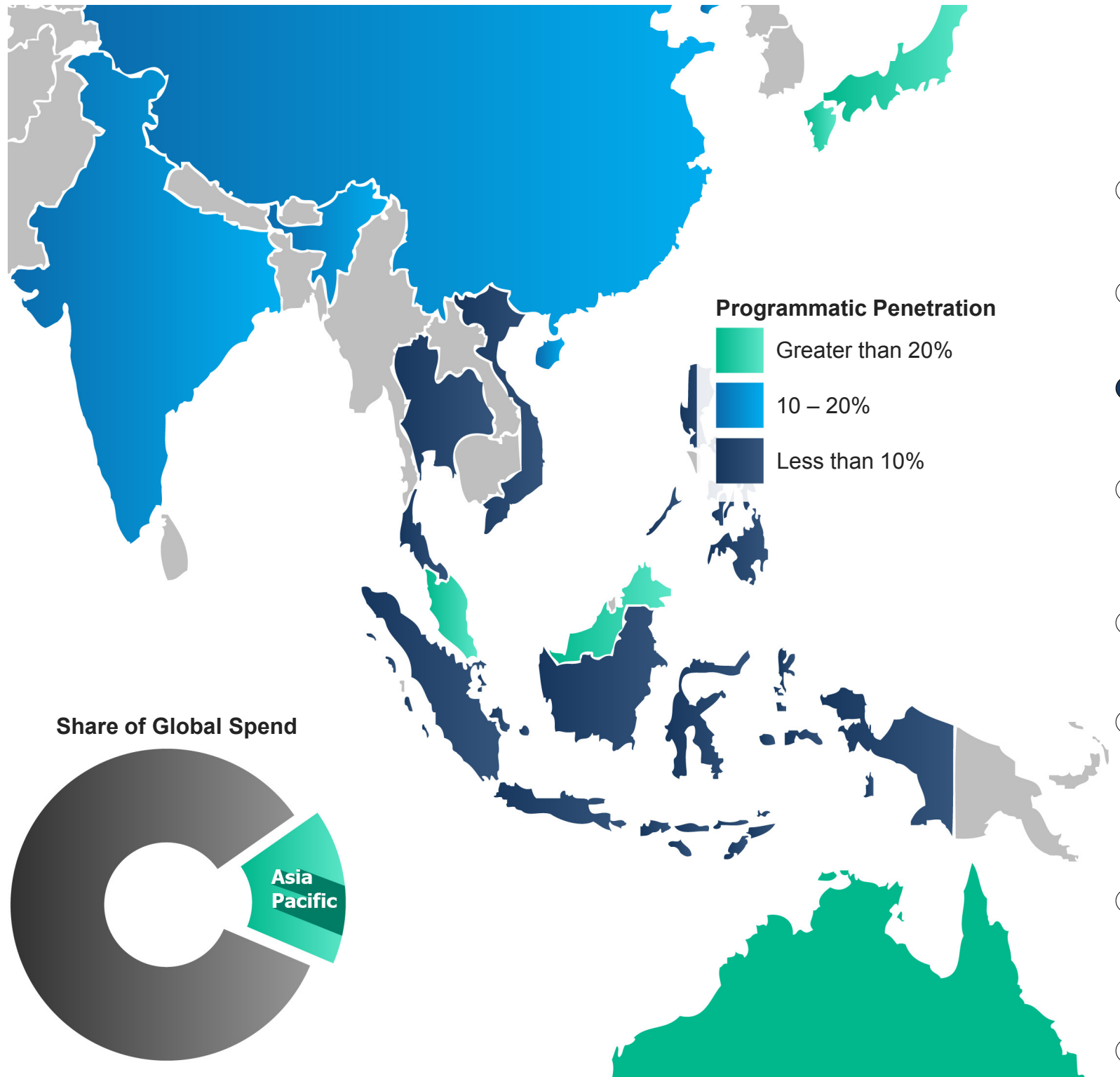
Spend by Method



Focus on Asia Pacific

Asia Pacific is the third largest programmatic region, and represents 16% of global programmatic spend. It includes some of the largest global programmatic markets (China, India, Japan), some of the most developed (Australia), and some of the smallest and least developed (Philippines, Vietnam, Thailand, Indonesia)

Japan), some of the most developed (Australia), and some of the smallest and least developed (Philippines, Vietnam, Thailand, Indonesia)



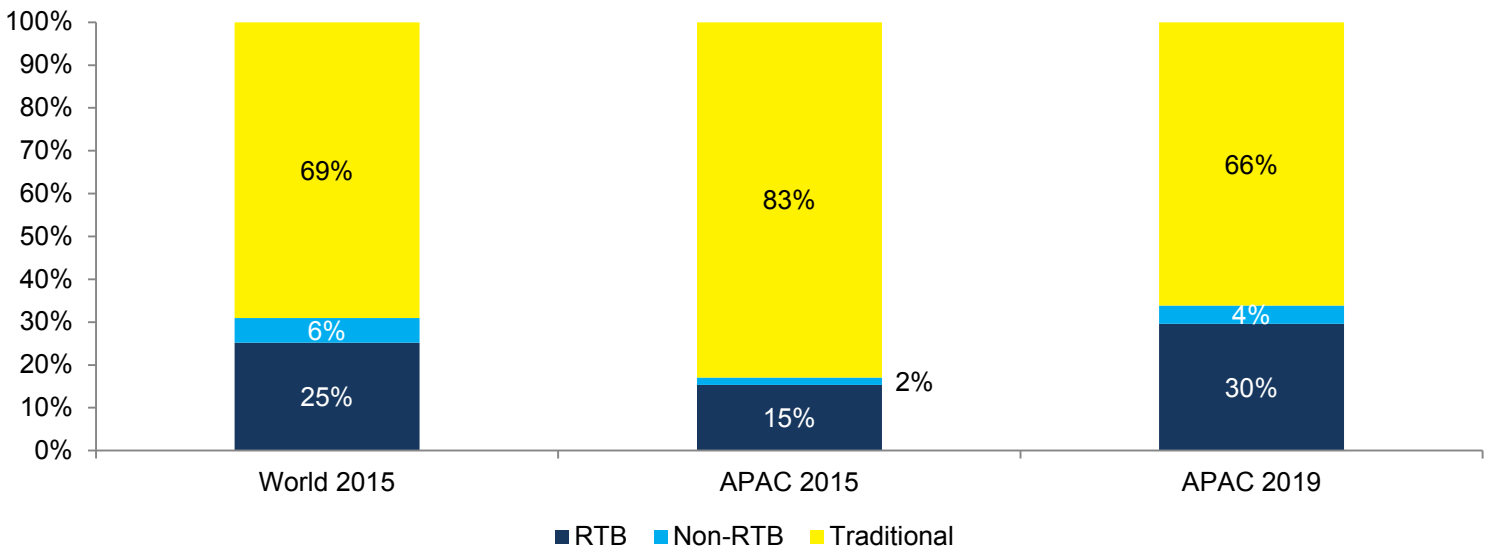
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Asia Pacific Programmatic Spend

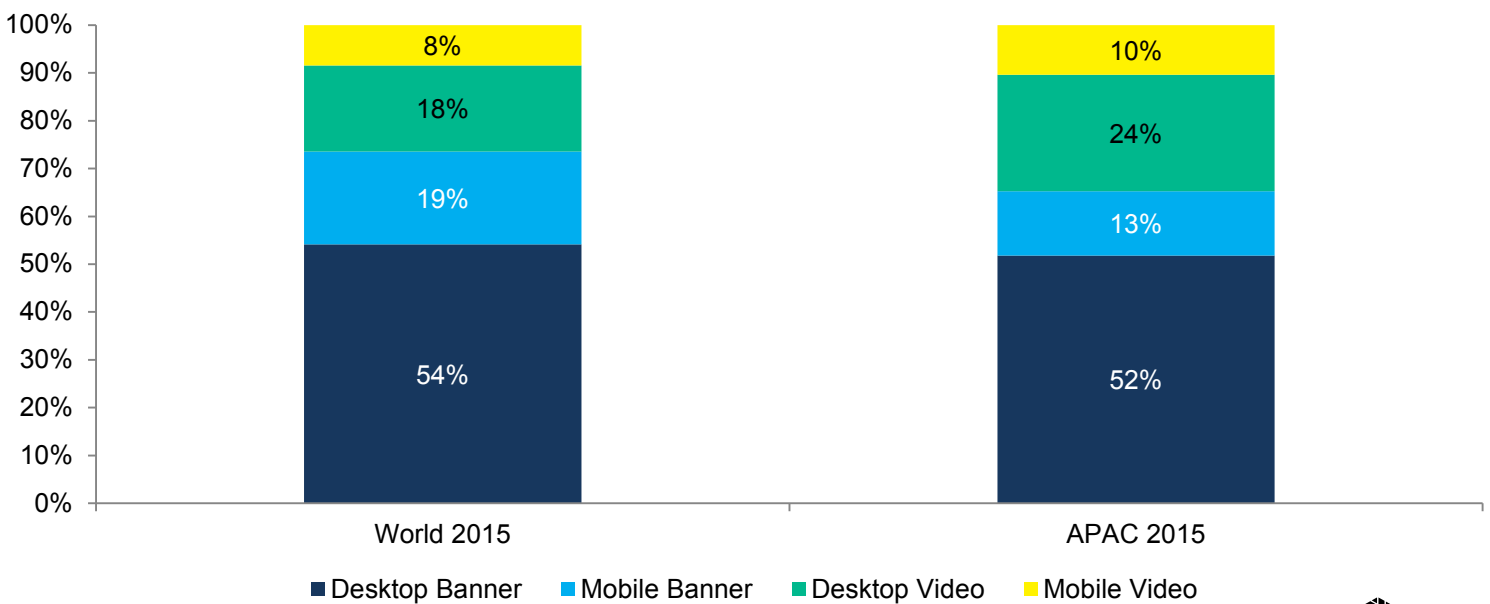
Asia Pacific programmatic penetration trails the global average, with only 17% of the Programmatic Universe expected to be transacted programmatically in 2015. While this will increase significantly to 35% by 2019, it will still trail the global average of 55% at this point.

The programmatic landscape in many of the largest APAC markets is characterized by local ad tech platforms and entrenched incumbent transaction methods. In combination with limited targeting data and some struggles by the largest Western ad tech platforms to gain traction, APAC penetration is expected to lag throughout the MAGNA GLOBAL forecast period.

APAC Programmatic Spend by Method



APAC Programmatic Spend by Format



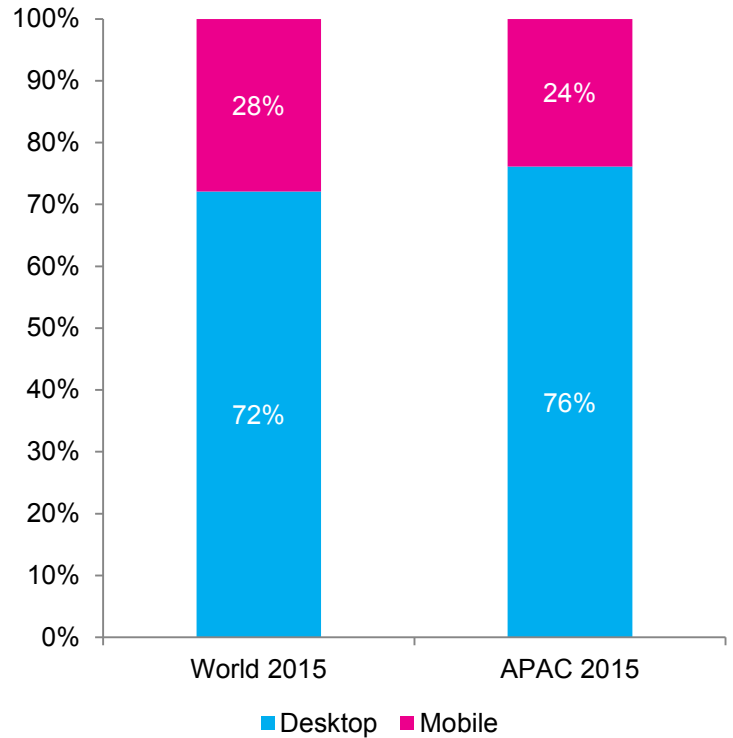
Asia Pacific Spend Breakdown

As can be seen below, APAC is dominated by three large markets: Japan, China and Australia. While these are explored in more detail later, there are many other fast-growing markets with unique dynamics.

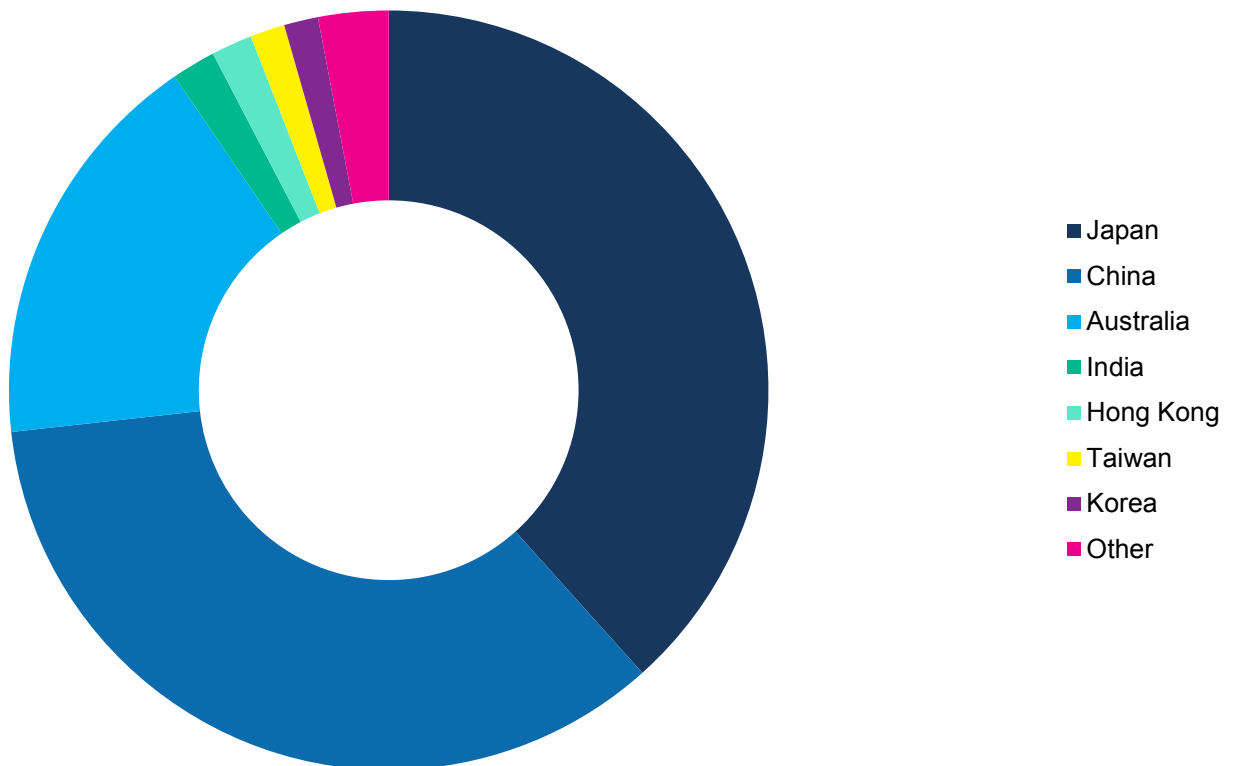
India has limited potential for programmatic development given its extremely low ad spend: ad spend per capita is 4.5x lower than that of even Indonesia (\$6 vs. \$26) despite only 2x lower per capita income. That being said, Indian programmatic penetration is still 20%, ahead of Mexico and China due to penetration of platforms like YouTube True View.

Similarly, Malaysia is a small market on a spend basis, but highly developed on a programmatic penetration basis, ahead of Italy and Spain.

APAC Programmatic Spend by Device



APAC Programmatic Spend by Country 2015

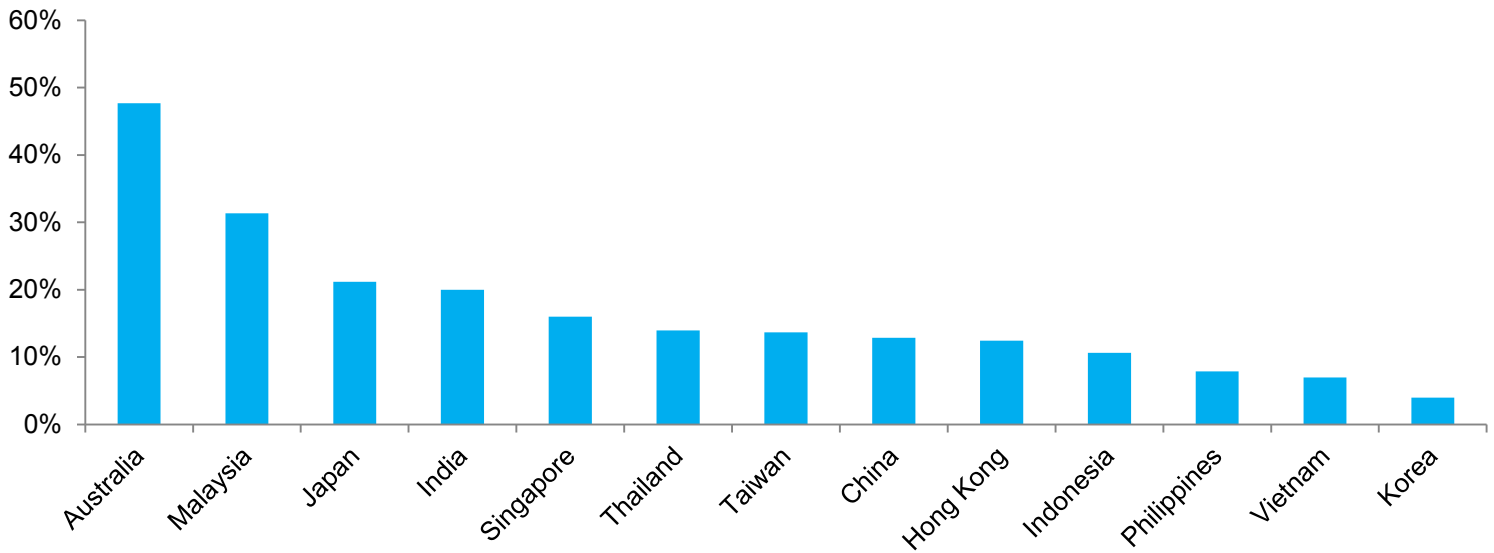


Asia Pacific Penetration and Growth

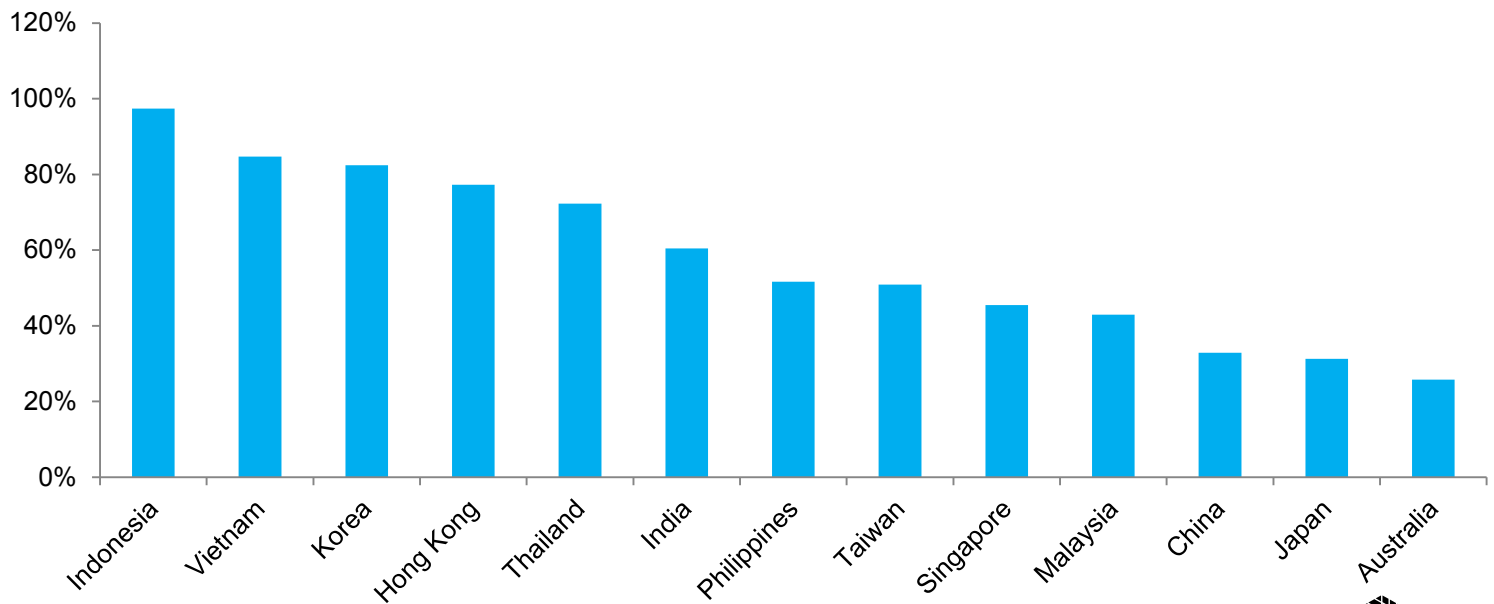
Australia is unique compared to most of APAC, with extremely high programmatic penetration and very low expected growth (it is already a mature programmatic market). This compares to small emerging markets like Indonesia, Vietnam and Korea whose growth is expected to average nearly 100% through 2019, with total programmatic spend increasing to more than 20x its current size (from a very small base).

China, and to a lesser extent Japan, have lower penetration compared to the size of their digital advertising economies. Sheer scale, however, means they are in the top five programmatic markets on a global basis.

APAC Programmatic Penetration by Country 2015



APAC Programmatic CAGR 2014-2019 by Country

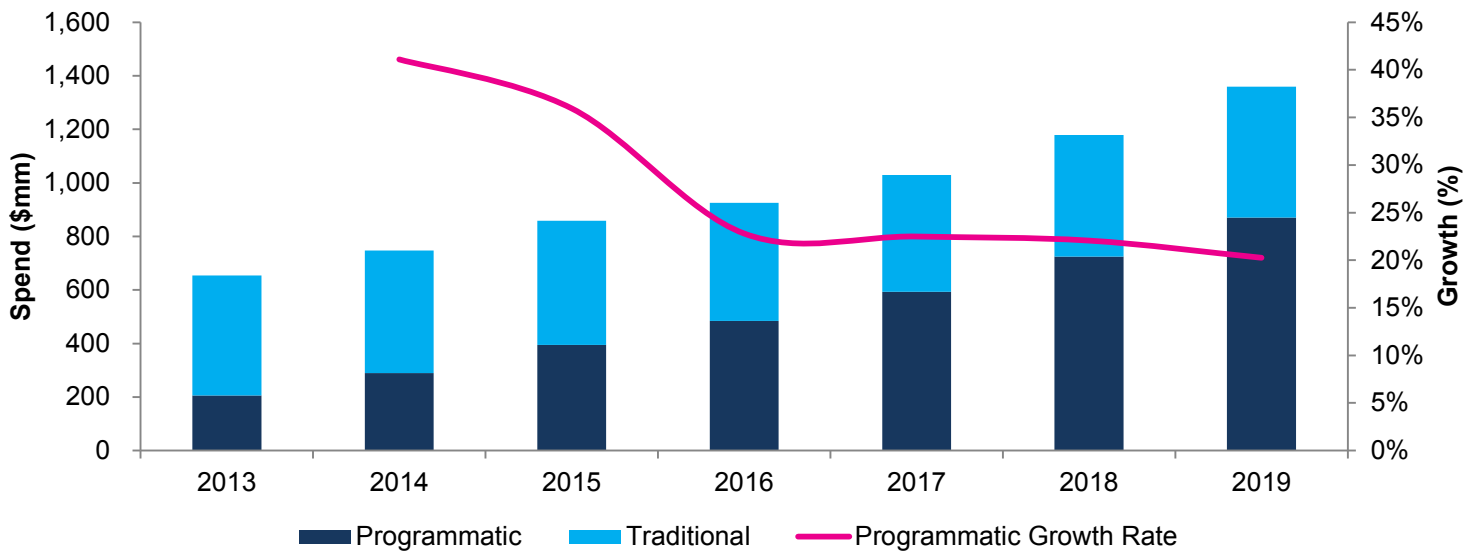


Australia

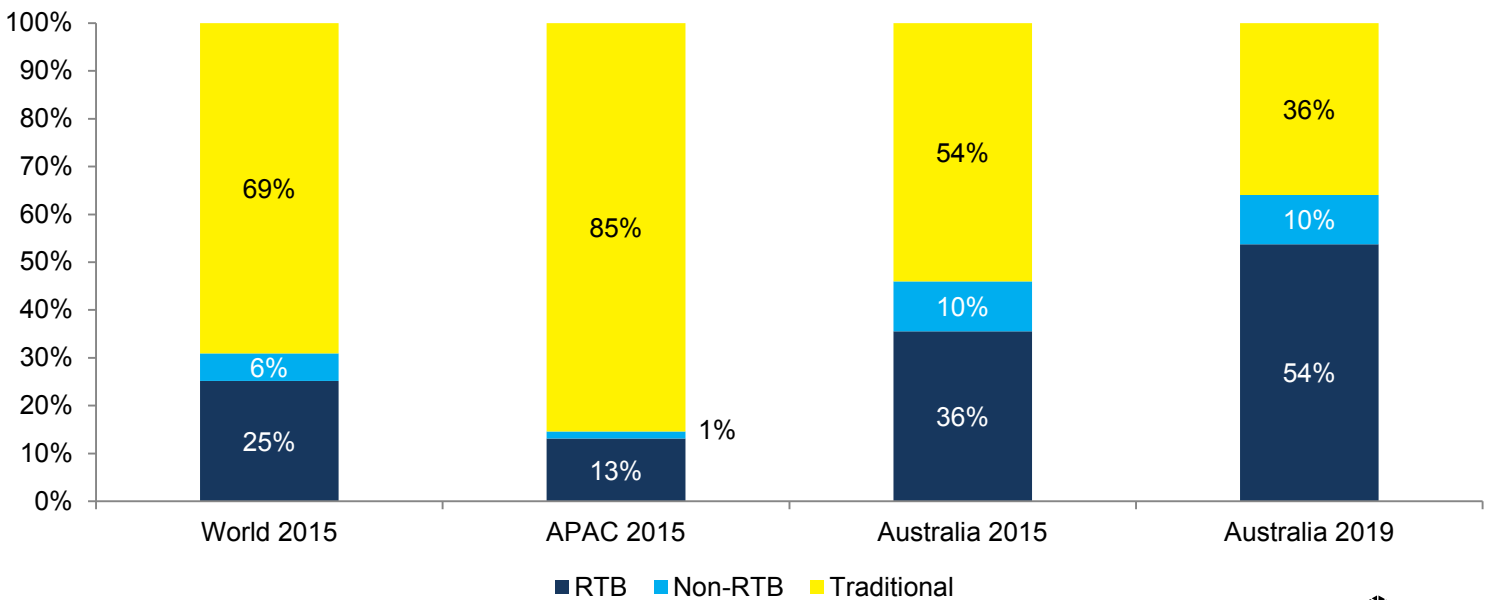
Australia is one of the most sophisticated global programmatic markets, with a penetration that only trails Denmark and the UK. It is the sixth largest programmatic market worldwide, with \$409 million of total spend expected in 2015.

Penetration is expected to reach 64% of total spend by 2019, one of the highest shares globally and trailing only the UK. Because of the robust current spend values, growth is only expected to be a mild 23% next year following 2015's 36% growth.

Programmatic Spend and Growth



Programmatic Spend by Method



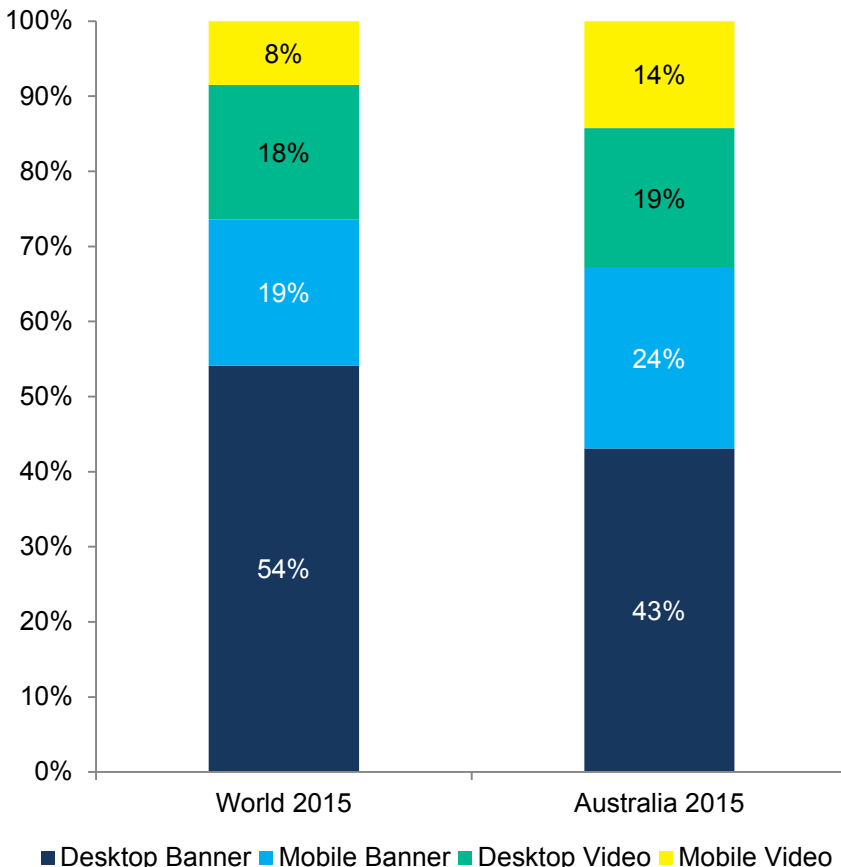
Australia

Given that Australia's ad spend per capita is over \$500, and that digital budgets represent over 40% of total spend in Australia, significantly more than any other media format, it is not surprising that publishers were proactive about the programmatic transition.

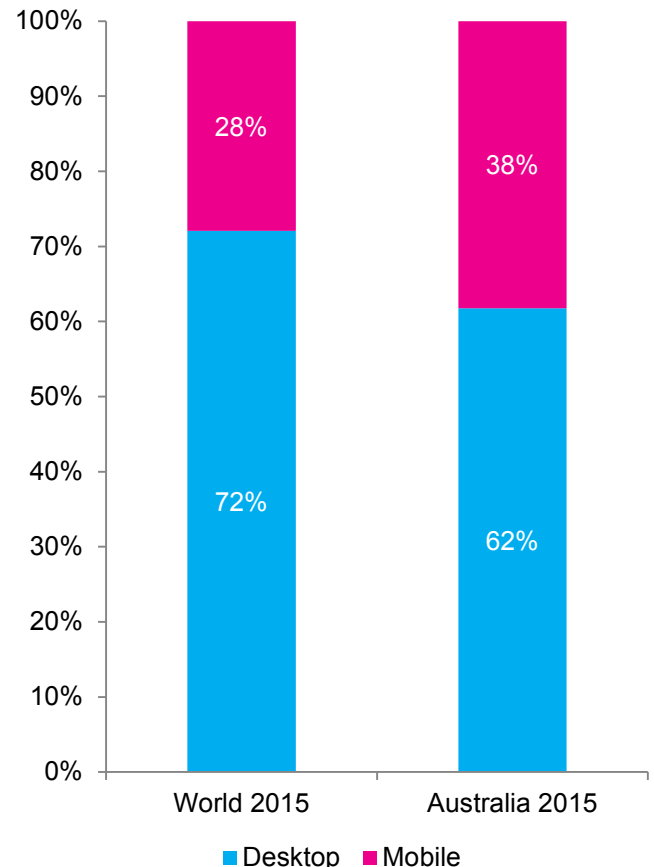
Australia is a market in which many initiatives have been media owner driven. The publisher landscape is very concentrated, and much of the inventory is held in a few hands, so cooperatives and private exchanges have developed.

The Australian digital landscape is already highly evolved, with mobile and video representing significant shares of total digital spend. As a result, banner display represents a small share of total programmatic (43%) relative to global averages. By 2019, desktop banner display will only represent 18% of total spend. Mobile programmatic spend will grow from its current (already high) 38% spend share to 72% of total programmatic spend.

Programmatic Spend by Format



Programmatic Spend by Device

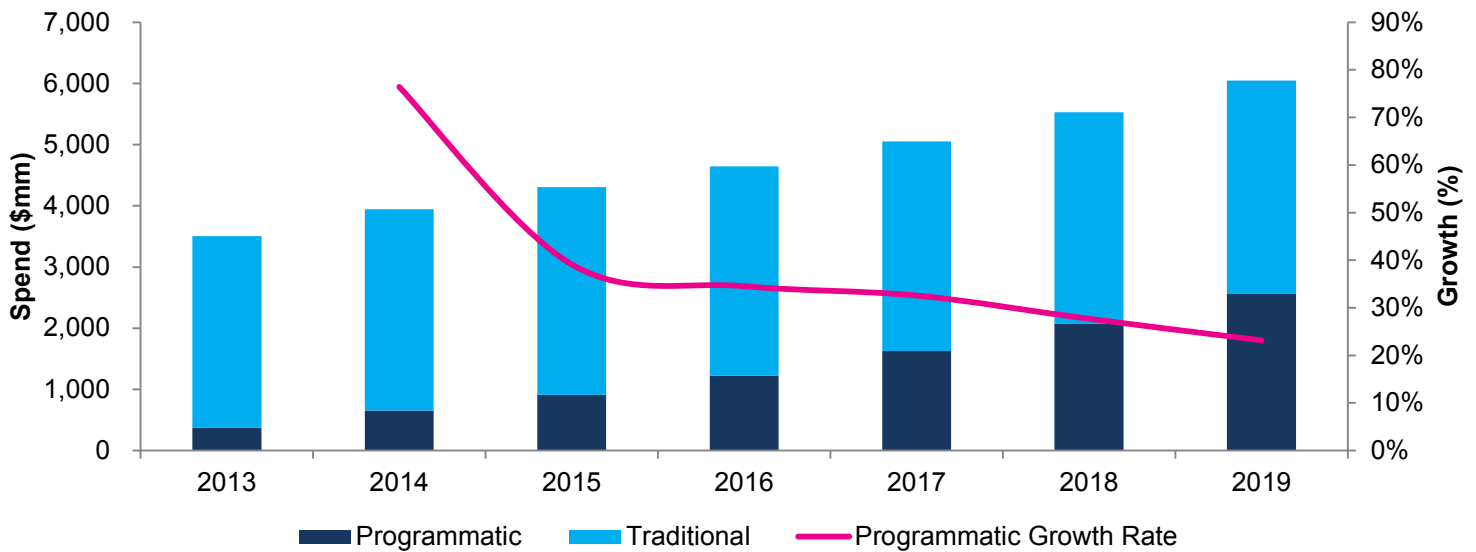


Japan

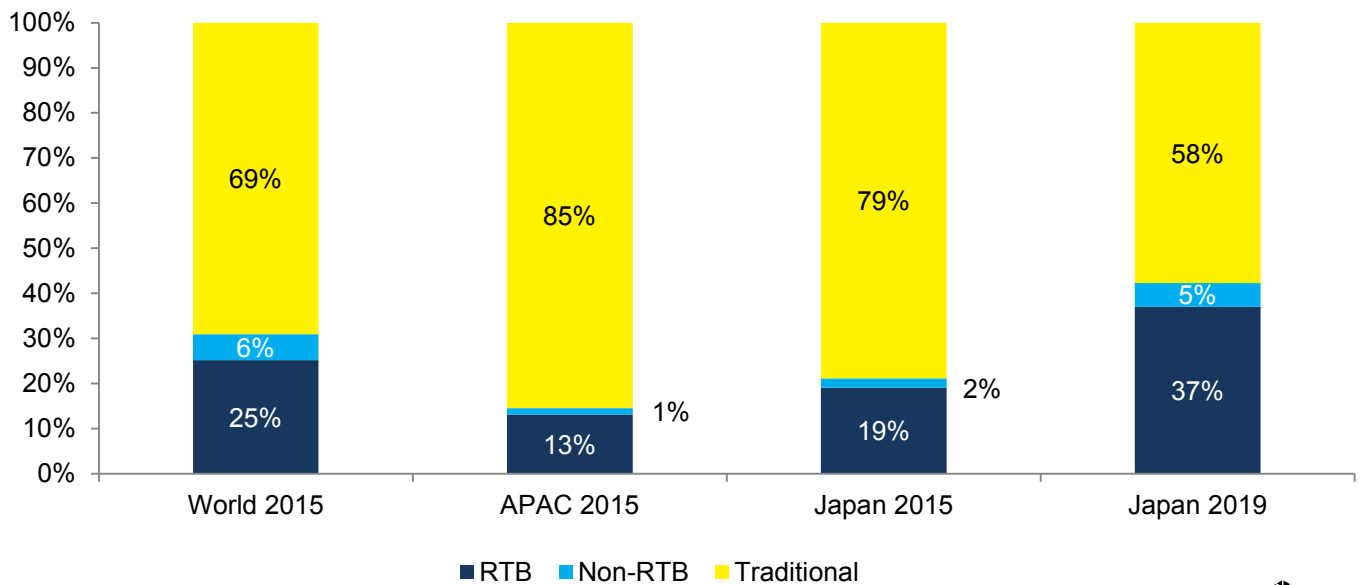
Japan is the third largest global programmatic market, behind the United States and the United Kingdom. Total programmatic spend is approaching \$1 billion. This significant size is despite a penetration of just over 20%, below the global average. Japan has the third largest digital advertising market in the world, and therefore even small penetration values translate to significant spend.

Japanese programmatic ecosystem participants have a conservative approach to programmatic. Despite the rise of private exchanges in 2014, however, there was on corresponding jump in Japanese programmatic growth and penetration. Environment safety and control was not the bottleneck.

Programmatic Spend and Growth



Spend by Method



Japan

Furthermore, because of the relationship-based structure of much of the Japanese digital marketplace, there is high systemic inertia and highly visible programmatic success stories will be required to accelerate programmatic penetration towards that of other large markets.

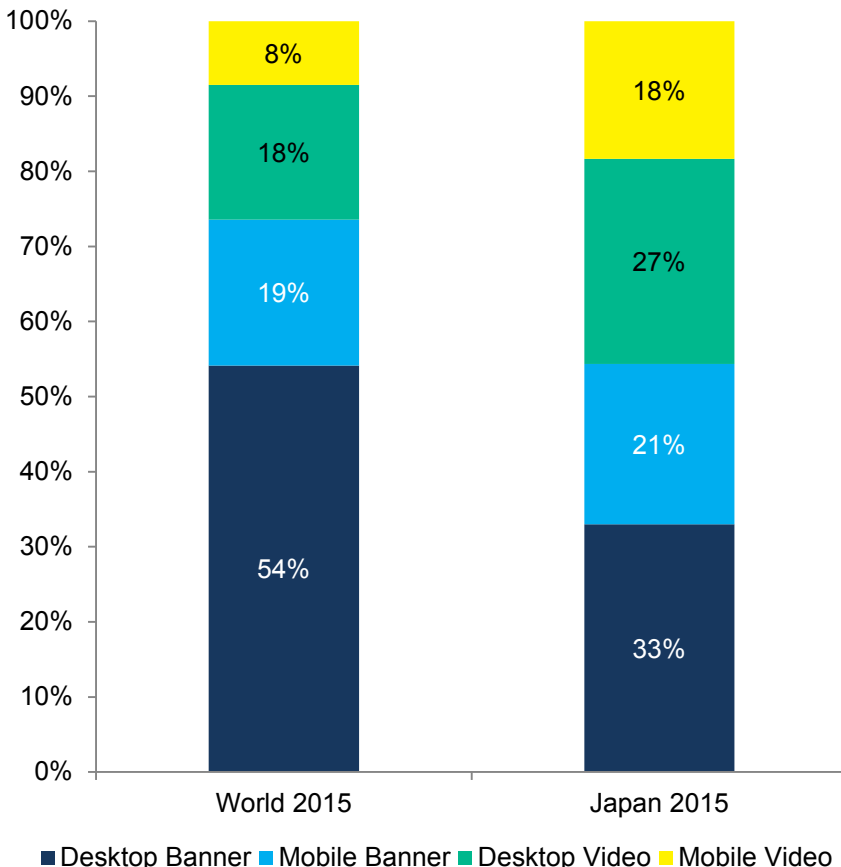
One area in which Japan's market does not lag the rest of the globe is in mobile programmatic penetration. Mobile banner and video already represent 40% of total spend, and that figure will increase to over 2/3 of total programmatic spend by 2019.

There are many reasons for the low penetration in Japan. Global ad tech solutions have had a

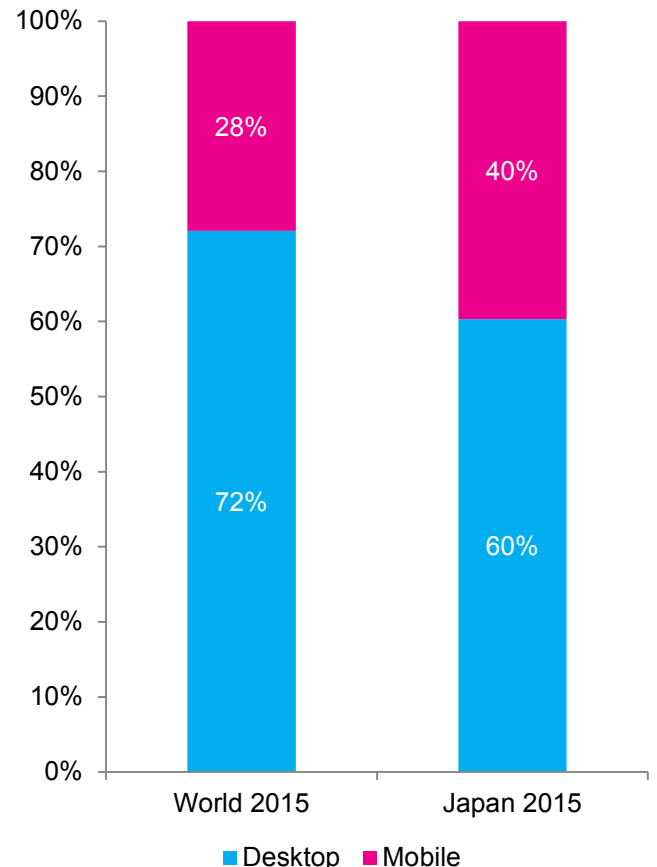
difficult time in the Japanese market. The share of local DSPs and DMPs is higher than the international average. The service level required from clients is also higher than is seen elsewhere.

Unlike many markets where the global ad tech players have had little competition, local DSPs including MarketOne, MicroAd Blade, FreakOut and ScaleOut provide stiff competition to the regular global lineup of programmatic platforms. In addition, there are even geo-targeting solutions such as AdNear or Sizmek AdStrike available in the Japanese programmatic market, something that is unusual for a market with Japan's penetration.

Programmatic Spend by Format



Programmatic Spend by Device

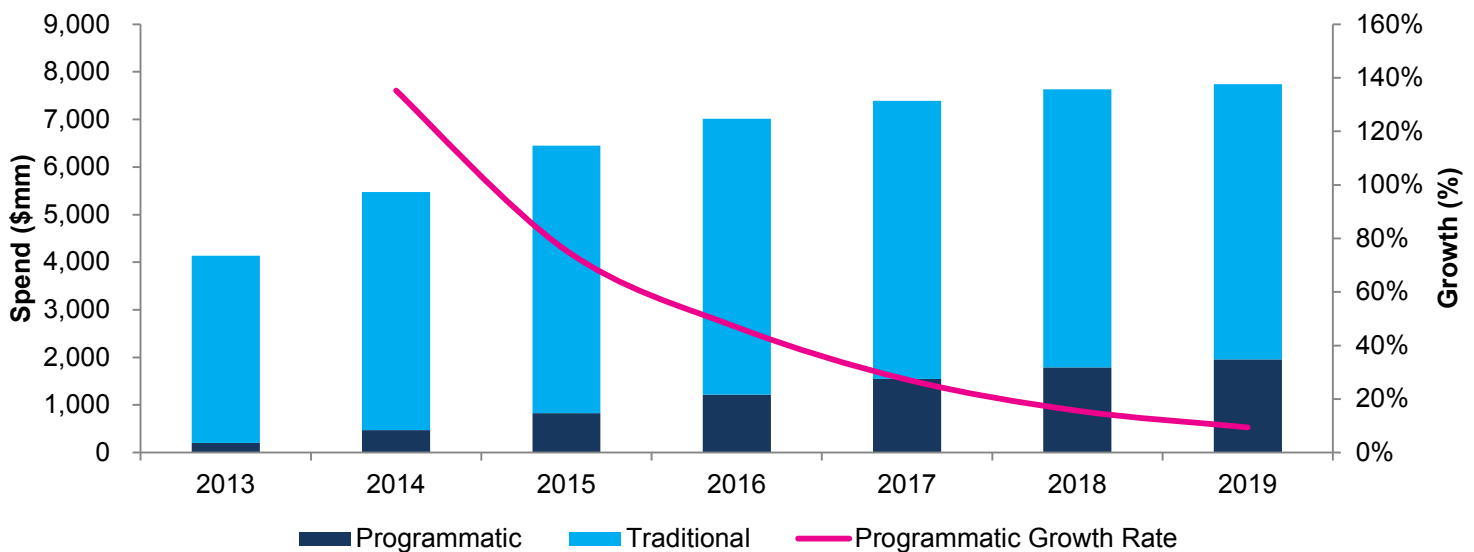


China

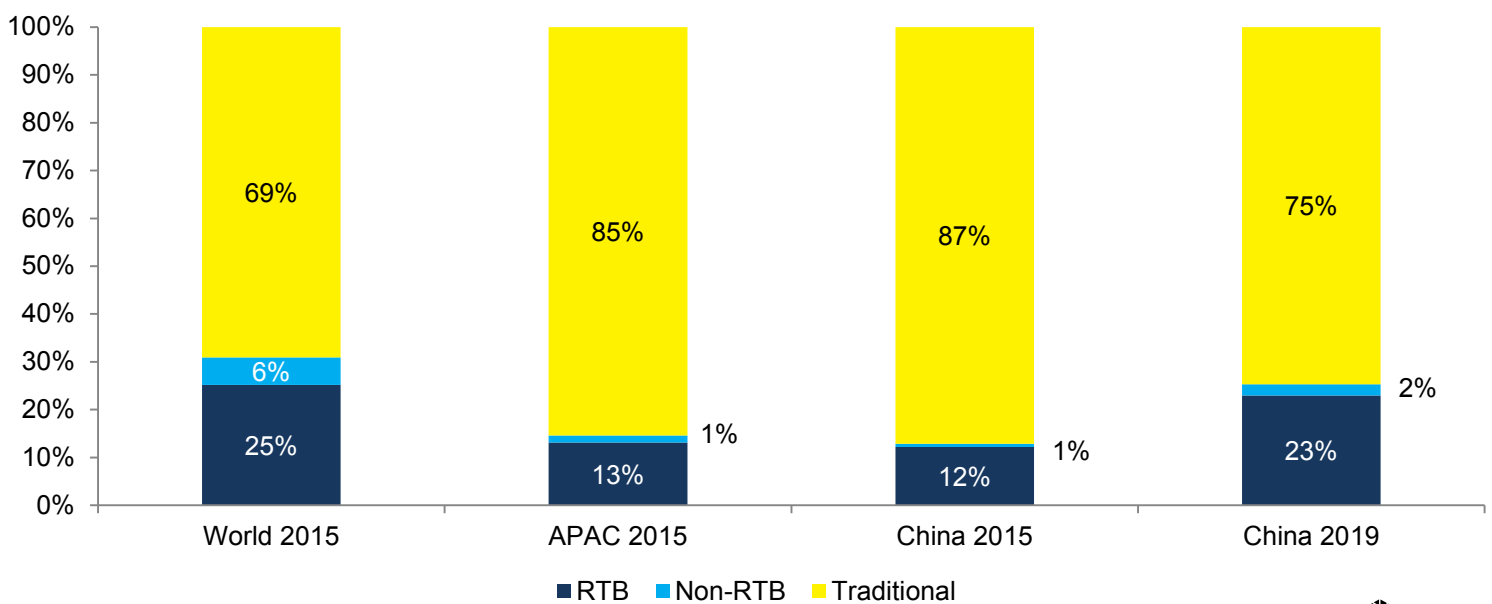
Despite having the second largest Programmatic Universe globally, China is only the fourth largest programmatic market. This is because penetration remains a paltry 13% of total banner display and video spend, a figure that will not increase significantly by 2019.

Concerns over the quality of inventory in exchanges cause brands to be reluctant to execute on open exchange platforms. As a result, private exchanges are increasing in importance in China in 2015. While these still have auction-based price discovery, it provides a more comfortable starting point for many to start spending programmatically.

Programmatic Spend and Growth



Programmatic Spend by Method



China

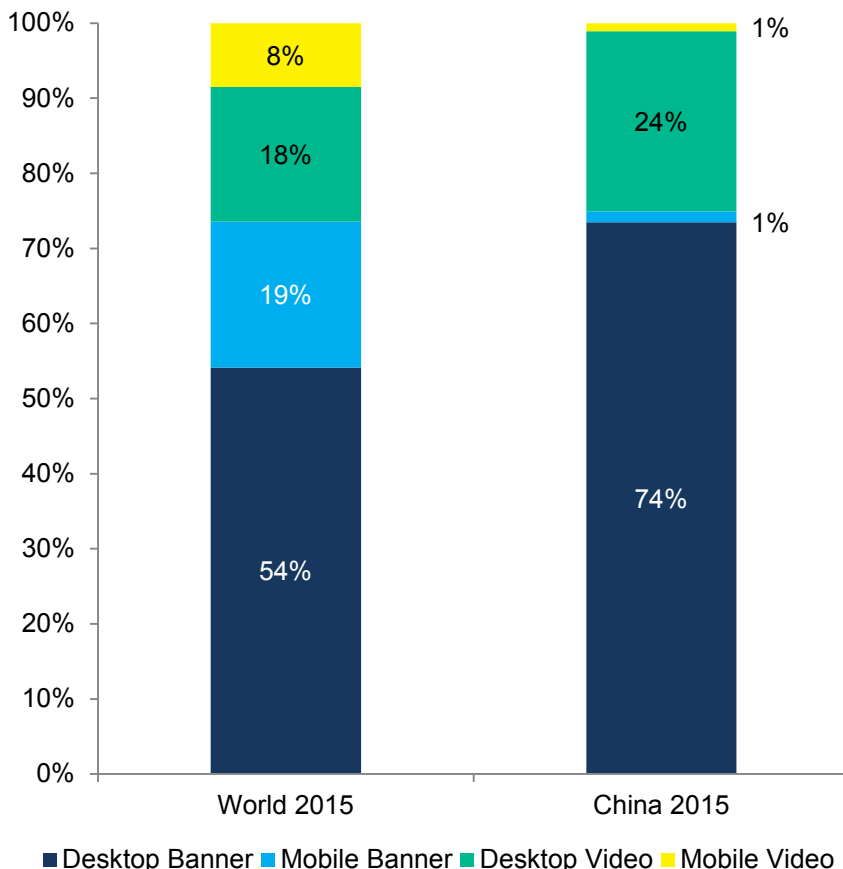
Some of the largest internet players such as Baidu, Alibaba and Tencent have leveraged their data collections from search, e-commerce and social and created closed ecosystems similar to what has been done by Google and Facebook in the West. They operate their own exchanges, and therefore it is difficult for any other competition in the market because of a lack of external data.

There are not, at present, any formal regulations for the protection of user data in China, but the lack of visibility into the regulatory process and future regulations are holding back DMPs from collecting or offering third party data sets. Most DSPs have developed their own data handling systems to use whatever they can find, so what little data is available is fragmented and separate.

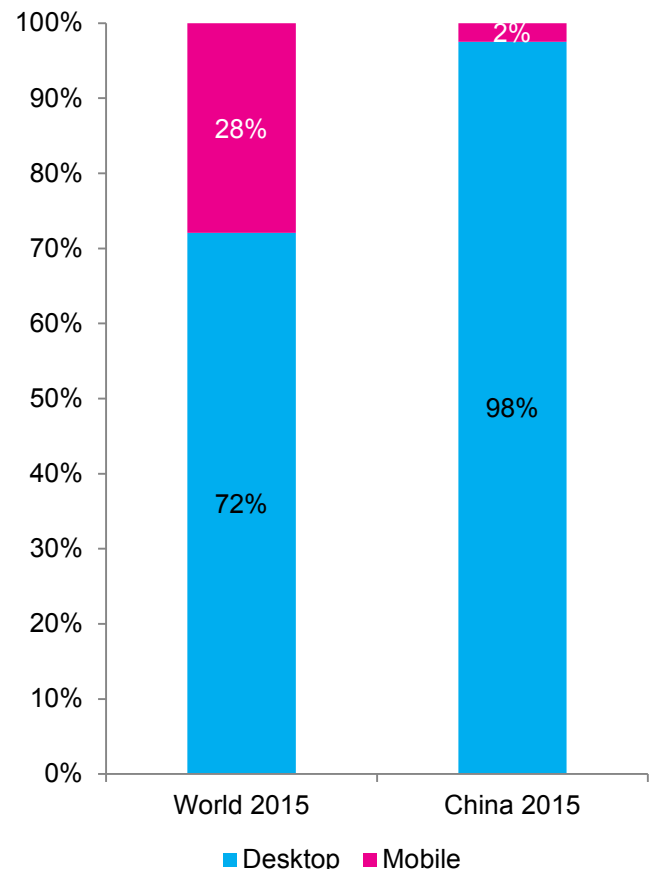
Given the lack of development of programmatic tech platforms in China, there is great difficulty translating many of the legacy cookie-based methods to mobile devices. As a result, China has one of the lowest mobile programmatic penetrations in the world, with just 2% of total programmatic spend transacted on mobile devices. By 2019 China's mobile penetration will still significantly trail most global markets.

Despite the numerous issues in the market, however, China will remain the fourth largest programmatic market globally by 2019, trailing only the US, UK and Japan.

Programmatic Spend by Format



Programmatic Spend by Device

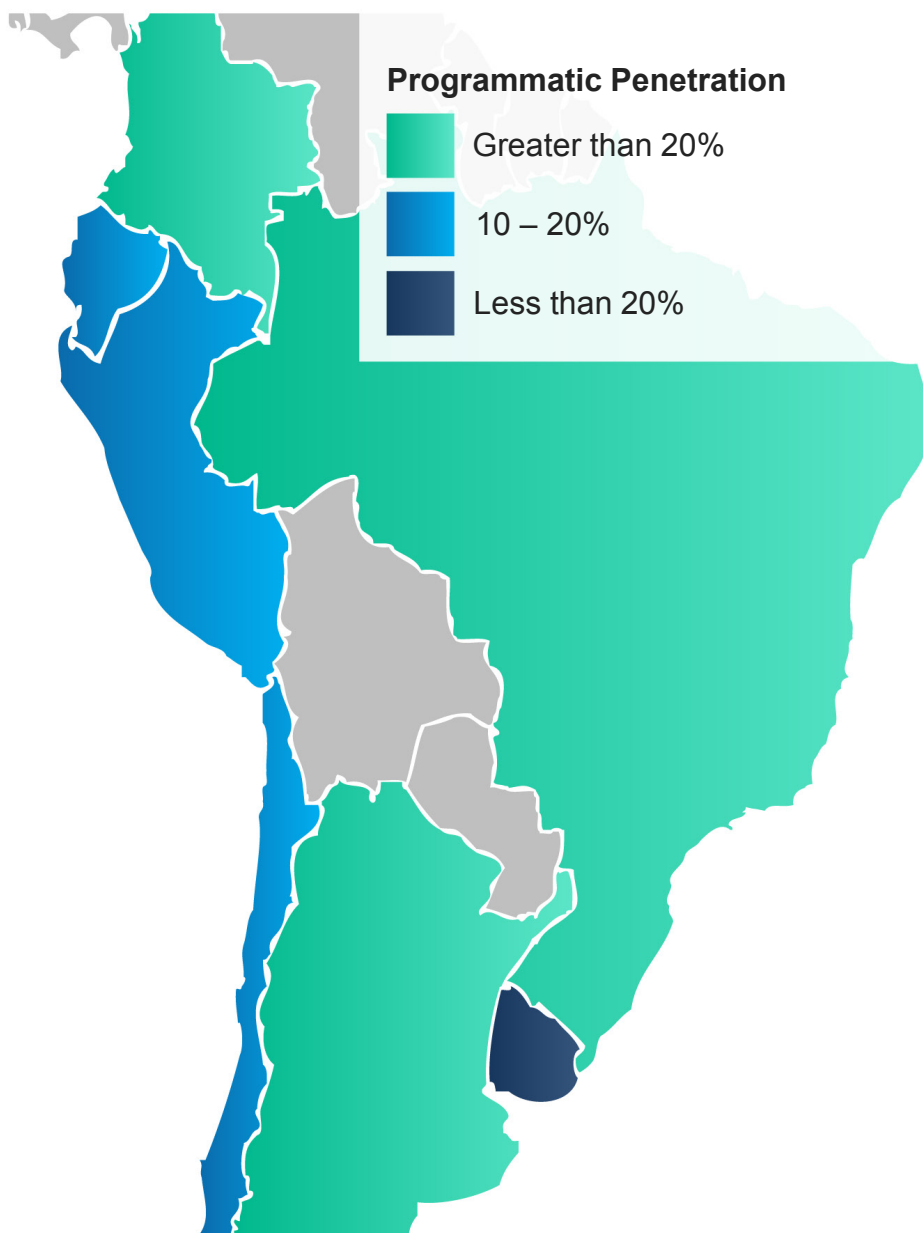
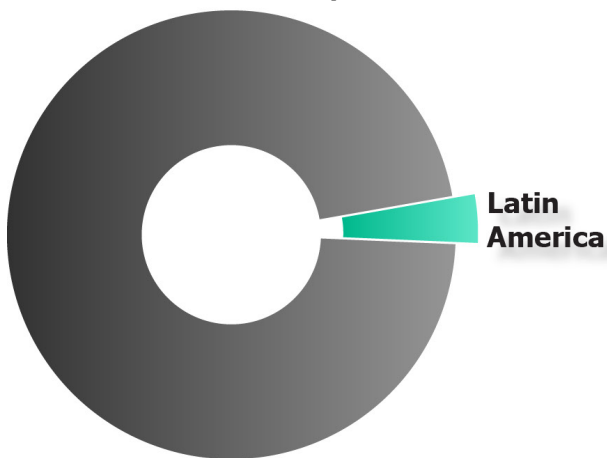


Focus on Latin America

Latin America is the smallest global programmatic region, and only represents 3% of total programmatic spend. It is the most rapidly growing, however, and will increase four-fold by 2019 to over \$2 billion. While none of the Latin American markets can compare in development

to the US, Western Europe or Australia, Brazil does have a comparable programmatic penetration to Switzerland, and all Latin American markets are more developed than many of those seen in Southeast Asia.

Share of Global Spend



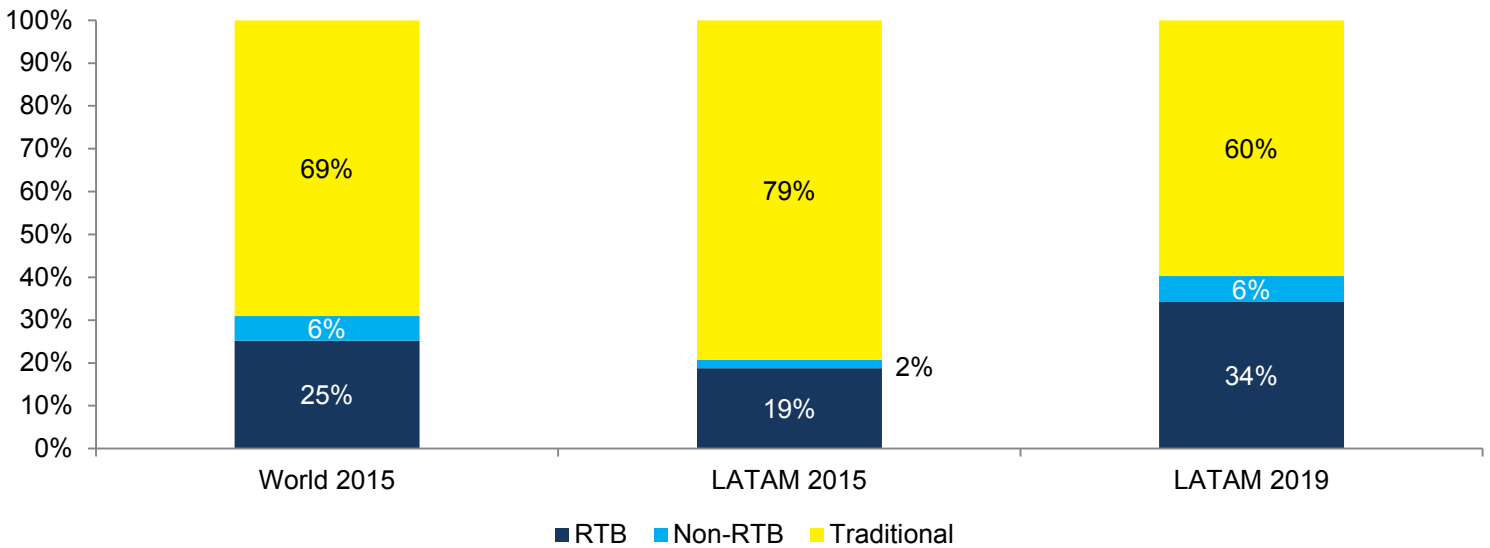
- Appendix
- Conversation with Hulu
- LATAM
- APAC
- EMEA
- N. America
- Global
- Definition & Drivers
- Key Findings

Latin American Programmatic Spend

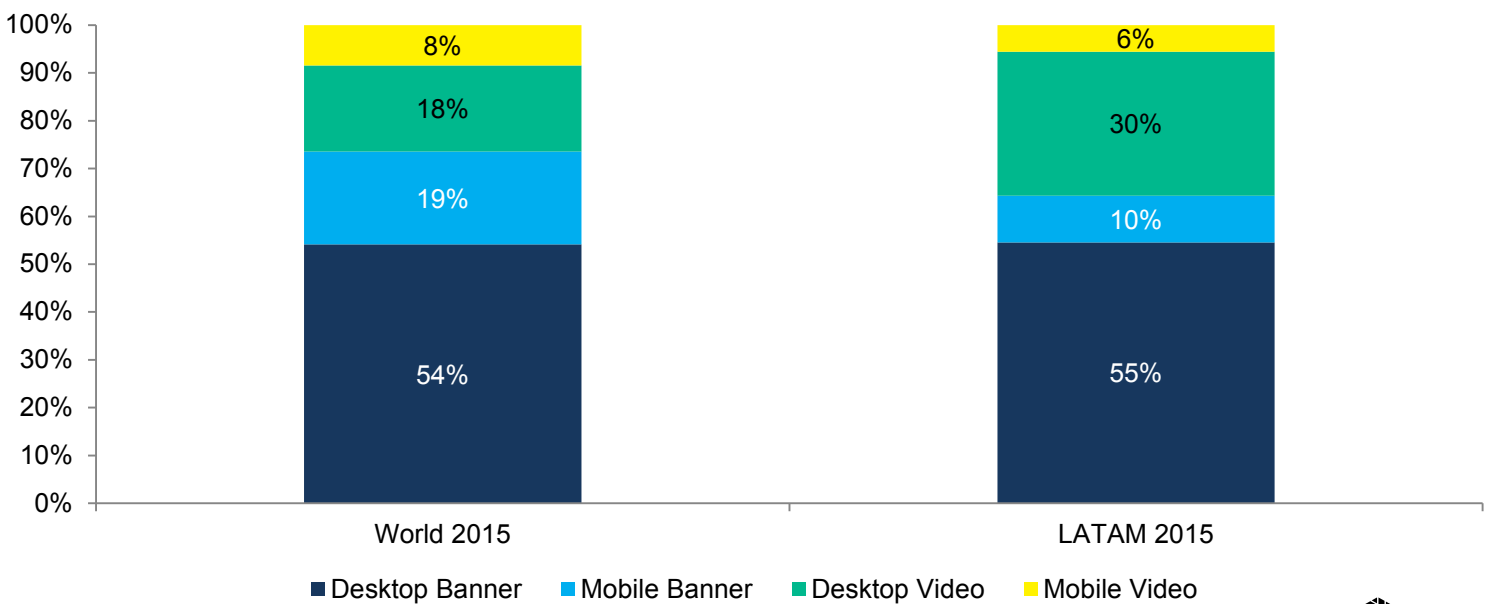
Latin America has an average programmatic penetration of 21% in 2015. This will expand to 40% by 2019. Desktop video represents a significantly higher share of Latin American programmatic spend than it does on a global basis. This will increase to 42% of the total by 2019.

The programmatic ecosystem in Latin America primarily comprises Western companies that have expanded to the region, rather than the smaller local start-ups seen in Asia Pacific. Brands and publishers are receptive to programmatic transaction methods, but many Latin American brands are used to more transparency than is typically offered through programmatic platforms.

LATAM Programmatic Spend by Method



LATAM Programmatic Spend by Format

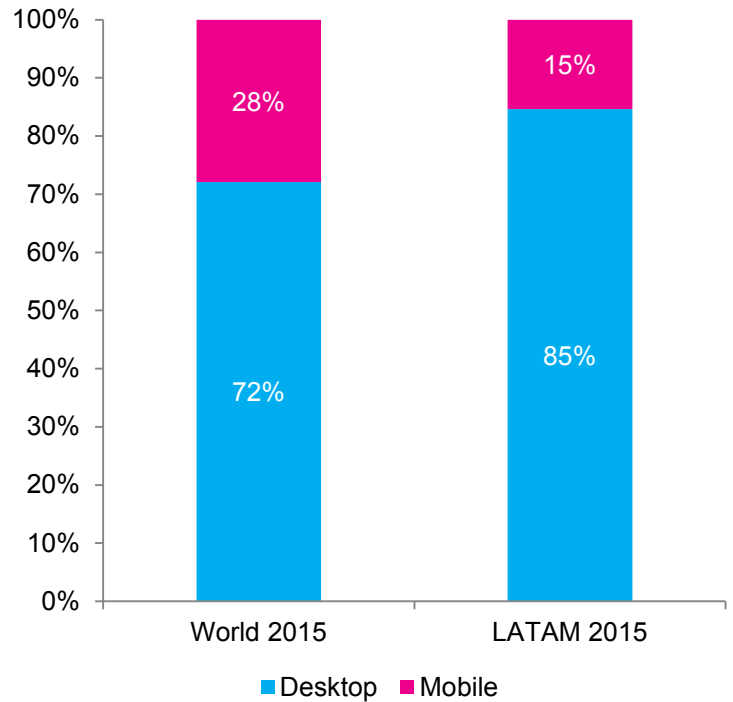


Latin American Spend Breakdown

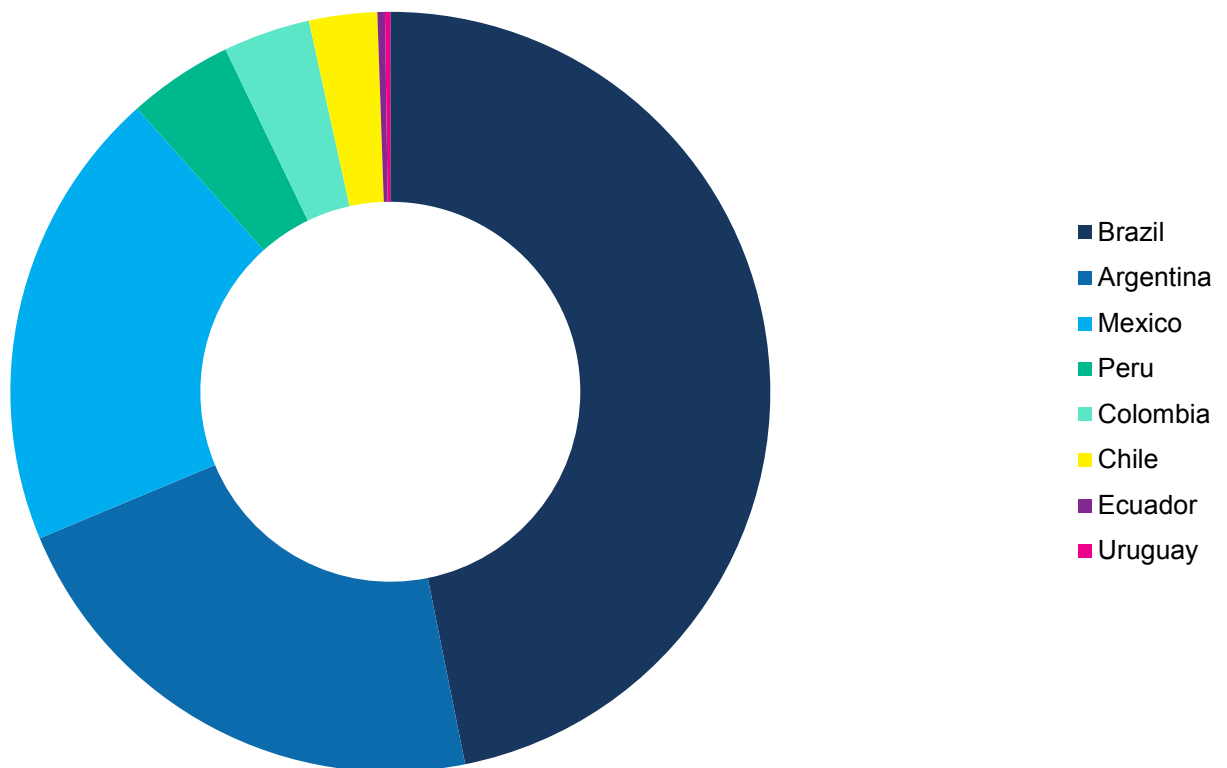
The lion's share of programmatic spend in Latin America comes from Brazil, Argentina and Mexico, which comprise more than 80% of total Latin American programmatic spend. This is a reflection of the size of the Programmatic Universe in those markets, however. Colombia has just as high a penetration as Argentina, and Mexico trails both Chile and Peru.

The availability of third party data is increasing across Latin America. While there is still slow integration and limited acceptance of programmatic transaction methods by publishers, brands are increasingly pushing to expand the pool of total inventory available.

LATAM Programmatic Spend by Device



LATAM Programmatic Spend by Country 2015



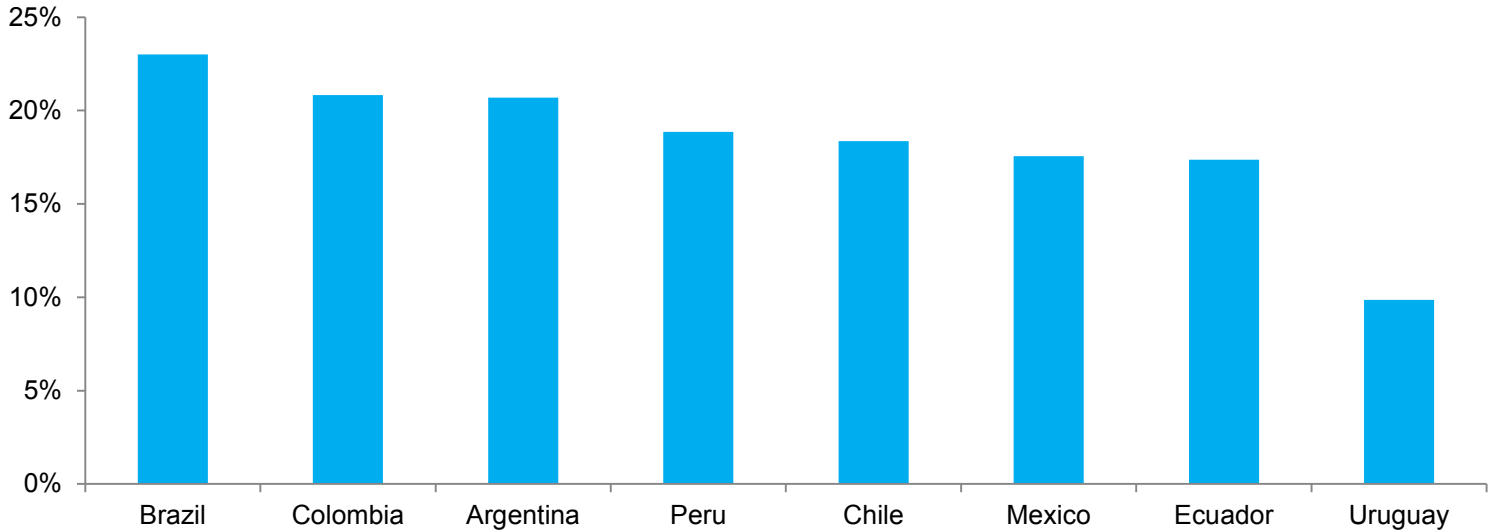
Latin American Penetration and Growth

Much of Latin America has similar programmatic penetration. Brazil leads in size and market development, but Colombia, Argentina, Peru, Chile, Mexico and Ecuador do not trail by much. Only Uruguay significantly lags the Latin American average.

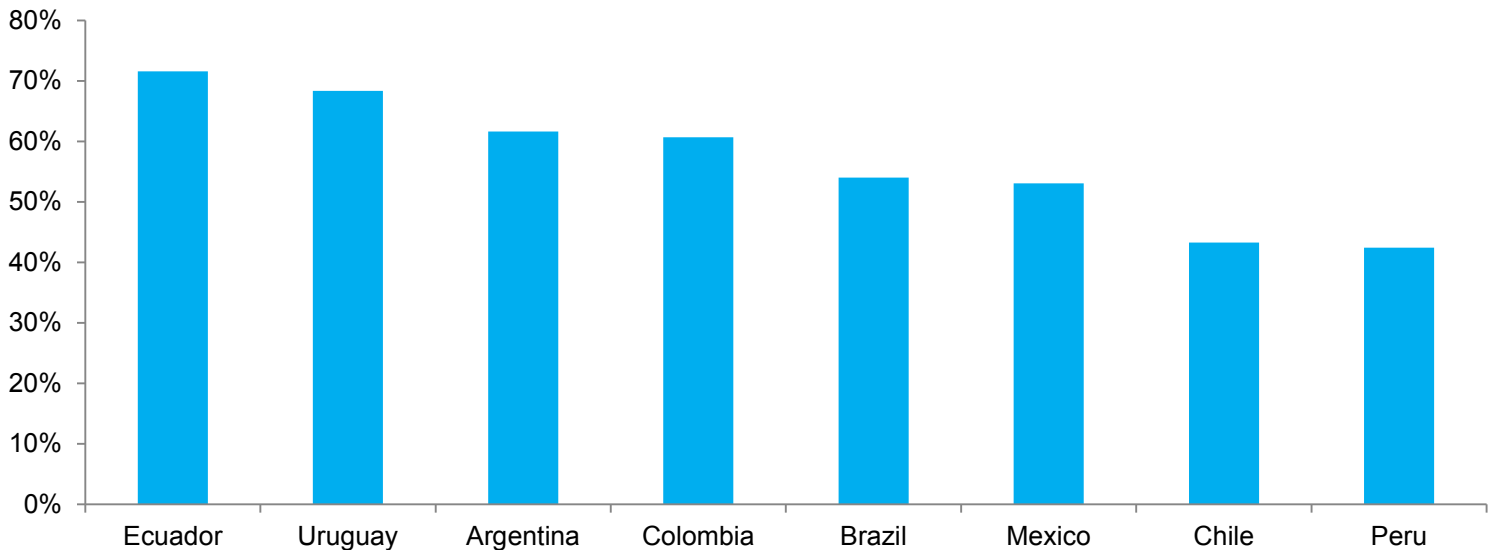
The concentration of media owners in many large Latin American markets (Universal in Mexico, Tiempo in Colombia, Clarin in Argentina, El Mercurio in Chile, Globo in Brazil, etc.) makes it difficult for growth to significantly accelerate unless they become more receptive to offering inventory programmatically.

Unsurprisingly, the countries with the lowest penetration and smallest amounts of spend are expected to see the highest growth (Ecuador, Uruguay).

LATAM Programmatic Penetration by Country 2015



LATAM Programmatic CAGR 2014-2019 by Country



Brazil

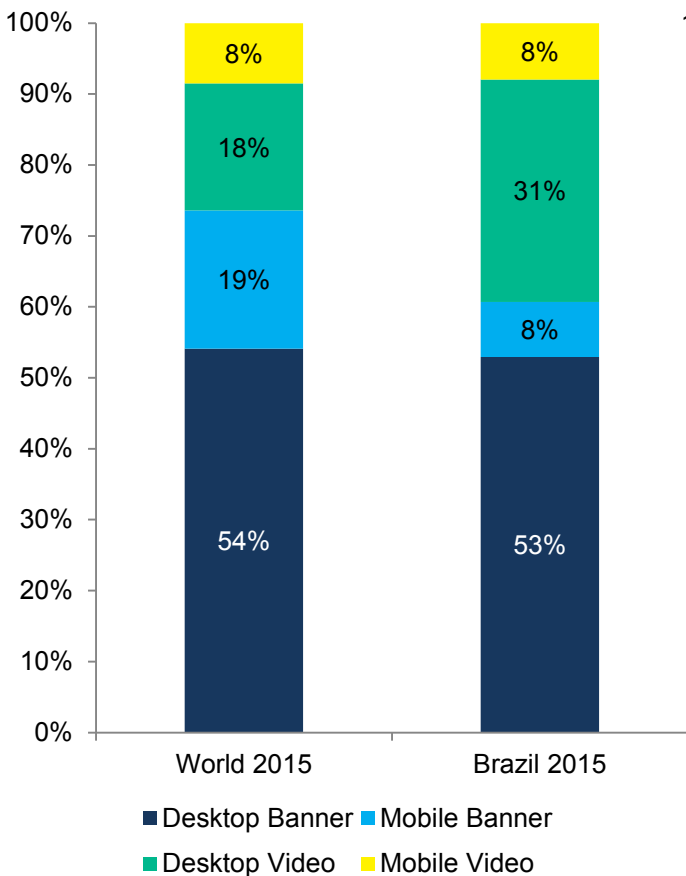
The Brazilian programmatic market is \$239 million in size, up by 131% y/y from 2014. This is up from just \$103 million of total programmatic spend in 2014. By 2019, Brazil will see nearly half of the total Programmatic Universe executed programmatically.

The scale and complexity of the Brazilian market is different from other Latin American countries. Brazil has a very high and fragmented publisher landscape and diverse inventory pools, tech solutions, and audiences. Private marketplaces are comfortable early locations for offering programmatic inventory in Brazil. It is yet unclear to what degree publishers will resist allowing their inventory to be offered on open exchanges.

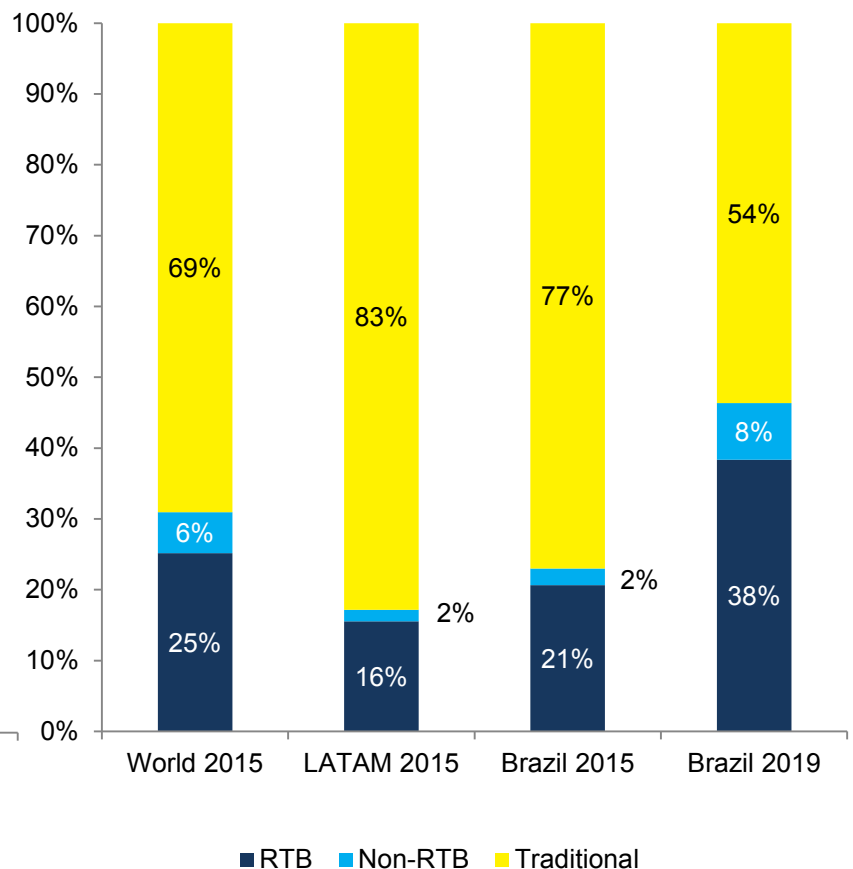
Desktop video represents a significant share of total programmatic spend in Brazil, with 31% representation. By 2019, desktop video will represent just over half of total programmatic spend, and desktop banner will have fallen from today's 53% to just 17% of total programmatic spend. Mobile devices represent just 16% of total Brazilian programmatic spend today, and while that will increase to 33% by 2019, it will still lag the global average significantly.

As Brazil evolves from an early stage to a mature programmatic market, brands and publishers have moved from focusing on programmatic education and experimentation, to tackling data ownership and attribution, and what the relationship with large tech providers will look like in the future.

Programmatic Spend by Format



Programmatic Spend by Method





Luke Stillman,
Associate Director,
Forecasting,
MAGNA GLOBAL



Doug Fleming,
Director of
Programmatic,
Hulu



Let us start with the obvious question: why is Hulu going programmatic?

Data & efficiency are at the core of the move. We see Programmatic as Media Automation – it is merely an evolved process, not a secondary revenue stream. Programmatic, or Automation, allows the transaction process to be more efficient and provides advertisers the ability to utilize data for better targeting – making great content even greater!

Is Hulu going to engage with Open Exchanges, or use purely private programmatic channels? What considerations go into that decision?

Open vs. private exchanges are choices that are dependent on a publisher’s goals and strategies. While there are benefits to both models, Hulu will be engaging solely with private exchanges. We believe this will provide Hulu the ability to work directly with our advertising partners, and to ensure we are able to provide the appropriate inventory/assets to meet each partner’s specific needs. Private exchanges also reduce, but do not eliminate, the risk of fraud, and allow for a more informed buyer/seller relationship.

Speaking of the buyer / seller relationship, how is Hulu tackling advertiser concerns such as brand safety, viewability and fraud?

Viewability is our friend! A majority of our consumption comes through OTT devices in the living room where the environment is 100% viewable. Additionally, mobile in-app usage is also 100% viewable, and makes up an increasing share of our total viewing (62% of Hulu’s viewing comes from OTT devices, 17% through desktop computers, and 20% through mobile devices). MOAT Analytics measures our viewability at 93% on desktop platforms, so any conversation regarding viewability with brands is one we are excited to have. Our environment and commitment to content makes it easy to discuss how brand safe we are. The recent *The Web’s 25 Safest Sites for Advertisers* report by MyersBizNet listed Hulu as the #1 brand safe environment.



Given Hulu’s strength on OTT devices, is Hulu’s approach to cannibalize TV dollars, or to complement TV campaigns? How can programmatic trading help with either of these goals?

We are not cannibalizing TV dollars, because we are TV. We are younger than traditional broadcast with a much lighter commercial load, coupled with all the digital advertising tools which help us to dynamically serve advertising content regardless of whether a consumer is watching last night’s South Park, or an episode from South Park Season One from 18 years ago! Hulu is the best of last night’s shows, along with a dedicated and growing roster of exceptional Hulu Originals (see Difficult People, 11/22/63 and The Way).

Does a shift towards programmatic sales methods affect inventory format development? Does a process built on standardization inherently limit creativity and the development of custom ad units?

Hulu’s programmatic business will require greater understanding of forecasting and yield analysis. Those disciplines must be strengthened inside the organization. A programmatic business does not, and should not, limit the scope of creativity available to advertisers. Creative innovation is the next wave in programmatic development and we do not believe automation will throttle it.

Mobile advertising is becoming more important to the digital advertising landscape, and I imagine Hulu in particular. What are the biggest challenges Hulu has experienced regarding monetizing mobile inventory?

Hulu’s biggest challenge within mobile is accredited cross-platform measurement. Hulu has an excellent sales team, a willing partner in our technology team, but is still limited by the lack of cross-device measurement in the market. The challenges within measurement go beyond mobile, however. Hulu’s priority continues to be the living room. Connected TVs and devices continue to be Hulu’s biggest growth segment and stronger measurement is necessary to gain the benefit of our total video consumption.

What will Hulu’s advertising business look like in 24 months? How does Hulu get there?

Hulu will be easy to buy and able to provide a differentiated advertising experience. We will continue to drive innovation, whether through programmatic / data enhancements, or creative efforts and measurements.

Glossary Part 1

Audience Buying (Programmatic TV): Method by which ads are served to networks/programs/dayparts with the highest propensity to reach target audience of a campaign. Uses technology and audience data to deliver incremental reach.

Automated Guaranteed: Transaction in which inventory is guaranteed and pricing is fixed, with negotiation happening directly between buyer and seller. Transaction processes are automated but otherwise match a traditional I/O transaction.

Automation: Using technology to facilitate media transactions in a way that mirrors traditional transactions in structure.

CRM: Customer relationship management – a system for managing a company’s interactions with current and future customers.

Cross-Platform Targeting: Identifying and matching audiences across devices (desktop, tablet, smartphone, TV, OOH, etc.)

Deal ID: Unique identifier that associates a transaction with prearranged agreement details, typically used to increase information in a transaction or change auction outcome from strict price criteria.

Deterministic Identification: Using login details to associate devices with an individual user for the purpose of identifying a user across all devices through which they access content.

Display-Related: Digital media advertising formats, including banners, video and social, i.e. all digital advertising formats except Search. “Display-Related” is the addressable universe for programmatic development.

DMP: Data Management Platform, a user data store that is used for the centralization, management and deployment of a brand’s audience data.

DSP: Demand-Side Platform, tech solution to allow buyers to access inventory across multiple exchanges and from multiple media owners.

Dynamic Insertion: The ability to show a specific user a specific ad, typically because of the characteristics of that user.

Exchange: Technology platform that facilitates the buying and selling of ad inventory using various methods of purchase other than traditional I/O.

First Look: An agreement in which a buyer has priority access to inventory in an auction environment.

Hash Linking: Associating an identifying tag with a specific user through a cryptographic function that does not allow reversing that tag back into the identifying characteristics for that user. Current best tracking option for protecting Personally Identifiable Information.

Glossary Part 2

Household Addressable (Programmatic TV): Method by which ads are served directly to the households in which the target audience resides.

Invitation-Only Auction: Auction environment comparable to open exchange, except only a select collection of buyers that have been white-listed by the media owner(s) are allowed to participate.

I/O: Insertion Order in a direct buy (agency to publisher). Traditional method of buying media inventory.

Media Owner Cooperative: Partnership between media owners through which they offer premium inventory in controlled auction environments; typically affiliated with a supporting tech platform.

Open Auction: Transaction environment in which any brand can bid for offered inventory with few if any controls and little to no transparency.

PMP: Private Marketplace, where either one or a small handful of media owners offer inventory via programmatic methods but with either limited invites for specific brands or pre-arranged pricing.

Private Transaction: Transaction between one buyer and one seller where each is known to the other.

Probabilistic Identification: Using an algorithm that combines non-personally identifiable information to associate devices with an individual user for the purpose of identifying a user across all devices through which they access content.

Programmatic Buying: The buying and selling of ad inventory in an automated fashion. In the context of this report, it encompasses both RTB *and* non-RTB methods.

Programmatic Direct: A generic term for non-RTB programmatic transactions that is being replaced by more specific terms as non-RTB technology matures.

Programmatic Universe: Total banner display spend plus total video spend.

RTB: Real-Time Bidding, where an impression is offered through an auction where bid price is the most important (but not only) characteristic used to select a winning buyer.

SSP: A tech platform used by web publishers to find the most appropriate available audience and optimize pricing of a publisher's inventory.

Statistical Identification: The process of identifying devices across sessions based on a series of non-personally identifiable data points and algorithms to narrow these characteristics to a single or small handful of users.

Traditional Transaction: Any transaction executed through non-programmatic means.

UDID: Universal Device ID, used to identify specific devices across sessions and apps.

Unreserved Fixed-Rate: A transaction in which price has been agreed upon in advance but no guarantees on exact inventory or impression delivery have been made.

Viewability: Whether or not an impression was on screen for long enough to count as being viewable. Viewable impressions are gradually becoming the currency for an increasing number of campaigns. For a standard banner in the US, the requirement is that 50% of the pixels be on screen for at least one second.

Methodology

- The conclusions in this report were derived from:
 - Anonymous surveys & interviews with companies representing programmatic Trading Desks, DSPs, Exchanges, and Publishers
 - Existing MAGNA GLOBAL research
 - Other publicly available information
- MAGNA GLOBAL's programmatic market size forecast model utilizes data from:
 - Aforementioned surveys & interviews
 - Existing MAGNA GLOBAL estimates
 - Past digital advertising growth rates
 - Regression modeling of various publicly available facts

About MAGNA GLOBAL

MAGNA GLOBAL is the strategic global media unit of IPG Mediabrands, comprised of two key divisions.

MAGNA GLOBAL Investment harnesses the aggregate power of all IPG media investments to create leverage in the market, drive value, and ultimately make smarter, more effective and efficient media investments on behalf of our clients. MAGNA GLOBAL architects the go-to-market investment strategy across digital, programmatic, broadcast and all traditional media platforms on behalf of IPG clients, is dedicated to increasing the use of data and technology to transact media buys and is therefore considered the most comprehensive negotiating unit in the media industry.

MAGNA GLOBAL Intelligence has set the industry standard for more than 65 years by predicting the future of media value. MAGNA GLOBAL Intelligence produces more than 40 annual reports on audience trends, media spend and market demand, and ad effectiveness.

IPG Employees can access and download MAGNA GLOBAL reports from our intranet sharepoint site: <http://magna.mbww.com/default.aspx> or through the MAGNA GLOBAL Atlas: <https://atlas.magnaglobal.com/>

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