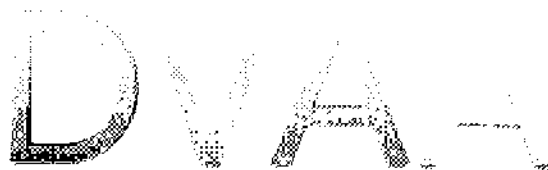


Exhibit B

(previously filed as Dkt. 660-2)



Display, Video Ads, Analytics and Apps

Version 1.2

Last Updated: 2016-08-29

GOOGLE CONFIDENTIAL AND PROPRIETARY

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2017 Charter: O&O

(Growing our O&O footprint for Display)

Director / VP Sponsors: Brad Bender, Jonathan Bellack

Contributors: Omry Pruzan, Chenmin Liang, Jordan Grossman, Maria Shim

Abstract: Growing our O&O footprint for Display should be at the core of our DVAA strategy. To better capture this opportunity, we need to do 4 things: 1) Develop our existing O&O as anchor properties; 2) make it easier to add monetization to other Google O&O properties; 3) enable third party inventory to behave more like O&O; and 4) invest ahead to improve the potential payoff of M&A opportunities.

Problem Statement

What's the role of O&O both for (1) currently monetized properties like Gmail and (2) extending to under-monetized properties? Where should we leverage M&A to drive additional opportunities?

Overview

O&O (Owned & Operated) properties should be at the core of our DVAA strategy. They deliver higher net financial returns, directly fund Google consumer efforts, and create a monetization and distribution anchor for our network business by aggregating consumer attention and advertiser spend. For comparison, Facebook offers distribution with Instant Articles and Monetization through FAN (which leverages their signed-in graph, intent signals, and fast-growing O&O ad business).

To better capture this opportunity, we need to do 4 things: 1) Develop/accelerate our existing O&O as anchor properties (example: Gmail); 2) make it easier to add monetization to other Google O&O properties; 3) enable third party inventory to behave more like O&O; and 4) invest ahead to improve the potential payoff of M&A opportunities.

Why is O&O preferable (and complementary) to an ad network?

1. Google keeps 100% of revenue, no TAC (traffic acquisition costs). YouTube still has TAC because it doesn't create the content, but still keeps 55% of revenue compared to 32% for GDN on Google supply, or 20% for AdX buyers.
2. Google has full control of the user experience (all data, fully manage the end-user experience with formats, ad load & quality etc).
3. Directly funds Google's strategic consumer efforts, instead of indirectly through net Search/DVAA ad revenue returned to the parent. With Alphabet's increased financial discipline under Ruth Porat, it is reasonable to expect that more Google consumer products will be asked to justify their existence on a revenue as well as strategic basis.
4. Creates a demand anchor for the network by ensuring Google remains a must-buy for advertisers. This advertiser loyalty creates a base for building the network, because once

they're spending on Google anyway, there is value in the scale gained by simply extending the same buy to other sites.

5. Can create a distribution anchor for the network by aggregating consumer attention at scale. Offering content creators a way to access O&O consumers creates a second incentive to work with Google in advertising.

RECOMMENDED ACTIONS

1 - Develop/accelerate our O&O as anchor properties (e.g. Gmail as example below)

We have strong O&O plays at Google (e.g. Search, YouTube, Gmail, Play, Maps). We should make sure our investment levels are appropriate for the ones DVAA monetizes (e.g. YouTube, Gmail, Play)

Specifically, Gmail (see) can be a billion-dollar+ display business for us from an O&O perspective and can also help anchor other O&O properties as well as our signed-in network. There is an opportunity to syndicate Gmail ads into the signed-in network

- **Creative:** asset-based CreativeNext flow to reuse Gmail ads assets (teaser headline, teaser description, title, description, image, video, cta button etc) into different display ad slots (text, image, native etc).
- **Targeting & Quality:** focus on user (1B 30DAU), not cookie. Use a combination of advertiser data (such as email subscription lists), Google signed-in data (such as web traversal data), Gmail data (such as receipts, subscribed newsletters) to target users across multiple devices.
- **Consumer Experience:** Gmail as a personalized & secure storage for the user's activities across the web on different devices. Save favorite products across the web into Gmail, and get deal notification from the store, or product inventory notification when physically close to the stores, or similar/related product recommendations.
- Gmail ads syndication into **Communication apps** (Allo, Hangout, Snapchat, Facebook Messenger etc)
- **B2C communication:** extend the existing static email only communication into more real time and interactive communication through integration with other apps

2 - "Cookie cutter" - make it easier to add monetization to other Google O&O properties

While some O&O properties are already monetized, many others are still just thinking about it (e.g. Google Now), or are totally untapped (example: Android on OS level). We can bring on more O&O inventory, faster, by investing to develop a scalable way to onboard new properties with a consistent offering to advertisers (charging models, type of buying, formats, models for organic vs. ads tradeoffs). Examples:

- **Calendar:** Promote local events that a user is interested. Miley going on tour in Seattle next month? Awesome! Thanks for showing me, Google Calendar!
- **Allo:** Working out where to go to dinner tonight with your buds? Allo can interject and recommend a new local restaurant. It'll even make the reservation for you!

- **Chromecast:** Tired of watching uninterrupted content on your Chromecast? Not anymore! Welcome to pre-roll ads built directly into the Chromecast - across all streaming applications.
- **Android:** Locked screen ad/assistant to anticipate services and products before you even need to ask

3 - Enable third party to behave more like O&O

We can leverage Google-cached AMP to build out a "YouTube for Editorial Content". Creating a set of inventory where we have more impact on the user experience means we can create more sustainable experiences, helping publishers move to more of a lifetime value view of their users, while supporting monetization with all of our O&O signals.

The mobile Web is moving toward more curated experiences. Most mWeb sites deliver a poor user experience (stat). Webviews inside the FB app represent X% of our supply, which is under threat as publishers move this content to FB Instant Articles, which does not permit AdSense/AdMob/AdX.

Google's response is AMP, an open source standard (subset of HTML) for creating really fast & beautiful mobile web pages that prioritise user experience. Search is actively promoting AMP -- 1.2% of all mobile search results (EoY OKR is 50%), and announcement of AMPing of all eligible mobile search results, not just newsy articles in the carousel. ()

This presents an opportunity. When Google is serving AMP from Search or News, we cache a copy of the content on our servers, which gives us the opportunity to treat ads on cached AMP as another O&O property, with O&O-level access to Google consumer data. Ads support for AMP is nascent, but early tests of Ads for AMP and AMP landing pages are very promising and got strong positive feedback at DLS.

We should invest in AMP with similar intensity as other O&O properties, to capture this opportunity and create a virtuous cycle where superior AMP monetization encourages publishers to move more of their content to AMP.

4 - M&A -- invest ahead to improve the potential payoff of M&A opportunities

Google is regularly evaluating consumer M&A purchases. This is a priority for Sundar who is very focused on it and wants to act, to ensure Google stays relevant. Susan is supportive, and Android has also asked for an anchor O&O. There is no specific size filter -- anything from small to major anchor is possible. However, we have been moving cautiously to be sure we are buying the right assets. Criteria are as follows. Many of these are difficult for DVAA to influence, but the final criteria is within our control.

1. Nature of transaction -- buy, or just invest for optionality, or partner for insight? Many deals fall through as we believe we can build something internally, but generally the set of things we buy are highly differentiated (we could build it but it would take X months/years to do.)

2. Does it fit into the general thesis of Google and what's the strategic value? We don't have immediate defensive strategic issues like FB did with Instagram or Whatsapp.
3. Do we have a plan to sustain growth and engagement? Google does not have a social network to propagate content. If growth is flat, concern because turnarounds are hard.
4. Where would it go organizationally? Many opportunities won't fit into existing PAs. We do not have Social/community-building DNA and while we have a good track record of integrating acquisitions, we don't have a lot of properties like YouTube that we have cultivated internally.

REDACTED - PRIVILEGE

6. Does the valuation make sense? We have stopped short on deals because of concern about overpaying. Valuations for consumer apps have been exceptionally high of late. Even small startups just beginning to hit a hockey stick are asking for \$500M. Should we wait for the market to shake out, or does that mean we'd be buying broken assets?
7. Revenue potential? Financial models are built by comparing the target with an existing Google property that is similar and using their click rates to project. There is generally no consideration of acquisitions keeping direct sales teams, or format innovation over time (like YouTube evolving from text/display to TrueView) beyond early brainstorming sessions. In addition, estimates tend to be cautious because Finance tends to sign you up for it if the deal goes through.

We can improve the chances of successful M&A by investing ahead to improve the revenue potential of acquisition candidates. We can find opportunities where revenue potential is higher than current models, meeting Google's criteria to act. Three specific AIs:

1. Create an innovation team to work ahead on radically new ad experiences, to be ready to quickly put together demos and proposals for monetizing acquisition targets.
2. Develop a formal methodology for risk-adjusted opportunity estimation, so we can give the M&A team more thoughtful projections that show where we see significant upside.
3. Work with sales to design a plan for how we could maintain direct sales for acquisitions, so we can confidently factor those higher revenues into the financial model.

An additional benefit of a proactive approach is that it could help us develop a better list of promising acquisition candidates that fit our criteria of ad innovation, risk-adjusted opportunity, and organizational fit for sales strategy.

2017 Strategy Paper: Gmail Acceleration Plan

Director / VP Sponsors: Brad Bender

Contributors: Omry Pruzan, Chenmin Liang, Jordan Grossman, Ting Liu, Dave Bledin

Effort: Large (20+ FTE)
Impact: Large (\$2B+)
Asks: +20 SWE, +2PM, +1PMM, +1 Stat, +3 GPE, +20 Sales Specialists

Abstract: This paper outlines the plan to grow Gmail ads from current \$310M ARR to \$1.2Bn by 2018 and \$2.5Bn by 2020. Our three main pillars to growth are: (1) inventory & quality increase; (2) demand increase; and (3) format revamp and consumer experience.

Problem Statement

Gmail ads is undermonetized, in absolute ARR, # of advertisers as well as CPMs, compared to its peer group of properties with 1B+ users:

1B User Google Product Monetization				
Product	30 DA Advertisers	ARR	Daily Impressions	CPM
Search	2.75M	\$58B	51B	\$31
YouTube	1.1M	\$4.8B	59B	\$2
Play	18K	\$430M	35M	\$33
Gmail	24K	\$310M	79M	\$11
Maps	328K	\$40M	3M	\$33

**Data from July 2016, Advertiser defined by Universal Account ID*

This document outlines our approach to accelerating the growth of the Gmail ads business to (1) capture the higher returns that an O&O property such as Gmail delivers; (2) become a "must buy" property so that Gmail becomes an anchor for the new GAIA-powered Network; and (3) allow us to expedite monetizing other similar Google-owned properties.

Overview

Per O&O, "O&O (Owned & Operated) properties should be at the core of our DVAA strategy. They deliver higher net financial returns, directly fund Google consumer efforts, and create a monetization and distribution anchor for our network business by aggregating consumer attention and advertiser spend."

Currently, the Gmail ads business is a ~\$310M ARR growing at 50% YoY, with the product expected to reach the \$1bn milestone in CY 2018/19/20, depending on how quickly we can unlock new inventory and drive up demand. Note that only 28% of users visit the promotions tab, and they only visit 0.4 times/day.

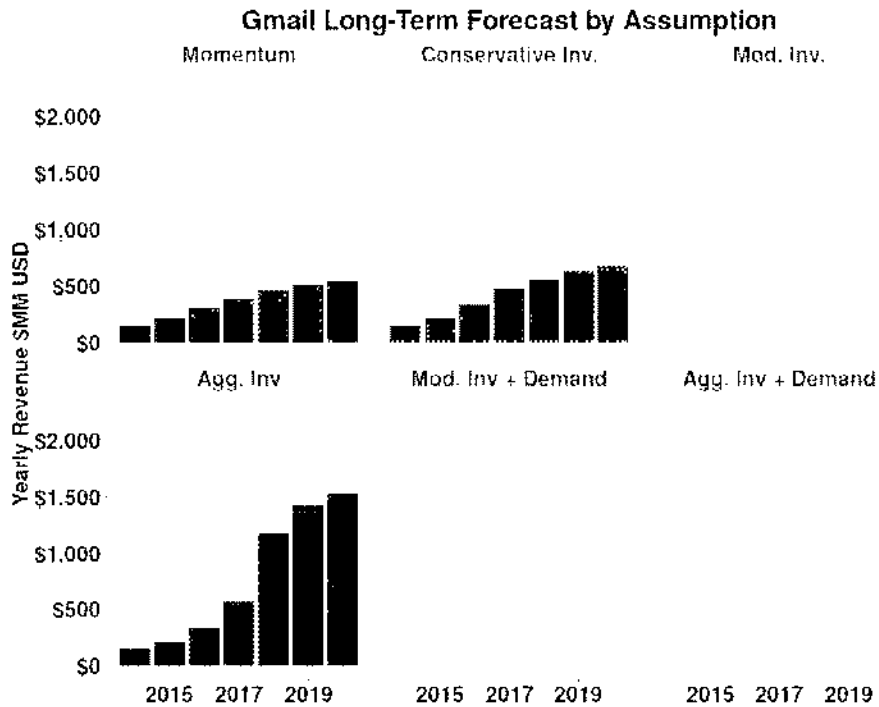
The *New Network* initiative for which Gmail would be an anchor, as well as Ruth's focus on margins, provides an excellent opportunity to accelerate the growth of Gmail ads.

This paper outlines the plan to get Gmail ads to \$1.2Bn by 2018 and \$2.5bn by 2020.

Opportunity

\$1B by 2018, \$2.3b in 2020, based on:

- Inventory & quality increase:
 - 2016: Social & Update tabs
 - 2017: 30% Primary Tab, +50% Promo Traffic (due to redesign), 1 Additional Ad Slot
 - 2018: + 70% Primary Tab Traffic, -10% Ad-Blindness.
 - Quality improvements: LTV tuning, differentiated signals
- Demand Increase: 50% CPC increase starting in 2019 due to new buying flows in AdWords, DBM, API integrations.
- Formats innovation and consumer experience
 - Ad format revamp: dynamic and mobile first
 - Promo tab redesign: A 'must use' part of Gmail experience, Gmail as anchor for signed-in network (save to Gmail, show coupon from Gmail when browsing, Gmail powered ad notifications)



Recommended Actions

Inventory & Quality: Gmail ads is currently showing only in the promotions & social tabs, where tolerance for ads is higher but revenue opportunity is capped at \$640M. Proposing:

- New quality bar: Goal is to set a new bar for an exceptional ads experience, through user-facing format innovation and good ad selection via highly personalized user profiles. We plan to establish new metrics and thresholds for ads on Gmail that would enable us to enter the Primary tab
- LTV at Auction: Using the financial metric of LTV will allow us to improve ad quality while also financially benefiting Gmail, sidestepping the "tradeoff" normally seen in quality vs revenue. To do this, we will begin implementing insights into long-term behavioral changes from ad experiences at auction as a calculated LTV.
- Differentiated Signals: Leverage Google-wide and N2.0-enabled signals with additional experimentation into conversational signals unique to Gmail.
 - Leverage Gmail, SMH, Play and potentially more signals to improve audience targeting features including remarketing/in-market/affinity, and help advertisers target the right audience from 1B Gmail users.
 - Next-gen technologies: Invest in NLP/Google Brain to improve our understand the message that is being exchanged between the parties. To be used to better understand the funnel position of a user and as well as broad quality uplift.
- Applicability to Gmail Syndication: Please note that the foundational work on quality, ad load et al could / should be extended to other initiatives (, New Network) as this is what Gmail advertisers/Consumers would have become accustomed to by then.

Demand: Currently Gmail ads is only available in AdWords under a display ads campaign. Our strategy is a dual-pronged frontfill & backfill approach, where we plan on exposing the full power of Gmail to sophisticated advertisers while auto-extending existing demand flows into Gmail where performant. Proposing:

- Frontfill:
 - Proposing a tighter integration with key Adwords features (AWNNext / CreativeNext / Full Auto) to reduce current very high mgmt complexity
 - A dedicated campaign type for Gmail and future Gmail syndication.
 - Proposing to integrate into DBM platform for programmatic demand and explore viability of API integrations with 3Ps.
- Backfill: advertisers want to reach Gmail inventory "Auto-extend" into Gmail from Shopping, Dynamic, DRA, App Install (expected ~2% of inventory by EoY-16), monetized at same rate.

Formats Innovation and Consumer Experience

- Format Revamp: The capabilities of Gmail ads format has remained a quite limited set over the last couple of years, mostly due to security concerns by the consumer Gmail team. Proposing a full revamp of the syntax to get Gmail ads to be dynamic and mobile first, at parity with equivalent HTML5 Display bundles.

- **Promotions tab redesign:** Reimagine the tab to be perfectly-tuned for promotional email tasks, so it's a *must use* part of the Gmail experience
 - Helpful info to users' fingertips with key content visible from message thread list
 - Re-ordering and grouping emails by tasks and themes
 - Special coupon handling for visibility when and where you need it.
 - Consumer Anchor for signed-in network experiences, from saving ads / products to Gmail, through surfacing of coupons on site, "continue later" experiences saved to the promotions tab.

Competitive Analysis

- **Consumers:**
 - **Email:** Gmail has 1B 30DAU, with 100% signed-in users across multiple devices. Gmail has a strong footprint in mobile (over 75%¹ of users check emails on mobile), and email is a top daily activities for people (most people check emails multiple times a day²). Gmail is considered as the top email website and app, though key players such as Apple and Microsoft are making solid headways.
 - **Messaging:** Shift to messaging apps in a long-term threat to the business, proposal to address .
- **Advertisers:** Gmail ads provide a new way to connect with Gmail users, through innovative targeting and a high-impact native ad format. Globally, Gmail reaches over 1B users and within the US it is one of the largest web properties.

Risks

- **Market & commercialization confusion:** Tactically, advertisers are concerned with their ability to spend budgets, low inventory, and high CPAs. Strategically, Gmail ads don't fall naturally into either Performance or Brand, so advertisers are confused on how to think about them. There's also confusion around which team 'owns' Gmail client-side - do budgets come from Search or Display?
- **Specialized Sales & Marketing:** YouTube has grown to \$5B with widespread GBO dedication - a >100 FTE global commercialization org (GBSI), dedicated regional teams, marketing events (BrandCast), and onsite branded spaces (BrandLabs). In contrast, Gmail currently has 1 GPE, scattered regional support, limited servicing, and no dedicated marketing efforts.
- **Gmail ads under display campaign confusion:** Gmail ads are 100% signed-in with email data (such as sender domain, receipts, booking confirmation), while display are mostly web-traversal data with biscotti. Advertisers are often confused with Gmail ads being under display campaign, as Gmail ads currently do not support common display

1

2

targeting features such as remarketing and in-market, and Gmail ads have different creatives (two steps creatives, teaser and expanded ad) than display. Advertisers have asked for Gmail-specific targeting which are not available on display (such as receipt targeting)

- **Segment Coverage:** Personal use of email is being replaced by chat apps for younger demos.
- **Coverage shortcomings:**
 - Gmail lacking strong penetration in Apple devices. No obvious differentiator from Apple Mail to merit standalone download (unlike data differentiator in Maps).
 - Gmail lacking footprint in key countries/regions
 - China : no Google products
 - Japan: Yahoo mail is the leading provider. (Source: App Annie)
 - Russia: Mail.ru is the key player. (Source: App Annie)
- **PR:** Secondary tabs are a natural place for ads. Showing ads in other tabs might create user pushback on Google "spamming" the account with ads.

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Ref Note:

2017 Strategy Paper: Strengthen O&O through Communications

Director / VP Sponsors: Brad Bender

Contributors: Omry Pruzan, Chenmin Liang, Jordan Grossman, Ting Liu, Dave Bledin

Effort: Large (10+ FTE) Impact: Large (\$2B+) Asks: +5 SWE, +1PM, +1PMM, +1 Stat

Abstract: Communication is core to mobile, and has evolved from call/text/email to messenger/social with images/videos/emoji. As a top communication product, Gmail will be evolved with the trend to become a communication platform with messenger/social, and bolster DVAA's growth.

Problem Statement

Google is at risk of losing its relatively unique foothold in the shifting market of communications apps – a context that promises to provide a uniquely powerful signal within conversations. Gmail only has a dominant position in the US and the user trend, especially amongst younger users, is shifting from using email to using messenger apps as a prominent channel of communication. Bolstering DVAA's position to better govern advertiser access to this context (communication), as well as being able to harvest the conversation signals that could improve ad timeliness and applicability, will be important to stay competitive.

Proposed Solution

As communication is core to mobile, and Google facing the risk of the shifting communication landscape, we are in urgent need to _____ and establish a strong communication platform. As a complementary strategy to a cookie cutter O&O for all apps in the _____, we can invest in developing, growing, and/or acquiring DVAA's footprint within communications apps.

Proposal:

- Bolster footprint in messaging apps and email services spaces through in-house integrations, acquisitions, and/or partnerships.
- Demand Side & Syndication: Upon expansion of our network footprint to beyond just Gmail we'd expose an buy-side offering that would syndicate the currently untapped Gmail ads demand into the "comms-network".
- [Exploratory]
 - Invest in Natural Language Processing to capture value from conversational signals that would deliver differentiated higher CPM offering to messaging pubs.
 - Explore monetization paths other than through ads within messaging apps for commercial activities (book a ride, reserve a restaurant).

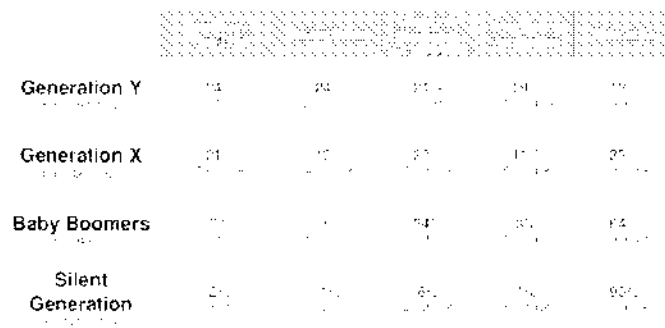
As part of strengthening this foothold, a multitude of productivity use-cases can be monetized, especially as messaging apps are quickly becoming a place for B2C and bots for tasks as wide-ranging as travel booking, shopping, and dating, amongst others.

Why is going after the communications space complementary & necessary for the Gmail Ads business?

Communication channels have evolved over the years, from phone call to emails to chats/social media. Email is a popular communication channel, though young generation are spending more time on modern channels¹ such as WhatsApp, Snapchat, messenger, especially on mobile (FB Messenger was the fastest growing app in 2015³). For the business to remain viable, it's critical that evolves with the consumer communication so that it's reach includes the younger (and growing) generations. This exacerbates an existing coverage shortcomings amongst iOS users (No obvious differentiator from Apple Mail to merit standalone download), lacking footprint in key countries/regions (China, Japan, Russia) (Source: App Annie)

Popularity of Business Contact Channels, by Age

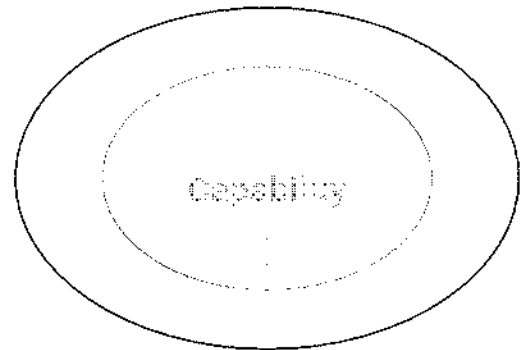
Which channels are most popular with your age-profiled customers? (Select contact centers)



RECOMMENDED ACTIONS

High level, our strategy is to

1. Assess whether we can selectively scale to top Messaging and Email services via deals and M&A.
2. Evaluate the scalability of above deals to develop a communications oriented ads network that is differentiated by our ability to process the data (e.g. technology enabling B2C signal processing and resulting machine learning models to predict user interests/demographics etc. coupled with sophisticated quality thresholds and LTV frameworks to be able to evaluate tradeoffs between user happiness and shorter-term revenue gains)



Messaging Apps Market Share: Broaden Communication Footprint

- Internal:
 - Monetize Allo & Duo , if /when they take off.
 - *Note: Hangouts will not be pursued as Communications PA is shifting the focus of the product to enterprise, outside of our consumer focus.*
- External: M&A/Partnerships with the following candidates
 - General: Snapchat, Kik, Line, BBM, Viber, imo.im
- Explored and recommending not to pursue
 - Visual Voicemail from Carriers (Verizon, AT&T, etc...) and Android's.
 - Caller-ID: Truecaller

Email Market Share: Broaden Communication Footprint through Email Acquisition/Partnerships

Gmail has a good market share in the US, but internationally, there is room to grow via acquisition. This will give us more control and access to conversational signals and a greater communications footprint.

- Top Independents (Apps and Web services) :
 - Apps: Mail.Ru, mail.com, K-9 Mail, myMail⁴, Email.it, GMX.net⁷
- Portals:
 - ISP: Earthlink, Verizon, etc
 - Others: UOL.com.br, Onet.pl

Expanding B2C Communication beyond Gmail to Messaging Apps

- Gmail has strong B2C relationship: email marketing technology is used by 82% of B2B and B2C⁸
- Integrate B2C services into communication platform: e-commerce, inquiry, payment, package tracking

⁷ Per request by Maria Shin (Director Corporate Development) this doc will only list potential targets, with specifics discussed offline.

Long-term Goal: Communications Network

- Summary: Assuming a scalability of an communications-specific pubs offering, we could explore an ad network that specializes in that vertical.
- Benefits:
 - To publisher: Better monetization. We could even entertain a notion of working together on native ad formats (similar to the relationship we have with the consumer Gmail team).
 - Google: Better the obvious broader reach, access to more complete data (with strings to be negotiated)

Risks (for all of the above):

- Publisher & Google:
 - Data leakage and privacy concerns around sharing of conversational corpus.
 - “Strings” around privacy policies different per app/email service.
 - Stickiness of deals unknown, would have to be assessed and evaluated over time.

Appendix:

- 1.
- 2.
- 3.
- 4.
5. App Annie:
 - a. Russia -
 - Japan -
6. Apple Appie :
7. Source: (Chrome Pageviews)
8. (Aug 2015)

2017 Strategy Paper: The New Network - an O&O-like network experience

Director / VP Sponsor: Brad Bender

Team: Woojin Kim, Bahman Rabii, Payam Shodjai, Jyoti Vaidee, Jon Krafcik, Jai Shanmugasundaram, Rohit Dhawan, Jonathan Bellack, Scott Spencer, Nick Radicevic, Joe Faith, Sissie Hsiao

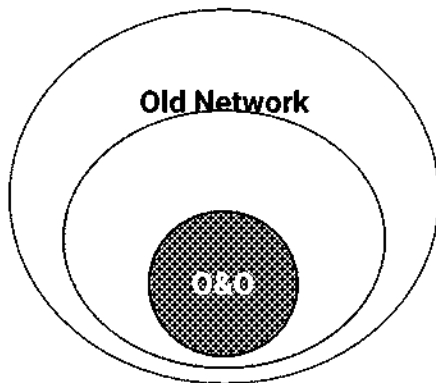
Abstract

The New Network is a premium, O&O-like publisher network where Google will be able to provide a terrific user experience, set away from all the noise and dirt that is the open display ecosystem today. Better, fewer ads; more targeted and relevant using GAIA profiles.

Problem Statement

Despite the many virtues present in thriving, open ecosystems like Programmatic Display, we have witnessed one weak spot: a tragedy of the commons, with publishers and advertisers unfortunately favoring aggressive, short-term monetization that compromises user experience and puts long-term ecosystem sustainability at risk. Our lack of ability to control for user experience across such an open ecosystem is increasingly becoming a fundamental risk for our Display business, as we see the growth of both O&O-centric competitors (Facebook), walled garden environments (WeChat), and adoption of ad blockers.

Separately, we have a unique opportunity and challenge with GAIA data. We believe GAIA data can be used to create dramatically more compelling ad experiences for users. However, we need to ensure this data is used in a safe, well-lit setting, where we can reset the users' expectations that the "contract" is with Google, not with some random web or app publisher they visited for the first time.



This paper explores building a New Network --- a pool of ad impressions that adheres to a higher user experience bar. It is a virtual extension of Google's O&O experience in that it may not be quite "owned" impressions, but it's operated with a similar standard for user experience and long-term considerations. We do not advocate building a new pool of demand from scratch: demand from our existing Programmatic businesses will flow into both Old and New networks to help bootstrap demand side, though we will develop some future GAIA-based ad experiences and demand that will be exclusive to the New Network (e.g. offline remarketing based on location history, more actionable creatives).

This concept of New Network spans media types: in addition to web inventory, it would include inventory from Apps from participating app developers. This can also extend to video, which we lightly touch on in this paper (for New Network video).

Proposed Solution

At its core, this is a delicate dance between Google and publishers: to build for better user experience, we want greater control; for publishers to give up said control, they want dramatically increased *value* in return.

More concretely, the challenge of building a New Network hinges on three critical questions (with some examples):

1. What are the user experience improvements we want to make?
 - a. Ad load: Fewer ads
 - b. Ad relevance: More relevant, better targeted ads
 - c. Ad creative: Better looking () and more useful ads ()
 - d. ()
2. What are the restrictions we need to put on publishers to make those user experiences possible?
 - a. Technical restrictions to ensure speediness: AMP, InstantApps
 - b. Higher standard for ads: Magnolia
 - c. Google exclusivity (page-level or site-level; just indirect inventory) to manage ad load and total ad experience
3. How can we make this worthwhile for publishers, if those restrictions cause short-/long-term monetization reduction for publishers?
 - a. Increase publisher pageviews thru preferred placement of publisher's links in some Google's distribution channels (e.g. Now)
 - b. Access to new distribution channels / technologies (e.g. InstantApps)
 - c. Ability to use Google data to improve direct sold inventory (e.g. better measurement across TV and online video using GAIA data)
 - d. Short-term subsidies / minimum guarantees

Here are the options that we foresee:

(color denotes buckets of options; does not denote difficulty per se)

What is this?	Web: This is the YouTube strategy -- instead of monetizing the open ecosystem, we "fold" content into an O&O	Web: We already send web publishers a lot of AMP traffic through Google Search, News, and Now. We could instantly bootstrap the New Network off of this traffic by redefining	Instead of bootstrapping off of existing traffic source, we'd build a new pool of inventory by working with publishers. For	This option sets a much lower bar for Google control and publisher requirements. No exclusivity is required. Web: all AMP or Google-cached
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property and control the ad experience tightly on that O&O property. This is asking for Google to create a "YouTube for Content" / Flipboard-like product.

App: No real equivalent for non "content" - can plug into above for "content-y" apps.

this Google-referred AMP traffic as the New Network and start requiring high standards (e.g. Google as the sole indirect provider). Direct-sold inventory would be unaffected.

App: Similarly, all traffic in InstantApps (a traffic source only Google can bring) would be part of the New Network. Potentially consider relaxing to all apps using AdMob for reservations + no mediation.

Web/App/Video, we'd require publishers to meet stringent requirements (e.g. AMP traffic only for web; Instant Apps or AdMob/GMSCore, Google as sole indirect provider), helping guarantee good user experiences.

Given the sensitivities of large publishers, it'd make most sense to try AdSense/AdMob first.

In return, we would offer these New Network partners a number of carrots:



- Use of GAIA data to help measure & run optimize direct deals.

AMP pageviews are automatically part of the New Network. Publishers don't need to do anything other than use AMP, which already disallows *really bad* user experiences.

Apps: all apps traffic are part of the New Network and eligible to receive benefits of GAIA product enhancements.

Pros

High level of control to focus on user experience.

High level of control to focus on user experience.

Quickly build scale by using existing, large pools of Google-referred traffic.

High level of control to focus on user experience. Can try to badge/educate users to prefer these experiences.

Option value. We can loosen

Highest likelihood of achieving scale, since it does not ask for any other requirements beyond AMP requirements.

restrictions and jump to the 4th option if this option does not gain scale fast enough.

Cons

Furthest from reality --- consumer teams have been struggling to build a compelling O&O property (Gingras et al.) and better ads will not materially change their chance of success.

REDACTED - PRIVILEGE

Only handles "Content" - lots of other exogenous publisher inventory.

(Note that option 3 here has the option of moving to option 4, so if these cons limit scale of this approach, we can loosen restrictions and revert to option 4)

If we don't achieve scale, we incur the opportunity cost of not using GAIA data more broadly on the rest of the (Old) network.

There is a possibility that we will not be able to generate a big enough value with this approach for large publishers (who get only ~10% of their revenue from indirect) to care about the New Network. This may then be limited to AdMob/AdSense publishers in practice.

Lower level of control to improve user experience. Cannot do aggressive user-oriented things like ad ablation, session-based optimization, more fully controlled and improved ad experiences.

2017 Strategy Paper: Operating in a Signed-In World: Targeting and Pixel Implications

Director / VP Sponsor: Brad Bender

Team: Jon Krafcik, Geoff Samek, Ravi Gampala, David Bledin, Shankar Ponnekanti, Emil Ochotta, Troy Walker

Legal: Struan Robertson, Will DeVries, David Brown

Abstract

This paper lays out the major strategic elements of launching signed-in ads targeting. We frame how we will: (1) Build a sustainable data ecosystem between Google's consumer properties and its partners; (2) Prioritize targeting enhancements and new ads solutions while incorporating user feedback and UX; and (3) Reduce risk of leakage of our signed-in data with Full Circle, how we will manage agency concerns with its deployment, and how aggregated Google data could be shared with partners.

Problem statement

With Narnia 2.0, we're positioned to build the world's best advertising products for users, advertisers, and publishers. In order to build and maintain a vibrant data ecosystem across web, apps, as well as our O&O properties, we must deliver on the promise of a better ads experience for all parties that contribute data to our systems. We also need to invest in better ads from targeting to creative, as well as better data protections for our users and business so proprietary data doesn't fall into unintended hands.

Part 1: Building sustainable owned and operated, advertiser, and publisher data ecosystems

Data we can ingest for our DVAA products includes:

- 1) **O&O data** from a diverse array of Google consumer products like **Search, YouTube, Chrome, Maps, Now, Android, Play, Gmail**, and many others.
- 2) **Partner data** from an equally diverse array of Google advertising products. Publishers may give us data through products like **AdSense, AdX, AdMob, DFP**; Advertisers through **AdWords remarketing lists**; and either could provide data via **Full Circle, Audience Center, Google Analytics or Scion**.

Just as we plan to use **O&O data** to enhance ads for our partners, our O&O properties like Google Now plan to use **Partner data** to enhance the quality of their recommendations. We may want to build controls so that our partners can manage how their data is used. Our partners may

want to control and/or opt-out of this due to competitive concerns, and we should consider if or how we would provide this feature. See appendix for details.

Another aspect of building a sustainable data ecosystem is ensuring our signed-in ads infrastructure works well for all platforms via comprehensive identity services for Android, iOS, browsers, and apps. In particular, we will need to: 1) have robust support for all devices and advertising platforms; 2) find new ways to increase sign-in rates; 3) sign users into their Desktop and mobile non-Chrome browsers; 4) explore what, if any, identity solutions we can provide for WebView sessions.

Part 2: Enhancing existing targeting and developing novel targeting

Ultimately, user-friendly improvements will only matter if they are also scalable, and so we should judge success and outcomes with an eye on that as an eventual goal to maximize user utility. Scalable targeting = reach products covering a great deal of contexts, subjects, and goals at adequate coverage and high performance -- paired with targeting and reporting front-ends that drive advertiser demand to adequately price in the coverage and performance available across these diversity of contexts, subjects, and goals.

Based on some of our (caveat: low sample size although similar results seen in other studies), we believe that users have become increasingly comfortable with the idea that their Google account data could be used for ads personalization. Search, Google Analytics, current and past location, Chrome Sync, Android usage, and YouTube data are particularly attractive due to their high user coverage and potential to improve user experience across a variety of advertiser verticals. This will help us drive higher performance while potentially showing better, fewer ads.



We plan to launch fundamental (a) identity container improvements like cross-device targeting and customer match and (b) enhance our existing IBA suite before moving onto

. Auto-targeting, similar audiences, pCTR/pCVR, conversion lift optimization, and other DR-oriented, taxonomy-free approaches may show fastest user improvement using new O&O data. New data sources and use cases will be paired with UX research, experimentation, surveys, and understanding cross-product usage and revenue impact to ensure we're rolling out changes in a prudent way. We expect that many of these enhancements or new products may be bundled as part of the

Targeting improvements should be paired with overall ad solution improvements. If our ads products truly enhance user experience (say, ++), we may find that ads themselves drive higher sign-in rates across Google products. We should prioritize these kinds of “big change” opportunities above incremental improvements, particularly if we think some data sets may be otherwise risky.

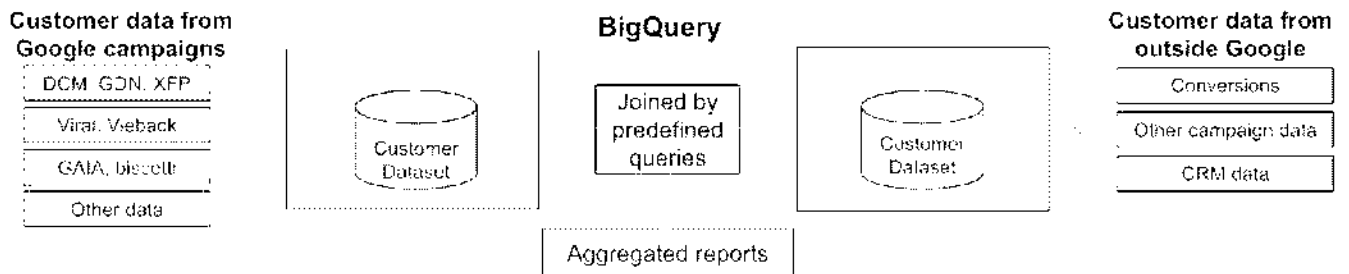
As we expand the data we can use for targeting, we will be able to provide our advertisers with more powerful capabilities and may find that we need to give them more ways to describe their audience. This may mean more targeting options in our front-ends, as well as fundamental changes to how adgroups work to support flexible combinations of audiences (smart AND combinations). Thus, our advertisers can be even more expressive without biasing their audience relevance to low-performance scatter (logical OR combinations), or over-intersection of lists without commensurate performance benefit (logical AND combinations).

Part 3: Pixel policy, Full Circle, and implications on our agency relationships

In pursuing part 1 and 2 above it is critical to protect end users’ privacy and to protect the business. As such the vast majority of pixels will be removed from products that use Google proprietary data.

Even when proprietary data is used, a handful of trusted vendors will be able to still use pixels. Trusted vendors will have deep relationships with Google (e.g. DCM, Nielsen, comScore) as well as a technological requirement to have access to user-level information and real time data. We’ll use objective criteria to determine who is a trusted vendor.

New data sets that highlight the shortcomings of pixels (YT mobile impression data, x-device graph) as well as new ways to use that data will be the carrot that entices our agency partners to move quickly to adopting Full Circle. Additionally we will stack rank the importance of vendors to our largest spending clients (e.g. P&G who are using Omnicom) and tackle integrations with those vendors first. This will significantly ease the transition for agencies, who will then mostly see the upside of new data use.



But we can do more than just support the signed-in world, we can make it a world where data is even more comprehensive. The future is built on Google Cloud Platform (GCP). Essentially the FC team is adding new privacy-safe features to the cloud environment, but they have appeal beyond ads use cases. The Big Query team is interested in incorporating Full Circle style privacy

protections into their products natively, easing marketer adoption. Other GCP products could incorporate similar protections, such as Cloud ML. The more components that have FC privacy protections for accessing impression level Google data, the more alluring it will be for large cloud based ad tech vendors and big marketers to switch entirely to GCP and continue to increase FC adoption.

In order for many ad tech providers and agencies to make the switch and truly see this new world as better than the old one, they also need to be able to target based on the new insights they are getting, something they could now do in Full Circle. Once again the privacy protections here are key; we would never allow audiences generated with Google data to leave the Google ecosystem, nor impression level reports based on those media buys. Ad tech vendors or agencies could then use these reports and the ability to activate media from them within their own systems (we suggest we require Google-branded, or alternatively whitelabeled or otherwise branded by the partner). When all these features are built what you have is Cloud for Marketers (CfM).

Parting thought: Once a marketer is using CfM they will have a much better picture of their users and the ability to activate Google media based on those insights. These advantages would apply beyond ad tech vendors and agencies to all players in the advertising market, including other ad platforms. With enough emphasis on the privacy, data safety, and neutrality of CfM for data exchange, and the obvious advantages, the product could build a critical mass of customers. These customers could drive demand on their other vendors to participate in the platform. Eventually even an ad platform like Facebook, which otherwise would be a big gap in the available data, could be convinced to participate by a combination of value added and customer demand.

Appendix

Control options for Part 1

Option + Description	Pros	Cons
<p style="text-align: center;">REDACTED - PRIVILEGE</p>	<ul style="list-style-type: none"> • User experience of partner data personalization potentially most similar to Chrome Sync. • Simplest to administer. 	<p style="text-align: center;">REDACTED - PRIVILEGE</p> <ul style="list-style-type: none"> • May drive partner signed-in ads adoption lower, hurting ads user experience in some cases or content niches.
<p>1b. p13n choice. Partners can choose whether or not their data is used for Footprints consumer p13n.</p>	<ul style="list-style-type: none"> • Partners can choose whether they receive 	<ul style="list-style-type: none"> • User p18n experience may not be optimal.

<p>How it's shown, opt-in/out may be different depending on platform.</p>	<p>benefit beyond ads transparency based on their own interests.</p> <ul style="list-style-type: none"> • May be mergeable with Ads ICM control, with or without advertiser RMKT or GA. 	<ul style="list-style-type: none"> • More complex for Google and partners to implement and maintain.
<p>1c. Fine grain controls. If desired, partners can decide how their data is used: blacklisting entities or deciding personalization can only point back to their properties, for example. Or specific entities could not be recommended using their data.</p> <p>We could try to limit N2 partner benefit depending on their choices, but this may prove infeasible for various reasons.</p>	<ul style="list-style-type: none"> • Partners would have specific controls to avoid use cases they believe are problematic. • Adaptive benefits provided to partners could provide incentives for fuller participation. 	<ul style="list-style-type: none"> • User experience least like Chrome Sync personalization. • Complex solution never needed for Ads' ICM co-op. • Filtering won't ever be perfect • Reduces cross-PA cooperation w/ consumer teams.

2017 Strategy Paper: Becoming the ad platform of choice for publishers

Director / VP Sponsor: Jonathan Bellack

Problem Statement

How do we become the advertising platform of choice for publishers around the web, foster an economically sustainable ecosystem and promote better user experience? What's the role of the exchange? How should the transfer of value from advertisers to publishers evolve to meet the current market state?

Overview

Our supply is changing in two ways.

First, after 20 years, a worrisome trend is emerging where free content supported by standardized ad products is becoming a challenging business model. In response, our traditional **content** partners (publishers and broadcasters) are working hard to diversify their revenue streams with new kinds of ads and, increasingly, non-ads revenues like subscriptions.

Second, an increasing share of mobile consumer time is spent on **services** that operate at large scale with extensive data assets -- e-commerce companies, social and gaming apps, and data products like music, weather, and travel. These businesses often have substantial non-ads revenues, signed-in user bases, and engineering resources, so they want us to fit our ad platforms & demand into their business model and tech stack. When we can't, they look elsewhere or build their own (losses like Snapchat, Wayfair, LinkedIn). This could be an opportunity, too -- among our top 50 mobile partners (40% of total mobile business), Services query growth remains strong even though revenue growth lags Content:

YoY growth	Mobile queries	Mobile revenue
Services	121%	75%
Content	71%	114%

Both segments are interested in our current roadmap so we should continue key projects like native ads, programmatic deals, exchange bidding, ads quality, and front-end unification.

However, without accelerated product velocity, our ability to keep up with our partners is in doubt. We propose two actions:

1. Accelerate DFP premium support for new ad formats and basic commerce optimization.
2. Create "DRX for Services," featuring server-to-server connections, better APIs, and relaxed policies.

Situation: new revenue sources

1. **Other exchanges.** Publisher best practice is now to run multiple exchanges in competition, because it works -- Weather.com ended exclusivity with Google and is seeing 30%+ revenue lift. Header bidding continues to grow. Exchange bidding is our server-side response, but it is still early days. Many want Google to integrate only server-to-server (eBay asked for this, and it is a requirement for China).
2. **Other ad networks.** Amazon and FAN are becoming must-haves (FAN is on 80% of mApp), promoted content units are pervasive, and specialist native networks like YieldMo are growing fast.
3. **Custom formats.** Content companies generate their highest eCPMs from highly custom experiences which are not amenable to standardized backfill -- NY Times recently announced non-standard programs are over half their digital ad revenue. Services want *only* ad experiences that fit well with their user experience -- vertical video for Snapchat, audio for Spotify, rewarded video for King.com, etc.
4. **Custom targeting and audience extension.** Services have enough data (typically location, logged-in users, intent data) to offer unique targeting aligned with their brand. Weather can command a premium with weather data, Pandora can optimize based on what type of music someone listens to, etc. TripAdvisor can target based on destination searches. Commerce companies can even expand into audience extension, buying third-party inventory on behalf of advertisers. (We lost Wayfair because AppNexus is better at this than us.). They have shoehorned their custom data into DFP via features like keyvalues but key value targeting quickly runs into limits for these publishers.
5. **In-app purchases.** For mApp Services, IAP is often equal or greater than ad revenues, so optimization cannot be ads-only. For example, King.com reports that a 1% increase in IAP conversion could be worth more than their entire (nascent) ad business.
6. **Subscriptions.** Audio services like Pandora and Spotify are heavily subscription-driven, and many content companies are pursuing subscriptions with increasing success. NYT makes as much from subscriptions as ads and wants to emulate Netflix's sophistication with upsells; Conde Nast is trying to build a universal subscriber ID to manage on-site subscription offers.
7. **Commerce & classifieds.** For services with large commerce businesses, ads are a secondary revenue source. E-commerce includes Ebay, Walmart, Rakuten; classified businesses include Move.com and LinkedIn.

Options

Google can still play an important role here, because there is nobody else today in as good a position to offer a complete publisher platform across all revenue sources. Even without a complete platform, we still represent enormous advertiser demand from GDN and DBM, and can continue to aggregate other demand through AdX RTB buyers and Exchange Bidding. We do, however, need to choose a path forward, as it is hard to be all things to all people without more investment.

Option one: Focus and become just an ad network again: NOT RECOMMENDED

If we cannot be the primary decision-maker, it is possible that we could achieve better ROI by exiting the platform pieces of our business like AdX buyers and Deals, and return to operating as a pure network like AdSense. This would emulate Facebook's decision to exit Liverail and its other platform projects in favor of growing FAN. However, we believe this is not a good solution for us, for several reasons:

1. Owning the platform gives us better inventory access and unique strategic opportunities like First Look, Exchange Bidding, and Programmatic Deals. (Like how AdMob pursues mobile mediation.)
2. The ad platform will give us better ability to influence the overall consumer ads experience by helping publishers understand the impact of their total ad load, latency, and creative quality.
3. Ad serving is comfortably profitable, which helps our overall DVAA margin.
4. The ill-will generated by exiting the platform business would undermine a network-only business.

Option two: Accelerate DFP Premium support for better ad formats and commerce optimization

Most of the Content segment, and indeed most of our DRX partners overall, still need a full-featured ad platform, and only turn to other solutions when we can't deliver. We can retain our lead with two investments:

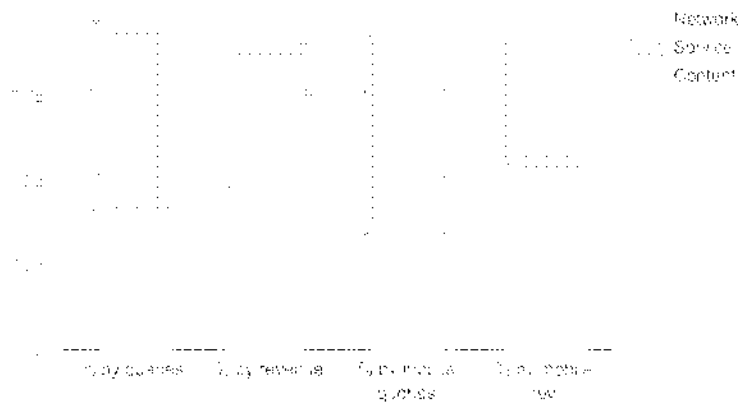
1. Increase our velocity of support for new ad formats. We need to get out of fast-follower mode and become a launch partner for innovation. We are close on this -- both NYTimes and Vox announced new ad experiences powered by DoubleClick, Weather.com wants to use us for Native mediation, etc.
 - a. In order to achieve a 2x increase in velocity we need to rethink formats development in DRX - to achieve that goal we need a +8 increase in HC (with 2 just for test).
 - b. Make sure DRX is at consistent format parity with AdMob and AdSense. DRX support should be a gating requirement for GDN, gMob, and DBM format launches, and DBM should not buy new formats on other exchanges before they can buy them on AdX.
 - c. If GDN/DBM are not interested in a given format (i.e. Audio and Digital Out of Home), permission to partner with AdX buyers to seed the market.
2. Build basic support for commerce optimization to help pubs optimize between ads and non-ads revenue sources. This would be a new effort within DRX so we would propose +2 HC to:
 - a. Allow publishers to pass in a predicted commerce value per query, to compare with ad value to decide what to run.
 - b. Improve house ads to work as basic on-site offer management -- conversion tracking, converting predicted CPA into a price to beat for ads, perhaps bringing back CPA optimization.
 - c. User list support to easily build lists of subscribers, etc. for use in ads quality and targeting.

- d. If we get uptake on basic support, evaluate more headcount to build a more complete solution.

Option three: Invest to create “DRX for Services”

Data (such as shared by Hal Varian) shows that the partners moving fastest to a completely custom world are generally large services of some kind -- social apps, e-commerce companies, and the like. Services share common requirements for more flexible ad serving, better APIs, and generally a more Cloud-like approach to utilizing ad technology. Services are already a big chunk of the head of our business (25 of top 50 mobile DFP pubs, and 7 of top 10 by queries -- BlackBerry, eBay, Spotify, Ameba, Pandora, Verve Wireless, socialsweethearts.de). They represent a majority of our top-50 query volume but lag in monetization -- especially in mobile. [Mobile top-50 is 40% of our total mobile business.] We have also lost several big partners in the services space due to product gaps -- Snapchat, Wayfair, LinkedIn.

Composition of top 50 DFP networks



We feel that it is important to keep working with this segment, despite the challenges, because they represent the lion’s share of our future mobile opportunity. Focusing only on content companies will shrink our market presence and influence. Even an incremental investment to add a few Service-centric features is unlikely to reverse a trend toward these companies turning to other providers or building their own ad platforms and becoming new walled gardens. To maintain our relationships, we need to accept that we are going to be one demand source inside a larger decision engine, and need to integrate our formats and technology to the publisher’s vision, rather than vice-versa.

To address this market, we propose to introduce a third flavor of DRX into the market in addition to Small Business and Premium, code-named DRX for Services. This version would require investment of +10-20 eng/PgM/PM, and 5-10 cross-functionally in Developer Relations, gTech, or equivalent. Distinguishing features of the DRX flavor would be determined by the size of the investment and the launch team, but could include:

1. Server-to-server ad serving where we respond with a price, knowing we might not win.
2. Support for intelligent client-side caching (metadata on where else our ad could serve, a way for the partner to signal if the ad will never serve, etc).
3. Complete API for programmatic business including floors, deals, etc.

4. Rethink Inventory model for data-centric selling instead of content-centric (articles/videos). Examples: geo-targeting based on weather/travel searches not IP address, auto make/model/year, e-commerce product catalogs, user profile / transaction data, etc. Currently shoehorned into key values.
 5. Re-launch PPID so publishers can improve ad value for signed-in users. Consider building DRX Customer Match.
 6. Google Cloud integration --- pull user info into ad selection, publish data to BigQuery, etc. Must come with stricter data rights, to make partners comfortable sharing sensitive data in ad selection (demographic, interest, commerce transactions, etc).
 7. Support for publisher trading desks for commerce players to use their data to build audience extension ad businesses. (We lost Wayfair to AppNexus because they are better at this than us).
 8. Platform policies only, even for programmatic transactions, reflecting that this is a software service like Cloud. We would still enforce malware, spam, & illegality, and there could be stricter policies to get Google demand (GDN/DBM).
 9. Permission to white-label our technology.
- Open questions about DRX for Services:
1. Eng approach -- is this building something new, or just adding features to today's DRX?
 2. Product/market fit --- is this a real segment? Or will these companies inevitably end up building their own ad servers and become walled gardens?
 3. Segmentation --- is this only for the largest Services partners? How do we make sure smaller, less-technically-advanced pubs who should stay on DFP Premium do not ask to move to this product and then have a bad experience?
 4. Support -- what is the support requirement for engineering teams? Will it be lighter, or even heavier? Does this require Google engineers, devrel, &/or outside companies?
 5. Pricing -- What is the appropriate revenue share for someone using our programmatic pipes for a highly-custom business of their own design? Should we try a Cloud-like usage-based pricing model?

Recommendation

If resources are available to invest, we recommend pursuing both **Option Two** (accelerate DFP Premium for content) and **Option Three** (launch DRX for Services). Without new resources, we believe we will have trouble delivering great value for both these segments. A fallback option could be to de-invest in desktop advertising, in order to bet heavier on mobile-only features for each segment. However, we feel that even this will not close the gap and without new resource, we will eventually face a decision between protecting our Content position or pursuing the Service segment more aggressively.

2017 Strategy Paper: AdSense + Triton

Support content creation and monetisation on the open web

Director / VP Sponsor: Rohit Dhawan

Overview

Users are struggling to find value on the web because of slow, janky, reflowing, ad-loaded, pages optimised for click-and-run users, with poor quality content and sites not designed to keep users engaged. Deeper integration between AdSense and Triton (along with new data from Narnia) re-aligns incentives between users, publishers, and advertisers. It delivers value to users through lightning-fast tailored (and magnolia-approved) ad experiences and more compelling (and higher quality) content; delivers value to advertisers via new formats and more traffic; delivers value to pubs via better monetization, new traffic acquisition routes, reducing the effect of ad blocking; and value to Google by keeping users engaged on the GDN network.

Pillars

Use AdSense to deliver content and turn publishers' sites into compelling feeds, keeping users on GDN longer.

Most small publishers don't have enough quality content to provide compelling destinations. When most users finish an article they go back to Facebook or Search. So users suffer as the publishers optimise for 'click and run' users with high ad loads or links to low quality content networks. Users don't 'browse' on mobile as they did on desktop because (a) text links don't work on small screens and (b) publishers will now only send traffic to another site if they are paid: it's beggar-thy-neighbour / tragedy of the commons. The feed is a fundamentally better experience because (a) scrolling works better on mobile than text links, and (b) a 'neutral' platform can offer a wider range of more compelling content.

AdSense can turn publisher's sites into compelling feeds by including high-performing content from across the network. 'Source' publishers get a revenue share from the destination site. 'Destination' publishers get traffic. Users get easier access to higher quality content and stay on GDN properties longer. This also means publishers can focus on producing smaller quantities of higher-quality content.

The right presentation for the x-site content is TBD but could include content links to other sites, rebranding of content, or AMP carousels. Only high quality, high performing content would be chosen, optimised to maximise users' time on the network (ie this wouldn't degrade into a traffic acquisition auction). The selection of content would include signals from the source publisher's

existing content and the user's profile (including Narnia data). The destination sites would be screened for quality, perhaps using the same criteria as for the Sponsored content would also be distributed using the same mechanism: ie content that is styled like content but monetised like an ad, and where we can provide rich consumption data to the advertiser (dwell time, audience demographics). Although the content network should be open, Triton would provide the initial pool of publishers and the easiest and quickest way for publishers to get on board: it would ensure the quality of the user experience on the destination site, provide the high quality AMP experiences, and provide a tight integration between the content network and the CMS (management of distributed content, analytics on performance), and provide a reference implementation of the feed UI.

Closer integration between content and ads -- from analytics thru production to serving -- produces better UX and content and enables smarter targeting of the whole experience.

Delivering ads separately from content, through the iframe, produces clashing designs, slow loading ads, and janky, reflowing, UIs. Closer integration between Triton and AdSense can deliver better experiences. Short term, Triton should use AdSense Native for more co-ordinated styling between the ad iframe and page, and use QuickStart for smarter placement decisions across all iframes on the page. Triton also gives AdSense a pool of managed sites to quickly test new experiences and APIs.

Better Content: Publishers need to know what their users are thinking to produce better sites. Exposing Narnia user data to publishers, in a privacy sensitive way, enables Triton publishers produce better content by focussing on content that monetises well, and with which audiences. Data from Search Trends data enables publishers focus on content topics that their users are searching for but that do not currently have sufficient quality content.

Single Response: Deeper integration, by serving ads+content in a single response, and following the AMP4Ads standard, reduces latency, jank, and reflows, and improve styling. Serving from a single domain, with a single stylesheet, may also reduce the effect of ad blocking.

Fewer, Better, Ads: First party ad serving enables smarter serving decisions. A single decisioning engine for ads and content (and on- and off-site content ads) varies the ad load and placement dynamically depending on the user and request: whether they have come from search or social, are ad blind, are clicky, have known interest in site content, or are on a low-bandwidth device or context.

Competitive / Ecosystem Analysis

Currently, display ads for torso sites are designed, served, and sold, separately from content, and this is leading to poor experiences and threatening the business model of display advertising on the open web. The most obvious effect of this split is the poor user experiences produced by the iframe / ad network model: clashing designs, slow loading ads, and janky, reflowing, UIs. This reflects a deeper separation between publishers and advertisers (see). Publishers don't care about advertisers since they sell a slot to a network, not to an advertiser

that they want to maintain a relationship with. Hence the temptation to resort to click fraud, pixel stuffing, ad stacking and overloading. On the other hand advertisers just care about targeted consumers, not readers or the publishers that produce the content that attracts them. Hence slow, intrusive ad experiences and RPMs that are too low for even quality publishers to survive. It is then little wonder that users don't care about publishers or advertisers (low engagement rates and ad blocking), and publishers don't care about readers (spammy content and poor experiences).

Better user experiences, and more sustainable business models, depend on tighter integration between ads and content. The Facebook newsfeed does this well. Triton and AdSense should combine to provide similarly awesome experiences, but on publishers' own properties.

Risks

Content Network

- Resistance to the syndicated content model from publishers scared of losing traffic
- Unable to provide effective content suggestions

Ads+Content

- Unable to provide sufficient ads targeting in first party context
- Triton adoption doesn't scale sufficiently

2017 Strategy Paper: AdSense: Defending the Open Web

Owners: [nickrad@](#), [matttrc@](#), [jtchu@](#), [rohit@](#)

"How should the AdSense platform evolve to support the continued availability of content creation and monetization on the open web?"

Summary

The growth of the open web is at risk. More and more content is being published, consumed, and monetized inside walled gardens, primarily driven by a great content discovery and consumption experience offered there. This poses a challenge to Google's mission to organize the world's information and make it universally accessible.

In order to defend the open web, AdSense should:

1. Deliver value to web users through **content discovery** coupled with a great **mobile-first content+ads experience**. Present users with fast loading, well laid out content(+ads), extend their browsing session by recommending additional content (organic or paid).
2. Provide **simple and sustainable user-first monetization** solutions, including direct (non-ad) monetization features, that balance strong, consistent revenue with a high-quality user experience and great advertiser ROI, while complying with Google's sustainable ads standard.
3. Partner only with **quality, trustworthy publishers** who produce valuable content. Defend AdSense's self-service sign-up model (5K+ applications per day) and keep out malicious publishers looking to engage in fraudulent activities. Ensure that existing quality publishers remain with AdSense through a new and more sophisticated approach to policy enforcement.

The [New Network](#) is focused on delivering an O&O-like experience for display ads on publishers' websites. The AdSense strategy detailed below includes a number of initiatives intended to drive publishers to significantly improve their content+ads experience, ultimately resulting in their eligibility for the New Network, specifically:

- o All publishers will be required to adhere to guidelines designed to ensure an acceptable ad load for users
- o Publishers will be actively encouraged to migrate to open web technologies (i.e. AMP) that ensure a seamless content consumption experience for users

- Moving away from traditional ad units (via new controls and ad insertion) allows us to both control the ad load and maintain exclusivity on an ad request level (i.e. no mediation/daisy chaining)
(i.e. from/on non-O&O sites)
- A publisher-to-publisher content promotion mechanism allows us to prioritize promotion of content from New Network publishers, thereby amplifying any similar efforts from Google O&O properties

Seamless content discovery and consumption

Efforts such as Instant Articles have raised the user experience bar when it comes to the consumption (i.e. delivery + rendering + presentation) of content+ads. To ensure that the open web remains competitive, we should:

- Adopt a **metrics-driven approach to help publishers measure** their content experience
- **Promote open web technologies** that improve the content consumption experience
- **Demonstrate** to publishers the **benefits and rewards** of a great content experience

Quantifying the content consumption experience can be very challenging - we should focus our publishers on metrics that can be used as a proxy for the experience, for example:

- page load/render time (latency), download size
- presence/absence of reflows
- whether the content is mobile optimized

In order to help gather these metrics and surface them to our publishers, we could:

- partner with the Search and/or PageSpeed teams to use their analysis/tools
- import data from Google Analytics and/or Chrome logs (in a sensible way)
- run our own analysis using the ads crawler or our page-level tag

AdSense should be a champion of all open web technologies that improve the user's content+ads consumption experience. We need to be able to detect which of our recommended technologies/best practices/etc. the publisher has already implemented, and promote any unimplemented ones that we feel would further improve the content experience metrics.

List of technologies that we should focus on both supporting and promoting:

- AMP - on average an AMP page *loads 4 times faster and uses 10 times less data*
- Triton - our in-house built best-in-class CMS
- Progressive Web Apps (WPA) - highly suitable for certain publisher segments

We expect adoption to vary and publishers to fall along a spectrum of content experience, e.g.:

Basic	Good	Great (New Network eligible)	Best (New Network eligible)
Non-mobile optimized pages, poor load times, reflows	Mobile optimized pages, good load times, minimal or no reflows	AMP or PWA - high performance and mobile optimized, reflow free	Triton - high performance mobile optimized content+ads

If a publisher takes action to improve their content experience, they should be able to measure and quantify the impact. The publisher should be able to see an improvement in their earnings and other performance metrics in our reporting UI, for example:

- User session length/duration
- Bounce rate, user stickiness (i.e. repeat visits)
- Revenue (total, per user and/or per session)

Revenue is likely to be the most important metric and reward to publishers for improving the user experience, especially since any revenue gained here is likely to be both meaningful and sustainable in the long term.

Data and research supporting the connection between better content experience and revenue:

- *“Our research shows that the average mobile site takes 19 seconds to load... we estimate mobile sites that load within 5 seconds can earn up to 2x more revenue than those at the 19 second average”*
- *“Overall we’ve seen a 90% decrease in page latency, 90% increase in unfilled impression and 32% increase in eCPM. Page speed improved from approx 17 to approx 2-3 seconds. We’re currently planning on launching AMP on our other properties”*

Other, more indirect ways that we can reward publishers for improving their content+ads experience:

- Google search badges (e.g. AMP badge)
- Eligibility and/or priority when it comes to content promotion (see section below)
- “Great content experience” signal that we could pass to advertisers

Discovery and promotion of content has a powerful multiplier effect on a network of publishers and the whole display ads ecosystem as a whole - as evidenced by the success of Facebook (promotion/discovery of organic content) and Taboola/Outbrain (promotion of sponsored or paid content).

Our recent study of the effects of Matched Content units on user engagement helped quantify the impact of content discovery - AdSense sites with organic Matched Content units (i.e. no sponsored/paid content) contributed to a +10% increase in session length/duration, and a +15% increase in revenue.

Content that we would recommend/promote to users can be split into two classes.

Organic:

- Other pages from the site that the user is currently on
- Pages from any other website owned by that same publisher
- Pages from any other website monetized by AdSense

Paid:

- Sponsored content (i.e. advertorials) - requires buy-side support

With content promotion, we should be optimizing for and focusing on more holistic user engagement metrics - in other words, instead of looking purely at clicks/CTR, we should go deeper to focus on metrics such as overall session duration/length, repeat visits, etc.

In the case of organic (non-paid) recommended content, we face the challenge of figuring out how to compensate/reward publishers for allowing us to promote non-owned content on their site.

We have a few options worth exploring:

- Direct payment per click - AdSense pays the publisher a competitive CPC
- Revenue sharing for the whole user session - revenue from a user session spread across multiple websites is shared between all involved publishers
- Quid-pro-quo traffic sharing - publishers opt into sharing and receiving users/traffic with other publishers in the AdSense publisher network

When it comes to where we can surface recommended content, we are considering a number of possible venues:

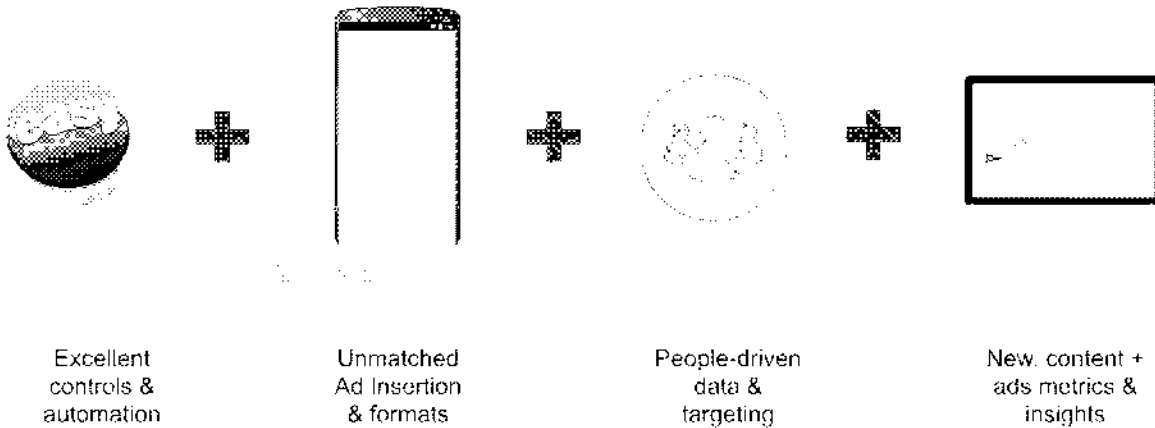
- Matched Content - including embedded units, page-level delivery and infinite scroll
- Existing ad inventory - if placement/size is suitable, substitute low-performing ads
- Triton - an out-of-the-box "newsfeed-like" content feed experience (see [paper](#))
- Project Bellamy - standalone mobile app offering for a stream-like content experience
- Other Google properties - e.g. Google Now, Search

Simple and sustainable monetization

AdSense's vision is to provide an automated and easy to use, yet powerful suite of monetization tools. From our origins as a high-fill ad network with fixed height-and-width ad units, we've begun the transition toward providing an automated, dynamic ad layout optimization engine where Google is taking an active role in deciding when and where to show ads. Our goal is to steer pubs along a spectrum of control toward giving us as much freedom as possible to optimize the whole ads experience. Along with delivering provable results via our optimizations, this differentiates AdSense as a monetization solution, makes us a better partner to our pubs and able to better protect the open web.

To succeed here, we must be able to provide the following:

- **Excellent controls** ('rules of the game') to our pubs, allowing them to control what matters to them and set the constraints on our optimization engine
- Unmatched **capability to dynamically insert** all cutting-edge ad formats on both mobile and desktop (via page-level ads)
- **Only the right ad at the right time** for our users, by capitalizing on new targeting data from Narnia and new user-first ad formats (e.g. native ads, outstream video)
- **New metrics** that help pubs understand the value of great content+ads experiences



To unlock the power of our optimization efforts, we need to provide pubs with the ability to control what matters to them when it comes to their ads experience. When pubs interact with the controls we provide (i.e. yes/no to specific formats, number of ads per page, styling), they are setting the constraints ('the rules of the game') that define what Google's optimization engine can and should do on their behalf. By providing the right controls, and also by providing an intelligent set of defaults on these controls, we can ensure quality pubs give Google maximum flexibility in

helping them succeed. This is true not only for our automation products (i.e. QuickStart), but also for our new innovative formats (i.e. Native ads).

Making inventory more flexible via the ability to add, remove, make bigger or smaller, or change the format of ads on the fly is central to our long-term vision of an automated, dynamic ad layout solution. We've taken great strides in that direction over the past year, with the launch of page-level ads, QuickStart, Inline ads, and more. In each of these cases, AdSense uses a single tag to insert ads dynamically into our pubs' pages. We need to be able to do this with our cutting-edge new mobile ad formats as well, e.g. native ads and outstream video.

To ensure that our pubs achieve the revenue performance they expect, we need to continually invest in improving our dynamic placement capabilities such that they enable us to sustainably maximize billable events, e.g. a click, a view, an engagement, etc. Married with the right controls as described above, these two features provide an incredible one-two punch in unlocking optimizations.

Additionally, by integrating with tools that help pubs provide amazing content experiences (i.e. Triton), we no longer have to hold content constant while providing the best ad experiences. To read more about the vision for Triton+AdSense, see [paper](#).

Until recently the display ads ecosystem has been unable to take advantage of user data from other consumer products (i.e. Search, Now) to improve ad targeting and the quality of the ads we show. With the GAIA-keyed ad serving made possible by Narnia, the opportunity to provide our users with a more personalized ad experiences is finally here. Additionally, we have new user-first ad formats that have been designed from the ground up to provide a great user experience - native ads and outstream video.

This wealth of user data can be combined with the new user-first ad formats, controls and insertion capabilities described above to allow us to deliver highly-engaging ads experiences to the right users at the right times.

Potential applications include:

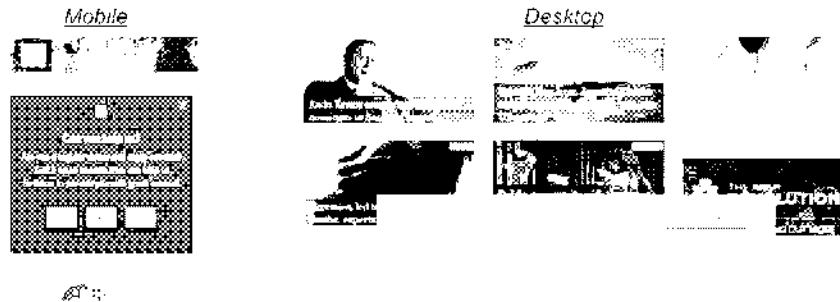
- Reduce the ad load for loyal visitors, balance the ad load across a session
- Select the best ad format for a particular user based on user session data, e.g. show an expandable or outstream video ad to a user referred from Facebook
- Prioritize ad formats that the user most frequently engages with
- Unlock brand spend by offering better user targeting (Narnia) + brand-friendly ad formats (e.g. outstream video ads)

Getting pubs to adopt champion ad experiences means showing them the value of doing so through reporting. We should build on the transition we've already started and encourage pubs to focus less on short-term revenue gains and more on sustainable revenue and other core user

experience metrics (i.e. session length, bounce rate). To read more about our strategy, see section above.

Via direct user support of exceptional content creators, we have an opportunity to help publishers monetize their content in new and more user-friendly ways. This provides additional value to previously underserved pubs, diversifies revenue streams for existing pubs, and positions AdSense as a true monetization 'platform' for the web.

The flagship effort here is AdSense Tipjar, which focuses on providing a platform for new 'contracts' between pubs and their users. V1 will target direct contributions from loyal, interested readers to their favorite creators via Google Payments, while pubs will be able to control the look & feel of the CTA to their users. This will allow pubs to provide new experiences to their contributors, such as ads-free browsing, access to special content, and more.



Partner with and retain quality publishers

Quality publishers produce valuable content, have real users with real intent, and are transparent to Google about who they are. We need to have precise and scalable mechanisms to evaluate all potential and current publishers across the following dimensions:

1. **Valuable content** - content monetized by AdSense should be either completely or mostly original, and needs to comply with our content policies (including Content Density and Magnolia policies). In order to make our content checks more robust, we should evaluate publishers' sites for scraped content, insufficient content vs. ad density, and click encouragement both when the publisher first applies for an AdSense account (approvals stage) and on an on-going basis as their content is being monetized (continuous monitoring).
2. **High quality clicks and traffic** - real (human) users should be viewing the publisher's content and viewing/clicking ads. Low quality publishers instead have bot traffic and misleadingly placed ads to encourage accidental clicks, e.g. clickjacking. To help increase the quality of traffic/clicks, AdSense should:
 - o Encourage pubs to use automated ad placement features, which will reduce unintentional clicks and promote a more user-centric ads experience

- Continue our partnership with Trust & Safety to ensure that clicks from new publishers are quickly reviewed before too much advertiser risk is accrued
3. **Verified identity** - with a verified identity, AdSense can be sure that the publisher isn't a repeat malicious offender that intends on defrauding our network. Key initiatives that will help us more accurately assess the publisher's true identity:
- Integration of Google Payments identity verification (IDV) technology (which leverages gov't issued ID) with AdSense
 - Collaboration with the Google Payments team to ensure that the AdSense publisher identity information matches that used on the form of payment, e.g. name on bank account

To better understand publishers' trustworthiness, we will collaborate with the Publisher Risk team to generate PubRisk scores for all new and existing publishers, based on a number of signals. The more signals a publisher provides, the better their PubRisk score will be. We can then use these scores to impose extra checks on suspicious pubs, while fast-tracking trustworthy publishers through our approvals process, for example:

- Require full ID verification (via IDV) for all suspicious publishers before they generate any real ad impressions (i.e. earnings), while allowing trustworthy publishers to delay ID verification until payout time

The majority of our quality publishers use AdSense as their primary or only monetization solution. Unfortunately, our current policy enforcement experience falls short, with broad and heavy-handed enforcement mechanisms and unclear remediation steps. As a result, AdSense publishers have grown fearful of unexpected policy actions that fall upon deaf ears and have been diversifying their income streams to include non-AdSense monetization solutions, often despite weaker performance and a poorer user experience.

In order to build publisher trust and incentivize our publishers to keep all of their monetization with AdSense, we need to continue investing in a fundamentally more publisher-friendly policy experience that is:

- Granular - flag and enforce policy violations at page (URL) level vs. account or (whole) site level, reducing the amount of publisher revenue at risk
- Transparent - be clear and specific with publishers on the cause(s) of policy violation and steps that can be taken to rectify the situation
- Proportional - the severity of the policy enforcement should be proportional to the violation, e.g. issue a warning or temporarily suspend ad serving for minor offences

2017 Strategy Paper: Systematic Risks for the Open Web

Owner: scottspencer@

There are many risks facing the open web – attaching access or the ability to monetize. Some are risks we know and have been addressing like ad blocking, fraud and net neutrality. Others are more complicated like “the shift for search to answers” and the rise of walled gardens that require new products, services, and approaches to mitigate.

Google is predicated on “the open web”. We provide Search for it. We provide monetization tools for it. But what is it exactly? And what threats exist that could undermine it?

To protect the open web, we need to define what it is – and specifically, identify the attributes that define it. Here we define the open web as the collection of content and sites, provided by individuals and corporations, that consumers can access through web-browsers on desktop and mobile devices.

The open web is enabled by two pillars:

1. Open Access and Choice – that consumers have open, unrestricted access to chose the content they want to consume. Content creators can create whatever they want.
2. The ability to monetize – that content, once made available to the open web, can be monetized so the content creators can continue to provide the content.

The threats to the open web attack one of the two pillars.

Threats against <i>open access & choice</i>	Content curation (e.g., “Walled gardens”) provide value but restrict choice.	<ul style="list-style-type: none"> ● WhatsApp ● Facebook ● Native apps ● Amazon
	New devices / interfaces (e.g., voice) necessitate a single answer and therefore restrict choice and may require new forms	<ul style="list-style-type: none"> ● Alexa ● Allo

	of monetization	
	Entities and governments that impose access or content restrictions explicitly restrict access and choice	<ul style="list-style-type: none"> • Great firewall of China • Networks (e.g., Digicel, Facebook in India) • UK ISPs on adult content • Shine / UC Browser
	Solutions that go against “net neutrality” , even in promoting one service, implicitly restrict access of all others	<ul style="list-style-type: none"> • Data usage plans / cost of access • Fast-lanes
	Cost of access	<ul style="list-style-type: none"> • Expensive data plans (especially in emerging countries)
Threats against the ability to monetize	Actions that disrupt open monetization	<ul style="list-style-type: none"> • Ad blocking [see] • Fraud [see] • Ad injection
	Areas or content types where open monetization performance is poor drive content creators to pay-for-access model	<ul style="list-style-type: none"> • Music • Too much advertiser (buyer) power
	Unfettered piracy shifts content away from channels where monetization is possible	<ul style="list-style-type: none"> • Content piracy • Torrents
	Pay-for-access implicitly takes content away from the open web [see]	<ul style="list-style-type: none"> • WSJ, FT, Netflix

In addition to the external threats on the open web, there are some internal threats where Google is at risk of losing our relationship with the open web:

- The open web is growing in areas where Google has fewer assets or focus (e.g., China and India)
- The usage of the open web tends to change with different age groups. We need to ensure we don't lose touch with key demographics
- Google is a target for competitors and regulations. We need to always be vigilant as 3rd parties identify and exploit Google specific threats.
- If 3rd party advertising is weakened, publishers may resort to 1st party solutions. While publishers may survive, this impacts Google's value proposition.

There are many Programs and Partnerships that Google can pursue to mitigate these risks.

Access and Choice:

- Maintain and enhance the open web – Google Search is one of the best representations of the open web. It provides consumers with many different options and opportunity for content discovery
- Be the curated access point – Walled gardens and content curation provide consumers benefit. Google needs to invest heavily in content curation and in the interfaces / apps / environments consumers desire to avoid ceding curation to others. Example: Allo, Google Play Newsstand.
- Acquire curated access points – Attempt to identify and acquire leading solutions to have a viable footprint.
- Create open, curated access points – In addition to owning the curated access point, Google should work to make APIs or means to allow content to flow to that curated access point.
- Continue to invest in open internet efforts – The more available "open" internet is to a population, the less likely consumers are willing to accept restrictions.
- Invest in "red teams" – ensure that Google isn't tarnished by competitors or regulation by ensuring we uphold the highest principles and good practices.

Monetization:

- Provide monetization tools – Continue to invest in solutions for publisher monetization. This includes work on our core ads products (buy- and sell-side) as well as our anti-fraud and response to ad blocking efforts.
- Protect monetization ecosystem – Continue to invest in anti-fraud, ad block solutions for the industry.
- Transition off of 3rd party javascript, Flash – reduce the risk³ of malware which impacts both fraud and ad blocking.

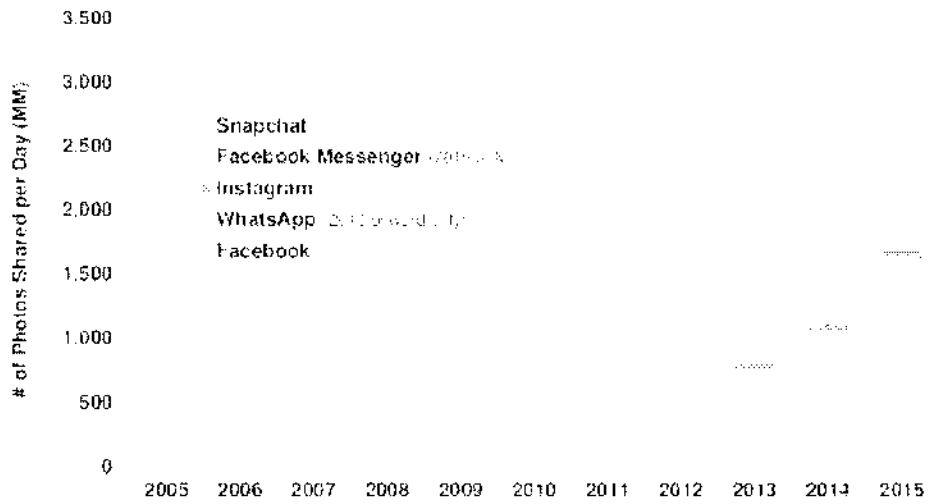
Google Specific risks:

- Consider a trusted 1st party served partner network. This is more resilient to ad blocking.
- Invest in understanding India, China, younger demographics.

The growth of walled gardens is significant:

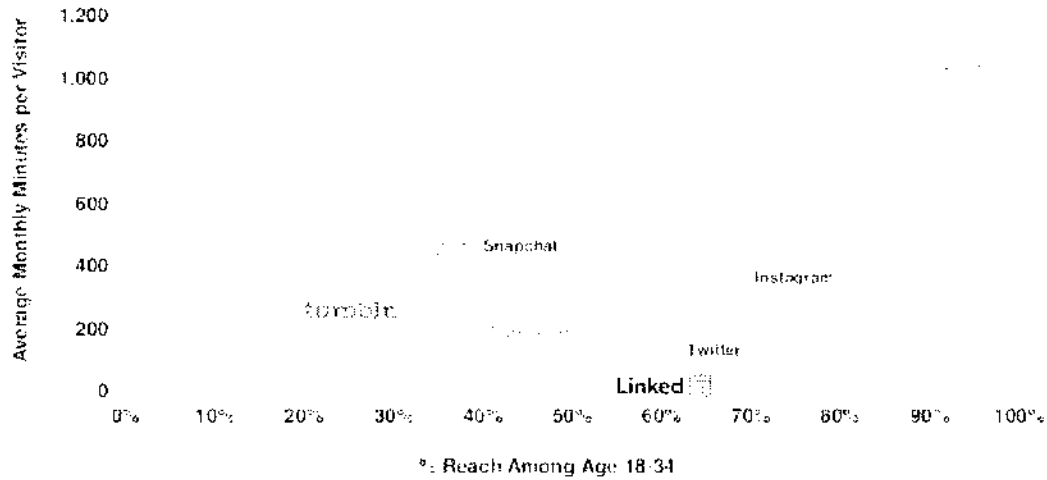
³ 3rd party app stores, under-defended chrome plugin marketplaces, side-loading of mobile executable code, unlimited access of apps to https-content webviews -- all pose risks to spread or enable ad fraud malware.

Daily Number of Photos Shared on Select Platforms, Global, 2005 – 2015



Different age groups have different behaviors

Age 18-34 Digital Audience Penetration vs. Engagement of Leading Social Networks, USA. 12:15



Popularity of Business Contact Channels, by Age

Which channels are most popular with your age profile customers?
(% of contact centers)



Age Group	Phone	Text	Video	Live Chat	Self-Service
Generation Y (18-29)	24% (1,100)	34% (1,500)	21% (900)	19% (800)	12% (500)
Generation X (30-39)	33% (1,500)	19% (800)	38% (1,700)	11% (500)	9% (400)
Baby Boomers (40-49)	71% (3,000)	21% (800)	24% (900)	15% (600)	9% (400)
Silent Generation (50-59)	71% (3,000)	18% (700)	41% (1,600)	15% (600)	9% (400)

Voice interfaces are gaining traction (and necessitate restriction of choice):

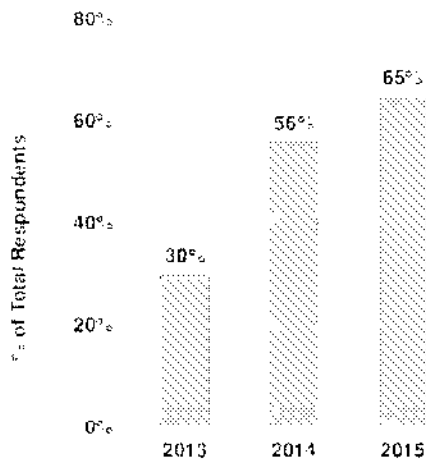
Voice Interfaces – Consumer Benefits

- 1) **Fast**
Humans can speak 150 vs. type 40 words per minute, on average...
- 2) **Easy**
Convenient, hands-free, instant...
- 3) **Personalized + Context-Driven / Keyboard Free**
Ability to understand wide context of questions based on prior questions, interactions, location, other semantics

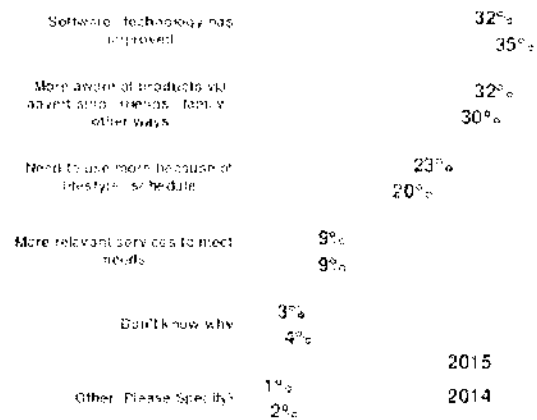
Voice Interfaces – Unique Qualities

- 1) **Random Access vs. Hierarchical GUI**
Think Google Search vs. Yahoo! Directory...
- 2) **Low Cost + Small Footprint**
Requires microphone, speaker, processor, connectivity – great for Internet of Things...
- 3) **Requires Natural Language Recognition & Processing**

% of Smartphone Owners Using Voice Assistants Annually, USA, 2013 - 2015



Voice Assistant Usage – Primary Reason for Change, % of Respondents, USA, 2014 - 2015



Google Trends query queries associated with voice related commands have risen ~35x since 2008 after launch of iPhone & Google Voice Search

Google Trends. Worldwide, 2008 – 2016



2017 Strategy Paper: Malware Big Bets

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Anti-malvertising at Google

The mandate of the Ragnarok team is to ensure that all creatives and landing pages served via Google ads infrastructure are malware-free. This has traditionally been performed in partnership with the Safe Browsing team by scanning creatives and their landing pages for suspicious signals and domains. Key products that rely on Ragnarok for malware scanning include DBM, DFP, AdX, GDN 3PAS, and AdWords (landing pages and Rich Media creatives).

To address increased sophistication from malvertising and scale our protection, the three pillars guiding our roadmap are:

- (1) **Ground truth data to see what is really happening**
- (2) **Predict bad actors and proactively find new patterns of badness**
- (3) **Continually reduce end user exposure to vulnerabilities**

2016 big bet: beat cloaking

In 2016, the big bet was to detect cloaking and see what is really happening on the user's device by introducing client-side scanning to complement existing server-side scanning infrastructure. This effort, code-named RIND (Review in Natural Domain), has gone from an idea to a cross-PA effort (Ragnarok, Safe Browsing, Chrome, Mobile Ads SDK) in the past year. This effort will continue into 2017 with the goal of RIND clients ubiquity across major platforms.

2017 big bet: machine learning and automation

One of the key goals of this bet is allow for scale by decoupling our dependence on Ops FTE and TVC headcount. Right now, HC available to investigate is a rate limiting factor that needs to be eliminated. With increased data from client-side reports and baseline data from server-side scans, the conditions are right in 2017 to double down on stopping badness at the source by predicting bad actors and proactively finding new patterns of badness. This bet requires further investments in Machine Learning for predicting badness, and in tools to automate the investigation and actioning based on signals outputted from ML models.

Existing early stage projects in this area include:

- : ML system that predicts bad domains in ads; ~3K ads disabled daily
- & : badness clustering and ML systems; preliminary promising
- : clustering entities for human review to improve review efficiency by 10x

Expected benefits from investment in Machine Learning & Automation

The primary results from this investment are to (1) raise the cost and complexity to malvertise and (2) scale our anti-malvertising efforts in a non-resources constraint model.

Generate entity graphs and clusters for all players in ecosystem	Bad domains & hosts Emerging attack trends	Ad identification from incident reports
Add data feeds including TAG Anti-malware 3rd parties	Bad creatives based on underlying code Bad behaviour based on targeting & bid history Cloaking based on geo, IP, device, operator, etc	Round-ups of all related ads and hosts from initial lead Disable flagged entities Investigations of reports Sweeps to catch known trends & attacks

Delivering on 2017 big bet

The team has considered various options to staff the 2017 big bet, including deprioritization of existing projects. The two options that deserve the most consideration are:

- (1) Use existing assigned headcount (still require 4 Ops FTEs)
- (2) Increase Ragnarok SWE headcount by 10, Ops FTEs by 6 and TVCs by 31

Expected deliverables in 12 months	RIND data is received from most clients; Basic reports processing Clustered review tool is launched Existing machine learning model is migrated to TensorFlow and improved Basic clustering is implemented	Comprehensive analysis of RIND reports; automated badness detection and actioning on the results Clustered review tool auto-detects patterns and clusters reviews Manual are automated reducing leads being missed Known trends caught automatically automated sweeps and configured rules Entities are clustered and bad clusters are flagged by new ML system
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Reference docs

- ACPR anti-malvertising update (July 2016)

- PSE anti-malvertising update (June 2016)
- 2017

2017 Strategy Paper: TV 2.0 - The Future of TV and Video

Contributors: Rany Ng, Will Weingarten, Peentoo Patel, Ben Cann, Eve Goldman, Sara Bitetti, Kristin Wiechmann, Diya Jolly, Ali Miller, Erin Schaefer, Aparna Pappu, Vlad Sinaniyev, Max Stepin

Abstract

TV viewership is shifting from linear to digital / OTT, creating massive disruption in how TV is bought and sold. However, linear TV still dominates both watchtime and advertising budgets, and the transition to digital / OTT won't finish for another 5-10+ years. TV incumbents and digital players are vying to be the ad platform to manage cross-screen TV / video buying & selling by building solutions that span linear and digital in an attempt to maintain (or capture) the \$200B of global TV ad spend. Google has unique assets across consumer and enterprise PAs to accelerate and shape the transition; and leading in TV 2.0 will require building solutions that leverage our proprietary data to plan, buy, optimize and measure across YouTube and premium video content, regardless of screen.

TV / Digital Video Evolution: How will the TV / Digital Video market evolve over the next 3+ years?

1) Linear TV viewership will decline, but will still dominate watchtime AND budgets for the next 5+ years

Linear TV, which is watching scheduled TV on a set-top box from a cable operator, is far from dead. In the US, linear TV accounts for 70% of total viewer watchtime-and remains the single largest recipient of all ad budgets, capturing 37% of all spend as it continues to offer marketers mass audience reach against brand safe content.⁴ In countries like Italy and Germany, traditional TV viewership makes up over 80% of total of watch-time.⁵ We are seeing substantial changes in *how* TV is being watched, and by whom.

- *TV Viewers are now watching on their own schedules.* Live viewership remains popular for categories like sports and news, and accounts for 60% of all broadcast GRPs⁶, however time-shifted, or on-demand, based viewing has risen substantially from ~39 minutes of daily time spent in 2011 to 1.66 hours in 2015.⁷ Consumers 35 or older are more inclined to play back TV shows on DVR or a VOD feed on their TV than younger generations.
- *Younger Generations are "Cord-Nevers" or "Cord-Cutters":* While the long-awaited cord-cutting movement is still far off (~18% of US households), live viewership among younger generations in the US has declined dramatically (down 4% for age 35-49 vs down 14% for 12-17 year olds in 2015⁸). Over-the-top (OTT) services are the primary substitute for

⁴ eMarketer, Mar 2016

⁵ Source: Google and TNS, "Consumer Barometer," June 15, 2015

⁶ McFadden/Nathanson analysis of 2015 TG CG

⁷ WSJ activate report

⁸ Nielsen Report, May 2016

younger generations for watching live TV. Nielsen showed the average daily time spent on connected devices by US consumers ages 34 and under was nearly double that of older age groups.

2) Video consumption will still primarily be on “TV content” vs emerging “made-for-digital” content

Consumers today have unlimited options on what to watch across broadcast content (NBC, CBS), cable (A&E, Bravo) and digital / social video (YouTube, Facebook Live, Snapchat, Vine). We will see growth in the creation (including live video), distribution and consumption of digital video content, however, total time spent on this content will still pale in comparison to studio produced scripted series -- news and live sports which accounts for ~120 of the 180 hours per month spent on video viewing.⁹ While viewership on YouTube is rising with the younger generation, 18-24 year olds still spend 77% of their watch time on TV content.¹⁰ For users, content remains the top priority, and much of the most coveted sports and cable programming will remain exclusive to pay TV for the next decade. Long-Term TV licensing agreements including March Madness and NBA rights don't expire until 2032 and 2025 respectively, and several top cable programs (Mr. Robot, The Walking Dead) do not make current seasons available for OTT viewership. Ad budgets will continue to skew heavily to premium TV content - both to meet buyers concerns on brand safety as well as to reach audiences at mass scale. Publisher revenue from subscriptions and TV ad loads also trumps revenue from free, ad-supported digital-only mediums. (30X difference).

3) Digital & over-the-top (OTT) will rise, but scale over TV will depend on a better user experience

Adoption of OTT services is growing quickly with 49% of all US households¹¹ using a streaming device. However, mass consumer transition from Pay TV to digital will take several years due to challenges with technology, reliability, pricing and content.

- *Linear TV just works*; it's rare to see buffering or crashes. The same is not yet true for TV on OTT. Latency, pixelated images, lack of reliability and even repetitive ads are not uncommon. In order to drive mass adoption, the user experience on OTT needs to be better than linear TV, which requires improvements in devices, connectivity and infrastructure.
- *Pay TV Still Wins on Price*: Skinny bundles like Hulu and Sling TV offer better pricing compared to traditional Pay TV, but users need to cobble together multiple services (at \$10-\$40 / month) to access all the content they want. This makes Pay TV a better economic deal, and allows users to have all their content in a single place. We'll likely see continued fragmentation of content across apps and bundles for the next several years, but discoverability challenges across multiple offerings will force aggregation further down the road.
- *OTT landscape is fragmented and so is the user experience*: With different OTT services, and Broadcaster/Cable apps, complicated content windowing strategies and segregated authentication schemes a consumer can quickly become frustrated. Recent announcements from Apple look to tackle these problems by providing seamless , and content as core platform features.

4) Silo'd TV and Digital ad budgets will dissolve, as buyers think cross-screen for audience reach.

⁹ WSJ activate

¹⁰ Video Advertising Bureau, May 2016

¹¹ comScore: Total Home Panel, Custom Analysis, March 2016

As consumers move towards further consumption of TV and video on IP-connected platforms, advertisers and publishers will need to reach users across all demographics as they consume content across all screens -- from traditional TV to OTT to digital video. Agencies/advertisers will begin to unify their TV and digital teams and will want a more holistic way to plan budgets, shifting from a channel-first to audience-first approach. There will be more focus on cross-screen capabilities to plan, buy, optimize and measure unique audiences with data. The industry will begin putting more focus on creating a better currency than the GRP to measure audience impact. And as the 1 to millions reach model will be disrupted, buyers will have to navigate how to manage and measure mass reach on linear TV (which is declining for certain audiences) and a personalized TV experience on digital devices as OTT scales.

These trends will lead to a corresponding convergence across advertising tech and media companies in TV and digital video, increasing the intensity and complexity of the competitive landscape over the next 3+ years. TV incumbents (e.g. Comcast, Mediaocean, Nielsen, Verizon, WideOrbit) and digital video players (Verizon/AOL/Yahoo, Facebook, TubeMogul, Videology) will all compete to solve cross-screen TV buying. Digital-only video DSPs will be non-existent in 3-5 years, replaced by solutions that can buy the same audience segments across any screen and target / optimize for reach and effectiveness. Proprietary data sources (e.g. Comcast subscribers, Samsung TV) and data providers (e.g. Liveramp, Datalogix) will be key to enabling this cross-screen future.

5) Walled gardens will continue to rise from TV incumbents and digital companies

We are already seeing that well-funded TV incumbents are seeking to leverage their footprint in today's world of TV to win in tomorrow's cross-screen world. Large media companies across traditional TV companies like Comcast and digital companies like Facebook will leverage their unique O&O content and user data to create walled gardens, forcing advertisers and publishers to work with them in a closed ecosystem in order to get access to their cross-screen data for targeting and optimization.

- **Comcast:** Comcast is creating a full ad stack across TV and OTT through 4 acquisitions, and creating a walled garden through their subscriber data and distribution control. They have the assets across content (NBC Universal, including a recent partnership with Snapchat to distribute original NBC content), distribution (22M subscribers), and data (subscriber and set top box viewership data), as well as advertising technology across the buy-side and sell-side -- from TV (Planning, Data, Measurement, TV DSP) to Digital (Video Ad Server, Video SSP, VOD/Addressable TV, TV Targeting/Opt). Their strength in TV and distribution has adversely affected our sell-side business; we recently lost ESPN because Comcast offered them access to set-top box user data in return for staying on their video advertising platform.
- **Verizon / AOL / Yahoo / Adap.tv** - Verizon acquired AOL and now Yahoo to combine their extensive access to TV, mobile and data subscriptions ("super cookies") with AOL's original content, video advertising platform (Adap.tv) and analytics tools (Convertro). AOL has been an early mover in "programmatic TV", aiming to provide x-channel media planning and sophisticated data targeting across video and addressable TV ads programmatically, and recently invested \$500M in programmatic TV advertising.
- **Facebook:** Facebook is doubling down on their investment in video, creating a video only tab within their product, investing in live sports and also extending their walled garden by now offering FAN guarantees to premium video publishers in the TV segment into order to secure exclusive inventory. Facebook has also partnered with TubeMogul, a competitive and leading video DSP in TV and digital, and given them API access to offer Facebook video inventory and audience targeting.

- Note: TubeMogul now has access to “walled garden” inventory (Facebook, Snapchat), as well as integrations with linear TV providers. This allows them to compete more effectively with YouTube / DBM as a media agnostic platform provider.

TV 2.0 Product Strategy

This disruption of consumer viewership from linear TV to OTT creates a massive opportunity for Google, as the \$200B of global TV ad spend starts to become available beyond the traditional TV ecosystem, for the first time in 50 years.

The transition from TV to OTT will not happen overnight, or even in the next 10+ years, which means advertisers and programmers will need solutions to manage fragmented viewership across devices, buying silos, measurement inconsistencies and friction amongst data sources. Both traditional TV incumbents and digital players alike are looking for ways to solve this, focusing on building out data-driven capabilities to plan, execute, optimize and measure audiences wherever they are watching TV and video content (aka programmatic TV). Whoever is able to lead, and create a bridge between TV & digital, will be setup to succeed when digital becomes dominant and create stickiness.

At Google, we excel at creating fast, scalable, seamless and relevant experiences for users. With video, users expect that same seamless and high quality experience they have on TV, but now, they expect it on any device they choose to watch on, any content they choose to watch (on-demand, live streaming) and any context they are in (leaning back, on-the go). Our core focus should be to enable and accelerate the transition of watch time (and ad budgets) from TV to OTT and digital devices, but in order to do that, we need to make this a great experience for users across discoverability, infrastructure, devices and advertising. Across Google, we have a number of unique assets that can enable us to differentiate in TV, OTT and digital video.

- Infrastructure and Scale - speed, low latency, scale, streaming quality, Cloud, machine learning, predictive intelligence
- Content search and discovery - Search, Android, Android TV, Chromecast
- Distribution + Platforms - YouTube / Unplugged, Fiber, Google Play, Android, Chrome, Chromecast
- Advertising - YouTube, publisher & advertiser platforms, OTT streaming, cross-device targeting, data, measurement

During this transitional period, we will need a bridge strategy for Linear TV to support cross-screen video buying. Short-term, we need to protect our position in digital (including YouTube) and make sure that we aren't locked out of TV/video budgets. If our sole focus is on YouTube / digital video and we do nothing in TV, while competitive platforms, like TubeMogul and Verizon/AOL/Yahoo, are able to offer advertisers a holistic platform to reach audiences across linear TV and digital video, we risk becoming obsolete as a digital-only platform. We are already seeing that top video spenders like TimeWarner, AllState, and Omnicom are shifting budgets away from us as they look for a cross-TV solution. Longer-term, we have the opportunity to own cross-screen TV and budget decisions as buying becomes audience-based, which will enable YouTube and Google media to be considered for the \$200B global TV spend versus 2-3% today.

Our pillars to build for the future of TV / Video are focused across four strategic areas:

- 1.
- 2.
- 3.
- 4.

*How do we create a compelling developer offering to help OTT providers / app developers?
How do we power and make it easier for broadcasters to deliver OTT content?*

Within our Google O&O properties -- YouTube, YouTube Unplugged and Fiber TV -- we have the ability to innovate directly on the TV/video user experience, bringing the best of digital to the TV 2.0 viewer. Solving content discoverability, innovating with new video ad formats, and improving content recommendations all built on the core video streaming infrastructure can provide a flawless "TV experience" to millions of viewers. However, we also need to ensure that we are investing beyond O&O properties to improving the overall "TV experience" to all users across any TV app they choose to watch (e.g. CBS all-access, HBO, ESPN, etc.) to accelerate user adoption from Linear TV to OTT. As result, we need to provide these same tools and experiences to TV broadcasters, cable networks and operators to drive the quantity and quality of TV content available digitally, *advancing consumer watchtime across these new platforms and away from the set-top box.*

Search, Discovery, Distribution: Redefine the "TV" experience within the Google consumer ecosystem to accelerate watchtime -- We have access to an integrated home viewing experience that has the potential to be a market leading key differentiator and one that compels consumers to move away from their STBs. Leveraging YT, Search, Chromecast, Android, Pay we have the opportunity to define the future TV 2.0 viewing experience and with these capabilities we can accelerate the move from traditional TV to digital. Product initiatives include:

- YT Unplugged: Google's OTT bundle provides a great platform to experiment with TV 2.0 formats and user data
- Search and Discovery: Google now powers browsable recommendations, voice search, and new episode / live show reminders to help you figure out what watch -- deep linking to TV apps
- Control your TV experience from your Android Phone and take it from device to device (Google Cast + App Deep Links/Watch Actions)
- Integrated payment, billing (Android Pay) and authentication () to provide seamless access to subscription and Pay TV content

Video Infrastructure: Build a broadcast-grade end-to-end streaming platform (TVE in the cloud) -- We have all had our own experiences watching a TV show or live streaming sports event on an app -- the experience is not as seamless as on TV. Delivering digital TV content through OTT services and devices is extremely complex; publishers contend with encoder formats to deliver content cross-device, with studio-grade DRM, compliance such as closed-captioning, scale to support MM of viewers, a low latency experience akin to TV for broadcasters, cable networks and smaller MVPDs. We have the opportunity to provide the end-

to-end video streaming and monetization infrastructure to publishers to simplify OTT and create a seamless experience for users.

- With Google Cloud () or , Google will offer a robust content acquisition, encoding and delivery workflow that uses our existing technologies and CDN for Live and VOD content -- see , see t, see
- TV ad break and schedule metadata integrations for enhanced forecasting and ad targeting
- (Longer term) Google 360 to provide a real-time video analytics offering to support basic video playback metrics and enhance engagement metrics (i.e. Omniture). This data can be correlated to campaigns in DFP providing a full view of the user experience. []

Advertising: Scale Dynamic Ad Insertion (DAI) & Monetization -- TV publishers want to preserve (or grow) revenue as consumers increasingly watch content across screens, especially on OTT platforms (Android TV, Chromecast, Roku, Apple TV). The solution must provide the capabilities of TV such as delivering against audience reach targets across all screens, until new currencies emerge, and provide better monetization / LTV than current TV models like Nielsen C3 and C7. Moreover, the solution must deliver the "TV experience" across all screens, meaning no latency on live or on-demand ads, no ad delivery failures and a seamless content ads experience. While we have seen initial success with monetizing over 300 live events, including the Rugby World Cup, Presidential Debates, NFL Playoffs and UEFA Euro Cup, we still have a lot of work to scale inventory, infrastructure and programmatic. Product initiatives include:

- **Dynamic Ad Insertion (DAI):** We can evolve the video advertising experience with dynamically targeted ads to users (vs a single commercial broadcasted to all users on TV) by having an integrated cross-screen monetization solution using Doubleclick DAI for Live and On-Demand content with for TV content (DFP and AdX).
- **Programmatic:** Enablement of cross-device programmatic for Live OTT with a to support TV standards, regulatory compliance and cross-device measurement.
- **Measurement:** Provide publishers with a full TV/Video measurement suite (reach, impact), so that they can have capabilities to understand their effectiveness to advertisers.
- Build a best-in-class offering for our own devices and outreach on partnerships with CE manufacturers to enable our ads solutions on long-tail devices
- Note: While we will consider partnerships for ad insertion on traditional set top boxes where digital ad serving standards can work (e.g. Android TV), our focus will continue to be on OTT delivery.

Video spend within DBM is on track to reach 50% of total DBM revenue, and is the fastest growing segment of DBM overall. However, brand and video buyers have unique needs in a buying platform that today's display-first UI was not built for. These include things like audience first planning and optimizations and cross-screen buying capabilities across TV, OTT, mobile and desktop. Lack of these features or difficulty in workflow creates friction for brand buyers using DBM, and makes it hard for them to access the scarce premium inventory available to them. We can solve for this by building out the right feature set, and making video front-and-center within the DBM UI for brand buyers.

1) Build brand-centric planning, optimization and measurement in the DBM UI

Planning and forecasting capabilities:

- Audience reach across all inventory, including YT for key video metrics (i.e. GRP, viewability, brand lift, brand safety), devices/screens (desktop/mobile/connected TV), inventory types and formats
- Graph cost curves vs. video metrics (KPIs) discounted by win probabilities (aka bid curves)
- Model expected campaign performance, facilitating sensitivity analysis and decision making

Enable optimization for:

- GRP (Nielsen, comScore)
- AVOC (Audible, Visible On video Completion) and Time On Screen (TOS) optimizations, which have been shown to drive significant Brand Lift
- Custom View optimization: allow buyers to use their own definition of a Video View, leveraging multiple signals such as player size, position, time on screen, mute, etc...
- These can be combined to form content 'quality' optimization, helping advertisers shift spend to higher quality video inventory, as found on AdX

Measurement:

- See next section on

2) Leverage YouTube as anchor for video buying

- Fully streamline planning, buying, and reporting for YouTube (TrueView & Google Preferred) alongside other inventory
- Take advantage of enhanced GAIA targeting features enabled by Viral
- Fully launch Petra to GA: enable use cases like cross-campaign optimization to allow use of first party data by advertisers, eliminate measurement parity gaps (Moat/IAS, Brand Lift), and refine the creative workflow.
- Enable DCM tracking and attribution for all YouTube campaigns, enabling optimizations to move budget to the best inventory (expected to benefit our media, with higher viewability and consumer engagement)

3) Simplify cross-screen video buying on premium video & OTT

- Scale deals: complete cronut flow for robust tag-based and programmatic guaranteed deals; make video deals easy to transact by adding video details and advertiser blocks to Deals Troubleshooter, allowing self-serve resolution of majority of issues blocking deal delivery
- Support OTT in Marketplace - support content signals & filters such as premium flag, TV show, OTT device
- Launch video recommendations engine: based on target KPIs for campaign, suggest packages of premium inventory (existing OTT, PA/PD/PG/NPG deals) to extend reach, increase viewability and/or impact, lower average cost, etc.

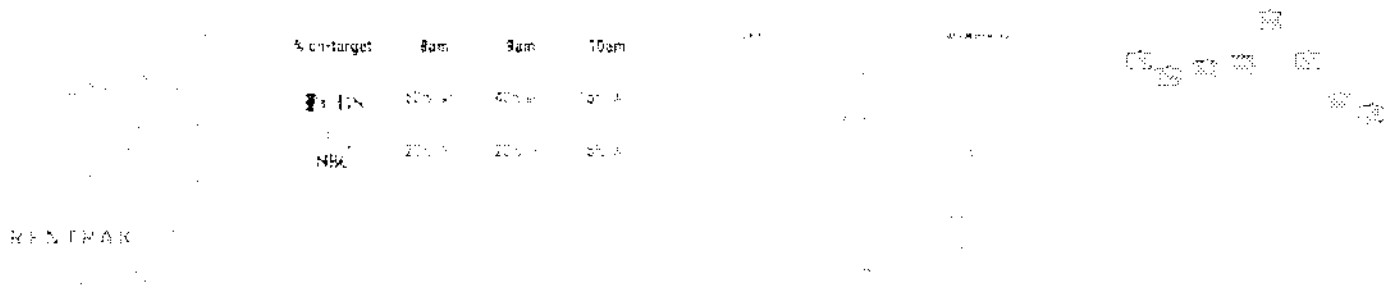
4) Support for core video

- Revise our UX to be Video-centric, defaulting to video metrics and workflows
- Enhance our video reporting to merge insights and actions (like AdWords)
- Make AdSpam features work for video across all inventory and devices
- Support 3P brand safety vendors for video (IAS, DoubleVerify)
- Support emerging video formats (native video, portrait video)
- Pursue unique inventory via integrations (FreeWheel, Snapchat, Periscope, etc..)

5) Invest in TV & digital video convergence (Programmatic TV)

Beyond video-centric digital capabilities, brands are now starting to shift budgets to 'Advanced TV' and 'Programmatic TV' platforms that allow them to do smarter cross-screen measurement and planning, and automate the buying flow to reduce waste. It's no longer enough to just offer digital video, brands are requiring platforms that can help them manage and adapt to the convergence of TV and Digital.

All major Video DSPs are investing in this area to capture the future of TV advertising (AOL just announced \$500M). In 5 years, brands and agencies will not use a Video DSP that does not also work across their TV buys. The near-term opportunity for DSP-based programmatic TV buying is a share of the US scatter market, estimated at \$30B.



- **Cross screen planning** - level the playing field starting with media planning by allowing buyers to plan and forecast across linear TV and YouTube, on all devices
- **Data to inform buying** - leverage our data including XMA, GAIA, and FiberSky panel to help advertisers find audiences indexed across TV shows, improving the efficiency of TV campaigns; partner with DMPs to allow TV indexing against 1st and 3rd party data
- **Execution** - place bids on TV spots in the scatter market with the same priority as traditional sales channels, benefiting buyers with automation, faster execution, and cost savings (sell-side agency fees can be 10% of media cost and are excluded from programmatic buys, for example)
- **Measurement** - leverage Google measurement tools (Towerbridge, GA 360 TV Attribution, TV measurement, eventually FiberSky panel) to help brands measure reach and optimize budget allocation based on impact (see [redacted] for more detail)

There are several options for us to consider in how we approach investing in Linear TV capabilities. Any investment can be broken into multiple phases to lower risk and prove the benefits.

Option	Pros	Cons
No Linear TV	- Eng resources focused on future	- Risk becoming obsolete as a digital

investment	and winning in OTT / digital video across planning, execution & measurement	only platform while budgets shift cross-screen - Fall 2+ years behind market on building for TV convergence
Measurement only	- TV measurement and attribution can shift TV budgets to new destinations, resulting in some increased spend on YouTube - Integration with DBM is relatively easy, letting eng focus on OTT / digital video	- Limited value in measurement alone, without ability to optimize or act on the insight - Hard to compete against holistic TV / video DSPs - Unable to capture share of media fees for TV spend
Planning & measurement only	- TV planning & measurement helps buyers select where to spend, and makes it clear where YT, Digital and OTT can augment TV campaigns	- Unlikely to displace in-house agency planning tools without execution as a hook - Risk of being unable to compete as all major video DSPs scale TV planning, execution and measurement - Unable to capture share of media fees for TV spend
Planning, execution & measurement	- Can enter US TV scatter market (\$30B), with share of media fees on TV spend - Keeps DBM relevant for large brands during the transition to OTT - Margins on this business are expected to be far better than RTB (TubeMogul is known to be charging 10%+ fees, while costs should be lower than for RTB bidding & serving) - Supporting the E2E flow leveraging our data for optimizing on-target spend offers unique value for buyers - Highlighting the impact of YouTube in a comparable fashion, coupled with simple buying workflow, makes it easy to move under-performing TV dollars to YouTube	- Requires most eng investment of the options due to API integrations with TV SSPs / partners - Partial eng investment may not be sufficient to make impact - Complex and nascent market with experimental budgets that still needs to be proven. - Expanding beyond the US will either be dependent on partners (slow) or require more direct integrations than we would do (expensive)

Recommendation: Investing in planning, execution and measurement on linear TV inventory offers the best path for DBM Video in the near term (next 3 years). In this period it is unlikely for OTT to reach significant scale, forcing advertisers to platforms that support linear TV and Digital Video. We have unique differentiators in planning and measurement, and combining these with and end-to-end buying workflow will help shift spend to our media, and allow us to charge share

of media fees on TV scatter spend. Expansion can be broken into phases; for example we can avoid doing direct integrations to access non-US regions and instead drive standardization with TV inventory aggregator partners.

1) Cross-screen planning, measurement, and data for linear TV:

- Extend DBM video planning to work across TV content and KPIs in addition to digital video, with KPI-based cost curves and unique reach across all media
- Integrate with GA360 TV attribution, TowerBridge, and Brand Measurement for TV to offer powerful TV measurement solutions beyond typical reach and demo
- Utilize XMA to define GAIA audiences and find them on TV content, and FiberSky panel to extend all measurement solutions across TV and Digital
- Integrate with 3P TV data sources: SQAD for TV pricing, EPG for TV content metadata, Nielsen for TV ratings, and MediaOcean for current/historical TV campaigns
- Support 3P DMP (like Acxiom) for double blind data escrow, enabling index level matching of 1P advertiser data, Operator (STB) data, and other sources like Experian, to guide TV planning

2) Enable cross-screen execution for linear TV:

- Integrate with TV content aggregators to enable linear TV buying: reservation-style deals over lightweight integrations with companies like WideOrbit (local) and Clypd (national).
- Drive standardization effort across linear TV inventory sources to expand access and limit number of required integrations, especially for global expansion

Cross-screen measurement and targeting are fundamental to shifting spend to digital and OTT platforms, as digital video revenue will only surpass traditional TV when it can clearly demonstrate superior reach and effectiveness as measured on apples to apples terms. A unified approach enables advertisers to move spend to where it is most cost efficient. Early data from Adometry shows that our media (YouTube) places favorably among the top TV networks, suggesting that efficient spend should shift to our media. Sophisticated buyers are beginning to use this data to make allocation decisions.

To solve for cross-device measurement, we need to build off our already powerful capabilities on desktop and mobile (reach, viewability, lift) to create powerful measurement and targeting solutions for advertisers that extend comparably across all platforms (including OTT & Linear), leveraging our unique data to solve problems no other platform can.

1) Build out our full digital video measurement suite for buyers and sellers

- *Extend GRP measurement* to OTT by building out panel support beyond desktop & mobile. This will enable comprehensive audience measurement on digital screens, and use TV panels to create a deduplicated reach offering across all inventory (Youtube, GVP, 3P, TV).
- *Scale Brand Lift* to measure impact not only on YouTube & Google Media, but to all media and all platforms including OTT, so buyers can easily measure & compare impact on all spend.
- *Have the most complete viewability tools:* Viewability has a direct correlation to key brand KPIs. We need to offer advertisers more granular measurement tools to understand campaign. viewability (seconds of watchtime, audible) and more integrated options for

viewability vendors (MOAT, IAS). These offerings must include Mobile/OTT devices or at least have good proxies for devices we don't directly measure - viewability.

2) Extend our measurement suite to TV for holistic and comparable measurement (see)

- Leverage the combination of Fiber, GAIA, and TV Panel data (future) to create a solution for measuring de-duplicated reach solution across TV & Digital.
- Build out a TV measurement suite in GA, anchored around TV Attribution product and Cross-Media Analytics tool (XMA), as a start for providing unified measurement across TV & Digital, with future comparability with digital via brand lift and GRPs.
- Offer the same capabilities to TV broadcasters on DRX as for advertisers.

As viewer consumption shifts from TV to digital video, brand budgets from TV buyers will shift to capture audiences consuming all types of video content (TV shows, live streams, made-for-digital, clips, etc.) on digital devices. We have an opportunity to capture a large share of TV budgets by enabling brands to reach and engage all of their audiences on YouTube and across our Google video partners.

Google's video offerings are anchored today by unique inventory access & formats on YouTube (i.e. TrueView, Programmatic Guaranteed on Google Preferred) along with proprietary Google data (e.g. in-market & demo, cross-device) that will increasingly incorporate GAIA. By extending our video partnerships beyond YouTube, we can offer advertisers a single place to reach premium content and engaged audiences across YouTube, the web and apps. Through brand safe partnerships with companies like CBS, Fox News, Viacom, etc., we can enable 25%+ incremental unique reach on GVP beyond YouTube across a diverse set of demographics where YouTube under-indexes, e.g. Females 25-54.

Our belief is that the combination of O&O, GVP and our unique data assets will provide stronger results for advertisers than either in isolation, but we need to make it easy for advertisers to plan, buy, measure and extend their audience reach to GVP.

1. **Empower GVP as a reach extension play to YouTube:** Our premium buying goal for H1 2017 is to create easily scaleable auction products that cater to TV buyers and provide seamless audience extension off of Youtube. Project Crane, i.e. moving to a cost model based on Watch time, will create a reach focused product for such buyers in Q1. Because Crane , the additional reach the GVP provides on top of Youtube becomes a clear value ad to buyers. We will also launch targeting that highlights high quality placements (OTT devices, top content & full episode targeting) along with a GVP focused vCPM product that caters to buyers looking for non-skippable inventory (complimenting Google Preferred). This product is especially valuable for experimenting on TV inventory, as Trueview/skippable is blocked by many TV broadcasters from full episode content, and even loading a separate Youtube player to play Trueview ads on devices such as Apple TV and Roku is technically infeasible. Any planning tools for AdWords (e.g. Pinot) should ideally cover GVP inventory.
2. **Build a platform for YouTube and premium video exchange buying:** Our goal for 2017 is not only for DBM video to be perceived as a first-class video DSP (see above

sections), but to enable DBM buyers to easily discover and execute on premium inventory across all our media, including YouTube. This includes programmatic deals, which are a key part of a TV publisher's programmatic sales strategy and are necessary to access exclusive inventory. See the [redacted] paper for more details on our plans to scale programmatic buying on premium video inventory while having a more cohesive story, anchored by measurement and planning, for how we tie YouTube together with buying on our video network.

3. **Build a new "TV Network" to leverage our data:** Moving all TV inventory to a model where it can be monetized programmatically with unique ads per user requires getting to a point where we can deliver higher RPMs than is possible with traditional sales models, and these gains are likely to be driven by data. The move to a Narnia 2.0 world enables us to leverage Google data to create an O&O-like publisher network defined by unique demand, targeting, and formats. In return, we can secure exclusive programmatic inventory and also potentially secure rights to optimize for long term value, e.g. leveraging YouTube's current capabilities to optimize ad loads or imposing ad latency and quality guidelines. See our [redacted] on creating a "new network" video for more information.

2017 Strategy Paper: Winning TV budgets at scale in a long term sustainable way

Director / VP Sponsor: Diya Jolly, Vivek Raghunathan

Problem Statement

How do you disrupt the brand advertising market and shift budgets over at scale if you play by the rules set out by the incumbents (i.e. TV networks)?

The Conundrum

YouTube today accounts for 10% of all video watchtime, TV accounts for 85%+. Although we hear that video consumption on TV is declining the decline is slow. Our best case assumption is that in 2020 TV will still account for 70+% of total watchtime, with YouTube and Facebook accounting for 20-25% and other online video destinations accounting for another 5-10% of watchtime. The implications of this for the YouTube Ads and sales team is that TV will always be a viable alternative and option for brand advertisers/ agencies for the foreseeable future.

At the same time over the last 2.5 years, we have pivoted our entire go to market strategy to showcase Google Preferred (GP) and only highlight and sell TrueView if GP is not acceptable to a client. Google Preferred is a "copycat" product to TV - buy impressions with non-skippable ads on premium content and measure your success based on on-target GRPs.

The question that comes to mind is - how we can be smaller than TV (the incumbent), have a copycat product (GP) and still be able to attract TV budgets at scale long term with the incumbent (TV) still having majority share of watchtime. What is an advertisers incentive to move 10+% of their budgets over if they are getting exactly the same offering? Would the incumbents (TV network) not retaliate by lowering prices?

The second important question is that given a lack of a well accepted ROI metric in brand advertising how do you actually position YouTube as a better choice to TV?

Proposed Solution

What we know?

We know that the best indicator of brand ROI is how much of the ad was actually watched. Brand lift increases with the number of seconds an ad is watched by a user¹². All seconds of ad watchtime are not created equal. Seconds where the user is paying more attention is more valuable than seconds where the user is not paying attention. We also know that mobile has higher user attention than on other devices. YouTube is becoming more and more mobile. Based on a study conducted in Australia we have initial indications that the average watchtime per impressions on TV is 30%. On YouTube this number is currently 60% for 15s ads and ~40-50% for 30s ads¹³.

What we are doing?

We have already launched presence based filtering. However, we have deliberately not taken to market our ability to detect if someone is paying attention (and how much attention they are paying).

Additionally, we are going to market with multiple new offerings that play on these strengths - bumpers and crane. However, currently both crane and bumpers are being positioned as a low end alternative to Google Preferred and as a way to blend down the premium GP prices (\$8-10 CPM vs. \$18-20 CPM of GP).

What we should do?

1. Work to establish present ad watchtime as the "click for brand". A metric that advertiser can measure in real time across all digital platforms.
2. Conduct additional one off studies with IPSoS (or others) that measures YT ad watchtime against TV and other competitors.
3. Even prior to Crane, pivot our go to market strategy around **attention based optimization and billing** and how this is something YouTube can do but TV cannot (and most digital video players cannot either).
4. Bring mobile and the value that mobile provides advertisers (millennials, right time/ right place advertising) over and above anything they can do on TV.
5. Rebalance sales (and GBSI) resources to be more focused on non GP, non reserve offerings.

Competitive / Ecosystem Analysis

¹² By now we are not the only ones who are stating this. Other industry bodies + publishers (FB) are making similar claims.

¹³ Study conducted by IPSOS

Given the whitepapers Facebook has pushed in this area they will most likely launch a similar narrative. Other publishers beginning to also discuss this.

Risks

- Cannot get the industry to adopt watchtime as their real time metric
- Outside of Australia our watchtime per impression isn't favorable compared to TV

2017 Strategy Paper: Measurement

Authors: Babak Pahlavan, Tony Fagan, Sanaz Ahari, Bill Kee, Elissa Lee, Matt Lawson, Russ Ketchum, Jesse Savage, Kyle Harrison, Nick Mihailovski, Dylan Lorimer

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Executive Summary

Google's measurement offerings are very complex and multidimensional since we are trying to make digital advertising & marketing as efficient as possible for businesses of all sizes. To make "Micro-Moments" happen, in this paper, we try to offer a framework, mission statement and set of principles to start unifying our measurement efforts. Also, we will go over our biggest bets for measurement in 2017 across our products in DVAA. Here is the 4-pillar and a summary of our top efforts in each section:

- 1) Scaled **Performance** advertising measurement:
 - This item cuts across performance, brands & marketing measurement (but it's closer to performance at this point): We continue to have 4 different attribution modeling products in the market that produce different fractional credits. We made good progress in 2016 in building the foundation and in 2017 we are trying to fully consolidate our attribution solutions across GA, AW, DDM & GA360 to offer a unified solutions as "Google Attribution" which has 2 tiers: free attribution (Airborne) and Enterprise (Attribution 360). The output of Google Attribution gets funneled in AW & DCLK so user flows won't be interrupted. We are also scaling our MMM data pipelines & expanding our partner strategy with MMM providers in 2017.
- 2) Scaled **Brand** advertising measurement
 - Our brand metrics have partial coverage on 3rd party media hence we are reliant more on 3rd party measurement providers (specially for our largest advertisers/agencies who want holistic coverage). It's imperative for us to fix this situation so we are doubling down on DCM; re-positioning it as a holistic campaign measurement solution for advertisers with closing the gaps on Viewability Measurement as a top priority (it's our largest gap); we are also working to bring Reach/GRP metrics to DCM along with Brand Lift. Sales Lift is the trickiest one to scale, but we are investing in our lower funnel sales metrics to prove the ROI impact of YT on sales and to influence budget allocations through a more robust offering with CPG sales lift in international markets, store visit lift and global MMM offering
 - Comparing TV campaigns to YT is a huge opportunity and our foundational investments across panels, tower bridge, **Fiber data**, attribution & measurement are coming together. In 2017, we will double down in TV campaigns measurements across performance & brand via 2 products: Reach and Brand Lift measurement across screens & TV attribution in GA360 (we are also unifying the back-ends). Related, we are doubling down on Google Power Panels (GPPs) and we'll start getting closer to offering our own TV meters and triple screen measurement (in US and 1-2 additional markets in 2017).
- 3) User **Behavior & Marketing** measurement
 - GA doesn't have cross-device reporting using Google graph yet so we are investing in both constellation & Narnia 2.0 (Constellation launch is soon and then we'll focus on Narnia 2.0). Regarding O2S, integration of GA with Newfie is a big area as our goal is to make store visit a metric used by all GA customers; we are also investing in an integration with CRM data via Salesforce to further enrich

GA's user data dimensions. GA360 Suite continues to be a focus for our enterprise customers as we bring Consumer Surveys (GCS) to the Suite and also further optimize our sales & services globally for all of Suite products.

- There is a rise of adoption from startups offering a/b testing, dashboarding and more advanced free analytics so we'll be making a big push for adoption of our free measurement products via launch of Data Studio Free, Optimize Free, a revamp of Google Analytics with more focus on analysis/reporting and also expansion of Firebase analytics for app developers.
- **4) Research & Advanced Media measurement (Non-scaled)**
 - We have a number of important efforts here, but a critical one is trying to develop a method to scale sales lift via end-users receipt scanning.

Disclaimer: This paper covers areas that Babak & team have visibility over; so there will be perhaps some measurement areas across DVAA and Ads Org that won't be covered in this doc.

A framework for Google's Measurement offerings

Measurement is a complicated multi-dimensional problem that spans across all of Google's ads organization.

Our objective is to create a unified measurement strategy, but given the extreme complexity of our existing solutions, this will be on-going effort. To get there, we need a framework; and given our complexity, any framework would have imperfections, but at the highest level, Google's measurement offerings can perhaps be organized as below:

1. Scaled **Performance** advertising measurement
 - a. This area is focused on clicks, conversions and attribution. Covers our O&O and 3rd party measurements for Search ads, shopping, Display, gmail, etc... and all of measurement for performance media
2. Scaled **Brand** advertising measurement
 - a. Brand Measurement framework includes a suite of metrics across the framework of See, Think, Do with reach, viewability, brand lift and sales lift metrics. These metrics include both metrics developed by Google and partnerships with 3rd parties. These metrics are for YT and the network as well as DoubleClick.
3. User **Behavior & Marketing** measurement
 - a. Most of GA360 products belong in this bucket: covers 1st party user behavior measurement, site/apps optimization, data-agnostic analysis & dashboarding, data management platform to combine 1st party & 3rd party data, holistic media measurement across all marketing touchpoints, attribution modeling and bidding optimization, etc..
4. **Research & Advanced Media** measurement (Non-scaled)
 - a. Most of the work that AMT team does (and GCAS) belong to this bucket

Measurement Mission Statement & Principles

We have A LOT of measurement products targeted at customers of various sizes in all of possible verticals in all major geos. Here is an attempt to come up with a unified mission statement along with principles to guide us as we move toward a unified measurement strategy.

Mission Statement:

Be trusted source of truth in Marketing Measurement, helping businesses of all sizes globally to gain customer insights, expand their reach & maximize their digital marketing ROI.

Principles:

Simple & Consistent: Easy to use & understand reporting and consistent data wherever they show up with great serviceability

Trustworthy: Trusted & easily verified by advertisers, publishers and also 3rd party measurement solutions with world class methodology

Comprehensive: User-centric cross-platform, cross-channel & cross-device measurement

Actionable: Integrated with AW, DCLK and 3rd parties for purposes of planning, buying & optimization

Measurement Map

We have on-going effort trying to map out our existing measurement solutions to see where our gaps are and what should be our global priorities across Ads organization. This has never been done to our knowledge and it's particularly challenging due to vast nature of it.

Here is a snapshot of what it looks like (Work in progress):

The dimensions are:

- **Columns:** Across Brands, Performance & Behavioral measurement, columns represent the top disciplines required by advertisers.
- **Rows:** represent media channels starting from O&O to 3rd parties to 1st party properties
- **Cells:** represent our specific product offerings and our competitive/completeness status are signified by colors.

We are also trying to apply the same columns to verticals and assign a dollar value to each cell. This is an on-going effort and current working group consists of: Babak, Nithya Sowrirajan (Brands), Susan Jasper, Adrienne Clem (Performance), Kevin Krogmann, Adam Eichner, Tony Fagan. We'd love to have more support and we'll report back our take aways as the map becomes more complete.

2017's bets & topics:

1) Scaled Performance Advertising Measurement in 2017 Consolidation of Attribution Products

Attribution is the primary way digital marketers measure ROI. As such, attribution both showcases and protects the value of Google advertising. Analysis from our economics team shows use of more advanced attribution leading to 3-5% revenue uplift, worth over \$1B (). Our strategy is to deliver comprehensive, easy-to-use, unified attribution in 2017:

- Targeted at the top 500 advertisers representing 34% of total spend, the 360 tier of Google Attribution will be:
 - Comprehensive: to include all channels, online & offline, through techniques beyond digital attribution like marketing mix modeling
 - Flexible: to accommodate enterprise client specific data types and taxonomies
 - More efficient to service: through direct integration with DCM & GA, as well as simple, UI-based configuration
- For the next 200K advertisers representing 52% of total spend our unified, free Google Attribution effort (Airborne) will be:
 - Cross-channel: for all Google and non-Google media, and also online to offline
 - Cross-device: leveraging Google signed-in identity
 - Actionable: can be used in bidding directly in our buying platforms
 - ...and, perhaps most importantly, unified, by collapsing all of our disparate offerings in AW, DDM & GA into a single one
 - Target segment:

For more detail, please see the

Supporting 3rd party MMM providers:

All major CPG clients rely on MMMs (and it's becoming more common in Retail, Finance, Auto & Tech). MMMs have outside impact on spend because they are used to set top-line budgets across channels. Particularly in verticals like CPG where existing providers (such as Nielsen, IRI and agencies) have a strong foothold, it's imperative that Google work well with these providers to ensure Google media is represented accurately and fairly. MMM can also be an extremely service and consulting heavy delivery, so partnering closely with 3Ps, rather than trying to do everything ourselves, is critical.

We have a 3 prong strategy here:

- With client permission, giving 3rd party MMM providers access to Google/DBM/YouTube Campaign Cost and Impression Data; in some cases paying for studies with DVIP funds
 - We aim to support over 1000 models in 2017 through this approach
 - With select MMM providers (such as Nielsen, Marketshare and MMA), we'll have term sheets in place helping to guide the use of the data and best practices
- Publishing & open sourcing our models, research and best practices to push the whole industry forward.

- Offering our own MMM solution as an example of end-to-end solution to retail & auto verticals and to round out our multi-channel attribution offering for those verticals.

TV Measurement (XMA, TV Attribution, Panels, TowerBridge, all in one)

TV Measurement is a special and important case of marketing measurement because 1) it represents such a large share of advertising spend for large advertisers and 2) shifting TV dollars to digital video advertising

In 2017, we can explore an early opportunity to take a set of TV-focused efforts and combine them to create a solution that helps advertisers measure across their TV and digital video advertising in a comprehensive and actionable manner. Specifically:

- TV attribution (launched in GA360 Suite) provides granular performance analysis
- XMA: provides granular reach analysis based on Fiber data (though presently lacks proper calibration)
- Panels: provides 3-screen reach and calibrated demo measurement, and can be used to calibrate XMA data
- Towerbridge: provide real-time TV ad monitoring (nearly) globally

By combining these assets, we have the opportunity to provide a solution that is differentiated by being:

- Granular (thanks to XMA and TV attribution performance granularity)
- Comprehensive (thanks to broad geographic coverage of Towerbridge & Panels)
- Multi-screen: thanks to 3-screen panels and Fiber TV data being GAIA keyed and capable of being connected to other Google data
- Actionable: through real-time data and integration into buying & planning tools

This is an early concept, but represents a large strategic opportunity.

GAIA, cross-device measurement & PII-based

Prior to Narnia 2.0, the division between our measurement strategy for platforms/network businesses versus Google O&O derived fundamentally from what our contract with users allowed us to collect and use. These divisions caused significant confusion, because it was not clear why we could do certain things for O&O and not for Platforms/Network, and vice versa. Cross-Device measurement and store visits are just two examples, with dozens of more subtle ones causing endless confusion.

Narnia 2 standardizes our contract with users across O&O and network/platforms. This provides a major opportunity to simplify measurement. For example:

- We can create a much cleaner story around measurement:
 - Media: measure all Google media

- Platforms: measure all Google media AND non-Google media/marketing (with no more asterixis and caveats)
- Unique value propositions for platforms measurement
 - By leveraging Google data like cross-device identity, store visits and other assets within the platforms environment, we can provide unique value to clients

A few related updates:

- **Google Analytics: Narnia impact & cross-device plans for 2017**
 - Narnia 2.0
 - *Existing functionality* - Google Analytics integrates with many different products within Google that themselves will be moving to Narnia (AdWords, AdSense, DBM, DCM, DS, DFP, etc). Our first order of business will be to work to maintain our existing pipelines, report & functionality. Though this will likely still require some new "controls" in GA that customers have to opt into or out of.
 - *New opportunities* - Narnia 2.0 also unlocks a number of new opportunities for our product and customers. Some of the top opportunities are: 1. Improved Cross-device, Online-to-offline (like Store Visits), & potentially reporting on Non-paid Search Query Terms.
 - Cross-device
 - *Existing functionality* - Google Analytics already provides comprehensive cross-device reporting for businesses who have their own logged in users (via our User ID feature)
 - *New opportunities* - Moving forward we are working to provide much more turn-key cross-device reporting (reporting that doesn't require extra work or client-side changes on the part of businesses). We are working to support this via our anonymous graph with Constellation first, and then eventually via our signed-in graph based on Narnia 2.0.
- **Google Analytics + CRM: In discussions with Salesforce.com for integration of GA with their CRM and also their marketing cloud**
 - Integrating CRM data with GA supports GA's mission of being the source of truth for helping a business understand & take action on their customer experience, behavior, and interactions.
 - Example use cases include ingestion of: offline conversions to enable full funnel (online to offline) analysis; and user attributes to enable more granular user profiling. We are in discussions with Salesforce to enable these use cases via an integration with their SalesCloud.
 - The scope of SFDC discussions also includes an integration with their MarketingCloud suite of products. MarketingCloud captures user event data via their Journey Builder product. For example, email events, mobile notifications, and customer service calls. All of this CRM event data could be ingested into GA to further its goal of being the source of truth and actionability for user data.

- **Attribution: Cross-device plans**

- Attribution (both Free and 360) will leverage Constellation to provide cross-device, multi-touch attribution - this builds on the existing use of Constellation in the legacy Adometry platform
- Since Attribution uses GA, DCM and GDN logs as its primary data sources, as these data collection systems migrate to GAIA-based logging following Narnia 2.0, Attribution will need to migrate to using the GAIA-based logs
- As this happens, new use cases will open up, such as using Newfie Store Visits as conversions for cross-device, multi-touch, cross-channel attribution.

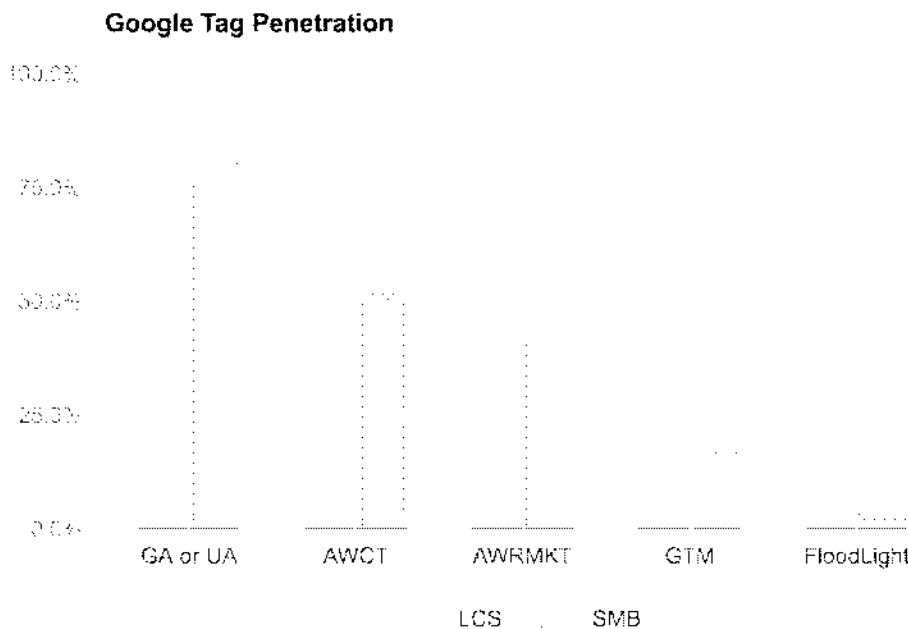
Simplifying our tags

One of the biggest sources of confusion for our customers is from using multiple Google Tags for same purpose. We have a few primary tags that are at times overlapping with each other:

- GA Tag: for 1st party site
- AWCT
- AWRMKT
- Floodlight
- DCLK Pixel

This is currently the state of our

¹⁴:



Ideally we should end up in a state that we have one tag for on-customer-property conversion tracking and one for 3rd party sites; essentially one Google Tag (or forwarding solution), and

¹⁴ This analysis was done by looking for known tag url signatures in the logs of the (the crawler used by the safe search team to look for malware).

importantly, a centralized place for customers to define the definition of conversion (or in case of GA, "Goals").

We actually have done this already on mobile via Firebase Analytics. We essentially have deprecated AWCT for apps and all conversions are being captured automatically via Firebase Analytics and then routed back to AW; we should do the same for Web (requires a task force with a cross-functional mandate to go tackle this).

We have recently kicked off a project called "Google One Tag" which is supposed to be a one tag (or container) to be deployed on sites and server-side it'd get configured to route the data to the proper collection system. This will get more formalized in Q4,16 and we'll invest in it more properly in 2017.

2) Scaled Brand Advertising Measurement

Brand Measurement investments span across the See, Think, Do pillars:

- See: was an ad seen by the right audience? Supported by the viewability and reach products.
- Think: What did they think after viewing the ad? Supported by the brand lift products.
- Do: How did it change their behaviors? Supported by Sales Lift.

Brand Measurement products support YouTube and our network as well as DoubleClick. In 2017 we will invest in our core metrics supporting YouTube and the network and double down on strengthening our offering for DoubleClick advertisers while expanding our offering for cross-screen measurement that includes TV.

Innovating and investing in our Core metrics for YouTube and the network

Our core pillars of investments across see, think, do are as follows:

- **Unique Reach**
 - Supporting an integrated solution for TrV reach across planning, buying and reporting
 - Data sharing with 3rd party reach offerings in order to ensure accurate measurement of YT and our network
 - Expanding reach measurement cross-screen include OTT and linear for campaign reporting
 - Enabling content measurement for YouTube creators
- **Active View**
 - Completing 3rd party viewability integrations powered by Active View
 - Working with YT in establishing presence metrics and exposing them on DoubleClick
 - Extending set of AV+ metrics in Athena and exposing the critical set in AW
 - Establishing custom viewability targets for vCPM buying on GDN/GVN

- **Brand Lift**
 - Optimizing to lift as part of TrV Impact through improving quality, extending to search lift and additional signals and establishing lifted users
 - Driving brand lift adoption through correlations, client level meta-analysis, improved reach and results reporting, comparability and automation
 - Continuing to invest in PrimeTime (Search Lift for TV) and expanding to Survey Lift with project Apogee
 - Pre-campaign creative testing using Brand Lift to help advertisers make better creative decisions
- **Sales Lift**
 - Launching store visit lift as a reliable proxy for sales lift for verticals like retail, large CPG advertisers and entertainment
 - Launching CPG offering in international markets

Online to Offline Measurement for Brands

Our goal is to provide **reliable, trustworthy and actionable** campaign-level sales measurement for our top 20 brands across CPG, Retail, QSR, Auto, M&E and Tech in our top 8 markets for brand advertising (US, UK, FR, DE, BR, JP, CA, AU). Our priority is to measure online video on YouTube (TrV and reserve/GP), DBM, and then GVP.

In general, our solutions will serve two purposes:

- Short term, we will measure a small number of large campaigns directly with sales lift and anticipate a **"halo effect"** of increased investment from positive results.
- Longer term, our **strategy is to prove that our brand lift metrics (search and survey lift) are credible proxies for offline sales**. For example, an advertiser will know that their campaign's 10% lift in purchase intent correlates with a 5% offline sales lift, without needing to directly measure sales lift for every campaign.

We have four pillars of investment in 2017:

- **Scale US CPG**
 - Extending current DLX offering to support YT reservations and DBM.
 - Continuing to improve match rates in order improve overall study success rates.
- **Closing the gap with international CPG coverage**
 - Due to fragmented data sources and different privacy/regulatory environments, there is no one-size-fits-all solution for international support for our largest opportunity (CPG). We need to invest in multiple partnerships e.g. with major retailers and measurement providers in order to close the coverage gap in our top 8 markets.
- **Extend support to new verticals**
 - Though CPG is our largest opportunity, measuring offline impact for (e.g. Retail) represents a major opportunity. Efforts such as Store Visit (Newfie) Lift and Swipe (usage of credit card transaction data) are ways we can offer sales lift for a broader set of verticals.
- **Innovate to leap ahead**

- Investing in areas such as _____ can provide other solutions for measuring sales lift.

More details can be found in this _____ .

Ubiquitous Brand Measurement in our Platforms

Viewable impressions are replacing served impressions as the impression currency. DoubleClick has historically served as the source of truth for impressions and is not currently positioned to be that source of truth for viewability unless we invest heavily. With the shift to viewability it's important for DoubleClick to adapt. Current market dynamics are creating a confusing state for publishers, agencies & buyers:

- MRC's definition of viewability (1 sec viewable for 50% of the pixels) is not fully accepted by everyone
- There are several players offering viewability metrics and they have semi-strong footprint: MOAT, IAS, DoubleVerify, etc...
- Larger Agencies (e.g. GroupM), still command the definition and also demand the viewability vendor they trust; hence publishers are forced to implement various different ones

DoubleClick is positioned strongly strategically with strong adoption across agencies and advertisers. We believe that we can re-position DoubleClick as a home for measurement by investing in building a compelling suite. We need to address some key gaps with viewability:

- Measuring all served and tracked impressions across display and video with a target of 90% measurability
- Offering a suite of viewability and engagement metrics
- Differentiating through insights on what drives lift and by offering best in class optimization and buying on DBM
- Advertisers expect viewability and verification/spam to go hand-in-hand, we should invest in extend the coverage of spam and verification to all tracked impressions as well

To further differentiate, we can offer a unique bundle to our advertisers that also includes metrics across reach and lift:

- Reach
 - Unique user measurement including slices like clicks, conversions, viewability and demographics
 - Choice through integrations with Nielsen and comScore
 - Integrated solution across planning, buying, optimization and reporting in DBM
- Lift
 - Brand Lift measurement including insights on what drives lift across publishers and viewability

More details can be found in this _____ .

Panels (Consumer IQ)

Single-source Panels (SSPs) are a critical enabler to Google's TV and video strategy in that they provide the necessary ground-truth viewership data for both digital and 'traditional' linear TV across Google and non-Google properties, enabling Google to measure and report on cross-screen, cross-channel reach. In order to support the Google TV use cases outlined in this document, Google's SSPs must surpass certain industry standards for quality and measure key media across mobile, web, linear TV and over the top (OTT) TV.

Panels and AMT teams are ensuring that we'll be ready for these use cases (further described in the) in 2017 by focusing on the following:

- Developing and deploying a TV meter to measure linear TV viewing. This meter will attach to the TV and use Towerbridge to match the audio stream to a specific program.
- Add TV measurement to Single Source Panels* in countries where we need cross screen video measurement (in US and 1-2 additional markets in 2017).
- Calibrating Fiber set top box data with panel ground truth data and adding individual level measurement (household to user).
- Evolving the quality of Google Powered Panels to be able to achieve industry accreditation (e.g. MRC) to allow us to defensibly use our data in the market.

** Cost: For the U.S., panel investment to add TV to the calibration panel is estimated at ~\$3M incremental above the \$9.9M annual spend for mobile + desktop in year 1 and an incremental \$1.6M annually thereafter. For full SSP (TV+mobile+desktop) with Google meters, spend with the panel vendor would be ~\$13M in first year and ~\$11.5M annually year 2 onward. See Global SSP .*

TV Measurement (Primetime and Reach)

In 2017, we will extend measurement of Reach and Brand Lift to TV in order to provide advertisers with better metrics to understand how their efficacy and reach compare across screens.

Brand Lift is making several big bets with the launch of Primetime (Search Lift for TV, late 2016) and continued pursuit of launching Apogee (Survey Lift for TV, 2017).

The first goal is to establish as a necessary metric for measuring the effectiveness of TV campaigns. To achieve early success, Primetime needs to achieve the following qualities. Advertisers trust the results that they see, and feel they are a **credible** measurement of the effectiveness of their campaign. Sellers should be able to **intuitively** create a story that demonstrates where Youtube succeeded. Primetime reports should be **reliable**, and users should get results every time they expect one.

Once we accomplish these underlying goals, we seek to not only strengthen the reputation of Brand Lift as the most trusted and reliable metric, but also to augment it as the only name in cross media measurement, through several initiatives.

- **Adding benchmarks, slices** (device, daypart, genre), **and more signals** (conversions, site visits) that allow clients to understand their results in a meaningful way.
- **Integrating with Extra Reach**, allowing clients to not only plan and optimize their campaigns against reach, but also lift, and **Interactive Benchmarks**, allowing advertisers to compare the success of their campaigns against their previous campaigns and those of their competitors.
- **Launching Apogee**, which allows advertisers to measure Survey Lift-based metrics.
- **Extending to DCLK**, adding TV measurement to Brand Lift measurement in Doubleclick

With Unique Reach, we are launching a global cross-device measurement solution (currently available for AdWords and YouTube via internal sales tools) across all Google properties and platforms (AdWords, DoubleClick, and YouTube). In 2017, we want to bring TV (programmatic and linear) as a core component of our reach measurement offering.

OTT Measurement

- **Co-viewing Reach**, extending our cross-device solution to include all devices that can serve video on demand content and inventory with a “co-viewing” reach model.

X-Media Reach

- **Self-serve cross-screen Reach planning**, bringing “Extra Reach” planning into DoubleClick to enable self-serve offerings for agencies and advertisers and extending the available inventory to include programmatic TV.
- **Cross-screen Reach reporting**, extending our “Extra Reach” planning capabilities to mid- and post-campaign reports, enabling advertisers to understand the incremental reach across digital (starting with YouTube) and TV campaigns.
- **Google’s TV data**, using our own measurement capabilities (e.g., calibrated Fiber data, requires both Fiber STB and TV on SSP) to replace the need to rely on 3rd party data sources (e.g., Nielsen and Rentrak) to power our Reach tools and offerings.

Content Reach

- **Cross-screen Reach measurement for TV and content providers**, giving them the ability to understand their audience across all delivery channels

More details can be found in this [link](#).

3) User Behavior & Marketing Measurement

Google Analytics

Google Analytics mission is to be the source of truth for understanding & taking action on a business’ customer experience, behavior, and interactions. At a high-level, it: 1) helps a business understand the entire customer journey 2) deliver intelligent insights 3) empower actionability.

Our free version focuses on the needs of smaller businesses with simple marketing strategies and straight-forward analytics needs. Its objective is to grow Google media spend & impact. Our paid version focuses on the needs of Fortune 1,000 marketers with complex marketing strategies and sophisticated analytics needs. Its objective is to grow the coverage of the overall media measurement of these customers, and secondarily to drive new direct revenue for Google.

In 2017 we have four major product areas: "Data", "Integrations", "Reporting & Intelligence", & "Analysis & Users". "Data" is focused on ensuring we have a best-in-class data model & product performance at enterprise scale. "Integrations" ensures that we have a comprehensive view of the customer journey & seamless way to take action on these insights inside and outside of Google. And lastly "Reporting & Intelligence" & "Analysis & Users" work together to provide ways for simple, powerful, intelligent, and actionable insights & exploration.

A sample of the major areas of development in 2017 are:

- Support Narnia 2.0 across our existing functionality, and with new & improved Cross-device and Online-to-offline capabilities
- Make all standard reports: "real-time", "unsampled", and "user-centric"
- Launch a new simplified navigation and reporting UI, and our new Assistant Insights & Natural Language Search
- Provide first-class support for combine "Web + App" analysis (including Apps powered by Firebase)
- Launch a powerful, fast, flexible and brand new "Analysis" section in the product

O2S Plans for GA

Newfie is a really important effort led by Kishore & Phil M and team. We are in discussions with them on how to leverage more of the Newfie infrastructure for GA:

Today, GA offers an online to store solution using User ID and Measurement Protocol where businesses can tie offline transactions data to online users that they can identify on their own (eg: via login or an online sales lead form). ~5.5% of AdWords RUM has enabled User ID feature.

However, we want to offer a more turnkey and scalable solution. We are developing plans (steering review in Sept'16) to integrate with Newfie to bring store visits insights into GA. Total addressable AdWords revenue for Newfie + GA is more than \$6.0B. The solution will provide a foundation to support other store measurement solutions (such as Store Sales, Swipe etc.) in future.

We are also developing proposal for a *pure* offline / in-store measurement solution in partnership with Geo and Newfie team. The goal here is to provide GA like insights to businesses on their physical store traffic. This is an area that needs more Eng resource investments if we want make it successful in 2017.

Firestore Analytics (Apps)

As the core of Firestore, Google's mobile app developer platform, Firestore Analytics is the source of truth for mobile app data at Google (largely to enable various machine learning efforts) and a primary springboard to Google's media and platform businesses. With a successful launch at I/O 2016, Firestore Analytics is in market and rapidly scaling. Looking to H2 2016 and beyond, Firestore Analytics is aligning tightly to the the specific user personas it serves within Firestore and as they mature into to Google's other products (namely Marketers via the Google Analytics 360 Suite, Advertisers via AdWords, Publishers via AdMob, and Developers via Firestore, GCP, and Play). Firestore Analytics has a critical role to play as part of Google's overall measurement offerings and to win over app developers from Facebook's offerings – and is well positioned to do exactly that.

2017 Major areas of development include:

- Marketer Focus: Streamlined and enhanced integration with all of the GA 360 Suite
- Advertiser Focus: Configurable attribution windows, DCLK integration, Twitter, and expanded network support
- Publisher Focus: AdMob integration and publisher reporting
- Developer Focus: Realtime debug mode and reporting, unified event collection with Google Play, realtime BigQuery export, and expanded Firestore feature integrations

Optimize

Optimize enables GA customers to improve their site experience and conversion rates through experimentation, targeting, and personalization. Ultimately, better user experiences and higher conversion rates will lead to increased spend with Google. Optimize is built on top of GA and GTM, enabling users to get up and running quickly, in many cases with no tagging changes. Optimize launched in August 2016 as a paid product in the GA 360 Suite. To build support and expertise for the product among a broad community, we will launch a free version of Optimize in Q4 2016.

Major investments in 2017 include:

- Media Integrations. Initially an integration with AdWords.
- Personalization. Advanced capabilities to drive site wide dynamic personalized experiences.
- Intelligence. Providing insights and automation from opportunity discovery and analysis to deployment.

Additional detail can be found in the

Data Studio

is a next generation Business Intelligence tool. Our vision is to help all business be more data-driven by making access to data (and analysis) easier. As the amount of data and datasource businesses have access to explodes, businesses are having a difficult time taking advantage of this data to make better business decisions. Google Data Studio

dramatically simplifies accessing, visualizing, and sharing data, enabling companies to get the most from their data.

In 2017 we will continue to target Large Google Advertisers via GA360 sales and 360 partners. We plan to increase the accessibility of the product by offering a standalone self-service version, as well as enabling the Google for Work team to distribute the product. Finally we will continue helping internal Googlers through our partnership with Corp Eng as well as enabling both LCS and SMB ad sales to simplify building custom reports for end advertisers.

2017 Major areas of development include:

- Enabling developers to build connectors to 3rd party systems
- Deeper integration with Google Cloud Services for data storage and processing
- Supporting richer data transformations such as joins, unions, and filters
- Simplifying reuse of reports and data sources through templates and gallery
- Adding a new analysis tool for users to visually explore their data

For more info, please see our

Google Consumer Surveys (GCS) & Opinion Rewards (GOR)

Surveys are widely used by Google A&C teams to measure the effectiveness of ads (e.g. BrandLift), collect UGC reviews (e.g. Hotels), evaluate the quality of machine learning models (e.g. Now cards) and allow sales and research teams to understand user behavior and opinion. Despite the indisputable success of GCS for internal users, we haven't seen external researchers adopt it at the same pace, due in part to our constrained go to market and limited brand awareness. In 2017 we're going to solve this by:

- Relaunching GCS as Google Surveys 360 in the Suite, narrowing our product focus on solving for the digital marketers use cases that are most aligned with GA360.
- Launching an integration with Google Forms to become the front-end for research by the 50M 30DA Apps users who are largely "non-researchers". This is our approach to democratize research, and as a by-product it will help boost demand through our planned freemium model.

The above will simplify our external go to market, but we also need to massively grow survey demand in order to allow us to expand our install base for Google Opinion Rewards and keep our publisher network healthy and serving the needs of key clients like BrandLift. In order to balance respondent growth and demand we're going to:

- Partner with Play to promote GOR directly in the Play store in all key markets -- this will reduce our cost to drive installs (currently ~\$7-9 / install)
- Allocate a per user slush-fund fill the survey gaps for users not receiving surveys frequently enough* from A&C partners
- Launch GOR in NBU markets and iOS to have panels in all markets required by A&C
- Begin serving BrandLift studies across the 402 publisher network
- Explore big opportunities like automated brand health tracking for all advertisers, or automated retail satisfaction surveys for all merchants in Google MyBusiness

For more info, please see our

** we'll run experiments to decide what the optimal survey frequency is*

Tag Manager

Tags are the instrumentation layer for measurement for websites and mobile apps. The more sophisticated a marketer, the more complex their tagging challenges become. Google Tag Manager and Tag Manager 360 play a crucial role in solving tagging problems for customers and increase the quality of data being collected through tools provided by Google and 3rd parties while also increasing the speed of deployment. In 2017, Tag Manager will continue to focus on solving complex problems for Google's enterprise customers, but starting in H2 2016 Google Tag Manager is doubling down on this strategy by focusing on adoption and growth of Tag Manager 360 specifically.

2017 Major areas of development include:

- Enterprise workflows
- Improved ease of use
- Vendor neutrality (increased tag support)
- Increased platform support

GA 360 Suite Core

Suite Core is the platform that ties together all of the suite products and provides administrative and management capabilities. The stated mission of the team is to enable suite cross-product management, insights, and actionability through seamless product integrations, holistic data management, and consistent user experience. Suite Core launched in July 2016 providing a common header across suite products, cross-product summary reporting, basic user management capabilities, and integrated billing.

2017 Major areas of investment include:

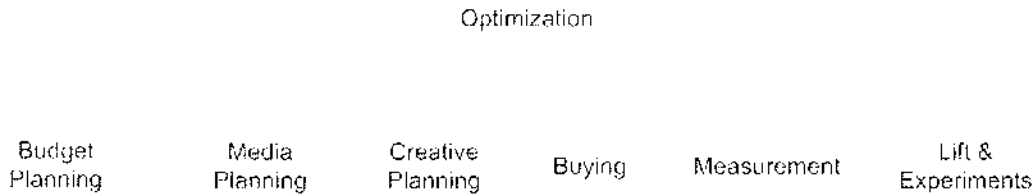
- Advanced user management and organizational modeling
- Data and integrations: Facilitating integrations among suite products as well as with external data sources
- Common Assets: Starting with shared audience capabilities
- Suite wide Insights and actionability

Additional detail can be found in the

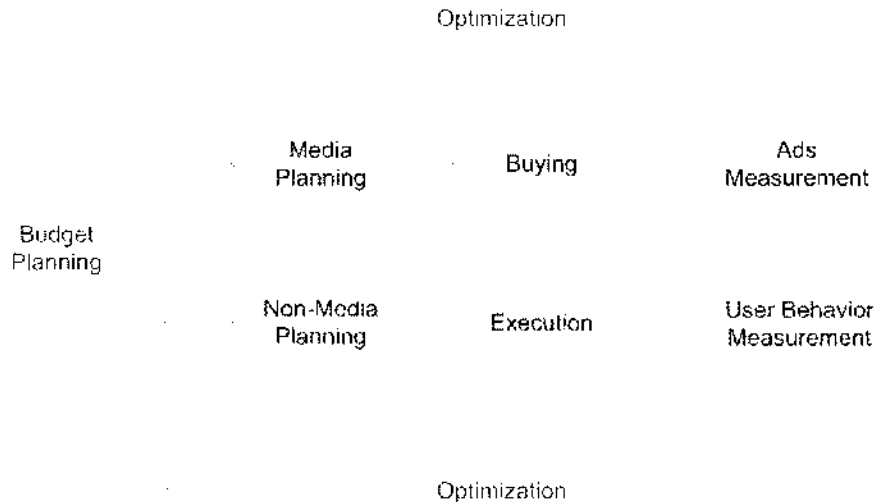
Commercialization Ideas

Closer Partnership between GA360 & DCLK

There are many models to describe the high level workflow of modern marketers; here is perhaps one of those models¹⁵:



Measurement components of AW & DCLK follow this model seamlessly, but with Google Analytics 360 Suite, at times it follows other paths in the customer organization. GA360 contains products that specialize in behavioral & overall marketing measurement and it is also supposed to be our objective measurement business unit (not that DCLK is not objective, but DCLK is closer to buying functions and agencies) and is targeted at different parts of the customer organization than DCLK: for instance, a big use case of Google Analytics is to learn how to make a better product/app/site or do non-paid marketing campaigns (e.g. email); however, those measurement outputs (e.g. from GA) can also result in media optimization for sophisticated marketers.



Ideas how to gain more efficiencies between DCLK/GA360:

This division between 1st/3rd Party user measurement and media buying measurement is non-optimal at times and sometimes causes inefficiencies both for the customers as well as Google. In a world that we are trying to enable customers capture "Micro-Moments", We have an

¹⁵ This was deduced after consulting with our Google marketing gurus

opportunity to enable more advertisers have direct access to customer-behavior data during their buy/planning phase.

Currently, this is a rough picture of our offering to our customers:

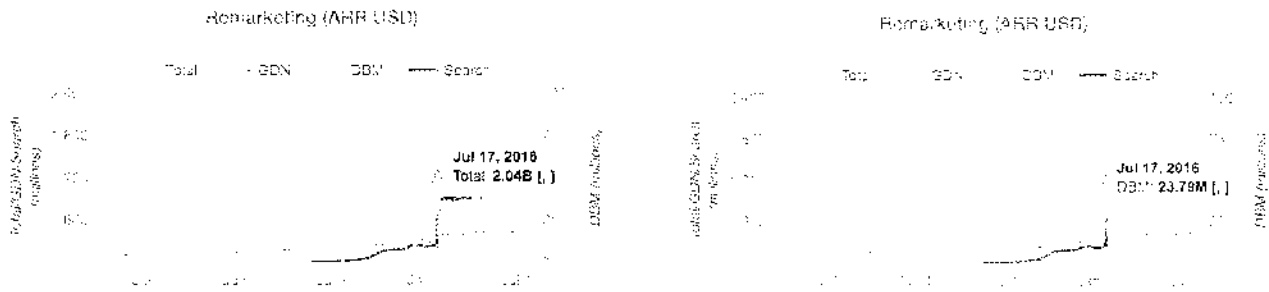
App Developers	1st/3rd party User Measurement/Optimization	Ads Buy/Sell/Measure Platform	Google O&O Media
<p>Google Firebase</p> <ol style="list-style-type: none"> 1. Firebase Analytics 2. Firebase Toolkit (hosting, messaging, storage, etc...) 3. AdMob 4. *AW for apps 	<p>Cross-Channel Platform</p> <p>Enterprise:</p> <ol style="list-style-type: none"> 1. Analytics 360 2. Attribution 360 3. Optimize 360 4. Audience Center 360 5. Tag Manager 360 6. Data Studio 360 7. Survey 360 <p>Free:</p> <ol style="list-style-type: none"> 1. Analytics + Attribution 2. Attribution 3. Optimize 4. Tag Manager 5. Data Studio 	<p>Cross-Channel Platform</p> <p>Enterprise</p> <p>Buy-side:</p> <ol style="list-style-type: none"> 1. DCM 2. Attribution (MCF) 3. DBM 4. DS 5. Creative Studio 6. AdX <p>Sell-side:</p> <ol style="list-style-type: none"> 1. AdX 2. DFP 	<p>Google O&O Media</p> <p>Buy-side:</p> <ol style="list-style-type: none"> 1. AW (Search Ads) 2. Attribution 3. YouTube 4. GDN 5. Shopping 6. PlayStore <p>Sell-side:</p> <ol style="list-style-type: none"> 1. AdSense

Firebase is great because it's a springboard for App developers to connect with other Google services. But the map above shows that we have 2 cross-channel enterprise platform solutions: GA360 Suite & DCLK with 2 different sales/services teams.

There is a spectrum of ideas that we can think about; ranging from "Do-nothing" to "most extreme: combine both platforms together" (the latter has lots of trade-offs):

1. Re-assess our GA RMKT via DBM:

- o One example of area where we have shown this inefficiency is with remarketing (due to product/commercialization/services/integration problems). GA RMKT has surpassed \$2B ARR in spend, only \$24M of that is via to DBM:



- o Linking between GA/DBM needs to improve a lot (right now it's not self-served); we are working on this.
 - o Right now in order to do RMKT from GA lists on DBM you need to be on GA360 (Paid version); we are re-assessing to see if we should open it up to Free GA accounts as well (the key question is how many Free GA account owners are active on DBM and what's the business opportunity there, since it'd take away one of the differentiations of GA360 vs. GA-free).
2. **Tagging:** We have an opportunity to simplify & perhaps consolidate our tags. See here more on our
 3. **# 2, plus Closer Sales efforts:** Have a more unified sales pitch process between GA360, DCLK & LCS teams. There has to be a way for us to unify our goals better (e.g. joint quota goals, etc...)
 4. **# 3, plus Closer Marketing efforts:** right now we have 2 different marketing efforts for our platforms efforts, maybe we can bring them closer to together.
 5. **# 4, plus closer brands:** how to align the brands better together? Marketing/Branding teams are looking at this.
 6. **#5, combine our App switchers & headers:** this would effectively signal that GA360 & DCLK are in process of unifying (which has trade-offs: might confuse some customers but also may make them aware of more of our products as family of one)
 7. **#6, plus combine both platforms together:** which might turn into a multi-year effort (may or may not be a distraction to our other big efforts).

GA360 Enterprise Services Offering 2.0

As our product suite has grown in scale and complexity, we've had to increase the number of resources allocated to enable client success. We've seen significant investment in supporting DBM and to a lesser extent GA360. While clients are sometimes willing to pay for higher touch service, Google's headcount model makes it challenging to staff in a way that meets that demand. So, to scale our support for these products, we propose moving to a model which orients our growth in services by focusing our efforts on 3rd parties,

This re-orient responsibilities in services between Googlers, vendors, resellers, and partners as follows:

Googlers -- Responsible for supporting a limited/fixed number of new client implementations/onboarding per quarter. This is necessary to give product and eng direct access to our most strategic clients for betas and ongoing product feedback. Googlers will also be responsible for maintaining the knowledge base and fielding escalations from vendors, resellers and partners.

Vendors -- Responsible for providing all post-onboarding support for Google's direct clients.

Resellers -- Responsible for selling and supporting the vast majority of our clients. Most revenue growth would be driven by resellers.

Partners -- Responsible for providing paid support to Google's direct clients for services that are outside the scope of our menu of services. For example, if a client wants to do a complex integration with their CRM or provide customized training sessions for various internal stakeholders, these types of services could be fulfilled by a network of certified partners.

The single biggest dependency to ensure our ability to execute the above model is to ensure that every Google product has tools and interfaces that enable 3rd parties to sell and support them. The growth of any product that lacks those tools and interfaces will always be headcount constrained.

4) Research & Advanced Media measurement (Non-scaled)

Sales Lift: Receipt Collection

- Google would like to provide precise measures of campaign ROI to prove the value of our ads. Collecting purchase data from consumers has advantages over partnerships with 3rd parties.
- Sales receipts contain information that is valuable for users and Google. We propose a set of shopping features, based on receipt data, that will create enough value for users to share their sales receipt data with us.

Cross-Screen Video Measurement

To power DVAA's efforts in video and help our large brand advertisers move TV budgets to Google, we need to provide cross screen measurement of video consumption. In order to do this, we need a ground truth data set for both digital viewing and 'traditional' linear TV viewing and need to add TV and OTT viewing measurement in our address sampled single source panel (SSP).

2017 Strategy Paper: Programmatic Direct

Director / VP Sponsor: Payam Shodjai, Jonathan Bellack / Paul Muret

Abstract

DFP and DCM manage \$10B-\$20B in display/video inventory respectively (with some overlap). We plan to be the ad platform of choice for buyers and sellers to promote, discover, negotiate and, in time, automate \$25B¹⁶ in addressable display and video media. We believe this will be accomplished by replacing tag-based direct monetization with higher value tagless transactions and data-driven automation that command higher percent media fees for Google vs. current CPM models.

Overview

- The direct reservations market is big (\$25B¹⁷) today, and will remain so for the indefinite future
 - Buyers often want to lock in reach/premium inventory and custom formats at the head
 - Sellers prefer to book guaranteed revenue and can get higher prices by negotiating+customizing
 - Premium video inventory has not moved to open auction and does not appear likely to do so
- Thus, we can't offer a credible platform on buy or sell side without direct sales support
 - Our open auction revenues are at risk if we are reduced to a bidder (lose the tag on the page) in someone else's auction or a platform that doesn't offer a complete set of publisher monetization tools
- Today, Google fees for reservations are low (2-cent CPMs) and there's a ton of inefficiency
 - Our buy and sell-side platforms have unmatched reach which positions us to provide more effective advertising, solve operational inefficiency, and capture a portion of the value as higher fees, improving our overall margins
- Programmatic gives us the opportunity to create a superior direct / reservations experience not possible in a traditional tag-based world
 - Increase overall campaign efficiency for buyers/sellers through respecting frequency caps and integrating audiences
 - Drive better performance by bringing algorithmic buying to direct deals
 - Only possible when you control both buy & sell sides
-

Strategy

Build a differentiated/defensible business by creating sustainable cost/value in our prog. direct platform

¹⁶ Source: for Display Market, Display 2020 for DVA breakdown, for DVA Direct breakdown, MagnaGlobal, IDC

¹⁷ Source: for Display Market, Display 2020 for DVA breakdown, for DVA Direct breakdown, MagnaGlobal, IDC

- Step 1: Automate direct transactions
Goal: Build infrastructure to empower the transition from tag-based reservations to programmatic
Cost: Involves higher sales and service costs (gTech ticket volume, sales commercialization) during initial implementation period (12-18 months), and while infrastructure is being rolled out
Key Features:
 - Tagless transactions
 - Automated billing (Google pays out, pub doesn't need to do collections)
 - Easy discovery / negotiation through Marketplace
 - Custom creative (aka localhost)
 - Deals troubleshooting
- Step 2: Deliver better performance by reducing media waste
Goal: Convert traditional deals to programmatic by offering better performance through less waste. Especially attractive for video deals.
Cost: Initial commercialization cost as we seed new deals; reaches sustainability once fully rolled out.
Key Features:
 - Audience guarantees (GRPs and user lists)
 - Global frequency management
- Step 3: Deliver sustainably superior ROI with algorithmic buying
Goal: Reduce deal term rigidity so we can use algorithmic buying to better allocate spend for better ROI at greatly reduced human cost
Cost: Sustainable at this point, as buyers & sellers transact directly with reduced Google support+sales
Key Features:
 - MarketMaker
 - Publisher deal recommendations (Rec Room)
 - DBM Planning recommendations
 - Flexible-term deals -- like an upfront, spend commitments that are not locked to specific I/Os

Competitive / Ecosystem Analysis

- Buy-side: TubeMogul, Criteo, The Trade Desk, MediaOcean
 - Working on Automated Tags (various names) - the equivalent of DBM Tags, which allows reservations to transact, but without the waste reduction capabilities of Programmatic Guaranteed, more latency (depends on header bidding), and no technology path to algorithmic buying
- Sell-side: Rubicon, OpenX, Pubmatic, Appnexus, Yahoo/AOL
 - Traditionally use tag-based solutions to access publisher inventory for auction and programmatic deals with buyers
 - Also supporting Automated Tags from sell-side, same limits as above
 - Now working on programmatic integration with DRX via
 - We could allow them to buy programmatic deals this way in future
 - Appnexus working on competitive full-stack solution

Risks

DRX: Failure to succeed in programmatic direct could pose a serious threat to our DRX open auction business:

- We gain access to most of the inventory for OA by being the primary publisher ad platform (tag on the page)
- If we don't continue to invest in programmatic deals, publishers will move their deals volume to other vendors that can support them (AppNexus, OpenX, Rubicon, etc), which will pull OA along with it, and reduce us to a bidder in their auction.
- This shift puts our access to the publisher's inventory for OA at significant risk

DBM: Rapid changes in the Programmatic landscape as agencies adapt to new business models and the demands of advertisers shifts towards premium video inventory:

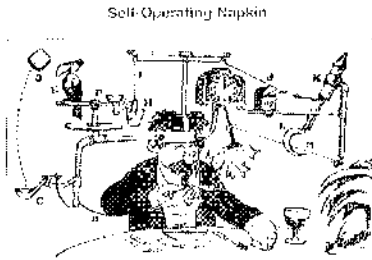
- DBM / DCM represent two products with substantial overlap, and without merging we lose potential velocity in development.
- Agencies are moving towards an inventory aggregation/management model as the value of being pure programmatic operators diminishes, and competitors such as Tube and The Trade Desk are offering features to empower these agencies.
- Video inventory is predominantly not available via OA, and shows little sign of shifting in next 3-5 years.

2017 Strategy Paper: Advertiser AI

Expertise at every step of the workflow for all advertisers

Director / VP Sponsor: Jason Bigler, Woojin Kim

Authors: Derek Dunfield, Tris Warkentin



Abstract: We aim to bring actionable expert advice into the AdWords and DoubleClick platforms through (1) auto-generating real 'best-of-class' examples of creatives, media plans, and optimization strategies that users can easily select, modify, and implement and (2) a user-friendly AI using NLP (Ad-sistant) to help advertisers navigate the complexities of campaign setup & optimization and give customized, personalized suggestions.

Problem Statement

Advertising is failing consumers, failing publishers, and failing advertisers. We know this because we measure success to the right of the decimal place.

For SMB advertisers, display advertising is too difficult. More than half of Google Advertisers don't have running Display campaigns, and only 11% rate themselves as "proficient" or better in using AdWords. On the other side, large brand advertisers on the DoubleClick platform must rely on agencies to determine marketing mix, manage budget, and design professional ads that live up to the expectations of their audience. This complex process often leads to siloed decision making, slow roll outs, and underperforming campaigns. For sure, it leads to an underwhelming ad experience for consumers.

Meanwhile, other platforms are capturing display advertisers from small to large by reducing functionality (Facebook has captured 2-3X as many display advertisers by focusing on simplicity in activation, creative design, optimization, and reporting) or offering full service support (OpenX, Criteo, etc.). **We propose a different solution: give every advertiser direct access to expert advice throughout the full campaign workflow.**

Proposed Solution

We propose building a decisioning and recommendation engine that provides relevant, actionable advice for advertisers. Recommendations should be delivered **(1)** directly as part of campaign workflow, or **(2)** via an AI user interface that acts as a 24/7 virtual account manager ().

Google holds a unique position to give expert, machine generated advice in at least three key areas of the workflow: **Creative development, media planning, and optimization**. While the latter is a clear extension of today’s bidding models, generative models to advise on creative development and media planning could be trained on the success of previous creative designs and advertising campaigns setups.

Specific ‘low-hanging fruit’ where ML based recommendations could have significant impact:

	Platform	AdWords Implementation
Creative Development	<p>Concept testing for creative message, allowing brands to quickly test ideas and iterate before spending budget on full creative development.</p> <p>Creative design evaluation that uses marketing science metrics and discrimination models to pre-test ad effectiveness based on campaign criteria ().</p>	<p>Automated creatives suggested through <i>Overviews</i> and the <i>Opportunities Center</i>. Adopting sizeless automated creatives results in huge uplift for text-only and limited-image-size advertisers.</p> <p>Brand-aware creatives that use existing creatives, colors, landing pages, and more as a seed</p>
Media Planning	<p>Audience targeting recommendations that consider not only the campaign brief, but also characteristics of the creative design.</p>	<p>Automated targeting that enables both “self-driving” campaign and “power assist” campaign users. Advertisers easily discover targeting options that reflect their brand message and user traffic patterns.</p>
Campaign Optimization	<p>Inventory - use ML-based traffic analysis to find new inventory sources with high ROI and optimize inventory mix.</p>	<p>Cross-campaign optimization for advertisers with diverse goals or multiple networks -- such as conversion optimization across Search, Display, and</p>

		Video
--	--	-------

Generative models: Advances in Generative Adversarial Networks () now allow auto-generation of content that could previously only be managed by users: designing creatives, choosing appropriate inventory, setting media plans budgets. GANs accomplish this *without* requiring live experiments and result in two powerful neural nets: one that generates very accurate 'new ideas' (great performing creatives, successful targeting criteria, etc.) and a second that acts as an expert judge and jury to evaluate the effectiveness of any new idea (including user generated content). Google currently has all the data needed to build GANs for the examples above when measured against common performance metrics (pCTR, pCTA) as well as some brand centered metrics (brand lift, volume). Importantly, Facebook is these approaches for image creation.

New optimization metrics: Marketing science has demonstrated that common performance metrics such as CTR may be uncorrelated with brand interest, whereas other metrics (consumer perceived creativity¹⁸ or emotional evaluation¹⁹ for example) can be accurate predictors. Machine learning-based models can combine metrics for each advertiser, helping advertisers find interactions, users, or brand moments that are more valuable when the advertiser wants to track brand value *and* conversion performance. Starting points should include incorporating brand lift metrics into ML models, and broaden to added other well tested brand metrics from the marketing science literature.

An expert UI: While many recommendations should be built directly into the workflow to guide the user (recommendations on creative layouts or design, initial budgets and targeting criteria, etc.) a more flexible natural language processing (NLP) chat bot interface () should be included to allow users to interact with the software in a non-guided manner. This interface could be combined with the ML-based, semantic reporting and analytics service already embedded in Google Analytics ().

Incremental Opportunities

- Build concept testing and ad pre-testing directly into the DBM workflow, using a survey methodology with the same latency as brand lift surveys as a starting point²⁰. With (1) the top 200 advertisers contributing more than 50% of digital spend in the US, and (2)

¹⁸ Dahlén et al. *J Advertising Research*, 2008;
¹⁹ Roberts et al. *Marketing Science*, 2015
²⁰ Millward Brown claims survey based pre-testing can improve a brand's ad effectiveness by at least 20 percent

content creation now accounting for 40% of advertising budgets and only expected to increase²¹ - this is an investment area we cannot wait on.

- Rapidly onboard advertisers to large-scale experiments to understand product/feature performance
- Rethink optimization models to include all advertiser signals: provide in-flow suggestions for optimization and setup based on deep understanding of the advertiser -- access to expertise without need for human remediation
- Find and eliminate poor experiences: automatically escalate frustrated customers to humans for retention actions (e.g., proactive reachout, courtesy credit)

Pillars

- **Increase efficiency:** Advertisers can spend less time and money developing and testing creative concepts or determining media plan by quantitatively vetting their planning prior to creative development or campaign launch, or by taking Google's auto generated suggestions directly.
- **Increase ad effectiveness:** Good creative ideas won't be left behind and ideas that have the best chance of succeeding as concept will move forward. This means higher pass-through rates and, ultimately, a better – more successful – innovation process.
- **Increase spend:** Focusing spend on the right target audience for the right creative design will increase advertiser ROI (similar to remarketing today), giving advertisers more confidence to increase budgets for target groups they may not have considered before.

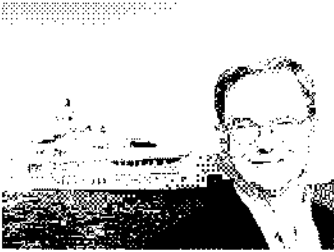
²¹ Percolate, The Hidden Cost of Marketing Content, 2016.

2017 Strategy Paper: Ad Experience Innovation Hub

Building better ad experiences for the modern user

Director / VP Sponsor: Jason Bigler

Authors: Steve Suppe, Karin Hennessy



Abstract: Ad experiences themselves will drive the winners and losers in the future of display ads. Google must drive innovation in ad experiences that scale beyond our own properties and beyond the desktop. We should leverage the breadth of our technology stack and our scale across the open web to lead the industry in user-first, beautiful, ad experiences for modern devices via a specific investment in ad experiences.

Problem Statement

DoubleClick is an effective platform for the creation and delivery of ads. However, as the world becomes more programmatic, more sophisticated ad experiences have lagged behind - all the custom, beautiful ads are still only transacted via traditional reservations on DBM and DCM. We need the ability to deliver rich formats that go beyond standard IAB ad slots and design high quality, brand-focused ad experiences for the modern, mostly-mobile web and app world. To execute programmatically today, each publisher is left to decide which ad technology vendors to use, which leads to fragmentation for advertisers and often broken experiences for users. We can't expect publishers and advertisers to choose just one vendor, but we can create standards for rich media interactions that vendors adhere to. This isn't purely about creating standards, but extending them to formats beyond boxed rectangles in ways that ensure programmatic success. AMP, MRAID and SafeFrame have shown that Google leads with safe standards, vendors back them.

Proposal

We should form an ad experiences practice that enables us to produce impactful, innovative experiences and leverages creative standards to enable faster development and production specifically designed to scale through programmatic buying. We can do this by focusing on three elements:

- Rendering standards for publishers and exchanges to support rich media ad serving programmatically
- Examples of beautiful and interesting ads formats that take advantage of these standards that will be scale to the open auction
- A “user long-term-value” experimentation platform and optimization model that takes into account not only buyer metrics like CPA/CPC, but things like “user happiness.”

Platforms is in a unique position to drive these formats because:

- Broadest distribution of display ads across the open web, globally
- Relationships/professional tools for content creators who focus on ads
- Designed to work with world’s largest brands and their tools and workflows
- Direct relationships with the biggest mobile-first/mobile-only brands AND synchronicity/relationships with publishers

Creative Pillar: Better Creative Standards

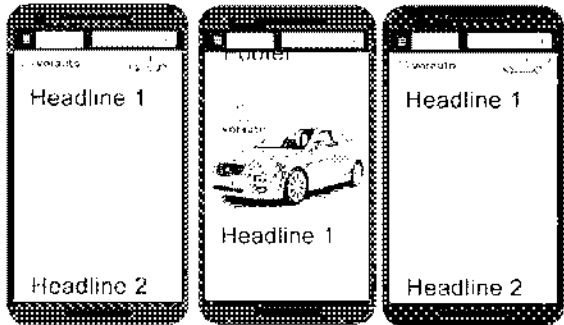
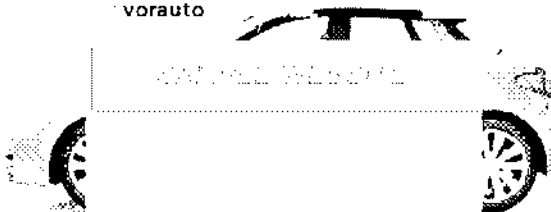
- This concept is covered more in depth separately at
- Each rich media vendor today has its own Javascript library, its own technology dependencies, and implementation details for publishers. This is fragmented, confusing and leads to bad ad experiences.
- OpenRTB (the programmatic exchange spec) is severely lacking in how to describe how creatives work - it contains almost no information about creatives beyond the ad tag spec
- Similar to AMP, MRAID and SafeFrame, we’ll create a standard that describes how to do the following in a safe, performant way:
 - Render interactions with the publisher page
 - Render animations
 - Declare capabilities of a particular ad slot and publisher page
- As user sentiment on ad behavior changes, we can use this standard to force advertisers to not upset users

Creative Pillar: Authoring - making beautiful ads

- We will work with other initiatives like Magnolia to understand the *long-term* effect of ads on user conversion rates, sentiment, and ad blocking.
- Any changes we want to make to ad behavior can be enforced via standard libraries
- Standard technologies will allow us to track user interaction and performance metrics across every property of the ad we deem necessary to track
- All these signals will feed into algorithms like Conversion Optimizer, Brand Lift, and even

Creative Pillar: Formats

Backdrop - Skins for Mobile, at scale

<p>The mobile web version has an anchored "leaderboard" and a "scrolling reveal window" towards the center of the page.</p>	<p>The desktop version looks a lot like a traditional skin, but can dynamically resize to fit different screen aspect ratios.</p>
	

What is "Backdrop?" A beautiful, smarter responsive 'skin' creative format for desktop and mobile web. Backdrop is a single "intelligent" tag that can determine how to best wrap itself around the site content, meaning less work for publishers and a bespoke experience every single time. The creative is built directly in the DBM UI with no need to code.

Our goal: Prove we can make "non-standard" brand formats work programmatically in the open auction (instead of just deals). In short, we are going to standardize skins - both the bid protocol and the format.

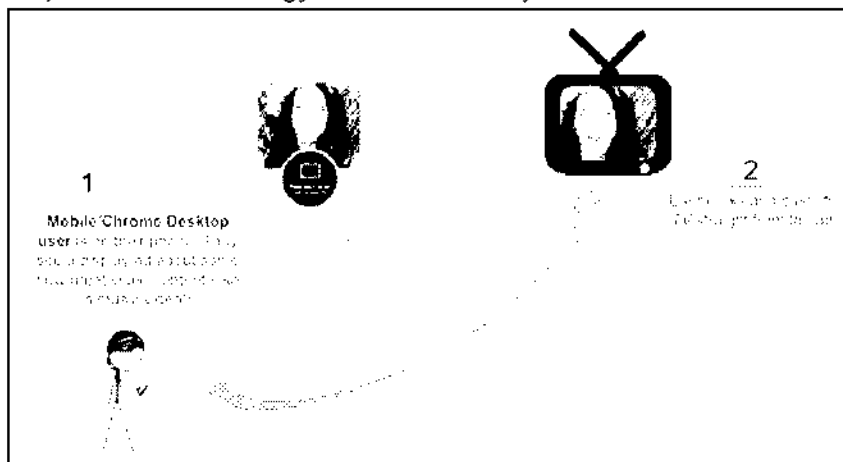
Our work so far: We are working with AdX and 3P exchanges to standardize the signal and rendering libraries so any exchange and publisher can use this format.

"Tap to Cast"



Advertising needs to be where the viewers are. By 2020, In addition to shifting our product focus to video inventory, we have an opportunity to create proprietary formats that leverage users' desires to watch video. The Google Chromecast is a bridge between digital video and users' television sets. We can blur the lines between TV and digital with a format unique to Google and more compelling than simply 'mobile on video.' This technology is present on over 25M sold Chromecasts and 5M Android TVs (*confidential*). Ads that can 'Tap to Cast' will ensure Google is part of monetizing video on and off of YouTube. Using Narnia2, we'll be able to target Chromecast users on their phones, creating a proprietary mobile audience that engages with video like no other format.

"Tap to Cast" technology embedded in any ad. Here's how it works:



On YouTube we can promote more views and drive digital video CPMs towards TV CPMs, while offering the same experience to any video publisher who has implemented the Chromecast API. Casting to a larger screen is the ultimate 'engagement' signal - media creators will be able to measure GRPs not only in targeted demographic, but *engaged* demographic. Chromecast users overlap with the most in-demand demographics. Google will receive detailed viewership data that can be used for targeting and analysis. (For example, we could develop user segments of fans of science fiction, comedy, action, pop music, etc).

Appendix

Dynamic Video

No scaleable, user facing product exists to create Dynamic Video Ads. Dynamic video ads are video ads with the following pieces that can change based on targeting/user features:

- Overlay text
- Overlay images
- Specific 'cuts' or 'scenes'
- Voiceover

Other companies are beginning to provide Dynamic Video capabilities through 'video versioning' (ie, pre-generating all the iterations of the video creative ahead of serve time). Whether engineering decides to make the creative 'truly dynamic' and assemble in real-time, or to do video versioning, speed matters. Clients will want to make changes and see them propagate ASAP, which a cross-PA initiative with Google Cloud would provide. We could be easy leaders in this space.

Combined with Project Krylon and other initiatives to make dynamic creative workflow easy, we could cast ourselves as leaders in video innovation.

Competitive Picture

- **Ad Servers:**
 - Celtra:
 - Aggressively pushing in this space and offering full service editing to clients. They are pitching it as dynamic video, but ultimately they are just doing the editing and versioning of clients' TVC and serving it accordingly.
 - Unilever: They have sold this into Unilever and are pressuring the Unilever team to pressure YouTube into accepting VAST for this purpose.
 - Google Media: Also doing some testing on this
 - Flashtalking:
- **Video point players:**
 - Innovid:
 - Offer great templated options for VPAID with full service.
 - Innovid's "full service" offer for VPAID creatives (aka taking a video file and adding some simple buttons and overlays on top. Media agencies wont do this and they don't bother asking the creative agency to do it. They just get vendors like Innovid and Brainient to do it for them)

- Studio offers VPAID templates, however they aren't easy because they are super buggy. Media agencies just don't want to (and wouldn't know how to) get into Studio to do this.
- **Publishers:** Many publishers are offering full service creative services as a way to sell in media
 - ITV example: Share a Coke campaign - Used their login data to customised the preroll ads to have a coke can with your name on it

We will take the lessons learned from () and turn it into a user-facing product for DDM users.

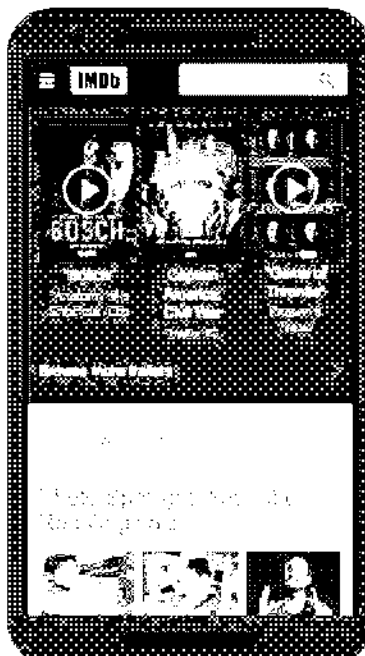
Instant Mobile Ads

We will combine the power of () with creatives served on mobile. Instant Apps instantaneously download parts of an app for use before installation, and would *enable DBM to make the mobile app the landing page regardless of whether the user has installed the app.*

80% of users drop off the "app install flow" at the app store install page. We will remove the 'install step' entirely so users can convert more easily.

The creative will render in standard IAB slots for display and video, and look like a standard creative. But when the ad is tapped, **instead of going to an app store or a web landing page, it will instead download part a deep-linked portion of the app for full interactivity.**

For example, imagine AirBnB is running a dynamic remarketing ad to users who have expressed interest in San Francisco before. The user sees a 300x250 display ad that when clicked, automatically loads the AirBnB app for *only the purpose of viewing and booking this property.* The user also has the option to download the app directly from the "Instant App."



Mock

2017 Strategy Paper: Champion Ad Experiences

A sustainable ad experience that drives enough value to counter existing incentives

Director / VP Sponsor: Jason Bigler

Authors: Karin Hennessy



Abstract: Building good ad experiences is only half the battle when it comes to driving change for the display ads ecosystems, where there are real winners and losers when it comes to how money is spent. Champion experiences proposes taking a gold medal ad experience into a practical monetization and measurement pilot focused on full-page monetization solution for publishers that proves more value for pubs and advertisers.

Problem Statement

Nearly half a billion users globally block ads on smartphones (source:), with growth over 90% YOY in 2016. With the trend in mobile media consumption, today making up 65% of users' digital time spent (source:), the predominant experience with digital and online content will be on mobile devices. These two trends are on a collision course - if users aren't provided better ad experiences on mobile, the majority will cease to become reachable on their primary devices, potentially as soon as within the next 3 years.

Historically, we've taken a relatively agnostic approach to ad experiences, particularly via our platforms products. Despite tremendous global reach and impact (our platforms products alone deliver over 4 trillion display impressions annually, source), we've implemented few standards for ad experiences beyond spam and fraud detection and filtering. By doing so, we've directly and indirectly contributed to the current state and quality of online ads.

Proposal

This strategy marks a pivot to our historic neutrality by putting forth a public strategy and product solution set focused primarily on consumer experiences with online ads. To do so, we need to invest in driving significant change in the online ad experience at scale, particularly in providing

not just a baseline “not terrible” ad experience and technical efficiency on our properties, but providing industry and consumer leading experiences that provide value for all stakeholders (consumers, publishers, and advertisers). This requires several principal initiatives:

- Polite ad experiences through innovation in formats on our content and through our platforms
- Fewer ads per page, period, and not just on O&O
- Structured ads for a better web

Further reading at

Pillars

Creative Strategy Pillar: Formats - Get noticed without annoying users

Polite ad experiences through innovation in formats

- Use Magnolia efforts as a baseline for eliminating the worst experiences from our buy/sell side ecosystems, measuring impact, and for developing good ads principles
- Strategic investment in display-first formats that drive high user satisfaction scores, CPM and RPM monetization value, and advertiser success metrics
- Agreed upon principles and minimum formats standards across Display/Video products (DCLK, network, and O&O)
- Development of the champion ads experience: non-obstructive, two-state invitation + immersive experience with trust identifier.

Fewer ads per page, period, and not just on O&O

- Per page exclusivity/monetization for DFP, O&O and potentially AdSense
- Potential AMP standard for page content + ads
- Potential for offering proprietary incentives/methods to publishers for increasing advertiser value (ability to target/leverage n2 signals, unique demand, value added brand measurement features, etc.)

Structured ads for a better web

- Structured ad components via AMP for maximum efficiency (latency, data)
- Standardized mobile interactions
- AMP documents for immersive experiences (non-page landing pages)
- Authoring tools that produce these ads (Google Web Designer + unified Display templates)

Competitive / Ecosystem Analysis

The display ecosystem at large suffers from similar issues as we do - solutions designed for a specific set of stakeholders result in opposing incentives and strategies that result in a tragedy of the commons when it comes to ad experiences: no one and everyone’s fault. The specific forces at play:

- Ad blocking/publisher monetization trends
 - Ad blockers have low barriers for users to adopt and implement long term. Limited consequences for using them, most content is still accessible.
- Large publishers, including Facebook, Snapchat, and similar logged in, walled garden experiences have innovated on proprietary formats for their properties, but still suffer from the same afflictions as the entire ecosystem, albeit some formats have been more successful than others at capturing user attention and generating satisfaction (Snapchat). This trend could continue, placing innovation solely in the hands of large O&O publishers, with very little coordination or collaboration across the industry.
- Isolated innovation from point players in formats (rich media providers, native providers) continues to be a small influence on large advertisers, but doesn't scale and makes it difficult for advertisers and publishers to wholesale adopt new experiences.
- Singular networks/publishers/apps not big enough to have impact required across user experiences
- Regional/global differences in user expectations mean that concepts and principles rarely translate, as most publishers and ad providers don't scale effectively globally.

Risks

- Adoption from primary stakeholders (large publishers, large and mid-sized advertisers)
- If each component of the strategy can't be executed together, it will be very difficult to overcome the opposing incentives of each stakeholder bucket.
- Consumers continue to block ads despite overall experience improvements
- Ads cannot be structured effectively to deliver promised efficiency/capabilities

2017 Strategy Paper: Project Bullion

Unified Creative Standards

Director / VP Sponsor: Jason Bigler

Authors: Karin Hennessy



Abstract: We have a pivotal opportunity to define the present and future standards for delivering display advertising to the open web. Without a common technical framework for delivering ad experiences, Google cannot pursue innovation for our own properties/network nor provide professional tools for the ecosystem at an acceptable rate or scale to combat the negative influences of today's ads on users and for advertisers and publishers. Project Bullion will represent our effort to push the industry toward a gold standard for delivering the best technically possible ad experience for our content and in the open web.

Overview

Today, digital advertising suffers from a meaningful tragedy of the commons when it comes to delivering ads and creating experiences for consumers. When it is everyone's problem to solve, it's no one's real responsibility. Two primary factors driving issue are: **1) lack of standardized technology and specifications** for serving ads to the modern internet and **2) a lack of content development for digital and lack of experience innovation focus for the vast amount of ads.** For the first, the consequences have been significant. The shift to consumption on mobile, the proliferation of various monetization solutions, the amount of content consumed digitally overall - all of these have created incredible growth and an immense volume of display advertising used to sustain the content ecosystem as a whole. As a result, users are exposed to **more ads than ever**, with ever **dwindling baselines for the quality** of the experience, even without considering the ad's content. The impacts to page speed (perceivable latency), overall data load (costly on mobile connections), overall content arrangement/context (design jank, irrelevance), have all led to increases in ad blocking, negative user sentiment, and lack of growth in monetization power for publishers. It also **makes the process of developing ads more costly** for advertisers and publishers and limits innovation, as the systems and technologies available for producing even the technical execution of display ads are increasingly complex, bespoke, and require a level of development expertise that is unaffordable for most.

The industry has addressed this problem in targeted, but not imminently scalable ways, with things like the VAST standard for instream video and MRAID for certain kinds of ads designed

for mobile devices. However, this leaves untouched the majority of digital advertising driving monetization and touching the highest number of domestic and global users today.

Problem Statement

This proposal attempts to address the lack of standardized ad serving and rendering specifications as a way to build a foundation for future sustainability and innovation for Google and the digital advertising ecosystem at large.

Today, the Google display organization supports and develops ad experiences across fragmented and duplicative technologies, particularly in the areas of creative processing, storage, serving, and rendering infrastructure. This means that even amongst our own ad solutions, we do not have the opportunity nor really the ability to use or present a unified ad serving and rendering specification standard to the ecosystem.

Developing standards gives us a platform to more rapidly innovate on our own ad experiences, and on tools for the ad creator/advertiser stakeholders that control advertising spend. Instead of relying on custom HTML handling, arbitrary Javascript libraries, and individual coding practices employed by the professional ad development ecosystem.

We can't only attempt to solve standardization via AMP, which won't necessarily address the significant volume of ad experiences that occur outside mobile devices and content. AMP is a method of standardization we will explore, but isn't the focus of this proposal.

Proposal

By developing rendering and interaction specifications, and unifying the Google infrastructure that powers users' end ad experiences, we can both scalably redesign ad experiences for the modern web and create a platform for innovation that will allow us to lead and guide the industry toward a sustainable future.

Existing and developing methods for constructing and executing optimal ad experiences for mobile environments should utilize a shared schema and HTML5/AMP/TBD implementation of such standards. By developing and implementing our own standards, we can approach the industry and propose these for the ecosystem (both at the leadership/organization level as well as developer level). It will lay the groundwork for enabling Google to lead a revolution in technical development for the industry and spur innovation internally and externally using technical standards that deliver better user experiences.

Unification should explore leveraging one of the two existing display ad serving/rendering assets currently maintained by Google - DoubleClick (buy/sell) and GDN/AdSense. There is no recommendation/consensus on which piece of technology is best situated or capable of achieving the desired goals at this point in time.

Pillars

Core Creative - Store once, use everywhere

Decisioning - Make ads useful and relevant

Two primary focus areas are required for us to deliver practical technical standards for delivering/rendering ad experiences:

- **Creative Infrastructure:** Focus on the creative schema, build pipeline, serving, rendering libraries and optimization/experimentation frameworks that power display for Google. This will be the implementation and optimization of the standards.
 - Determining which technology stack can deliver our needs is the first phase of this and refocus efforts around the chosen solution
 - This area will NOT be exclusively focused on rendering/specs for “formats” like IAB standard sizes or text ads themselves, but rather enabling the interactions and attributes of an ad experience in a technically standardized way. For example, how to achieve scrolling, tapping, various types of animation, image handling, video handling, handset interactions, etc.
 - The resulting creative rendering spec standards will need to be published/circulated/communicated with stakeholders, including publishers and their management technology, other ad serving providers, and creative developers/tools.
- **Ad Experience Innovation:** Focus on the unified template infrastructure, authoring using the standards, user workflows/preview, and designing/producing new ad experiences using the standards.
 - Focusing on innovation for the mobile ad experience and best practices for the modern content environment, not necessarily ONLY fully packaged formats or fixed experiences.
 - This focus area will produce actual formats and/or scalable ad interactions (priority on mobile), for HTML5 and AMP
 - Will need smaller, focused efforts to cover existing needs, like text ads and O&O or proprietary formats

Competitive / Ecosystem Analysis

- Biggest threat is ecosystem-wide as the shift to mobile continues and lack of technological standards for ad content persist. Web content delivery is moving toward more standardization via efforts like AMP and general adoption of HTML5/development expertise.
- No major direct competitive threats - very few integrated, globally scaled ad serving systems that cover both large singular publishers, ad networks, and buyside/3rd party ads across the web.
- Individual large publishers (FBX) focusing on specific, singular content implementations for their ads could force advertisers to start building for only those environments, at the expense of optimizing for open web/scale.
- Point players in the ecosystem that are focused on formats-first development and support monetization via classic ad network dynamics (arbitrage and auctions).

Risks

- Potential for significant impact to feature and product velocity for DCLK, AdMob and GDN (the skyray problem)
- Lack of agreement or unified requirements results in compromised deliverables for formats/experiences.
- Advertiser-focused formats development slows in favor of Google/network formats and development
- Sell-side and buy-side formats needs differ too much for efficiency gains
- Current prioritization of text ads for O&O/network makes focusing on next-gen display experience a significant tradeoff in potential short term revenue gains there
- Innovation in formats has deep interdependencies with optimization frameworks for lower funnel performance measures
- Video is a strategic focus for both parts of DVAA but has very little overlap, as YouTube/GVP and platform digital video are different ecosystems with different format needs.
- Publishers value uniqueness of formats and thus desire non-standard implementations - selling standards is less compelling.
- Creative development is reliant on a significant community of developers who may refuse to adopt standards.

Areas of Focus/Considerations

The network and O&O organizations lack the sophisticated creative rendering infrastructure and support for bespoke display ad experiences used to power the web's largest advertisers, while the platforms organization lacks frameworks for experimentation, advanced optimization, and integrated proprietary data/asset resources.

Currently, multiple infrastructures and teams operate at significant scale, with trillions of impressions resolving from platforms and network annually.

As of today, no part of the display org has been enabled to develop a consumer-driven approach to formats innovation utilizing common research and understanding about ad experiences across regions, devices, verticals, or advertiser size. A testing platform and/or research team to actually validate experiences with users (perhaps an extension of Magnolia?) would be ideal to ensure good decisions.

Any unified standards would be expected to drive significant resource efficiency (teams and technology) over the next decade by eliminating the need to maintain and develop on two parallel and similar creative infrastructure stacks that bear a strong likelihood of feature convergence anyway.

2017 Strategy Paper: Structured Creatives

Contributor: *tbender@*

Abstract

Use the AMP Ads standard to block 3P JS in ad creatives at browser level.

The Problem: Unstructured Creatives

For historical reasons, digital ad creatives are unstructured HTML documents. They may contain arbitrary executable code in the form of JavaScript. Despite huge advances in ad tech over the past 20 years, the basic form of display ad creatives/tags has remained unchanged.

The ability to run arbitrary code within ads results in terrible things that are hard to prevent (on our own ad stack):

- Ads that drain batteries and exhaust data plans on mobile
- Ads that ruin the experience of content by [\[redacted\]](#), obscuring text, crashing the browser, auto-redirecting to app stores, ...
- [\[redacted\]](#): Ads that lock users out of their device until they pay a ransom
- Bad behaviors we haven't thought of yet

Worse still, in a programmatic world, publishers are powerless to protect their users from these experiences. They have no visibility into the code that makes up the creatives that appear on their properties – which are delivered in real-time and may redirect or change dynamically.

The programmatic ecosystem provides the means to deliver arbitrary executable code to specific users' devices in real time, with minimal restrictions. This is not acceptable.

As the largest online advertising company, Google has a moral obligation to protect users and save the web. We should be willing to sacrifice a significant portion of short-term display revenue to do this. Without drastic action to restrict all ad creatives (not just detect and measure and mitigate; actually restrict), we risk enormous harm to users and the collapse of the ad-supported web.

A Solution: Structured Creatives

Ads must have boundaries. [\[redacted\]](#) is an open-source technical solution that enables the web to decide collectively what creative behaviors are acceptable. Google should deprecate unstructured creatives/tags and migrate 100% of creatives on all display products to AMP Ads by EOY 2018 (all ads – not just those that appear on AMP content). Google should also lead an industry-wide effort to block non-AMP Ads at browser level.

This will be hard, but not as hard as it seems. Many Google display ad formats (XX% of gross media revenue) are already structured and can be converted by Google:

- Text ads
- Display responsive ads
- App promo ads
- Native ads

The most challenging pockets are RTB creatives and third-party tags booked in the ad server. See [redacted] for a detailed discussion. The deep, long-term risks of allowing unstructured creatives in our systems outweigh the short-term pain of deprecating them.

Buy-side creatives	AdWords	~10% revenue coverage for creatives that may contain arbitrary JS (harrisong@) <ul style="list-style-type: none"> • Custom HTML5 • 3PAS <p>Most creative types are already structured: text, DRA, app promo, etc.</p>
	DBM/DCM	~70% impression coverage for DCM creatives that may contain arbitrary JS (excluding tracking creatives) (karinb@)
	AdX Buy-Side	~100% revenue coverage for creatives that may contain arbitrary JS: all non-native creatives (hgaron@)
Sell-side creatives	AdSense	Google buy-side creatives covered above. No sell-side creatives.
	AdMob	Google buy-side creatives covered above. Some sell-side reservation creatives, but constrained by AdWords formats; no arbitrary tags (apasha@)
	AdX Seller	Google buy-side creatives covered above. No sell-side creatives.
	DFP	<p>Impressions coverage by creative type:</p> <p>XX% to Google buy-side (covered above)</p> <p>XX% to third-party tags (very hard)</p> <p>XX% to unstructured/snippet DFP creatives; replace with AMP snippets (hard)</p> <p>XX% to structured DFP creatives (easy)</p> <p>TODO: impression coverage for DFP creatives that may contain arbitrary JS</p>

With the support of Google's ad ecosystem and Chrome, we can shift the broader industry to structured creatives with strong user protections. Ads with arbitrary JavaScript will lose browser support and become a distant memory, like cars without seatbelts.

2017 Strategy Paper: Appifying GDN

Contributors: leventb, kkaiser, halpin

Abstract

With the ever blurring lines between app and web on the mobile device, as well as the rise of “hybrid” advertisers that spend both in web and app campaigns, we propose to decisively pivot on transforming our GDN demand to be a first class citizen in apps. This would require investment in a campaign management experience spanning seamlessly across multiple mobile presences and inventories, providing new mobile-first formats that leverage full device capabilities, and breaking down barriers between Web & Apps so that all of our products work as well on Apps as they do on the Web and vice versa.

Context & Opportunity

Web and app are colliding for both users and advertisers. Consumers are increasingly spending their time on their mobile devices in apps: As a matter of fact, **across Google reachable app and mobile web inventory,**

on smartphones was in apps. Furthermore, the hybrid advertisers who manage both a Web and App presence make up about 30% of GDN revenue today, and are growing substantially faster than advertisers

without apps. Yet, our GDN formats, campaign optimization tools and measurement solutions are still optimized for mWeb. As users and advertisers increasingly shift their time, attention and spend to mobile apps, we also need to transform our GDN business to this new app and mobile-first reality.

Currently, Display has a \$1.2B business that “backfill”s GDN ad demand into AdMob inventory (GDN in Apps, aka App Backfill). This business grew organically without much eng/product investment and has historically been seen as a vehicle for our AdMob business to normalize the ebbs and flows of the app promo demand and to stabilize pricing. As a result, our investments here have been overly indexed on quality improvements for AdMob health. The format, standards and measurement differences across app and web, as well as the lack of a single view of the user on the device, also made it very hard for us to effectively improve GDN in Apps beyond its current stabilizer role.

The emergence of concurrent app and web contexts also presents operating challenges for our advertisers, many of whom maintain both an app and web presence. These hybrid advertisers struggle with:



- Understanding which user they need to send to which environment and when, and effectively managing their campaigns across app and web
- Tracking performance of their app vs web in our reporting tools, since there is only one “mobile” category that can’t be broken down into mobile app or web, as well as inconsistent measurement feature sets across app & web.
- Convoluted placement controls that makes it too easy to opt-out from apps without fully understanding the consequences. that many advertisers opt-out from apps as a kneejerk reaction, even though it’s detrimental to their conversion volume and CPD.

New trends that enable a new strategy

Over the last year, however, the picture for the role of GDN in Apps has shifted significantly:

- Technologies such as webviews, PWA/AMP, and Instant apps continue to blur the lines between web and apps for users.
- App-originated UX models, such as infinite scrolling newsfeed, are now being adopted by web publishers to blur the lines further.
- Larger, more sophisticated web-first advertisers are becoming savvier and are increasingly looking to reach users in apps. (ie. Wayfair, Zulily, LL Bean, Fox Entertainment etc).
- With Universal Links and app links gaining momentum as standards, we need to worry less about custom schemas.
- Following Narnia 2, we can more effectively use GAIA-keyed data across apps and web for ad personalization.
- With increased Mobius (same-device mApp-mWeb links) coverage, we can now pull web profile data for 50% of our app user queries. This has accelerated our Audience and remarketing business in apps, and proven critical to supporting the 32% incremental reach of mobile campaigns running in app.
- Advertisers are becoming savvier about tracking in-app events and bringing in-app conversion tracking up to parity with Web, with platforms like Firebase and Twitter’s Fabric acting as enablers.

Proposal

We think that the time is right to “appify GDN” – decisively pivoting our existing mWeb business to support apps as first class citizens This is similar to our previous pivot of GDN from Desktop to mobile web. The “appification” requires us to tackle three facets of the advertiser experience. Specifically:

1) Simplify GDN for hybrid advertisers

- a) **Campaign management** -- In the new emerging paradigm, hybrid advertisers will be tasked to maintain several different mobile interfaces: web page, native app, and instant app. We want to provide tools to these advertisers to manage their multiple presences in mobile campaigns, and intelligently route traffic to the interface most likely to convert.

- b) **Placement Controls** -- Blur the distinction between app and web, providing unified controls that present segments focused on what advertisers care most about (e.g. brand / family-safe / topics like games, etc).
 - c) **Reporting** -- Enable reporting that delivers useful insights and metrics to improve advertiser assets across app and web. For example, advertisers should be able to see and adjust conversion rates in their apps if they are higher/lower than conversion rates on their websites. We also want to improve consistency of measurement features we offer across both app and web such as X-Device.
- 2) **Formats** -- Leverage full mobile device capabilities in Apps to develop new formats.
- 3) **Product parity** -- Break down barriers between web & apps so that all of our products work as well on apps as they do on the mobile web and vice versa.

This strategy will require us to build/change the following product pieces in each of the above three pillars:

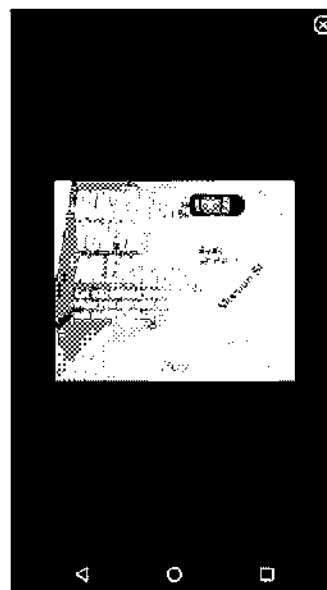
Apply Campaign Management

- Make it easier to manage unified app/web campaigns in AdWords.
 - Enable full App/Universal Link support (Spitzer).
 - Create API support for list management for re-engagement ads.
 - Predict the most appropriate environment (web, app or instant app) to send a user on behalf of advertisers.
- Invest in optimization of ad spend across app and web to increase advertiser ROI, such as model support for App / Web performance differences (tCPA).

Apply Placement Controls & Reporting

Enable smart UI support to limit app inventory opt-outs by warning advertisers that opting-out would negatively impact meeting advertiser goals, e.g. significantly reduced reach on awareness-type campaigns.

Lines are being blurred between App and Web with emerging technologies such as PWA, AMP, and Instant Apps. Reorient Display Network performance reporting to focus on audiences and verticals; minimize prominence of individual placement reporting and web vs. app inventory distinctions. Customers should be focused using GDN to reach the right user as the right time with the right ad, regardless of the inventory on which that occurs.



Apply Formats

- Invest in scalable, mobile-first formats that leverage the native capabilities of mobile devices, such as 3D Creatives mapped to device motion sensors, as well as DRA and Carousel.

- App serving gives us the ability to do anything the mobile device supports and therefore makes Apps the natural place to experiment with new formats.
- Today the only formats that work across app and web are native units, interstitials and “auto-sized” web units which often waste valuable screen space (see figure).
- Interstitial is under-capitalized by Display demand. Interstitial presents a premier canvas for brand advertisers to engage users and create interactive experiences.

Apply Targeting

- Invest in increasing audience signals within app to increase reach of GDN campaigns in apps.
 - Enhance audience segments with mobile data such as location-derived geo-semantic profiles, app usage.
 - Enable offline remarketing to allow advertisers to re-engage with customers after they visit a store, or find a similar audience to help advertisers expand their customer base.
 - All audience targeting models today use web usage data such as recency, frequency, type of web content/context, etc, but we don't use this type of information from apps. App usage data would improve the quality of app signals we're using today.
- Use GAIA signals to make both app and web ads personalization consistent.
 - Today neither app nor web get GAIA signals directly. Furthermore, the data flows from GAIA-keyed sources indirectly (such as postback install data) and only available on app inventory, not on web.

Apply Measurement

- Enable consistent measurement solutions that work consistently both in app and web context, such as frequency capping, view-through conversions, and consistent x-device measurement across the board.
 - Today x-device conversions for web are “estimated”, while apps do not support any x-device conversions. Frequency capping does not work in apps.
 - View-through conversions are not counted for in-app impressions.
- Enable mobile app/web segmentation for landing pages so that advertisers can get useful insights and metrics that care about to improve their app vs. web assets. For example, ability to see and adjust if their conversion rates in their apps are higher/lower than conversion rates on their websites.
- Enable 'codeless' mobile purchase conversions and automatically connect purchasers to ad clickers by developing partnerships with mobile payments providers. Several solutions are streamlining purchase flows and reducing mobile purchase friction. Payment solutions such as Android Pay which were previously exclusively of the App domain are expanding to Web.
 - Implement anonymous data exchange with payment providers which respects privacy requirements and report aggregated mobile conversion data

Risks

- Today, 85% of our apps promo revenue is tracked by 3Ps. As deep linking and other technologies enable these app campaigns to show up on web, we also face the risk of losing our web conversion tracking presence to 3Ps as well.
- While blurring the lines between app and web in inventory/placement controls, we need to ensure that those with legitimate reasons to block apps have reasonable ways to do so.
- FB can expand FAN quicker and further to strengthen their foothold with hybrid advertisers and moving budgets.

Competitive Landscape

Our major competitor FB has effectively leveraged their strength in app advertising to web with Facebook Audience Network (FAN). FAN effectively unifies the app and web inventory for advertisers by leveraging IAB-standard banner and fully customizable native units for video and display, as well as common measurement and optimization tools across app & web. Last published data around shows that they have reached \$1B ARR as of Q4'15, and growing. FB positions FAN as

Appendix

Share of Average Time Spent per Day by US Mobile Internet Users and All Mobile Internet Ad Spending Share: In-App vs. Mobile Web, Q4'16

% of total

	2016		2017		2018	
	Time spent share	Ad spending share	Time spent share	Ad spending share	Time spent share	Ad spending share
In-app	79.3%	73.2%	79.8%	73.2%	80.2%	73.2%
Mobile web	20.7%	26.8%	20.2%	26.8%	19.8%	26.8%

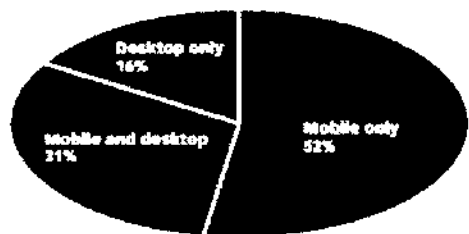
Note: ages 18+; time spent with each device includes all time spent with that device, regardless of multitasking; for example, 1 hour of multitasking on an app while on the mobile web is counted as 1 hour for in-app and 1 hour for mobile web

Source: eMarketer, April 2016

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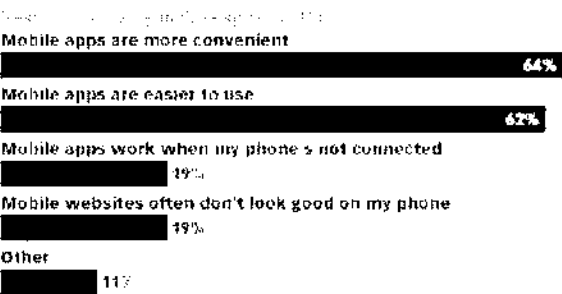
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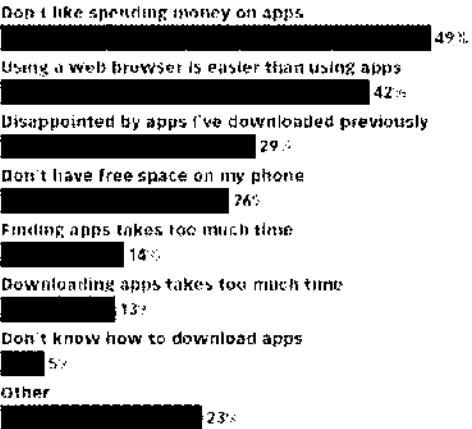


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2017 Strategy Paper: Faster/Better Mobile Formats

Director / VP Sponsor: Sissie Hsiao

Team: David Mitby

Abstract: while our formats initiatives in mobile are growing and driving revenue, we need a step function to really “win”: need to innovate and launch faster with better creatives and higher CPMs.

Problem:

While we've made significant progress in Mobile Apps, including with new formats, we're still struggling in key areas:

1. FAN is a major competitive threat, particular in Native and any format where Facebook can extend from their O&O properties. Facebook tends to drive higher CPMs (particularly initially) due to higher existing demand, and a different approach to policy
2. Google has been slower both in:
 - a. Innovation: new startups seemingly appear daily with new, innovative app formats. These startups also tend to do better with creative implementations; e.g. for Trials, companies like CrossInstall do significant custom work for large advertisers to make a compelling trial beyond what we do at scale via the existing APK.
 - b. Execution: formats like Rewarded have taken over 2 years to materialize due to long approval cycles, and other formats are slow due to lack of commercialization efforts to build up betas.

Solution:

We propose to improve our competitiveness in formats in several ways:

1. **Rethink on approach to publishers:** shift from stringent up-front policy checks and lower CPMs to a data-driven strict enforcement program and higher CPMs (see below) to maintain advertiser quality and user experiences
2. **Creative agency partner program:** to better compete with custom shops and agencies that have compelling custom creatives, we'll establish a creative agency partner program to help advertisers onboard more quickly with compelling creatives
3. **Firestore to simplify formats and ad buying:** with deep integration with Firestore, we can make it easier for app developers to have all the required assets necessary for current and future formats, as well as simplified buying flows so we can build new formats without new betas and advertiser involvement
4. **Be first in next-gen experiences:** Google was successful with banners in apps, and Facebook with native, in large part for being first-to-market and with a large user base.

We should make sure we're not playing catch-up (like we are in native) on the next-gen of experiences, e.g. Virtual Reality

Rethink on approach to publishers

Mobile Apps are significantly different than Mobile Websites: apps are more difficult to make, there are existing approvals/policy processes from Play and App Store (so approved apps have a higher baseline than a generic website), and app install ads enable a clean and relatively high volume signal for assessing advertiser results.

As a result, we can take a more "fast reactive" and data-driven approach to policy enforcement and pricing. We propose to extend ideas from ACM 100 (used to accelerate Native) to be less rigorous initially on policy checks, and enable higher CPMs up front as we assess the ongoing quality of the publisher. To drive higher CPMs, we will start with higher bids from our algorithms (ensures we win inventory, and can then more easily adapt by adjusting bids down as necessary -- but without bidding high enough, we never even see the inventory). We will then use SmartPricing to quickly bring bids down for poorer performing pubs, and a stringent reactive policy handling program where publishers would have "2 strikes and you're out" on user-based policy violations and a minimum SmartPricing score to continue to receive demand from Google.

Creative Agency Partner Program

Google scales well for creatives that can be built from basic or existing assets. For example, our approach to TrialRun scales to many advertisers by using the existing APK to let a user play a portion of the existing game. However, creative agencies or format startups can often still outperform by doing more custom creatives or development of formats (particularly for interactive or playable ones).

To better scale, we propose a Creative Agency Partner Program where we maintain a list of endorsed agencies and companies can help create assets to be used with our formats. We would consider options for incentives, such as:

1. Endorsement (with standard pricing from agencies to advertisers), along with potential exclusive data sharing to the partner agencies
2. % of incremental value: "incremental value" payment, where we test the custom creatives relative to our baseline creatives and share % of Media based on the incremental improvement

Companies like Snapchat have recognized the value in Creative Agencies and partners, and have created a _____ as well.

Firestore to Simplify Formats and Ad Buying

To accelerate the torso/tail, we can leverage Firestore to help developers architect their apps from the beginning with ad formats in mind. For example, via Firestore, we could make it easy to

embed several videos, a trial, splash screens, images, and other assets directly in the APK. This would make setting up a Universal App Campaign or the future automated Reengagement campaign seamless, and could be done directly within Firebase for long-tail pureplay advertisers.

First in next-gen experiences

For emerging experiences like Virtual Reality, we should invest in making sure Google has leading user presence (either through large O&O or first/large network of pubs), and is defining the ad format experiences. E.g. for VR, defining the interstitial (say rewarded virtual experiences on prestitial and interstitial) and "native" (say standard formats for billboards within games or other ad concepts from the real world, make virtual)

Risks

1. If SmartPricing and reactive policy enforcement can't be done quickly enough, there's risk to users and advertisers if we take a more aggressive stance
2. There's a general movement away from agency involvement with increasing automation in advertising; need to assess risks of continuing to support agencies and 3P's

Discussion: Other ideas for format acceleration?

2017 Strategy Paper: Smart Campaigns

World's best retail advertising solution

Director / VP Sponsor: Woojin Kim, Brad Bender

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Abstract:

Smart Shopping Campaign will be a cross-channel, all-in-one campaign for retailers -- spanning across Search/Shopping, GDN, YouTube and everything else Google provides. A "Buy best of Google" for Retailers, Smart Shopping Campaigns will be very easy to set up and do a full-funnel optimization across these channels.

Opportunity:

Retail vertical is huge: retail digital ad spend is expected to hit \$55B by 2020, and Google today "only" has 21% of retailers' digital budgets. It's a crowded space, with players like Facebook moving aggressively with Dynamic Product Ads and long-time remarketer Criteo managing to stay ahead of the curve. We can do a lot better in this space: competitively, we are uniquely positioned because we see the user through the entire funnel, from YouTube all the way to Google.com search. We can help retailers optimize the full purchase funnel.

Problem Statement:

Even though retail is one of our largest and most strategic verticals, advertisers face several key challenges that limit what they can do with Google:

1. Separate campaigns for each channel -- advertisers have to create and manage a multitude of campaigns, one for each Google channel (PLA Ads on Google.com, Dynamic Remarketing Retail Ads on Display, TrueView for Shopping, and Local Product Ads).
2. Creative optimization is still somewhat manual -- for each campaign they create for these channels, the advertiser has to decide whether the ad should have an offline call-to-action or online call-to-action in order to ultimately moving users down the purchase funnel in the most efficient way.
3. No full funnel optimization -- because there are disparate campaigns for each channel, advertisers cannot easily do measurement, attribution, optimization across the funnel. As a result, many resort to just focusing on funnel marketing tactics such as Search and Remarketing.

Proposed Solution:

This strategy paper proposes building a unified, cross-channel Smart Shopping Campaign that focuses on three pillars:

1. *Simplified, streamlined campaign setup and reporting*

Smart Shopping Campaign will be a one-stop shop for a retailer's needs across all channels. The advertiser needs to provide the following key inputs: (a) Target Return on Ad Spend at campaign or product category level; (b) Store locations and product catalogue (GMC); (c) Creative assets such as Logo, lifestyle imagery, YT video; and (d) 1st party data such as their Remarketing list. Google will optimize their spend across all Google properties and provide reporting based on Search vs Display inventory.

2. Full-funnel targeting & creatives

- a. *Holistic user profiles with a full "Google" view:* Today, Google's view of user is fragmented by channel; this will change once we have Narnia2. Narnia2 enables us to tap data across Google properties and marry interest data such as general location history or web history with intent data such as search queries, site/store visits to build a holistic in-depth user profile that understands exactly where the user is in their purchase journey, what they are currently looking for and even predict what type of products they could be interested in the future.
- b. *Full-funnel auto-targeting:* Today, advertisers manually set up campaigns that target audiences at a specific phase in their consumer journey with creatives tailored to the funnel stage: e.g. TrueView would be used to build awareness, GDN remarketing targets users closer to purchase. Smart Shopping Campaigns can break down these borders and enable holistic customer journey targeting, automatically finding the right users in the funnel, showing them awareness ad first then pushing them towards a purchase-centric ad later. With machine learning, our backends can connect the dots in user profiles and target more precise audiences than manually possible.
- c. *Format innovations:* Display formats are mostly addressing lower funnel online purchase needs, and we have room to grow beyond that. First, we need formats that drive offline conversions (in 2014 big box retailers spent \$3.3B on circulars). For example, Flipp has bought Lightbox ads to build digital flyers -- we can automate this by leveraging Local inventory feeds to auto generate offline formats like circulars. Second, we need easier formats to drive upper-funnel goals (brand awareness and favorability) and middle-funnel goals (consideration). With our Smart Shopping Campaign, an advertiser just needs to submit one video, one image and one blob of text; the system will auto-create ads that run everywhere and optimize against a common set of goals most efficiently and effectively.

3. Better measurement via offline and cross-funnel attribution

- a. *Build offline measurement products:* Online KPIs (clicks, CTR, conversion) only reflect a small portion of advertisers marketing goals, considering 93% of commerce still happens offline. In fact, majority of purchases following a mobile search happened not online but in a physical store (73%) . With Narnia2, we have the assets to build Display & YT offline measurement solutions such as

plus incrementality study for omni-channel advertisers. Besides building the offline measurement and optimization pieces, we can also flow these offline visits and transactions into our MCA products such as Adometry or Attribution 360, both based on view and click basis.

- b. *Enable optimization for offline and cross-channel use cases:* Once these above measurement pieces are in place consistently across different Google properties, we can build bidding and optimization on top of this insight, offering bidding on Store Visits and Transactions. Taking this to the next level would be to optimize on ROAS for retailers across all platforms and channels. There would be no set budget allocated per channel (unlike Search+) instead optimization will need to smartly vary bids and thereby spend across channel to achieve the desired Target ROAS. Also the bidder would need to leverage not only direct response predictions like pCTR, pCVR but also awareness predictions like vcpm (viewable prediction models) Cpe (engagement / duration models) and cpv (completed video views). We acknowledge this is no trivial technical challenge.

Risks:

Smart Shopping Campaigns present risks in consumer and advertiser behaviors:

- Consumer trust: Leveraging data not previously input into advertising may create a “creepiness” factor that could erode consumer trust, cause privacy concerns and hence, increased ad blindness. We will need to ensure we are transparent in how we leverage the data and provide easy opt-out for consumers who object.
- Changing advertiser behavior: advertisers have traditionally focused on bidding by CPC and CPA and have traditionally managed budgets for search, prospecting and brand awareness separately. Smart Shopping Campaigns will require a change in buying behavior to Target ROAS.
- Retailers may not be organized well to run cross channel campaigns: at present, retailers are often organized with separate business units and budgets by channel (offline vs online). Creating a campaign type that spans both offline and online advertising objectives may be inconsistent with how retailers budget, spend and attribute return on ad dollars. This risk can be mitigated by ensuring that Smart Shopping Campaigns offer options that can be optimized for offline or online only such that separate departments can still achieve results without requiring integrated campaigns.

2017 Strategy Paper: Audio Ads

Director / VP Sponsors: Rany, Aparna, Payam, Vivek, Susan Jasper, John Nicoletti, Daniel Alegre, Chris LaSala

Team: Laura Murov, Julia Weinberg, Jean-Claude Homawoo, Jeff Birnbaum, Benyah Shaparenko

Abstract: \$35B dollars is on audio advertising today, mostly brand, as user attention is shifting very quickly towards free streaming audio as the preferred means of consumption. Google has the opportunity to capture a large chunk of that revenue, for a number of reasons: we have the largest inventory footprint (GPM, Spotify, Pandora, SoundCloud), we work with all the brand advertisers on our platform, and we already have leading programmatic technology to provide differentiated value to buyers and sellers. In addition, all the revenue opportunity is incremental to Google, since it is coming from radio budgets. We think audio ads could easily be a billion dollar business in a few years. Does Google want to be in audio ads? If yes, do we want to lead or fast follow via acquisition/execution to try to get share later?

Note: The scope of this paper does not include audio monetization on YouTube. The YouTube ads team is still evaluating the opportunity and feasibility of audio ads on YouTube.

Overview

Google audio ads are real, with campaigns live in DBM & DRX, and strong advertiser demand. We can start scrappy and grow to milestones of \$400M in 2017, \$1B in 2019, \$3B by 2021. Read on to see...

Users love streaming music; driving massive user growth. This trend is strengthening.

- **Users Are Migrating to Streaming Music, Fast:** Music and audio in H1 2016 *more than doubled Y/Y*, growing +108% (vs. +23% video growth in H1). In 2016, 40% of listening time will have migrated from radio to digital audio (vs. <10% digital for video, where linear TV continues to dominate). Users love free; free services drive usage.
: "While a healthy subscription business may eventually sign-up 200-300 million people worldwide, the ad-supported market has the potential to earn money from 3 billion people who are currently online." and "The [music] industry's future is actually brighter than ever, if it's willing to embrace something that's made the internet a profitable place for millions of companies and content creators: ads."
- **But, We Cannot Reach Them, Yet:** Google cannot reach the user in the 25%+ of mobile time spent in audio content. The found that ~80% of that time is spent multi-tasking (driving, exercising, recreation, etc). The audio ad is uniquely the best, native format for this environment.

Demand: Brands invest \$35B in audio today, 100% of which would be incremental to Google, should we allow agencies and advertisers to spend with us. Buyside sales leadership are supporters of audio.

- **Audio is a Brand Play:** Audio ads are a brand, agency, and large advertiser opportunity. Our agency partners control ~2% of audio ad spend. SMB loves audio as well, but the long tail is small. Audio was among the top 3 topics at Cannes in 2016: “
- **Digital Audio Drives Brand Results:** Audio +60% Brand Recall and +52% Brand Interest over benchmarks. Nielsen Catalina Solutions that for top brands, each \$1 in spend drove \$6 in sales. Unsurprisingly, budgets are from radio to digital audio quickly, in fact 2x as fast as TV to digital video. Audio ads are not a new concept: this is a tried, tested, trusted format -- and contrary to popular belief, clients are not abandoning audio; global audio spend is
- **Google Clients Want Audio:** dozens of *advertisers* (Netflix, P&G, Walmart), all *agency trading desks*, and most *DSPs* have been asking Google to invest. The traditional radio buyers have been most active in asking to shift spend to Google in digital audio.
- **Single Stack:** Google should aspire to a single, simple, unified stack for all media buying. By not taking audio seriously, Google forces the advertiser to fragment the media buy. As an example, IPG/Xaxis/Cadreon has \$3-5M quarterly budget held back from DBM pending audio.

Learnings from GPM Demand Experiment: Strong demand, product<>market fit, and Sales support.

- **Pent-up Demand for Scalable Product:** We sold an undifferentiated GPM offering with limited communication, yet had an overwhelming response of , including Walmart, Fiat-Chrysler, McDonalds, Wells Fargo. Wells Fargo/OMD and Red Bull/Amnet are in redlines. Unfortunately GPM is not able to realize the demand potential, due to gTech capacity limitations (able to support a max of 2 tests). On 3p apps, Netflix has a DBM PG deal set up on Spotify.
- **Strong Buy/Sell Sales Support:** Buyside sales leadership is strongly supportive, including Erin Schaefer (and formerly Lucas Watson), Susan Jasper, John Nicoletti. Further, Audio Ads are now in 2017 DVIPs to accelerate spend from top buyers. Sellside sales is likewise strongly supportive.

Supply: Inventory today is ours to lose, yet has a time limit. We access the best and most audio inventory across partners and O&O. But if we don't move quickly, publishers will go (and have gone) elsewhere.

- **Most Supply:** DRX has the most , with 400B impressions (ex. YT) and \$3.2B media under management in 2017. 3P streaming apps (Spotify, Pandora, etc) accelerate at YouTube's expense: YT still is the largest music publisher, but dropped share from 60% to 45% in H1 2016.
- **Monetization Interest:** Internationally, Spotify only monetizes indirectly. We could be the primary sales channel. Pandora would give Google exclusive programmatic inventory access. SoundCloud passed on Google demand due to our lack of audio solution.
- **Urgency:** Partners have waited for years. Mobile app whales (e.g. Spotify) are savvy and began migrating inventory to platforms that built for audio (e.g., AppNexus, Rubicon). We

lost last year's opportunity to be the first, exclusive programmatic source of Spotify. With a Pandora exclusivity offer, we must move quickly, lest we undermine our broader offering to music partners.

Google ROI on Audio Ads: The audio ads opportunity is uniquely Google's.

- Google has a stronger competitive advantage in audio than video, given (i) easier access to media (Pandora, Spotify, YouTube*, Play), and (ii) strong relationships with the largest radio / audio buyers (housed within big 6 agencies we already partner with).
- Factoring in likelihood of success due to competitive dynamics and streaming music adoption, audio more than meets the typical display baseline for investment.

Pillars

Our strategy focuses on demand scale and programmatic execution. The supply side for audio inventory is more than sufficiently solved through 2017. We also start scrappy and then differentiate later.

Phase 1. Start scrappy with audio fundamentals in DRX and DBM. Build the MVP (emphasis on **M**) to connect brand \$ with premium music apps. Enable all programmatic buyers (DBM, 3p DSP).

Sell-side: build the basics of an audio exchange to support premium music apps.

- Enable audio serving in DRX, like display or video, on all transaction types (OA, PA, PD, PG).
- Add a flag to DRX programmatic pipes to signal the format, separate video / audio, provide dedicated reporting, do format-appropriate malware and creative verification.
- Headlined by Spotify, Pandora, GPM (DBM access only), and premium music apps.

Buy-side: include rudimentary audio support for DBM PG deals,

- Support creative workflow (audio media, hosting & transcoding, companions), DBM audio tactic, forecasting, creative verification, serving, VAST reporting, measurement.
- Audio, like video, is measured on GRP and fits into a complete buyside GRP strategy.
- Start a virtuous cycle to bring great monetization to premium music apps (cf. PG deals, 2016).

Phase 2. Full programmatic, scale demand. Differentiate DBM. Kick off AW audio.

DBM full programmatic support: provide a single stack for brand advertisers.

- Enable transactions across all deal types - OA, PA, PD, not just PG.
- Lay the foundation for Google differentiators like lift measurement, engaging formats.
- Expand to 3PE inventory from other exchanges such as AppNexus, Rubicon, etc.

AdWords audio fundamentals: begin to unlock the tail.

- Start investing into unlocking AW scale for the SMB long tail, most of whom already run audio campaigns today. Build simple AW trafficking workflow based on CPM buying and geo, age + gender, demographic, and interest category targeting, similar to how local buyers think today.

Phase 3. Innovate full stack: measurement, format, optimization, platform, placement.

Work towards a more ideal long-term solution that brand advertisers and the top audio publishers envision.

Measurement: ripe for differentiation, today either stuck in GRP (brand) or CTR on companion banners (often brand budgets, too, surprisingly). The industry is starting to innovate ().

- Lift: Google can bring expertise in developing brand lift metrics to brands e.g. sales lift based on retailer loyalty cards, so the new standard can be lifted users or increased sales.
- Quality: audibility, volume normalization between content and ads, etc.
- Imagery transfer: higher ROI for the advertiser since a mixed audio and video campaign when paired together can deliver equal effectiveness as a fully video campaign.

Format: Google can help the industry mature past the :15/:30, similar as YouTube did with TrueView, to innovate new audio ad formats that make sense for the user first.

- Brands seek new ways to engage the users that make sense in an audio content context, while all the premium audio publishers work with us and want more revenue.
- Ideas: voice activation/conversion, user action (swipe/shake), skippable.
- Creative: use ML to auto-create short creatives, partner with Directr team on creative tools.

Optimization: apply ML techniques in ways the audio industry has only yet dreamed of.

- Plan the best media mix between video, audio, display, TV, etc with key insights.
- Optimize based on visuals (viewable -> video) vs background (not viewable, but engaged -> audio) for advertisers such as Wells Fargo and P&G who invest big in audio and video today.
- Use Crane to optimize pricing for programmatic audio, across YT, Play, and partner sites.
- Leverage extra knowledge about music & genre to serve much more relevant ads.

Platform: Build the best audio ad serving platform (DCM, DFP)

- Rethink the workflow to simplify the buy. It's very backwards, slow, and manual today.
- Leverage leading Dynamic Ads Insertion solution to win radio publishers (Bloomberg, ESPN).
- Make DRX and DCM fully self-service with a dedicated Audio product, not reusing Video.

Placement: Looking further into the future, Google has unique O&O placement possibilities.

- Google Now integration as users move to intelligent assistant and a voice interaction model.
- Local audio ads in Android map navigation when driving past the local pizza store or national spots such as a refreshing Pepsi while driving through the desert on a roadtrip.

Competitive / Ecosystem Analysis

- **Exchanges:** Unlike last year, audio ad exchanges (not networks) are real. DRX publishers such as Spotify have been shifting inventory to AppNexus, while Rubicon, DAX have audio exchanges. OpenRTB 2.4 has audio. Pandora is talking to the audio SSPs about exclusive partnerships. But what if AppNexus locked them up, particularly as they are positioning against DRX full stack? It's still earlier days, but we cannot afford to wait longer since competitors are picking up speed.
- **Buying platforms:** 3P DSPs - Mediamaath, The Trade Desk, AppNexus, TubeMogul, Videology, etc all buy audio ads. Relative to DBM, some are now more truly full stack solutions.

Risks

- We are now 1 year behind the market. Given DRX inventory access, last year, audio was our opportunity to lose. Can we regain our advantage and lead, or will we see inventory slip away? Competitive exchanges AppNexus et al have begun siphoning off premium inventory already.
- If we don't fill GPM audio ads and honor record label contracts, we may be forced to monetize Google's most premium O&O property to a run-of-mill ad network, a very dangerous precedent.
- gTech, more than anything else, has been a blocker to scaling audio ads so far, almost killing a \$100M GPM experiment because we couldn't find 5 heads to service audio. How can we ensure proper support to get new initiatives off the ground and take new businesses seriously at Google?

2017 Strategy Paper: AMP & Google Ads

An overview of AMP & opportunities for collaborating more deeply with Google Ads products

nkp@

Abstract: As the AMP (Accelerated Mobile pages) project continues to scale (1.2% of all mobile search queries land on AMP pages, EoY target 50%, supported by Search plans to AMPify all eligible mobile search results) & get increased adoption (all top news pubs, big longtail of pubs (>165m AMP pages from 640 domains), expanding to other verticals incl. e-commerce) , it opens a number of opportunities for Google Ads businesses to benefit from and leverage (Both on the sell side & the buy side). This becomes even more significant with Ads specific innovations being led by AMP such as AMP for Ads and AMP Landing pages. This 3 pager is meant to be a brief backgrounder (with necessary reference links) on AMP, AMP for Ads & AMP landing pages, and a discussion starter for ideas for greater collaboration on integrating AMP across Google Ads products.

What is AMP?

- Google supported open source standard (subset of HTML) for creating really fast & beautiful mobile web pages that prioritise user experience. More details at [\(IO16 videos\)](#)

Why is it good for the open (mobile) web?

- Median load time for amp pages on mobile is [\(\)](#)
- AMP pages load up to 4X faster and use up to 10X less data than non AMP equivalents.
- All this without losing page functionality & content richness ([\(\)](#))
- Above all much better end user experience!! (Evidence from Big ([\(\)](#)) and small pub ([\(\)](#)))

How big is it? Now & in the future?

- 5m new AMP pages from 50K domains every week ([\(\)](#))

- Search index already has >165m AMP pages from >640K domains
- 1.2% of all mobile search results now lead to AMP pages (EoY OKR is 50%)
- Almost [all publishers](#) worldwide producing AMPs, quickly broadening to other verticals including [news, sports, travel, food, and shopping](#)
- AMP supported by multitude of 3P platforms (twitter, linked-in, pinterest, nuzzle etc.) and also >40 ad tech vendors
- Search is going to announce developer preview of results on August 2 (not just newsy articles in the carousel)
- Comprehensive future [roadmap](#) across all AMP workstreams: formats, ads, analytics & access
- One of the most active [open source projects](#) (~8000 stars, ~1100 forks, 186 contributors)

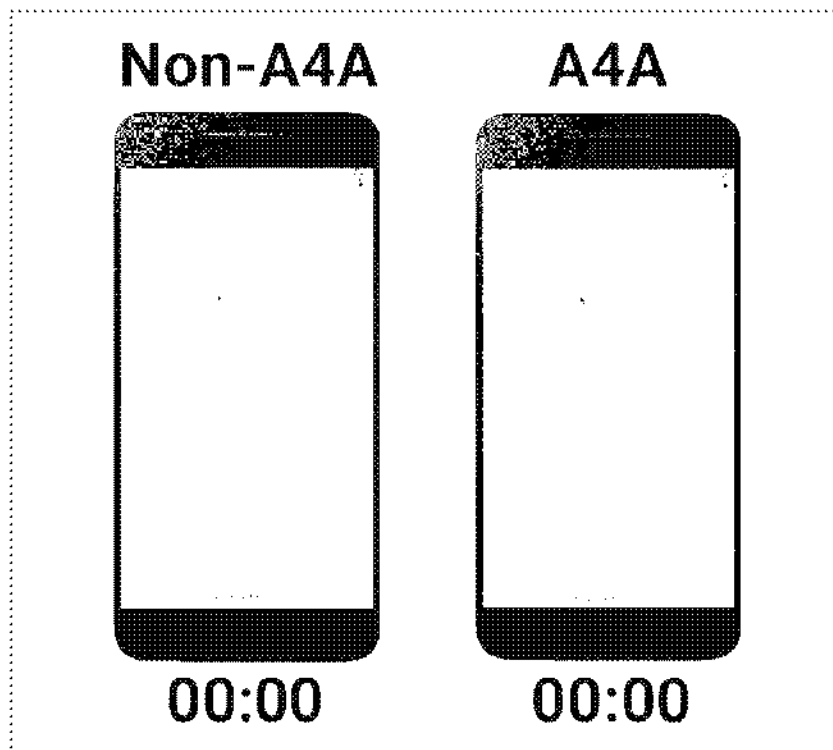
What about Ads in AMP?

- All traditional ads work (other than interstitials & auto expanding ads) but have a bunch of [limitations](#) (HTTPS, all in a cross domain iFrame, need to have a fixed slot size, request timing controlled / throttled by AMP runtime) [[see here](#)]
- Despite those limitations currently doing 40m daily (29m matched) queries on AdX @~10M ARR ([see here](#))
- CPM, Viewability & CTR performance much better than similar ads on Non AMP pages from same publishers ([see here](#))

What are AMP Ads (A4A) & AMP landing pages (A4P)?

AMP for Ads (A4A) [[see here](#) , [see here](#) , [see here](#)]

- Fundamentally different way of requesting & rendering ads when creatives are written in Valid AMP HTML (early XHR requests, crypto signed creatives - for AMP validation, Structured Ad creatives with greater [flexibility](#) (WIP) to prevent arbitrary bad behaviour)
- Primarily targeted for AMP pages, but potential to benefit ads on Non AMP pages too
- **Net result** - much faster, much lighter, still fully functional ads; A more trustable and pleasurable ads experience
- V1 implementation with changes to AMP runtime & Google ad servers already in place. Announced publicly in [this video](#) & also mentioned in [this document](#)



- Next steps to run controlled experiments and integrate deeply within DVAA products and tools

AMP landing pages (ALP) []

- Faster post click experience for ads by having ad landing pages written in AMP HTML

How could AMP overall, as well as AMP ads & ALP specifically benefit / impact your respective businesses?

- Volume of Ad requests from AMP pages likely to continue increasing and become a significant proportion of all mobile ad inventory (if AMP adoption goes to plan)
- Both A4A & ALP represent a disruptive & clean opportunity to rethink how ads are implemented across the web! Will require ecosystem wide adoption and change nonetheless!
- Opportunity for Google ad businesses to lead the way in A4A and ALP adoption and capture benefits arising out of faster, more trustable ads

Effectively the end of the road?

“What would your product do differently if a new type of ad creative loaded X times faster, was Y times lighter and was more structured & trustable by design, without compromising the design aesthetics or analytics abilities!”

How could you help leverage / adopt AMP, AMP Ads & ALP?

Note: the following list is not exhaustive

Google O&O:

- Convert existing ads to AMP for Ads with AMP Landing pages
- Combine proprietary information (e.g., Narnia) with AMP to offer both a more personalised and faster experience creating a more differentiated experience

Sell side:

- Help increase AMP eligible publisher inventory
- Enable serving of & targeting / reporting of A4A ads and ALPs seamlessly
- Help close any feature gaps within A4A
- Help integrate & implement Magnolia principles within AMP / a4A ads

Buy side:

- Help advertisers target AMP pages and respond with A4A ads
- Help serve more A4A ads and Ads with ALPs
- Help create more A4A ads and Ads with ALPs (better tools)

Exchange:

- Help reward better ad experience & penalise poorer ad experience
- Help target ads on AMP pages & A4A ads

Who to contact for more information?

AMP leadership over all: David Besbris (bez@), Richard Gingras (Gingras@)

Ads in AMP PM: Nitin Kashyap (kashyapnitin@), Vamsee Jasti (jastiv@)

Ads in AMP Eng: Malte Ubl (malteubl@), Michael Kleber (kleber@)

Ads in AMP Commercialisation: Chris Lasala (chrisl@), Craig DiNatali (cdinatali@)

2017 Strategy Paper: Use of Google Audience Data in DRX

Authors: krishs@, cbindra@, maxl@

Background

Global consent is a Google-wide effort (aka Narnia 2) that brings opportunity to build cross device targeting using signed in data, and improve Google audience¹ classification. Google audience targeting represents a strong growth opportunity business for DBM and GDN. The goal for this document is to layout a proposal for *maintaining DRX competitiveness* in light of the upcoming availability of Google data and recent developments to allow DBM & GDN to target 3P exchanges with Google Audience. We also examine, how we maximize publisher participation in the data co-op to both improve access to inventory for audience classification and signed-in data and tap into opportunities for improved ads personalization, and controlling their ads experience more easily, across devices.

Proposal

Our approach to maintain DRX competitiveness with Google Audience and signed-in data is structured across three themes:

Make DRX the best SSP for Google Audience & signed-in data for Google demand

#1: Google Audience targeting on programmatic deals between DRX & DBM

The proposal is to support sell side Google Audience targeting on PG deals. This gives DBM buyers, guaranteed access to the combination of premium publisher inventory and desired audiences. With targeting done on the sell side, DRX is positioned as the only SSP that can enable this functionality for DBM.

The goal is to enable Google audience targeting on deals without seller access to the segments and thus keeping the leakage risks of this feature on par with buy side Google Audience targeting in DBM. The proposal is to extend the existing deals marketplace workflow for sell side PG targeting of a buyer 1P audience list targeting, that has protections built to prevent seller access a buyer' audience list.

#2: DBM and AwBid to take source of contributing data into account when bidding

With DBM and GDN being enabled to target using Google Audience with 3P exchanges, we want to preserve DRX revenue and fairness by ensuring DBM / AwBid bid based on the relative data value collected from AdX vs. 3P exchanges. This would mean that DBM/AwBid would take into account **which** exchange the bid is going to (higher bid enhanced by co-op data), and **which** exchange the data that informed that bid, came from.

We want to build a universal co-op in DFP that gives publishers a single point of control over contributing to the data co-op across exchanges. Doing so will need to take into account

- *Contractual*: We need to ensure any collection of data on DFP publishers aligns with the existing framework of DRX contracts and what is considered fair game as far as data collection and usage of data for audience classification is concerned.
- *Fairness*: We need to ensure there is sufficient motivation for publishers to opt-in to a universal co-op by demonstrating positive revenue impact and continuing to require publishers opting into the co-op for them to realize any benefits from it.

To mitigate any significant shift of revenue from AdX to non-AdX publishers because of DBM / GDN buying with audiences on 3P exchanges, we are proposing DBM and AwBid shift bids from non-AdX buys to AdX buys on participating inventory, based on *relative data value* collected from AdX versus 3P exchange. The exchange that the data came from would see higher revenue. As we expect AdX pubs to contribute the *larger* share of the data, we believe this will partly mitigate potential revenue drop.

Give AdX buyers access to Google Audience data (restricted)

#33: Allow AdX buyers discover matching pubs for Google Audiences in the marketplace

While giving AdX buyers the ability to *target* on Google audience cannot be supported in a privacy safe way, we are proposing giving AdX buyers the ability to *discover* publishers that are best match for a given audience segment along with availability forecast insight. This aids effective planning and makes AdX the go-to source for RFPs and deal making.

Use Google Audience data for internal optimization of DRX features

Certain types of data use raise fewer concerns about leakage and competitive issues. DRX could use Google data in internal optimizations to improve models that are not directly visible to buyers. There are three specific proposals:

- #4: User list expansion for PG audience list using Narnia and constellation data allows DBM buyers to achieve the same cross-device reach with PG deals that they can achieve with open auction targeting in DBM.
- #5: Improved GA Pricing. RPO sets prices based on historical bids and prices, sliced by a set of features. Pricing on cookies could be improved by using Google audience data - the fact that it is like another cookie due to Google audience association helping the accuracy of bid prediction.
- #6: Pacing for a vCE in a DoubleClick GRP targeted reservation LI could be improved using Google demographic signals. We believe demographic information can improve ad selection for reservations.

2017 Strategy Paper: 3rd party Fraud Verification Service

Director / VP Sponsor: Scott Spencer, Ying Wang, Michael McNally

Recommendation (TL;DR)

In addition to expediting building out the invalid traffic detection for all Google sell- and buy-side products, we need to add fraud verification and reporting to our viewability tool (project Omni) to provide richer and more accurate data than 3rd party verification solutions.

Overview (The Challenge)

Despite our efforts, advertisers are not shifting spend to our clean inventory

Google is one of the best technology platforms for identifying and removing invalid traffic (and other fraud) from our inventory. We do this because it's better for our clients, it reduces legal exposure, and it's the right thing to do. We have also promoted this fact through various channels, including blog posts, marketing materials, industry events, sales engagement, and PR/media exposure, with the hope that advertisers and agencies will shift spend to our clean inventory. This is not happening as evidenced by the lack of change in spending patterns when there are noticeable changes in a given inventory source's invalid traffic²².

3rd party anti-fraud vendors continue to gain traction

Advertisers, publishers and technology providers have become increasingly aware of ad fraud through increased coverage in the press and trade publications, our marketing efforts, and as well as with advent of industry orgs like TAG. In response, these buyers have begun demanding that all the inventory they buy be "fraud free". Given most advertisers and agencies do not have the technological ability to detect invalid traffic, this has resulted in these entities using 3rd party anti-fraud vendors like Integral Ad Science, Moat, DoubleVerify, or WhiteOps to vet their spend. Some of these third parties are even offered as features that work inside DCM, and our own Sales team, having no Google-provided solution visible in the user-interfaces, often are left to recommend their customers to use third parties.

3rd party metrics lead to disintermediation with our customers

The net result is that publishers are faced with advertisers that claim (via 3rd party reports) that there is fraud in the inventory they purchased. The advertisers refuse to pay and demand "discrepancy resolution" per their buying contracts – these circumstances inherently erode trust in our platform, while also consuming cycles across multiple teams in order to investigate and mediate the resolution. Indeed we have already received requests to bill only based on 3rd party metrics. As buyers come to rely on 3rd party metrics more than Google's own metrics, there is a

²² Google monitors 3rd party exchanges. We saw a marked decrease in the invalid traffic in an exchange but no commensurate change in spend from DBM or other buyers.

chance of progressive disintermediation, where the 3rd party companies will upsell our partners onto their attribution or bidding solutions. Arguments like, "but I use Google's ad server that removes fraud" don't address the issues. Google has found ourselves increasingly needing to defend our invalid traffic filtering, and we have even had to prove to 3rd party auditors that we filter what we say we do.

Pillars

Google has multiple options in response to these market dynamics [].

- Focus on protecting the buyers that use our tools
- Focus on protecting Google owned and represented inventory
- Develop a cross-platform tool to detect invalid traffic

Focus on protecting the buyers that use our tools

This is typically considered table stakes for any buy-side solution. As buyers become increasingly aware of ad fraud, they will increasingly demand protection. One challenge with protecting buyers when they use our tools is that not all of a buyer's spend goes through our tools. Buyers want to be protected wherever they spend across all the tools they use. Ideally they like to use the same anti-fraud solution across all spend, as it is simpler and allows better comparison across inventory and buy-side products.

Focus on protecting Google owned and represented inventory

When advertisers buy inventory via AdSense, AdX, DFP, etc., there is an expectation that Google has screened the traffic for invalid impressions. Whenever an advertiser (via a 3rd party) claims that we didn't remove invalid traffic, not only does it negatively impact the specific transaction, it creates doubt in the mind of the buyer of Google's anti-fraud abilities, since it appears Google is not able to even screen/filter the inventory Google represents. This doubt can be used to make the case that a dedicated anti-fraud vendor is a safer solution.

Develop a cross-platform tool to detect invalid traffic

Advertisers that want to be protected from invalid traffic, want to be able to be protected wherever they spend. A 3rd party anti-fraud vendor has unique appeal in that it protects them equally wherever they buy, and in most cases also addresses, their viewability, geo, brand and site-targeting verification needs as well. Despite an inability for buyers to assess the quality of the 3rd party verification, the ubiquitous application of the service means that it becomes the ground truth for the buyer.

There are many parallels with the challenges and potential solutions for invalid traffic as with viewability. Google initially had active-view imbedded in its buy-side and sell-side solutions. Buyers, however, preferred 3rd party solutions that could confirm viewability across all of their spend. It was not until Google began to offer active view as a cross-inventory solution that buyers would consider it (and even still, there are challenges in adoption).

Competitive / Ecosystem Analysis

There are many 3rd party vendors in the anti-fraud / invalid traffic detection space. Some are dedicated to invalid traffic like WhiteOps, while others package their invalid traffic detection with viewability, site and geo verification like DoubleVerify and Moat. Integral Ad Sciences looks at accuracy of contextual targeting, ad clutter, and is moving into attribution.

	WhiteOps ²³	Moat	DoubleVerify	Integral Ad Science	
Fraud	X	X	X	X	
Viewability		X	X	X	X
Targeting		X	X	X	

Risks

Will Google build a complete measurement and verification solution that covers viewability, brand safety, geo targeting accuracy, and ad fraud?

An ad fraud only solution is not likely to be successful in the marketplace.

Will Google be accepted as a "3rd party" verifier? Buyers may think a solution by Google won't be impartial.

We can address through MRC auditing / accreditation and marketing.²⁴

Will Google be willing to call out others as bad actors?

Being a 3rd party solution means we will need to pass judgement on other's inventory. This can create challenges as some inventory providers are also clients of Google in other areas. This can be mitigated by standardizing / automating the process.

Will Google be willing to release sufficient information on our detection when bad inventory is identified?

²³ Our assessment is that WhiteOps is significantly better than the other vendors in terms of anti ad-fraud technology and expertise.

²⁴ At the DCLK ad fraud round-table in NYC in Feb we asked this question, and most did not have any concerns with using Google if they could build up trust that our solution was as good or better than the 3rd parties. I.e., the 'independence' was not a priority. This is echoed in various other client meetings, including a meeting with AdX customers in MTV, and one-off meetings conducted by a former PM meeting directly with agencies and advertisers.

There is always risk of countermeasures in every disclosure of found invalid traffic. This is somewhat mitigated in that the one making the allegations tends to need to release more information than the one defending that their inventory is valid. In addition, there is the argument that, if we don't disclose this, someone else will in a potentially more harmful way.

How can Google provide the required service level at scale?

Some competitors provide "high touch" services, such as live consultations and customized adaptations of their invalid traffic systems based on partner's issues, may win loyalty.

Option Analysis

	Focus on protecting the buyers that use our tools	Focus on protecting Google owned and represented inventory	Develop a cross-platform tool to detect invalid traffic
Pros	<ul style="list-style-type: none"> Buyers are the entities at risk, for invalid traffic (IVT) protecting them makes sense Differentiator for our buy-side tools 	<ul style="list-style-type: none"> Google represented inventory is "safe" Reduces discrepancies with 3rd party IVT verifiers 	<ul style="list-style-type: none"> Buyers are protected on all inventory Halo effect on Google's inventory No need to resolve discrepancies with own inventory
Cons	<ul style="list-style-type: none"> Buyers interact with Google inventory via 3rd party tools 	<ul style="list-style-type: none"> Buyers expect protection on non Google inventory when using Google's tools 	<ul style="list-style-type: none"> Larger footprint of inventory to investigate Need to deal with discrepancies with 3rd party inventory

2017 Strategy Paper: Contributor 3.0 (Google Publisher Provided Paywall)

Director / VP Sponsor: Scott Spencer

Overview (The Problem)

Many publishers struggle to survive on ad revenue forcing them to put more ads on their page, degrade their experience, or even close shop. Consumers don't like to pay for content but, if the friction of transacting is significantly reduced (i.e., Google Play for music / videos) it is a viable alternative or complement to ad supported monetization.

Pillars

With Contributor, we are developing a system that creates an "ad wall" and allows consumers the option to pay to not see ads. The same infrastructure can be used to create an "paywall" and allow consumers to pay for access²⁵. What's more is that the infrastructure can be combined to give publishers and consumers multiple options / combinations of ad based and pay based monetization to choose from – wall while reducing friction since the payment credentials are entered once and re-used for each publisher.

Standardized:

Consumer research indicates that a standardized payment flow can reduce both cognitive ("what do I do now?") and transactional ("I have to get out my credit card again?!") friction.

Integrated:

Publishers need their consumer's information. They want the email address to do newsletters, the real address to do profiling, the real name for personalization. Google will need to share a significant amount of information with the publisher for this to work.

Competitive / Ecosystem Analysis

There are many solutions that provide paywall functionality (e.g., Blendle). To date, however, most publishers have invested in home-grown solutions.

Risks

Publisher acceptance – the reason that many publisher cite for developing their own paywall solution is because they want to "own" the consumer relationship. For a Google provided solution to be successful, we will need to share significant (including PII) consumer information with the publisher.

²⁵ Similar developed by Contributor team.

Consumer acceptance – many consumers don't want a paywall as the first thing they see. Search referrals in particular need to be "first-click-free". This is something we can support.

2017 Strategy Paper: Using Ad Performance Signals to Impact Ecosystem Change

Director / VP Sponsor: Scott Spencer

Authors: Ryan Schoen, Scott Spencer

Summary

You can fix what you can't see. Increased transparency into the attributes of creatives (e.g., file size, latency, CPU usage) will make issue apparent. Combined with policies, filtering tools, and education, this will allow publishers, advertisers, ad exchanges, and others to control and improve the ad experience.

Overview

The Problem:

It's well-established that performance impacts user engagement. 40% of users abandon a retail site that takes . Page load timing is

. Jank causes user

While part of this problem is site design, ads are also a large source of performance degradation on the web. Performance is one of the main reasons that users

Among top news sites, . Ads are known to have user-hostile , burning battery life and ruining user interactions.

Performance jank has been shown to , resulting in both poor performance and ..

This isn't just a problem outside Google - Google supported ads contribute to the problem as well. Internal analysis found:

- Some ads
- An utility

- An
- Several viewable impression measurement scripts (including Google's)

Even if the negative implications are known, many of these factors are invisible to publishers and advertisers when creating and managing ads. With this in mind, there are multiple ways to help address this issue for consumers, advertisers, and publishers:

Proposed Solution

These performance related issues drain the viability of the ad ecosystem. They can be improved through one or more approaches:

1. Transparency
2. Policy
3. Filtering
4. Education

Transparency:

In many cases, advertisers and publishers – the entities that have control over and are impacted by these performance issues – have no visibility into the performance of the creatives (or set of creatives constituting an ad experience) they are running. Simply showing advertisers and publishers the relative and absolute latency, bandwidth, CPU usage, jank, etc. their creatives consume allows for action. Combined with the business implications of these attributes, advertisers and publishers can employ filtering or budgeting to ensure that these performance attributes don't create harm to their users or sites.

Policy:

Should transparency and self-initiated controls be inadequate, Google could move to create policies that restrict egregious abuse of performance metrics. This can work well in combination with providing transparency. It also, however, has the risk of seeming paternalistic to our advertiser and publisher clients. Should they move to alternate ad serving solutions, our ability to influence these attributes is significantly diminished.

Filtering:

A third option is to work with browsers to set up performance limits and to filter assets that exceed these limits. Such action could occur through a combination of new browser standards (e.g., new attribute of an iframe to control CPU usage) or individual browser thresholding (e.g., Chrome stops any iframe process exceeding a limit). This is similar to the Project Magnolia approach to ad experience standards.

Education:

Finally, we can use the information about ad performance and it's impact on publisher performance and consumers to increase awareness of the elements publishers can control and change. This would be similar to the " " effort in 2009.

Competitive / Ecosystem Analysis

There are some existing solutions that can manage web performance attributes for consumers.

- UC Browser – in addition to its ad blocking, UC browser has controls and visibility for data usage.
- Reckoner and Buzzard – early Google efforts to measure ad performance in the wild.
- Ghostery – provides visibility into ad performance (latency) and then allows consumers to manage specific ad technology vendors.
- A4A / AmpAds – Google's own effort for a restricted version of ad. [Also see the paper on removing 3rd party JavaScript]

Risks

There are many risks with this project:

- Publishers abandon Google's solutions – Google's policies restrict the ads that publishers can accept / advertisers can run. Publishers move to other solutions in order to enable these ads.
- Google doesn't act fast enough – the web experience deteriorates to the point when consumers give up.
- An arms race with ads ensues – The more we address bad ads, the more likely publishers or networks will obfuscate the ads.

2017 Strategy Paper: Google Data for TV Publishers

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Team: Will Weingarten, Peentoo Patel, Eve Goldman, Payam Shodjai, Woojin Kim

Abstract: As consumers shift to digital viewing experiences via OTT platforms and services, there are two compelling forces at play today as TV publishers look at ways to maintain or increase TV revenue (\$200B global market). The first is the formation of walled-gardens with the likes of Facebook, Comcast, Verizon, and Twitter that are willing to leverage their user data to secure the much sought after premium video (episodic or live) inventory. The second is innovating on the user experience within these walled-gardens to ensure fragmentation within the ecosystem does not lead to viewing experiences below that of traditional TV. With both of these in mind, we need to help shape the future TV ecosystem and user experience by forming a network specifically for a select group of TV publishers.

Overview

As TV broadcasters address the slow but definite shift from traditional TV to digital (OTT), they are seeking ways to maintain the vitality of their business. Quality episodic and live content are the mainstay of traditional TV that commands higher viewership and the lion's share of advertising dollars. As we look at the ecosystem today, a key theme that has emerged is that data (measurement, targeting and attribution) are becoming more and more important to the TV business as they compete to add value to capture TV advertising dollars. Also, new access to data can feed into defining the TV 2.0 user experience, whether it be refined targeting not possible on traditional TV, re-visiting ad load to optimize the user experience, experimenting with new video formats, or driving better engagement (LTV for TV).

Our DRX video strategy is already well aligned with this vision of empowering TV broadcasters, **however there are challenges as walled-gardens are forming within the TV/video ecosystem:**

1. U.S./U.K. - Comcast/Freewheel still maintains a grip on the larger ecosystem in the US/UK due to their first mover advantage and the network effects of all being on the same stack. They also have been aggressive in the ad space to close the gaps with Google on the full-stack monetization and are using their footprint to propose TV user experience solutions for TV publishers. Along with this, they are leveraging their extensive subscriber data and TV ad sales teams, to fuel a co-op of sorts that is inviting our media companies to be a part of. Recently ESPN, a DFP prospect re-signed with Freewheel despite a successful pitch and proof-of-concept, primarily due to data access promised by Comcast. We expect Verizon/AOL/Yahoo! to follow the same path.
2. Global - We are seeing very similar arrangements form in EMEA with RTL Group through acquisition of SpotX and investments in VideoAmp, Clypd and Pro7 through recent acquisition of YieldLab (SSP) and Active Agent (DSP). In APAC, MCN is looking to

buying through use of data -- a common thread among all of these TV broadcaster/distributors.

Our proposal is to **create a network specifically for TV publishers**, where they can safely marry their subscriber data with Google data (GAIA) and leverage it to innovate on the TV ads experience, effectively treating TV broadcasters like a mini-Google O&O property. Historically with our O&O properties, we have invested in proprietary targeting, measurement, and formats to differentiate our own ad sales; a similar approach is needed in TV (e.g. Viral, Trueview, Sales Lift, Customer Match). A post-Narnia 2 world enables opportunities to more fully leverage our O&O assets for TV publishers, who are particularly desperate for better targeting/measurement capabilities to sell their inventory cross-device, which will ultimately help us drive more advertising dollars across YouTube and premium video.

Data will lead the transition to TV 2.0 as TV publishers look at ways to retain TV dollars across both traditional TV and the growing digital viewership:

1. While most publishers have signed-in experiences, they don't yet have the data scale on digital to leverage against media buys for upfronts or scatter. However, they continue to pursue combining first-party and third-party data for set-top-box to add value to marketers looking to target and measure (,). This is loosely defined as Programmatic TV today.
2. Viewership for TV is slowly but surely moving across devices beyond desktop and mobile such as OTT devices such as Android TV, Chromecast, Roku, and Apple TV. These devices represent new linkages in the audience device graphs where we may have an advantage over other digital players like Facebook (only mobile). Google, primarily through YouTube, has access to signed-in user data across many platforms such OTT devices and gaming consoles (sign-in rates vary).
3. Ensuring the TV ad experience does not become a race to the bottom, we can drive the digital viewing experience to become more compelling than traditional TV, balancing the short term revenue needs with longer term audience growth.
4. Today, many TV publishers will still bake in the same ads as Broadcast TV and count the views towards Nielsen ratings; in an effort to maintain TV dollars across their emerging platforms. Bringing data to the table is one of the key ways to value addressable digital inventory higher than traditional TV, delivering higher CPMs than traditional sales.

A starting point is to provide access to data for TV broadcasters within the YouTube Unplugged (Youtube's planned TV skinny bundle service), wherein programmers and their sales teams to some extent are already becoming a key part of our inventory pool on O&O properties. By cable industry norms, programmers have rights to sell most of the ad spots on YouTube Unplugged - over the air broadcasters like CBS keep all inventory, whereas cable channels like ESPN share 2 min a hour with Youtube to sell. Our data could be a key point of leverage for gaining more inventory rights, reducing ad loads to improve the user experience, and driving higher monetization.

Product Strategy

We plan to **Create a “network for TV” to share access to Google data with Broadcasters.** We will leverage the power of Google data within our own ecosystem first (YT Unplugged, Android, Fiber) for TV publishers and look at ways to extend that outside Google properties with the objective of defining more compelling advertising user experiences to advance "TV 2.0". Conceptually, this aligns with the [redacted] proposal.

What we would offer:

- TV Publishers would be invited to be part of the new TV network, wherein they would have access to exclusive demand powered by GAIA data. They would gain access to capabilities like Customer Match to be able to better enable 1P targeting by advertisers on their own inventory. Capabilities would likely be similar to those proposed under the [redacted].

Partner Requirements:

- **Who we would offer it to:** TV publishers - Broadcasters, Cable Networks, Operators
- **On what inventory:** Live and VOD TV content. Initially, we would require exclusive access to publisher inventory to gain a critical mass of premium content, which is a risk. This may be relaxed with time as new forms of premium content emerge (e.g. Vice, Time Inc. building virtual TV networks).
- **What data we'd want in return:** We'd want to enable per publisher matching between their existing graph and GAIA data extend that for cross-device reach. Publisher ideally should have a minimum scale of cross-device links for us to be able to ingest, but we could consider making exceptions if not.
- **User experience guidelines for the network:** There a variety of levels of user experience control we could attempt to demand in exchange for our data. Publishers will likely only accept restrictions that they would view as long-term revenue optimal.
 - **Cross-device frequency capping:** Like Comcast's proposed guidelines, we would institute requirements around how often an individual ad could be shown to a user, leveraging our own cross-device graph to enforce such caps.
 - **End user latency:** video ads should load quickly (less than a second) in order to meet the guidelines of the new network. This could be accomplished through use of our [redacted] product.
 - **LTV optimization:** We could ask publishers to cede control of video ad loads to Google, i.e. using DALLAS (dynamic ad load optimization) to control what ads to show to a user. At a bare minimum, would likely cap ad loads, i.e. no more than 30 second preroll, no more than 2 minute ad breaks, no more than 5 ad breaks per hour (ad loads can easily be 15-18 min per hour today on TV).
 - Such LTV Optimization would likely need to be powered by more sophisticated video content analytics, which do not exist today on the network.
 - **Format guidelines:** Formats powered by GAIA targeting could be required to display an icon to showcase TV network branding; this should likely be a new brand to alleviate publisher fears around YouTube. We might require these ads to meet requirements such as a maximum duration for non-skippable ads.

- **Only relevant ads:** no-baked ads from the C3/C7 window on a given stream (even for non-network ads); all ads should be dynamically served to make them more relevant to the user, even if they are just sponsorships.

Phasing:

- This can be launched in **three phases** to test the waters: 1) Youtube Unplugged subscribers watching TV content, 2) TV content on Google platform (signed in) --- Google Fiber, Android, Chromecast, 3) Open to all TV content across platforms.
 - *Pros: Brings all Google platforms into the fold, and incents sign-in experiences, enables publishers to do true x-device frequency capping.*

REDACTED - PRIVILEGE

Note: While this paper does not cover measurement, it is tightly linked to providing an alternative suite of tools for publishers to value of Digital & TV inventory together and further the conversation from tradition TV metrics --- see the cross-screen

Competitive / Ecosystem Analysis

- **Comcast** is utilizing set top box data aggressively in carriage arrangements.
 - Example #1 - ESPN: While Google almost won the ESPN RFP, Comcast offered access to set top box data in order to keep ESPN on Freewheel. Comcast has also suggested they are considering building a co-op of TV subscriber data across cable operators, which likely will be built on top of their ad tech stack and anchored by their own O&O data.
 - Example #2- Cox: We lost an RFP on Cox, who took the combination of their X1 consumer set top box platform + ad routing infrastructure offered by Comcast, and the future promise of shared MVPD data co-op.
- **Verizon / AOL** will follow suite with Comcast forming walled gardens where data is the differentiator, having made ad tech acquisitions and media (now Yahoo!).
- **Facebook/Twitter** are actively seeking premium TV content - see NFL rights, and Facebook Live
- **Adobe** has long been rumored to be building a data co-op, broadcaster focused, around its Adobe Pass and Omniture products. They have a partnership with Nielsen for measurement.
- **Outside of North America** many broadcaster and distributor (or both)
 - RTL Group through acquisition of SpotX and investment in VideoAmp and Clypd
 - Pro7 through recent acquisition of YieldLab (SSP) and Active Agent (DSP)
 - MCN in AU is looking to buying through use of data

Risks

- **Data will fuel the future of TV** and has become the key driver as the industry moves to Programmatic TV. Google may be left out of this transition if we do not help publishers target their audiences across digital + TV.
- **Digital data may not be of sufficient scale** to have an immediate impact since most TV viewing is still in-home via traditional STB. We do not have an equivalent footprint to Comcast (22MM homes) and Fiber is still small, so will publishers see the value of partnering with Google to drive the future of OTT over TV over a company like Comcast? This might be a longer term play as we see audience shift to digital.

REDACTED - PRIVILEGE

- **Value proposition for data:** Publishers may not be willing to accept tight user experience restrictions or exclusivity if they do not perceive the value of the data we are providing to be sufficient.
- **Youtube device graph coverage:** While GAIA coverage is impressive on desktop & mobile, OTT login rates are likely to be lower; value proposition may be hindered outside of our platforms (e.g. Unplugged).

2017 Strategy Paper: Premium Video Buying

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Abstract: On TV, broadcasters and cable networks compete for budgets with their primetime hits. They promote their most watched, most premium shows to brand buyers as a way to capture not only huge upfront budgets, but also command high CPMs for these spots, and then bundle in other programming to round out their investment. As video viewership migrates to digital, we need to make it just as easy for brands to come to YouTube and DoubleClick to spend their video budgets -- leading with inventory access to our O&O and the best video content across streaming TV inventory (OTT) from our partners. Today, brand buyers in DBM are struggling to find and execute on Google Video Partner (GVP) inventory, due to several challenges - there is too much content to sift through for discovery, audiences are fragmented across screens, and there is no easy way to effectively optimize and measure performance. In addition, there's friction in buying across YouTube and GVP, due to lack of unified tools, cost models and measurement. Leading in programmatic video buying requires making premium digital video buying as easy as "primetime", through investments to enable unified planning, discovery, execution, optimization and measurement of premium video across YouTube and out video network inventory.

Background

[Please read the " " paper first for further background on our third party video strategy]

We want to help buyers easily plan, buy and get trusted results across quality digital video content, at scale. For brand marketers, this process typically starts with access to high quality inventory, as a way to reach their audiences against the most premium content. While YouTube has anchored DBM growth in the last year, programmatic buyers are also asking for help to extend access to easily discovery and buy quality inventory across media, and especially with TV/OTT content. Enabling this with Google Video Partners is a key way to meet buyers' needs.

After resisting for many years, in 2015 & 2016 many broadcasters and premium publishers started adopting programmatic channels for the first time (especially when incented by monetary guarantees through the Partner Select program), with a lot of that inventory coming from emerging platforms like mobile and OTT. While the inventory is growing, and demand is clearly there - the programmatic market is not doing a great job at connecting supply and demand. There are a number of reasons for this:

1. **DoubleClick Platforms were not designed for buying and selling premium video content.** For display auction (particularly for performance buyers), the currencies of success are often conversions, and inventory that performs well is quickly discovered by sophisticated bidders; in contrast, premium video is defined by metrics like guaranteed GRPs / pure reach in a target audience, brand effectiveness, and the perceived content quality. Meeting these objectives is still especially hard on today's exchanges and buying

platforms, and it is difficult to optimize for such objectives uniformly across TrueView, Google Preferred and exchange buying, as we do not have easy ways to even measure effectiveness simply across different buying types in the same terms.

- **Implication:** The lack of unified metrics across all inventory and sophisticated video optimization in DBM is important because this biases spend to lower quality inventory sources on other exchanges (i.e. away from our media), as buyers turn towards metrics like non-engaged completed views that are easy for lower quality inventory to game. Increasingly we find that the best third-party video inventory is on AdX (by metrics such as viewability, fraud, etc.), so doing the right thing for advertisers will benefit our media (both 3P + O&O).
- 2. Video is a head-heavy business, with stronger direct sales than display.** Perceived scarcity of quality inventory allow publishers to self-package inventory to command \$25+ CPMs. Because "premium" is quite subjective, publishers are very mindful of their brand equity, wishing to be perceived as "TV quality", and therefore are very careful about where they allow inventory on the open exchange / to be filled by TrueView.
- **Implication:** accessing top tier video partner inventory in today's market, especially OTT, requires heavy reliance on packaging and deals- this is one reason why 3P DSPs & networks (e.g. Tubemogul/Videology) transact primary through deal IDs. Yet deals require significant investment to automate and scale to anywhere near the level of TrueView.
- 3. Cross device fragmentation inhibits our ability to reach scale.** We are increasingly seeing query growth coming from mobile and connected devices. New business targets like Hulu see 70% of watch time on the big screen. Yet today, capabilities taken for granted on desktop (in- target impressions / reach, viewability) are not available on these devices. Moreover, because we give so many options to buyers in DBM that we don't give AdWords, e.g. using the VPAID interactive standard for measurement, they will often shoot themselves in the foot, steering themselves away from this inventory because they restrict their own scale.
- **Implication:** Reaching cross-device measurement & targeting parity long term is necessary to unlock video budgets for new platforms; at the same time we need to heavily consider what smart buying defaults and restrictions we want to steer DBM buyers to minimize device fragmentation problems.

An example of where all these problems come together on AdX is with CW, a US TV network catering to 18-35 demos. On the open auction on devices such as Roku, we saw CPMs of ~\$1 for branded CW inventory, even though this inventory would sell for \$30+ CPMs via reservations. This was the result of all the issues above, i.e. buyers had no way to distinguish the "premium" quality of this inventory from other impressions on the exchange (in fact, it was even misclassified as desktop), there were no packages or deals to make it easy to discover, and neither AdWords formats nor Active View measurement would work on a Roku device.

To succeed at building a great video storefront, we must eliminate all the caveats and "gotchas" that make spending on GVP inventory (and specifically OTT-based TV content) significantly harder than for a DBM buyer. We must make executing multi-million dollar budgets on GVP via deals in DBM as automated and simple as a TrueView Campaign, with buying workflows that feel built for video, and we must make the value proposition of YouTube + GVP better together than either in isolation, whereas outside of TrueView today they feel disjointed.

Product Plan

The following product principles guide our product initiatives for premium video buying:

- Our primary focus is on DBM for programmatic buying, and DRX as the inventory source. That doesn't mean this is our exclusive focus - see the Future of TV paper - but it is the area where we are struggling the most today (esp. with deals). It is also the area where we have the ability to jointly experiment across buy and sell side to figure out how to scale premium video buying (unlikely on 3PE). Our product initiatives will also incidentally benefit premium buying on third party exchanges (see TV/Video paper) or sales to other video DSPs where it makes sense.
- While we won't necessarily have full consistency across GVP & YouTube (e.g. non-skippables in the auction being deprecated from YT, certain deal types only exist on AdX), common metrics, cost models, & targeting will provide the basis for a consistent story across all media.
- Our workflows should be video centric and easy to use; deals features in particular should be built with a video first basis to solve the packaging challenges that are endemic in premium video. [see as well].
- Any video features should aim to be completely device agnostic; if they do not work for mobile & living room devices, they don't fully work for video (i.e. not just mobile-first; OTT first).
- It should be easy to build a successful high-reach campaign. We will guide away from layering advanced targeting choices that overly restrict reach.

1. Unified measurement and planning across all Google media (YouTube and GVP).

Product initiatives:

- **Create a planning flow in DBM for both YT & GVP inventory:** Brand campaigns begin with planning and forecasting unique reach across media and devices, often measured in GRPs. We will enable buyers to interact with reach curves in an RFP flow, showing the incremental cost to extend campaign reach based on their KPIs (such as viewability, brand safety, viewing devices), and selected inventory, deduplicated across all media (powered by the measurement above). This will also show the impact of targeting and inventory choices before the campaign begins. To be successful, this must incorporate all inventory.
- **Get to unified metrics and cost models for all video:** Historically in DBM, we have not had an easy way to tie together performance across exchange buying, GP, and TrueView. Part of this is because TrueView buys and CPM buys are not as easily comparable, and it is hard to see how they complement each other. To solve this we will:
 - Launch deduplicated reach reporting in DBM across Trueview and GVP, with insights on the incremental reach that each provides. This will feed into planning above.
 - Support Project Crane: introducing the concept of cost per watchtime in Q1 and watchtime reporting across YT campaigns. If successful we should consider bringing the same cost model and measurement, via DBM, to all skippable/non-skippable buys on GVP (while still providing eCPM / impression reporting to make it comparable to exchange buying on AdX and third party exchanges).

2. Make Markets in Video. Scaling video exchange transactions to achieve significant reach requires leveraging our strengths in machine learning to automate the process of matching buyers and sellers through deals, with short term manual packaging to jumpstart the market.

- **Create curated inventory packages:** bundle dozens of publishers together into preset packs (e.g. premium mobile apps) surfaced in Marketplace for scalable always on auction deals (targeting a single deal ID to sidestep the adoption curve for unique AdX bid signals).
- **Automate Guaranteed Buying with _____ in DBM.** Buyers will enter a budget and goal (e.g. viewability, in-target demos), and we will act as a broker, return a dynamically priced quote for guaranteed impressions and CPMs based on the premium GVP inventory we have access to that a buyer can then accept with one click. This solves many of today's execution challenges with Partner Select and allows us to take an additional risk margin.
 - **Note:** powering effective guarantees will require significant investment on the buy-side forecasting capabilities; improving accuracy and add video-centric features (in-target audiences, suite of viewability and verification signals, brand-safety)
- **Empower direct sales with recommendations:** Give publishers win-win recommendations for private auctions at a given price to drive automated deals creation while packaging is necessary.

3. Promote device-agnostic video buying. There should be no device-based exceptions to where DBM buying capabilities work, and for auction transactions we should promote targeting and optimization that do not inhibit scale while steering budgets to quality inventory.

Product initiatives:

- **Achieve parity for mobile & OTT:** Brand measurement (Viewability, GRPs), targeting (constellation / demo / p-score), and new video content signals (i.e. publisher provided) will all need investment
- **Make it easy to use for DBM buyers:** Be prescriptive in DBM video buying defaults, ensure DBM is buying on quality inventory at scale.
 - Example #1: Avoid or fix features that excessively limit scale or do not work on mobile (ex. Flash VPAID, player size targeting).
 - Example #2: Push buyers to more sophisticated forms of optimization that emphasize quality (e.g. audible and viewable on complete, viewable time).
 - Example #3: If excessive targeting pushes inventory scale below a certain threshold, do not allow the RFP flow to request guarantees; allow optimization only with an in-UI warning about limited reach

Competitive / Ecosystem Analysis

- **Verizon/AOL/Yahoo!:** Verizon's recent acquisitions of AOL and Yahoo are aimed at building a walled garden of brand-name inventory across AOL and Yahoo assets, coupled with powerful targeting from Verizon's proprietary mobile data. Bringing Yahoo's inventory assets into Verizon's portfolio enables them to offer significant scale, which is

extremely valuable given the scarcity of quality inventory and the fragmentation of viewership across screens. Yahoo already packages up inventory across the exchange and their O&O into curated packages that are easy to buy.

- **FB:** Facebook plans to use FAN as a way to get access to premium video inventory, leveraging their first party data to deliver high CPMs that allows them to gain either first look access or fund guarantees to lock up inventory from former Liverail customers. FB has also partnered with Tubemogul to give API access to their video inventory, enabling brands to execute linear TV plus digital buys (including Facebook) in a single platform.
- **Comcast:** Through acquisitions such as FreeWheel, StickyAds, and Visible World, Comcast is seeking to create a DRX competitor, becoming the platform of choice for publisher programmatic direct ad sales across TV and Digital, anchored with their own subscriber data and media. Focused on helping TV companies create walled gardens.

Risks

- Advertisers/agencies may not be truly ready to pivot to buying video on mobile/OTT, even if they say it is their goal, and may not buy into a uniform cost/measurement model across all inventory. Watchtime is still unproven, and may not be accepted as a common currency.
- Accurate forecasting and planning requires willingness from publishers to surface availability information - many publishers not comfortable with full transparency of this info. We will have to come up with ways to work around this.
- Technical challenges in getting key dimensions such as viewability and GRPs to work consistently across all devices.
- Continued growth will come from deals or OA inventory where Trueview is not eligible / desired (e.g. TV content, devices like Roku), making it harder to leverage YouTube.
- Lack of access to walled-garden inventory will thwart DBM's aspirations to be the single buying platform for all premium video.

2017 Strategy Paper: YouTube Platform “White Labeling” in APAC

Owner: tommyk@

Abstract: One of the biggest challenges for our video monetization strategy in APAC is lack of access to long-form content and traditional television programming. In order to facilitate more quality content coming on-line, and developing synergies (measurement and targeting) for YT, we propose creating a white labelled version of the YouTube platform (the player, the CDN and the recommendation engine), which will benefit publishers by making it much easier to develop a fully robust digital presence, while also facilitate the cross-sales of YT corpus with traditional television programming.

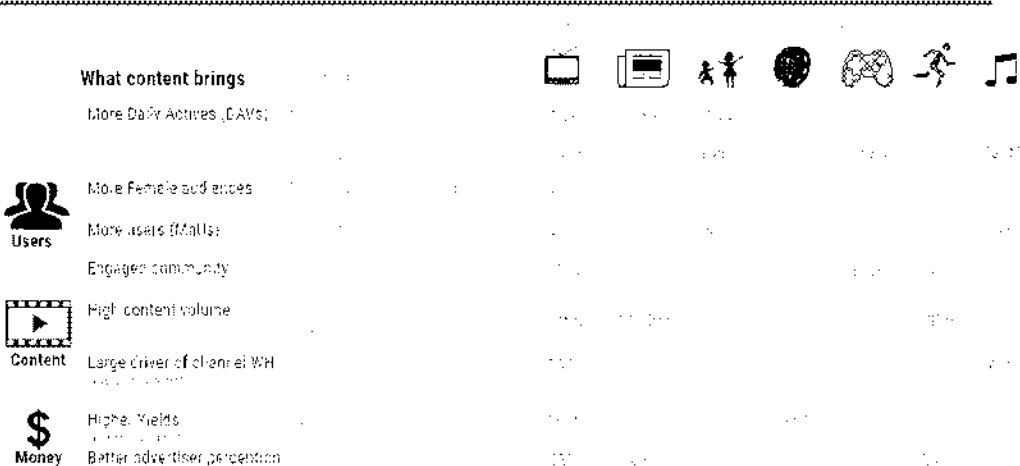
Executive Summary

In much of APAC, traditional TV and video publishers are struggling to move online. They have developed base platforms, but lack the sophistication to ensure quality delivery, and have to build search and recommendation engines from scratch. They also face huge economies of scale issues in terms of building the delivery infrastructure, especially for global delivery. In the meantime, Google has lagged behind the market in securing exclusive, valuable video inventory -- especially long-form content. Combining our GVN with a white-labeled version of the YouTube platform would solve both problems and benefit both Google and the video publishers. The YouTube platform delivers a best-in-class, well-established platform for video delivery with built-in monetization, which will help TV stations and studios accelerate their online presence. It also deepens our relationships with publishers and could be combined with a monetization guarantee (ie we get to monetize their inventory or a percentage of their inventory). We can start by leveraging the Vevo “white label” model, then extend to further customization and control on behalf of the publishers.

This solution has multiple benefits for us - both strategically and commercially (see analysis from YT strategy team):

1. It would greatly accelerate our attempts to acquire high-value content from traditional media players in the region and especially in markets such as Australia - where we have struggled to get this content in the past
2. This content will help us attract more daily actives (DAVs) and more overall users onto our platform
3. TV content on YouTube has a stronger advertiser perception and provides access to high demand audiences e.g., female audiences (e.g., Female share of Watch hours for TV content on YouTube is ~43% is higher than most other types of content)
4. Allow us to command higher yields/ CPMs
5. Allow networks / content providers to monetize at higher levels (e.g., if we provide differential ad loads and/or enable different revenue share model as we do in the YT embedded player allowed for the Digital News Initiative)

What content brings a lot of traffic to YouTube



Product Overview

The high-level goal is to provide the YouTube platform to traditional video publishers for them to use to accelerate their migration online. The concept is to provide a white label experience to the publisher that leverages their content and all of the software and infrastructure associated with the YouTube platform. The partner provides the physical media files and its own customer data. YouTube provides a customised front end which allows the partner to create its own look and feel, the recommendation engine, back office management systems, operationalisation and infrastructure (including bandid/caching and media management functions).

Front End: The site is hosted on the customer domain and is completely independent of YouTube front end (though some look and feel components should be maintained). The site is branded as the customers (for example, Channel Z Media) and does not contain YouTube branding or logos. The site may link to YouTube and vice versa, but is completely independent from an addressing, content and branding perspective.

Content: All media files are provided by the partner, and these are stored and maintained completely separately (in separate blobstore, though with common cache) from existing Google media. The customer "owns" this content and has exclusive access to it. Customer is responsible for creative review, copyright monitoring, legal liability, etc. Google is simply providing storage in much the same way as it does for media storage customers on GCS today.

Customer Data and Recommendation Engine: Google will provide all of the core platform components for the service, including the page serves, video serve (outlined below) and all data and platform components. Customer records are housed within Google, though should be segmented from other YouTube user data. Google houses viewing history and uses the standard recommendation engine though this may be segmented from YouTube recommendations. Depending on the publisher, we can decide jointly whether or not recommendations should flow from a shared google/channel Z viewing history or be completely independent.

Infrastructure: Channel Z media delivery will use all Google infrastructure. In particular, data will be housed in Google databases, stored in GCS, and delivered via the Google production backbone and cached in bandaid. It is not envisioned that content can use a third party transport infrastructure or third-party CDN. We may choose to allow customer data to be housed in external databases in a later phase, but a method would need to be developed to facilitate Google's recommendation engine to retrieve customer viewing history and import it into our systems for processing.

Product and Packaging: The product will be positioned as YouTube Media Delivery Platform (name tbd), which will be delivered as a PaaS model (i.e. a turnkey platform operated as a service). Open questions: Do customers pay for Cloud services i.e. storage and network transport? Are customers permitted to control their own caches?

Commercial Model and Monetisation

The primary monetisation method for content will be advertising, though some publishers may operate subscription services or may choose to leverage YouTubeRed as a white label extension. We may choose to operate the partnership as a revenue share, or as a segmented ad sales model where each party is responsible for direct monetisation of a portion of content (i.e. google sells x% of ad slots, partner sells y and each keeps its contribution). Some upfront one-time payment for platform customisation and set up may be charged to offset upfront costs to Google. A monthly service fee is not recommended but may be considered.

Open questions:

1. Does the partner have the ability to choose its own ad formats? Many potential customers, especially traditional TV channels, monetise today using a fixed "spot" model on 30 second/60 second video formats. Almost none support skippable ad formats.
2. Does Google require customers to use TrueView for all or some of their ad serves?
3. Does the customer retain freedom to use its own formats? What about the other way around, e.g. what if google sells truview against its portion of inventory and the customer uses non-skippable? Does this create a bad customer experience.
4. Who is responsible for measurement and who owns signals for measurement and targeting? Assumption is that these are jointly owned and Google has the ability to use all signals for its broader suite of measurement and targeting products.
5. How much flexibility are we willing to provide on partners setting 'ad loads' on their O&O sites?
6. Does viewing from the white label O&O site add to the visitation and reach numbers of YT aggregate or does just add to the partners O&O reach / claimable data?

Target Markets

The primary target market for the YouTube Media Platform is traditional Television publishers and news outlets in APAC. The value proposition to the partner is that they get access to a proven, well-oiled delivery platform to accelerate their move online and ensure the best possible customer experience (as opposed to attempting to build their own platform using an off the shelf platform and viewer). Any publisher with video or audio assets that it wants to deliver online

could be a target, but the primary target is traditional media properties. Amongst the criteria we will evaluate in selecting target markets are a) percentage of television content currently available on YouTube b) structure and concentration of television inventory c) presence of OTT video competitors d) market size and potential economic value.

Based on these criteria, examples of Tier 1 targets would be Australia, Japan and Vietnam. Examples of potentially more difficult markets would be China, Korea and Thailand. India has a unique set of challenges due to strength of traditional media and extreme bandwidth constraints, but needs to be evaluated as a high priority focus and may require special development considerations

AU Example:

MARKET LANDSCAPE	
TV Market (Size, structure/ concentration)	
YT platform overview	YT Rev: \$77M, 64% Y/Y Watch time growth: 46% Y/Y STR (significantly constrained on key demos): <ul style="list-style-type: none"> - 52% overall - >70% for M/F 25-44

2017 Strategy Paper: 3P Data for Targeting and Measurement

Owner: tommyk@

DoubleClick Data Platform (DDP) 2.0: Leveraging diverse 3rd Party Sources to create a best-in-class targeting and measurement database for in-app mobile ads, while enabling developer and publisher partners to monetize their subscriber data easily and efficiently.

Abstract:

"DDP 2.0" is a new product effort designed to create a master data warehouse of 3P data for use in Targeting and Measurement. The effort is heavily focused on in-app media consumption to create a unique targeting capability for in-app performance and brand advertisers. We will create a single data repository that can be scanned/queried and used to create auto-generated audiences. Key sources of data are Telcos/Banks for base indexing and app developers and publishers for user data.

Effort: Large; 20+ eng and PM; 2-3 BD for APAC partner development; **Opportunity:** Large; \$50M direct revenue ARR and \$550M+ indirect revenue ARR within 18 months of launch

Problem Statement

As advertisers become increasingly sophisticated in their marketing efforts, and users move larger amounts of their digital life to mobile and in-app formats, the importance of comprehensive and robust data for targeting and measurement will continue to grow. Data has emerged as the key differentiator for ads platforms in APAC, and companies like Facebook are heavily focused on building extensive data infrastructure to help match ad campaigns to very granulate 1st Party audiences (e.g. Email & phone # based targeting via Custom Audiences). Other data players (e.g. BlueKai, eXelate, Acxiom) have failed to scale and build high-performing, cookie-based data aggregation businesses. APAC marketers rely heavily on siloed data that is native to their chosen media buying platform, like Remarketing and Google Audiences in DoubleClick Bid Manager and AdWords.

As in-app Walled Gardens continue to spread and Web-based Search declines, augmenting 1st party data with strong 3rd party data will be not just a competitive differentiator but an existential requirement for success in the digital advertising world. This is already becoming a major issue in mobile advertising, as current breakdowns are 89% of time spent in app and just 11% on mobile web, according to Nielsen.

Google has a major advantage in the in-app advertising space -- the strength and breadth of our developer ecosystem. More than two million mobile app developers in China rely on Android as a mobile platform, and more than 135,000 for a combination of Admob for monetization and Play for Distribution. In the rest of APAC and globally, where we add our developer tools, GMS core and Cloud, these numbers are more than 1.45M active developers focused exclusively on mobile apps. This mobile focus is especially important in APAC, where nearly 2 billion smartphones will

ship in the next two years, and where users spend an average of nearly 3 hours per day on their phones (67% higher than ROW).

But what many app developers struggle with -- especially in India and China but throughout APAC -- is how to monetize their apps in a world where app installs are largely free and IAP is restricted to a small segment of users. These developers have a wealth of user data -- on installations, purchases, and user behavior on their mobile devices (information that used to be available through browser-based cookies but which is now trapped inside each individual app). Google has a unique opportunity to partner with our developer ecosystem to allow them to monetize their subscriber data while we built a best-in-class targeting and measurement database of in-app user trends and behavior.

Solution:

DoubleClick Data Platform (DDP) 2.0 is a next generation ad targeting system built on 3P data and capable of powering 'end to end', device agnostic data driven marketing in a world where the use of cookie-based ecosystems is in decline and in markets where it is barely present at all. It solves the problem of data silos and fragmentation by creating a single, highly scalable repository for the creation of Audiences, while also allowing our app developers to monetize their data (and further strengthen their business relationships with Google).

DDP 2.0 will create an APAC-focused marketing address book with (digital whitepages for marketers)

1. All people and their historical addresses, phone details and other contact details
2. Information about them such as demographics, in-market and intent data and
3. How to target them (email, mobile, cookies, device ID:s etc).

This infrastructure can then be used to onboard valuable offline 1P audiences to Google products, enabling:

1. Marketers to expand & optimise their paid & owned Google media: and
2. Publishers to optimise their content/ads, resulting in higher yield from Google publisher platforms.

Data Marketplace Project

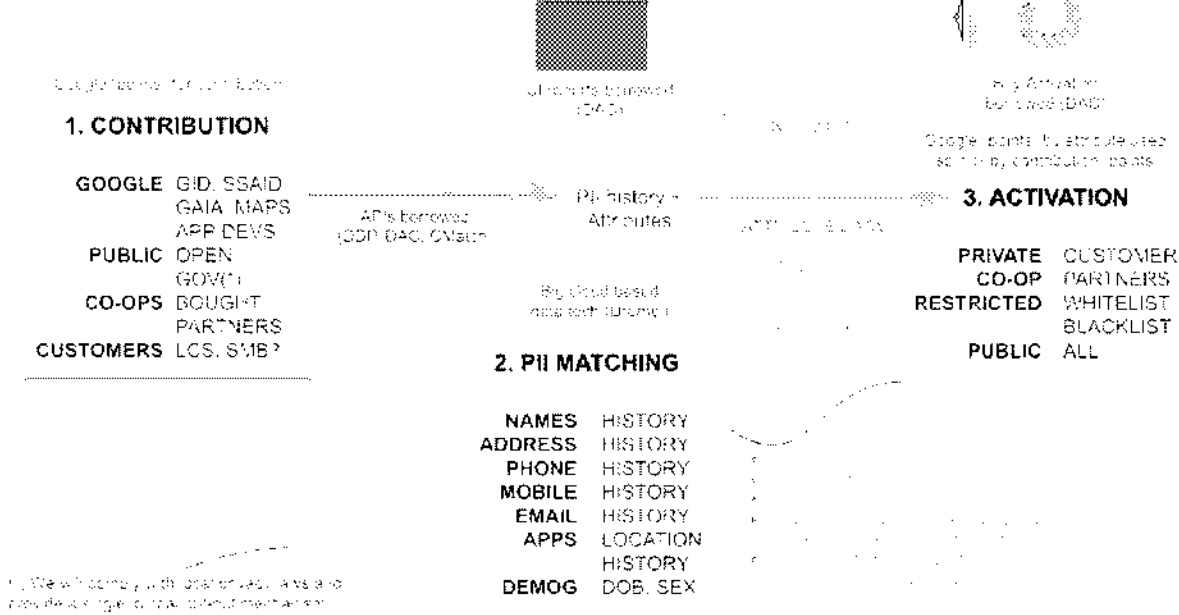


Fig1 - Data marketplace project concept diagram

DDP 2.0 is designed to create a single repository of multiple petabytes of user data, which can easily be queried/scanned for trends and used to generate highly-targeted audiences for both brand and performance campaigns. The database will be seeded by Telco and Bank data (Telco data links devices to a primary account holder to a household. Bank data links a subset of devices to a wider set of account holders to a household. We can also include data sourced through other 3p aggregators) for the base identifiers, then populated with user "performance" data from app developers and publishers.

Differences Between Existing DDP and DDP 2.0

DDP 2.0 is creating a **unified 3P data warehouse** that Google can use to custom-create Audiences for buyers and dynamically generate in-app mobile audiences for campaigns. The underlying pillars to this are unifying all data into a single warehouse, augmenting telco/bank data with direct developer data, and building a UI to easily manage audience creation. This compares to current DDP, which essentially allows third-parties to advertise their data to Google buyers and access individual data silos stored on Google systems, then create their own audiences.

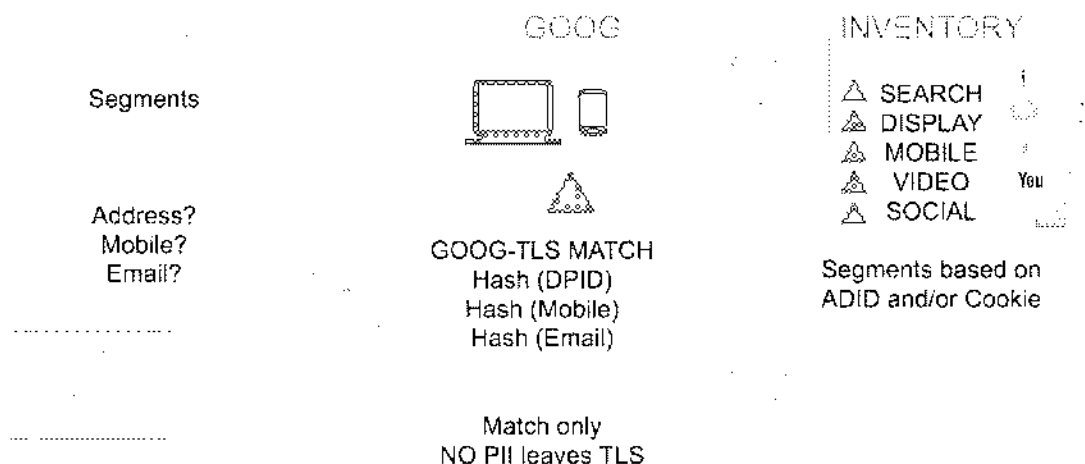
There are three main functions of DDP 2.0 that need to be built/updated:

Ingestion and Normalization

The biggest technical problem for DDP 2.0 is large-scale data ingestion and normalization. Data will come from a variety of sources, in a variety of different formats. The current DDP API will work for some data sources, but this creates a great deal of friction because 3rd parties often don't have the resources or desire to implement a push API. Large Telcos, for example, will provide the data in flat file or external API format, and they will look to Google to provide this ingestion. We need to build an ingestion methodology that imports data via our API, external APIs (developed for large partners such as Telcos only) and manual ingestion; reformats the data into an agreed storage schema, and inserts the data into the data warehouse.

Currently on DDP this is done via F1, but this architecture is limited as a long-term data warehouse. Since it does not have a schema, the current F1 data cannot be bulk-queried or scanned -- the buyer is limited to the data sets they contract and want to pull from. This also inhibits dynamic audience creation as outlined below.

Most likely, the data should be formatted in a loose data schema in Big Query Storage or some similar format that would promote high-scale queries against the full data set. The data also needs to be overlaid with a rule structure that governs status--- share with all, share with whitelist only, share with all but blacklist, etc. The data must also have opt-out flags for users who generically opt out of all targeting services.



High-Performance Query and Audience Generation with Geographic Segmentation

The key purpose behind unifying the 3p data into a single data structure (and then allowing it to be combined with 1st party data) is to allow buyers to conduct large scale queries against the full data set - with a common taxonomy and naming convention --- to construct comprehensive and large-scale audiences. We also need to provide audience size estimations and potential media spend against each audience size. For phase one, we want to begin with a group of 15-20 pre canned audience cases that can be auto-generated and refreshed based on buyer-provided attributes and user online activity. Over time, we would like to add ML and other analytics against the data set to create "smart audience" suggestions based on demographics and campaign logistics.

The mapping of the attribute data to the audience can be done either to Cookie (browser) or adid/ssaid (mobile). The process of mapping the queried user characteristics to the device/browser needs to be mapped out in detail based on agreed policy parameters for mapping the PII components. Local regulatory and legal considerations, as well as Google privacy policies, need to be taken account in this process.

Enabling the Developer Ecosystem

Though not a critical part of the phase one deliverable, the third component of DDP2.0 is creating a robust and simple dashboard for developers and contributors to the marketplace component of the system (the 3p data contributions). Developers will need to manage their data contributions and their accounts, which will track contributions/monetization and manage billing/compensation. This interface

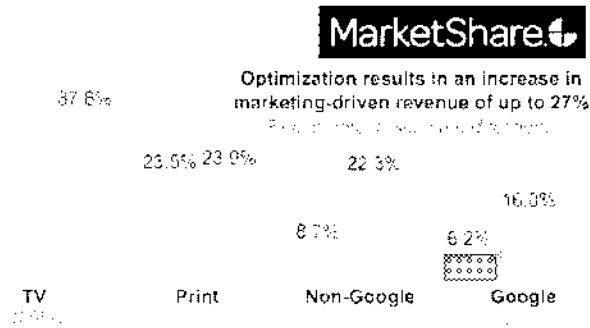
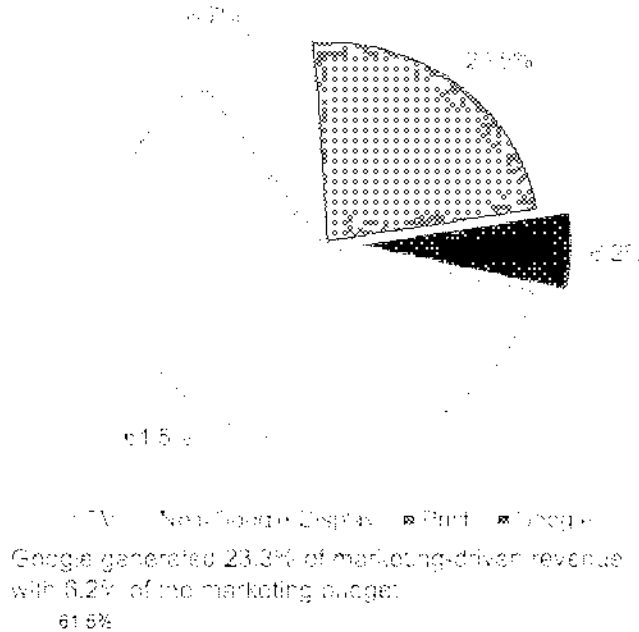
should most likely overlap with or be consistent with the developer console used as part of Firebase/Google devtools.

For the overall project, a detailed docs document can be found [redacted], and slides presentation [redacted]. The documents outline DDP 2.0 in a more pictorial manner.

Overall Summary Objectives:

1. Build offline exhaustive data ingestion, storage, washing & matching
2. Provide a mechanism for matching valuable offline advertiser CRM data into Google advertising and publisher platforms for the purposes of targeting ad spend on DBM, ADMob and GDN (and youtube?)
3. Link to both cookie-based and device ID based advertising identifiers for DoubleClick
4. Accelerate the movement of Television ad spend (up to 40%) into digital (especially in-app consumption of video content, which is booming in APAC)
5. Activate Telco and Bank data insight segments to further augment ad spend
6. Create an additional monetisation stream for Google mobile app developer partners via contributing mobile data to the match network

Avg CPG Brand Spend



Technical Building Blocks:

- BigQuery for storage and analytics
- DataFlow for ingestion and data processing
- Maps data access BAU, also need experts in location & address data matching
- Cloud ML for machine learning on matching PII
- DDP - need to replatform onto Dremel (will create DDP 2.0) as basis for Data Marketplace as external product
- Audience Center 360 - reuse UX components and account and system linkages, potentially integrate to Audience Center 360 for extension to 3P data provision (extension)
- Google Ad Preference Manager for global opt out (at identified account level) - could use this initiative to further link accounts at time of opt out?
- Google Dev Console for dashboard/provisioning to app developer partners

Commercial Model:

There are two main elements to the commercial model: the incentives provided to developers/publishers to contribute data, and the costs/model for charging buyers for accessing the data.

Incenting Developers to Participate: Developers are struggling to monetize their apps, and DDP 2.0 is intended to create a method for them to do so using anonymized user data. We will have to experiment with different methods for doing this, but most likely we will need to seed the database with information that all buyers need (base demographic and audience data), then extend this with contributions from the long-tail developers. As a placeholder, we estimate each market will cost \$2-3M per year to seed, and should then become self-sustaining through ecosystem contributions.

Charging Buyers: We need to experiment with different models for this. DDP currently operates a system where buyers pay for Audience data on CPM basis, which is set for each audience segment by the data provider. This limits the ability to benefit from the pooled data model. We would like to move toward a model where all DBM and GDN buyers could access audience data in one pool and at no additional charge, but given the upfront costs and potential need to direct monetize the app developers, some charging model will most likely be needed.

By way of example, when Telstra (a large Australian Telco) was approached to gauge their level of interest, they came up with [redacted] to size the opportunity for them.

Assuming:

- a total AU digital market spend of AU\$3.89B and
- a total TV spend of AU\$3.31B,

Telstra asked 3 questions:

1. What percentage of each of those markets could a data marketplace solution capture?
2. What digital match rate could Telstra provide from offline data to digital data? And
3. What revenue share could they expect to claim from the joint solution?

The summary breakdown is as follows:

	Rate Digital	AU\$ Digital	Rate TV	AU\$ TV Shift
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Est. AU Market	100%	\$3.893B	100%	\$3.314B
Capture	25%	\$937m	15%	\$374m
Match	40%	\$389m	40%	\$150m
Rev TLS	10%	\$39m	10%	\$15m
Inc Rev GOOG	*	\$117m	30%	\$102m

*exclude from digital: 90% search, youtube, 20% mobile, all social (equals \$1.3B non Google market)

Risks:

- Biggest risk is lack of participation by partners/publishers/developers. Need to ensure meaningful incentives to partners for participating.
- Similar to above, risk in cost/price expectations of Telcos for seed data being unrealistically high.



REDACTED - PRIVILEGE

- Data security (especially within China)

Resource Needs:

- Total ask = 26 at full rollout, but can get started with the resources in bold below (8 total).
- Engineering team resources: Current estimate is **5 for ingestion/normalization**, 8 for front-end/audience generation, **1 PM**, 3 for Developer tools
- gTech team resources: 3
- Solution consulting resources 4
- BD for Data partnerships: **3-5** to get started in Australia and China
- Additional support from Legal, Marketing, PR, BizOps, etc.

Open Questions

- Apply to all of APAC, or start with only China and Australia?
- What role will PII play? Do the matches to cookie and adid need to be done in the 3P domain or the google domain?
- Telco partnerships by region?
 - AU - Telstra, Optus, Vodafone
 - CN - China Telecom, Unicom Mobile, China Mobile

2017 Strategy Paper: TV Investment for Cross Screen Video Measurement

Authors/Contributors: Ricky Jashnani, Emily Rapp, Josh Hudgins, Dave Barney, Ben Cann, Gideon Silverman, Dylan Lorimer, Danny Eaton, Samir Pradhan, Jason Grout
Director / VP Sponsor: Elissa Lee, Rany Ng, Babak Pahlavan, Tony Fagan, Thomas Williams

Overview

To power DVAA's efforts in video and help our large brand advertisers move TV budgets to Google, we need to provide cross screen measurement of video consumption. In order to do this, we need a ground truth data set for both digital viewing and 'traditional' linear TV viewing and need to add TV and OTT viewing measurement in our address sampled single source panel (SSP). In the US, we will use TV data from the SSP as a calibration source and remove bias from Fiber TV data to have a larger set of video data.

Investment for 2017

To deliver cross screen video measurement, we need to:

- Add TV measurement to Single Source Panels in countries where we need cross screen video measurement. For the U.S., panel investment to add TV to the calibration panel is estimated at ~\$3M incremental above the \$9.9M annual spend for mobile + desktop in year 1 and an incremental \$1.6M annually thereafter. For full SSP (TV+mobile+desktop) with Google meters, spend with the panel vendor would be ~\$13M in first year and ~\$11.5M annually year 2 onward. See Global SSP .
- Develop and deploy a TV meter to measure linear TV viewing. This meter would attach to the TV and use Towerbridge to match the audio stream to a specific program. The team has been developing this meter, and plan to deploy to dev panel shortly.
- Add functionality to existing meters for panels to measure content watched on small screens (mobile, tablet) and living room devices (Xbox, Roku, AppleTV, etc) that would fill the OTT gap by measuring content from providers like Netflix and Hulu. This content is less likely to be live content (or even live +30) so we will also need to invest in significantly expanding the current Towerbridge reference library.

End Use Cases

TV ground truth data will support several critical initiatives across the Display and Video org.

- **Planning** - TV advertising still gets the lion's share of brand budgets today. However, as online video consumption continues to grow (projected to be ~31% of total watchtime / day by 2020), brand marketers struggle to efficiently reach their audiences at scale on TV alone. For Google, this presents a massive opportunity to help brands plan their advertising in a x-media world. The availability of granular, accurate TV data is critical to acting on this opportunity. The planning team will use TV data to scale & improve efforts

to accurately model the x-media reach, watchtime and brand lift that can be achieved for various budget splits across TV/Google. The goal is to help advertisers build optimal x-media plans that identify opportunities where shifting a portion of TV budgets to Google can deliver a greater total return on brand metrics than TV alone. Further, we can build advertiser and vertical "TV spend" and "TV to Google budget shift" benchmarks to help our sales teams use data to identify opportunities where their clients could be shifting budgets to online video faster, leading to more proactive pitches aimed at traditionally large TV buyers.

- **Brand measurement** - Cross screen measurement is central to that the brand team is pushing forward in 2017 (Brand Lift and Unique Reach/GRP). Video DSPs have started offering cross screen reach reporting including TV and advertisers have long asked how the impact of online video (YT) compares to TV. Reach measurement requires ground truth provided by a single-source panel that measures both linear and OTT across screens. Brand Lift will launch Brand Interest for cross-media in Q3 2016, but will require survey capabilities at scale to measure Survey Lift-based metrics.
- **Fiber** - AMT has been developing TV measurement based on Fiber set top box logs. This data source has the potential to replace TV data we currently source from third parties (Nielsen, Rentrak) in products across DVAA. It powers a measurement tool, Cross Media Analytics (XMA), that will launch to Fiber content partners and as part of the GA 360 and will be integrated into DBM as well. The benefit of Fiber is that TV data organically grows as the Fiber subscriber base grows. The main issue holding these efforts back is that the Fiber data is limited geographically and biased. To remove the bias we need TV meter data from a calibration panel. With a calibration source, we can generate nationally projectable TV data at scale. TV publishers (the primary user of XMA) also desperately need a measurement that combines linear with OTT, which the proposed panel would also provide.
- **DRX** - In order to draw in and acquire greater TV inventory, will bundle a TV Publisher measurement suite in GA, which pulls together TV Attribution and Fiber Cross Media Analytics (XMA) to offer broadcasters cross device measurement and help ad sales shift spend to OTT platforms. While Fiber XMA can be used with uncalibrated data, nationally projectable Fiber data is far more valuable to TV broadcasters and will help push adoption.
- **DBM** - Brand buyers increasingly need audience solutions that work across all screens. DBM risks becoming obsolete as a digital-only platform without investment in cross-screen TV solutions during the transition period (5+ years before OTT is majority of TV watch time). To solve for cross-device measurement, we need to build off our already powerful capabilities on desktop and mobile (reach, viewability, lift) to create measurement and targeting solutions for advertisers that extend comparably across all platforms (including TV, OTT & Digital), leveraging our unique data to solve problems no other platform can. The combination of Fiber, GAIA, and TV Panel data allows us to create a unique solution for measuring de-duplicated audiences across TV & Digital. This panel, combined with XMA, GAIA and Customer Match would enable DBM advertisers to

target the same audiences across TV and digital in a privacy safe manner without relying on questionable 3rd party data sources.

- **GA 360** - The primary use-case for the panel data in GA 360 is to replace the Rentrak data (license contract expires in January 2018), which currently serves the product needs. Specifically, this is ads airings data with ratings (TV impressions) information. Secondly, the panel can serve to calibrate and evaluate the TV Attribution model.

2017 Strategy Paper: Smart Shopping from Receipt Collection

PM: Josh Hudgins

Director / VP Sponsors: Elissa Lee, Marc Vanlerberghe, Jon Alferness, Kishore Kanakamedala, Tom Williams, Babak Pahlavan, Penny Chu, Tony Fagan

Abstract

- Google would like to provide precise measures of campaign ROI to prove the value of our ads. Collecting purchase data from consumers has advantages over partnerships with 3rd parties.
- Sales receipts contain information that is valuable for users and Google. We propose a set of shopping features, based on receipt data, that will create enough value for users to share their sales receipt data with us.

Overview

Google needs to provide precise measures of campaign ROI to prove the value of our ads - see [redacted]. We would like a source of consumer purchase data that:

- Creates value for users
- Provides item level data tied to GAIA ID
- Scales across campaigns, verticals, and countries

An idea that could satisfy all of these requirements is to collect sales data directly from consumers through sales receipts. For this to scale, we need to provide value to users in exchange for them sharing their receipts with us.

Pillars

1. Create value for users. We imagine a future shopping experience with less friction. Shopping assistants will help people buy and manage everything they purchase. For example, the Google Assistant can tell you what movies are playing and when and purchase tickets for you. We propose using sales receipts as starting point for a longer-term shopping assistant effort. We would build the following shopping features as the incentive for users to share their receipts with us:

- **Catalog** - Searchable catalog of your purchase history based on Gmail receipts and scanned paper receipts.
- **Maintain** - Find product information like manuals, instruction videos, and return policies. Automatically reorder purchased products.
- **Add** - Smart shopping lists based on past purchase history, Keep notes, emails, and calendar events. Get alerts on price drops and coupons. For example, we could automatically process price drops for merchants that offer price protection and show the lowest price from Shopping Express if someone is shopping on a merchant with a higher price.
- **Find** - Filter and locate by price, brand, availability, proximity, etc.
- **Discover** - Share, save, remind, browse items on Google shopping and other vendors.
- **Get** - Track your spending over time by product and retailer. We could surface a variety of useful data such as expense reports or nutritional information and integrate with other apps.

The goal would be to try out a few of these features in H1. We will need to make the receipt taking a photo of a receipt fast, easy, and possibly even fun.

2. Item level data tied to GAIA ID. This will allow us to demonstrate sales impact for our largest , including CPG, across all of Google O&O. In addition our causal measurement frameworks (VTC, Geo Experiments, GIANT, etc.) will allow us to measure lift and possibly establish correlations between existing metrics, e.g. Store Visits, and Sales. Sales data tied to GAIA ID also enables us to run that scale similar to user experiments.

We plan on using both paper receipts and receipt data from Gmail and have built a prototype infrastructure to process receipts and translate line items from retailers to individual items (UPCs or GTINs). We are currently able to process receipts from Walmart, Target and Walgreens and are building a generic receipt parser. We are using GOR (over 80k so far at a cost of \$0.50 per receipt) to test our processing pipeline and to better understand consumers' willingness to provide receipts.

A Google source of data would free us from the privacy, instability, and dependencies risks associated with 3rd party aggregators and/or retailers. Third party sources of sales data require Google to perform PII matches, often sending PII outside of Google infrastructure. Entrusting PII to other entities outside of Google (even if only for matching) represents a privacy risk for Google. We are also dependent on aggregators' licensing of purchase data; if retailers terminate

their licensing of loyalty card data to the aggregator, sales measurement of our properties suffers. Collecting data directly from consumers protects our users in both areas: Google exclusively owns and stores the data, and the data is collected directly from consumers in a transparent way.

3. Scales across campaigns, verticals, and countries

We do not know how well this will scale. We think we can create significant value for users such that they will share their receipts with us. As a point of reference, Keep has 25M 7d actives globally. We have started working with the Keep team since shopping lists is a top use case and they noticed that users were attaching images to shopping lists. We propose staffing a cross-functional team to build and test some of the shopping features in H1.

For ROI measurement, we need a solution that can measure sales across both the offline and digital domains, is viable in at least the top 8 countries, and can measure sales across a wide variety of verticals, starting with CPG (which requires item level data). We have some ideas how to do this in smaller markets in partnership with CPG companies, where we share data and cost. We could try to use GOR to fill data gaps if they exist since, with GOR, we can precisely target people and stores to increase coverage. One open question is: how much data do we need to measure our ads? We're working on a design of the sales lift method for this data and have collected 80k receipts to estimate sample size required to measure a given fraction of YouTube campaigns. We expect the required sample for the U.S. will be less than 10 million users.

Risks

- **Users** - We are still in the concept stage for how to create user value tied to receipt scanning. We may need to provide different or additional incentives for users to share their receipts. We could also face user and PR concern for knowing too much about them. Users will be consciously sharing their receipts with us and we will have strong user controls, etc. Still, there is a risk of a larger meme about Google knowing too much.
- **Retailers** - If we are successful at capturing receipts at scale, we may alarm retailers with our independent access to purchase data from their stores, especially if we provide price/discount notifications or protections to users. Retailers may take specific action to complicate our access to the data (like obfuscating codes on receipts). This would be similar to Amazon moving receipt details out of confirmation emails due to their concerns about Gmail having access to that data source.
- **Scale** - We may not be able to get receipts at a large enough scale to calculate lift for a sufficient number of campaigns (or we won't be able to do so at a reasonable cost).

2017 Strategy Paper: Analytics Education: User Engagement & Activation

Abstract

Users are at the center of everything we do. Building and maintaining relationships with users is critical to product and feature adoption - and ultimately Google revenue. The education team maintains a number of programs that helps build and nurture the user relationship. These programs include email newsletters, social communities and partner programs.

Team Mission Statement <i>Help users feel an emotional connected to Google and our products.</i>	
Leads <ul style="list-style-type: none">• Advocacy: adamsinger@• Customer Community: kseiden@• Partner Programs: wpryor@• Data Stories: waisberg@	Headcount <ul style="list-style-type: none">• PgM: 5• DevRel: 1

Strategic Overview

Opportunity

We have some of the most passionate users in the digital marketing, digital advertising and digital analytics industries. This provides a unique opportunity for us to connect with users and create a relationship with them. When Google is more than a product, it is a trusted partner, we can use the relationship to drive feature adoption and product loyalty.

In addition, internal research at Google has shown that learning experiences need a balance of structured materials (like documentation and courses) as well as communities, where users can discuss what they learn and share their knowledge.²⁶ In this sense our User Engagement programs are critical to the success of our learning and certification programs.

This also provides an organizational opportunity to Google. Having the Education team nurture the user relationship allows marketing teams to focus on upper funnel activities such as brand building, lead generation and new user acquisition (for our free products).

Pillars

One a daily basis we can interact with thousands of users - and potential users - via our social channels. We run some of the largest social channels at Google:

-
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-
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The advocacy team should be our users' primary resource of product knowledge and strategy on both our scalable channels and through direct engagement. It is critical that as the voice of Google Analytics we form high quality and trusted relationships with our users on behalf of the product/eng, sales and marketing teams.

There are three pillars to our social media and advocacy program:

- Nurture analytics communities and digital marketers to become analytics savvy (with focus on Google Analytics and other Google tools).
 - Own share of voice and be the predominant brand for analytics and marketing best practices in our industry.
 - Grow overall reach of advocacy and edu messages.
 - Maintain leadership and share of voice of Google Analytics at key industry events, in key media, with key influencers and voices in digital industry.
 - Responsive comms / social monitoring for product issues or strategic users who need help
 - Protect Google brand and Google Analytics' reputation.
-
- Show value to users to get them coming back to GA.
 - Change the hearts and minds of LCS users who have previously written off GA as an SMB tool.
 - Keep sophisticated users up to date on latest features and product functionality.
-
- Ensure GACP content is seen by our users and our partners generate leads, their marketing efforts are successful and overall they "feel like VIPs."
 - Assistant in launches in partnership with our product managers for B and C level feature launches (and assist marketing with A-launches). Continue to expand our interactions with PMs.

- Funnel new GACPs to Edu Team and Apps for app gallery to Dev Rel.
- Support Google Partners and with With Google teams through talks, social support and content creation as-needed.
- Submit goal qualified, nurtured leads to Premium Sales Team from social / industry event participation.

There is no doubt that video is a powerful force in user engagement - just look at Google's success with YouTube. But video is more than just an entertainment medium. It's an important way to convey complicated messages and engage with users. We have been building a DVAA video program over the last two years. This team provides many core video services to the broader DVAA org - this includes:

- Produces online course videos, product overview videos, and tutorial videos that require high production value
- Produce livestreaming events for the DVAA org
- Delivers training to writers and others who need to produce videos - we want to make all content creators video creators
- Build and manages the 1015 video studio and the asset management infrastructure and processes.

It is not possible for us to reach all of our users in all geographic locations. Partners can help us support users, promote our products and represent us a local events. Our partner program is a critical way to maintain our relationship with our users. Our partners are the face and voice of Google in many parts of the world. Benefits include:

Extensive geographic reach: We have partners globally. This includes almost every European nation along with other emerging markets. It is not possible for Google to be in all of these markets.

Deep product expertise: Our partners are experts in many products. Their expertise comes from using the product across countless customers. While many of us use our products, we don't use them as often and as deeply as some of our partners.

We currently manage three partner programs: The Analytics Certified Partner Program, The MMM Partner Program and the AdMob Partner program.

Google Analytics collects almost 150 B hits of data daily. All of this aggregated data contains insights that many of our users can leverage in their day-to-day decision making. However, we must clean the data, extract the insights and share them with users. Publishing this data increases

The Data Stories program extracts insights from our aggregate data set and publishes them to our users. We have the ability to create stories based on specific industry verticals or events. The goal of the data stories program is to help businesses understand the macro trends that happen in their industry so they can make better strategic decisions.

Competitive Analysis

In general, there is not much competitive risk to our engagement and activation programs. In fact, these programs tend to be a competitive *advantage* and not a risk. However, we do look at the activities of our competitors to insure that we're differentiating ourself in the market.

Of competitors, at least specific to advocacy efforts, Adobe does above and beyond the best job of any large brand in the Analytics space, their advantage is significantly larger marketing and social media teams, as well as outspending us on nearly all fronts. KISSmetrics is the small brand using a strategy of attempting to attrition our users by poking holes in our product and talking up our complexity.

With that, we are not overly worried about competitors from an advocacy standpoint. Our updates are by far more useful, personal and not overly sales-oriented whereas our competitors frequently treat social as a direct marketing exercise - the wrong approach. Their teams particularly Adobe are getting better at social but they are only just starting to walk when we have been running for some time. If desired we can work in tandem with marketing on a more comprehensive analysis of competitors across our tactical mix.

Risks

In the past it has been difficult to get funding for educational programs - and it's become increasingly more difficult in the last year. On the DVA side Eng teams have traditionally donated heads for writers. Securing funding can be difficult as the impact measurement of our programs can be challenging and the impact can be delayed.

2017 Strategy Paper: Learning & Certification

Owner: jcutroni@

Abstract

Education is more than just product documentation. It’s evolved to include multiple programs that help users learn in a more engaging, measurable way. We are working on a number of educational programs that include display and video ads documentation, analytics-related documentation (supporting all products in the Google Analytics product area), online courses, like _____, certification exams (like the _____), and _____ to help users practice using our products with real data.

Team Mission Statement <i>Help people use our products more effectively.</i>	
Leads <ul style="list-style-type: none"> • DVA Docs: dtumley@ • GA Docs: alden@ • GA Academy: cjennings@ • Demo Account: dee@ • Video Program: ggiurbin@ 	Headcount <ul style="list-style-type: none"> • Tech Writers: 24.6 • PgM: 11 • Instructional Design: 2 • Dev Rel: 2 • TvC: 2

Strategic Overview

Opportunity

Digital marketing, digital advertising, and digital analytics are all complicated topics. While the products we build try to simplify some of this complexity, users will always need education to understand how to complete their jobs using our products. Our goal is to create the definitive, canonical source of education for all of our products. We also strive to help our users grow professionally and use our products to their fullest potential. All the while we are excited to expand “what” education is and to take risks and try new things. We want to expand beyond traditional documentation and create the right educational content, for the right user, at the right time.

In addition, studies from Gartner, MIT, MacKenzie, Forbes and and Deloitte have shown there is an increasing demand from businesses for smarter analysts and educational institutes are struggling to meet this demand. “While there is a rising number of university analytics and data science programs (more than 100 just in the U.S.), they nonetheless can’t crank out enough sufficiently trained people to meet demand”²⁷.

Pillars

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Since October 2013, the [Analytics Academy](#) has existed as a stand-alone platform that allows users to self-select courses to learn more about Analytics and related measurement tools. These courses have provided users both foundational and feature-specific knowledge about Analytics by leveraging engaging video, hands-on interactive demos, community discussion boards, and relevant exams that lead to course completion certificates.

It is also the best structured learning experience available to prepare for the [Google Analytics Individual Qualification](#) - our individual user certification test. While hundreds of thousands of users have benefitted from our courses thus far, we can still do a much better job of targeting our users' diverse educational needs. There are a number of clear advantages to Analytics Academy:

- **Large reach:** To date, over 1MM users (avg. ~100K per month) have consumed Analytics Academy content.
- **Comprehensive training:** Analytics Academy represents one of the only free, convenient options to learn about Google measurement products in a well-structured learning environment.
- **Positive customer satisfaction:** User feedback we receive about the content and course experience is overwhelmingly positive.²⁸
- **Engaging learning design:** Our experimentation with different learning formats (e.g. video, text, simulations) and community-activated education has helped us learn valuable lessons about successful online training design and marketing strategies for driving high engagement with educational materials. The courses are regularly rated as interesting and engaging, as well as likely to be recommended.
- **Brand recognition:** The Analytics Academy brand is a valuable asset to our education strategy. In the short time that it has existed it has become a well known resource in the digital analytics and online marketing industries.

To create a more engaging, comprehensive experience, we must customize the learning experience to each student. If we understand where the student works, and their role within the organization, we can better target the right course materials to the user. Our goal is to use multiple signals to target content to students. These signals include business model, business vertical, role within the organization and product usage.

Reliable product documentation has been the backbone of all Google product education for a decade. With over 400 articles in the GA help center, and ~ 50 articles in the GTM help center, these sites are a critical source of product information for all users.

With the introduction of new products, the Education team has introduced more help centers and content to meet user needs. We will launch four new help centers for each of our upcoming products: Optimize, Audiences, Attribution and Visualize. With the launch of the Google Analytics 360 Suite we will unify these help centers into a singular entity to create a simple, easy to navigate, user experience for our users.

Delivering thorough documentation for every release

²⁸ See [https://www.google.com/analytics/academy/resources/articles/detailed-feedback](#)

All product releases go out with thorough documentation. We own the release note process to ensure that key areas are highlighted and users can easily find help content and overviews. The high level of our products' sophistication demands thorough help center content.

Expertise

Our immersion in the product cycle has let us develop into product and feature experts. We provide meaningful early stage feedback and user advocacy. We understand the business cases from the very beginning, allowing us to write better content.

Promoting feature adoption

A key goal of our work is to guide users toward new features in order to help them achieve their goals. In-product notifications, intuitive language and accurate documentation help users overcome hesitancy with using those new features.

Consistent and precise UI language

The team continues to work on getting involved earlier in the development process by attending design sprints with customers and UX. We are establishing standards and applying them in order to improve Critical User Journeys and keep our customers productive.

To help users practice digital analytics concepts education must be based on real, repeatable examples. We've gotten this feedback from our users in almost every Analytics Academy course. Students need to practice the analytics concepts that we teach in our courses and discuss in our documentation. However, not all students have a fully configured Google Analytics account.

To meet this need the education team is building a publically accessible, fully functional, Google Analytics demo account. This account, which measure the Google Merchandise Store, is curated by the Analytics Education team. We've installed Google Analytics via Google Tag Manager and monitor the data daily to insure quality.

In a unique relationship with REWS, the Analytics Education team executes real advertising campaigns to generate traffic and conversions on the Google Store. The goal is to showcase all Google Measurement features including the integrations with other Google advertising products.

The DVAA for Education program will provide a digital marketing curriculum and a digital analytics curriculum, at no charge. The curriculum will include access to resources including online videos, projects assignments, practical exercises, demo accounts and an opportunity have a number of these materials but they are often available to a single Google-owned online academy. By combining these resources into standardised curriculums and making them available to educational institutes will scale our education efforts more broadly and empower such institutes to teach marketing and analytics at a higher standard. This will also give greater exposure to DVAA products to the next generation of analysts.

From a brief pilot of a analytics curriculum within 3 university analytics courses reaching 234 students:

- 78% had never used Google Analytics before
- After the course 98% stated they are likely to use or recommend the use of Google Analytics if they ever own or work for a business.

A partner program for educational institutes and businesses will be created with a portal. The portal will provide instructors access to all educational resources and automatic grading of student exercises and students can access the portal to complete exercises (this is all possible utilising the _____). Businesses will be able to connect with graduates using the portal for recruitment purposes.

Competitive Analysis

While a few web analytics products besides Google Analytics do offer light tools for education, none of them offer free, online courses. Of all GA competitors, Adobe has most comprehensive education service offering. They offer in-person or webinar-based courses that teach different levels and aspects of the product. However, these courses are neither free nor available on demand.

Many other analytics providers (Chartbeat, Clickegg, Kissmetrics, Alteryx, Woopra, Clicky) offer light, article-based education (akin to a help center). Some supplement this with access to account management and live support. However, all of the companies with these services are relatively small start-ups and charge monthly fees. This service level is similar to what Google offers GA360 users.

By offering comprehensive, easily-accessible learning pathways, GA provides users with a critical tool for effective product usage while simultaneously demonstrating thought leadership in the field of web analytics.

There are a number of software providers trying to support educational institutes with educational resources. These providers charge a fee and the resources are often limited to to one or two universities, thus restricting the number of educational institutes with access to high quality marketing and analytics educational materials.

Please see the _____ for more details about the competitive landscape for classroom learning.

Risks

- **Content development time:** Because we are developing comprehensive, structured courses, our development time runs between 4-6 months. While we are improving this duration based on internal efficiencies, we would ideally like to create courses more quickly and be able to incorporate new features quickly into our training.
- **Maintenance:** The dependence on video and interactive content, as well as rapidly changing products, have resulted in content that takes exceptional time to update and

can get outdated quickly. Due to the priority of other courses, we have only been able to significantly update course content every year or two and a half.

- **Localization:** Localization for the course is expensive and difficult (particularly for our interactive demos). Over 60 hours of engineering effort has had to be repurposed to develop a localization tool, rather than developing new key platform features.
- **Platform design:** Our current learning platform Course Builder is designed for linear learning paths with one lesson of content that vertically scrolls. This makes it difficult to adapt for various types of Google Measurement users who may require different learning paths or require multiple pages per lesson.
- **Engineering dependence:** The current iteration of Analytics requires heavy dependence on engineering support to release new courses and update content. If we lose these resources, it poses a high risk to our program delivery.
- **Content writing:** We rely on writers, PMs, engineers and technical support team members to act as SMEs and fill the knowledge gaps, but they often don't have the time to commit to developing course content or have limited expertise in using Google Measurement products in a business context, which often extends our development time.
- **Engineering support.** Our goal is to build more customized education. But to customize education we need to know more about our users, their business and how they use the product. We would love to have more signals from the product about our users. We have discussed this and there are some plans for the Suite.

Size and Scale of the Merchandise Store: The Google Merchandise store does not get a lot of traffic. Even with a monthly \$10k AdWords spend it is difficult to generate a large number of conversions on the Google Store. In addition, the Google Store does not allow us to demonstrate all Google Analytics features - like User ID and mobile app tracking.

Advertising Budget: In order to execute display and search campaigns using DDM we need a consistent advertising budget for DoubleClick. In the past this budget was funded by the marketing team. But we need to secure a non-marketing, dedicated budget for these media buys.

In the past it has been difficult to get funding for educational programs - and it's become increasingly more difficult in the last year. On the DVA side Eng teams have traditionally donated heads for writers. Securing funding can be difficult as the impact measurement of our programs can be challenging and the impact can be delayed.

2017 Charter: Programmatic Buyside (GDN/DBM)

Team Mission Statement <ul style="list-style-type: none"> Deliver the perfect ad to users while supporting the open web. 	
Leads <ul style="list-style-type: none"> PM: Brad Bender, Payam Shodjai, Woojin Kim, Jens Skakkebaek, Jason Bigler Eng: Bahman Rabii, Max Stepin, Megan Kacholia, Vlad Sinaniyev, Sunil Kosalge UX: Heather Cassano 	Headcount <ul style="list-style-type: none"> PM: 40 Eng: DBM - 108, SASU/DBM - 23, XX UX: YY
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> {for reference 2016 } 	

Abstract: Grow our programmatic buyside from a \$10B ARR (fc EOY 2016) to \$25B ARR by EOY 2020 via a best-of-class shared programmatic backend *with* a shared set of competitive differentiators (e.g. *Self-Driving, Asset-Based, Narnia2*), segmenting the two products by advertiser size and requirements.

Strategic Overview

Mission & Vision

Our goal is to support the DVAA-wide mission of supporting the open web through advertising. It is our belief that for an ad-based monetization to be sustainable long-term, ads must be useful and delightful for users. In order to do so, we should aspire to be the platforms all advertisers rely on to acquire, grow and retain customers.

As illustrated in the demand half of the following diagram, Google's buyside strategy will be two-fold:

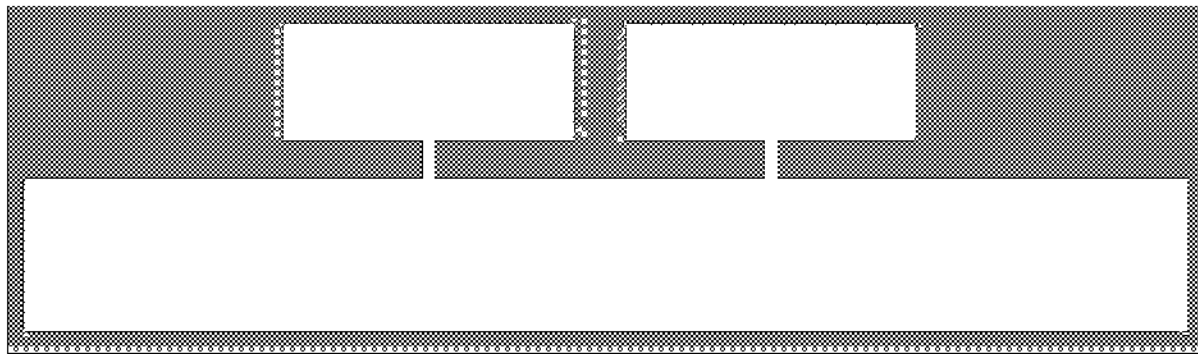
- (a) Differentiated ad experiences. To lead the industry with examples in sustainable ad models, we will focus on developing user- and privacy-friendly premium ad experiences on O&O and our publisher network ("Our New Network"), using the full spectrum of data and assets we have at our disposal ("GAIA-Powered Proprietary Features").
- (b) Scale and strategic control. To be an influential partner to advertisers & agencies, we need to be a best-of-breed, one-stop solution for advertisers' needs, servicing their needs across both

Google's inventory and 3P inventory. Doing so means we need to match market parity or exceed them across all ecosystem inventory ("Market Parity Features").

Opportunity

Our aspirational goal is \$25B by 2020. We can do it.

Pillars



Continuing the beliefs we laid out in our 2016 charter, we see GDN and DBM as two products on a common *Programmatic Foundation* and a shared set of competitive differentiators (e.g. *Self-Driving, Asset-Based, Narnia2*). Apart from these shared core capabilities, the two products will be segmented by advertiser size and needs: new display advertisers in SMB (*Newbies*) will be exclusively serviced by GDN; large advertisers and agencies with *Direct Publisher* relationships or with *Advanced Control* needs will be exclusively serviced by DBM.

Programmatic Foundation

The shared foundation will incorporate core programmatic capabilities deemed essential to be at parity with the market: audience-centric buying UI, ability to use advertiser's own data (1P data) and 3P data, cross-device targeting, and cross-exchange inventory. Some of these will leverage partnerships with third parties: 1P data will be handled via onboarding through customer match and/or partnerships with Liveramp and Datalogix; 3P data will be through partners like Bluekai; cross-exchange inventory will be in partnership with diverse set of SSPs and exchanges in the industry. These features are deemed table stakes, lending credibility to GDN and DBM's positioning in the market as modern programmatic buying platforms.

Newbies

This segment is unique to GDN; it entails onboarding inexperienced display advertisers by way of highly simplified and optimized products that make display as easy as a push of a button. As a company, one of our unique advantages is in highly scalable, technology-based products that can empower inexperienced and otherwise under-resourced users. Search+ is our current flagship product here, focused on driving Search-centric SMB-tail advertisers to quickly develop a display presence without any work. Future efforts in this category involve building an easier way to ramp in display (see: the "Ads-sistant") as well as a Shopping+/Unified Shopping campaign to help retail advertisers manage cross-network buys more easily.

Self-Driving

Machine learning is a core Google competency and differentiator. A long-time competitive differentiator for our Display buy-side, the automation and auto-optimization pillar focuses on using technology and machine learning to simplify the complexity that is endemic to display advertising and automatically deliver optimized performance. Focus for 2017 is on progression of more sophisticated use cases for automation (e.g. growing ROAS bidding; supporting advanced configs of auto-bidding in DBM) while providing even simpler products for the rest (e.g. Pay-Per-Conversion Fixed CPA bidding; Smart Display Campaign all-auto campaign type).

Asset-Based

Advertisers face two major challenges & opportunities with creatives: multitude of sizes/shapes and the advent of native advertising. Our strategy is to simplify this into an asset-first model, whereby advertisers furnish assets (marketing image, logo, text headline/description, URL), and our buy-side products optimize the rendering or empower publishers to configure the rendering. Tapping into native inventory is increasingly critical part of this model. Publishers have declared their desire to move to a native ad model to more seamlessly blend ads with content to reduce the visual strain on users. We believe this asset-based model will enable advertisers to tap into all shapes, sizes, forms of inventory easily.

Narnia 2

There are a number of key GAIA-powered use cases that will differentiate our buy-side offerings:

- GAIA-powered identity container use cases (e.g. cross-device targeting, measurement, customer match, store visits)
- GAIA-powered enhancements to audiences (e.g. enhanced demo, affinity, in-market)
- New GAIA-powered experiences (such as assistant ads)

To ensure that we focus on our defensible margin businesses, we propose that these GAIA-powered features be primarily restricted for use on our O&O and new network while offering alternate solutions for other inventory where parity features are required. The following framework lays out a proposal for our display and videos ads strategy, and shows how GAIA-powered features and other Google proprietary features will be deployed.

Brand

Expressing the marketing funnel coherently requires strong upper funnel, mid funnel and lower funnel support in our buy-side products. While most brand budgets are controlled by the largest advertisers and agencies, we believe torso advertisers also need to address full funnel use cases. For the former, we want to offer a complete brand offering in DBM; for the latter, we want to offer an approachable brand offering in GDN. For DBM, this means building out a leading TV and video ads offering, encompassing measurement, optimization, inventory access, deals and a unique integration with YT. For GDN, this means offering turnkey brand formats and measurement that don't require large investment in the creative process.

Pub Direct

For the largest advertisers, striking deals with publishers has always been a way to reach the right users in the right context. This duality is particularly important for brand campaigns. We will offer the ability for advertisers to strike their own deals (PA, PD, PG, TG) in DBM exclusively. For GDN advertisers, we will strike network-level deals that improve performance for advertisers under the hood.

Advanced Controls

For the largest advertisers, customizing our platform is critical way for them to bring their own value and secret sauce to the buying process. This is especially true for large agencies that need to justify the margins they charge. Advanced controls include features such as custom algorithms, block trading of YT, custom brand metrics, and data isolation. We would also like to offer light API access.

Risks & Competitive Analysis

We see competition from two angles: pure buyside players of different shapes and sizes like Criteo, TubeMogul, AppNexus, Trade Desk, and Nanigans; a diversified player like Facebook.

While the competitive threat from pure buyside players is not trivial, it is at least a well understood competitive environment in which we are dealing with publisher ecosystem we know and are familiar with -- display and video inventory, available programmatically thru open exchanges or closed pools/deals. On this front, the challenge is in getting greater inventory access, building products to enhance reach/performance, providing advertisers & agencies with a comprehensive coverage of all display needs.

Facebook poses a unique threat. Most immediately, their advertiser-facing business is growing rapidly and is expanding into non-O&O inventory, posing a direct threat to our buyside products. Here, they have demonstrated a strong narrative around people (cross device, email targeting) and have so far given advertisers compelling performance and volume with their plentiful, native O&O inventory. With O&O inventory nearing ad load saturation, they have more recently ventured more aggressively off-O&O with FAN, first in app, and then into mobile web publishers. Early indications from FAN publishers say they are performing quite well -- deeper, more quantitative investigation is under way.

Immediate competition for advertiser budgets and publisher inventory aside, the bigger risk yet is a systemic one: amidst growing ad blocker adoption, Facebook is pushing for user-friendly products like Instant Articles, which has the direct effect of folding more content into their walled garden and cutting out display ecosystem players like our buyside products.

This, of course, is a fundamental threat at the level of the entire DVAA. As part of a DVAA-wide response to this threat, buyside's role is to focus on innovating sustainable, user-friendly "champion" ad experiences -- on our own O&O and "premium" network of publishers -- to help publishers stay independent and keep their content open in a user-sustainable ways.

Facebook urgency aside, this is something we need to do anyway to help publishers survive the ad block movement.

2017 Charter: GDN Brand (vCPM, CPE, Lightbox, Outstream, & Premium+DCL)

<p>Team Mission Statement:</p> <ul style="list-style-type: none"> Deliver high-value performance for Brand Advertisers (reach and engagement) with polite, user-preferred rich-media and novel video creatives across Google's network and owned properties. 	
<p>Leads:</p> <ul style="list-style-type: none"> PM: Madhu, Brian, Armen, David Eng: Thaw, Kerns, Troy UX Lead: TBD 	<p>Approximate HC:</p> <ul style="list-style-type: none"> PMs: 4 Engineering: 24 UX: 0
<p>Annual OKRs and KPIs (2017)</p> <p>O: Maturate Brand GDN with Revenue and Adoption KR: \$1.75B ARR 105%+ Y/Y for GDN Brand (vCPM+CPE products) KR: Scale to be the largest mobile brand network footprint with a 75%+ SoS (share of spend)</p> <p>O: Achieve \$1.75B+ by shifting Brand Display to Mobile Video & Native Rich Media KR: Grow Outstream Video (mobile, native) to ~\$500MM ARR KR: Align buy-flow for Brand Video with GVP / YT KR: Grow DBM Lightbox growth to \$120MM ARR bringing LBX to ~\$300MM ARR KR: Launch DBM x-Exchange OSV for backfill / growth off-GDN KR: Launch industry first Mobile Auto-Portrait "Auto Flip" video to optimize mobile UX. KR: Launch Google O&O platform integration for OSV (e.g., Project: Sunfish²⁹)</p> <p>O: Optimization Controls for Brand Display/Video KR: Launch Brand-optimization & Viewable controls in Workflow KR: Launch Cost Per Lifted User (CpLU) for Brand Display (Survey + Search) KR: Launch OSV Into Planning (IBX, Reach Explorer, KWP) and Reporting tools KR: Launch VTC for Reach Performance with OSV KR: Launch Premium Targeting and Placement on DBM and GDN at 50%+ use in Brand Campaigns KR: Launch Brand Safety 2.0 to rationalize and unify Safety Controls between YT, Video and Display KR: Launch Premium on OTT, DCM Verification and P-Score + Brand Lift correlation testing</p>	

Abstract: Growing GDN Brand from \$700M+ ARR (in Q2 2016) to \$1.5-\$1.75B ARR by EOY'17 through the creation scalable brand products; vCPM Outstream Video, Auto-Portrait, Premium Inventory and enabling buying via DBM. In addition to building these products, strong sales support and messaging are required to win advertiser budgets and mind share in the highly competitive Digital Brand Advertising space.

Strategic Overview

Opportunity

- **2017 EOY Revenue: \$1.50- 1.75B ARR**, based on:
 - Outstream Video + Ready Lightbox + Premium Inventory
 - Integration into video buy flows in AdWords & DBM
 - Support in Planning and Measurement
- **GDN Brand Growth 6/15-6/17**
 - Jun '15 - \$480MM ARR
 - Jun '16 - \$806MM ARR 68% Y/Y CAGR
 - Jun '17 - \$1.4B ARR (@ linear 68% CAGR)

Digital Advertising is projected to grow to \$280B by 2019, with growth coming primarily from mobile with video and native creatives. Early brand advertising adopters will give way to early majority over the next several years positioning GDN to define network branding. GDN Brand will leverage this growth with mobile Outstream video and native brand-formats optimized for premium reach.

OSV + Premium will deliver an aligned x-org brand product that fills a gap in Google's overall video narrative. The outstream+native rendering across AdWords+DBM workflows will deliver 2x-14x incremental audiences vs. existing offerings, which enables better brand reach and efficiency. Combined with instream (blocking and non-blocking) formats, OSV will complete the picture for Brands seeking to maximize audience reach and impact.

- Worldwide *mobile* is estimated to grow 3x+ from \$51B to \$198B (\$280B Total) digital advertising market in 2019²⁹, with Video, Native & Rich Media as the leading creative assets & placements. The increase in spend is predicted to be managed by programmatic for as much as 52%+ of the market.
- This growth is predicted to come primarily from the NA and APAC³¹ regions accounting for 77% or \$152B mobile ad revenues. In 2016, mobile spend worldwide will exceed total US ad spend³² illustrating the migration to mobile as the primary segment.

²⁹ <https://docs.google.com/presentation/d/1fvRSu7CTmbAqbAheV3lslHpjQIKNkSq5iVOGR5XoNXg/edit>

³⁰ <http://www.emarketer.com/Article/Total-Media-Ad-Spending-Growth-Slows-Worldwide/1012981/> / industry metrics

³¹ https://docs.google.com/presentation/d/1ZSjVvTyEF1am80hMhG1rbydGvLRxylZqaiVqXVGW8Wo/edit#slide=id.g11d1f00def_0_845

³² <http://www.emarketer.com/Article/Mobile-Will-Account-72-of-US-Digital-Ad-Spend-by-2019/1012258>

- Growth rates for Rich Media (estimated 55% growth from 2014 to 2017³³) and broad industry adoption of vCPM suggest both are vital growing models for brand advertisers. Our Brand Awareness products are growing 104%+ Y/Y reflecting the overall market shift, yet requires continued support to educate advertisers and assist in converting from traditional media.
- GDN Brand will address the opportunity by offering the most efficient 'top of funnel' premium reach and engagement products available. Efficiency being defined as order of magnitude larger daily reach, across all demos, at a cost-effective CPM. Outstream Video will deliver on brand-lift performance driving the most efficient (3x-4x) Lift-Per-Dollar of any model and format. OSV will create valuable video inventory³⁴, serving programmatically (via DBM and GDN) into mobile, native and mWeb. Alone or combined with InStream it will offer brand advertisers maximized display and mobile inventory optimized for brand awareness.

Pillars

Preferred Formats - OSV and the next generation of Ready Lightbox will deliver a balance of user-preferred ad experiences³⁵ (polite, dismissable, useful) while increasing matched queries 2x-12x at 3x-4x eCPMs over existing mobile CPMs. Studies have shown strong user and advertiser preference along with significant lift³⁶, even with muted, dismissable ad units (which are preferable modes of consumption in places like in-feed). Key to the strategy is to leverage YouTube's familiarity with advertisers, easily enabling them to extend using their existing creative assets into additional inventory at lower cost to efficiently drive the metrics they care about - including statistically significant lift³⁷ in awareness, purchase-intent and recall³⁸.

Premium and Brand Safety Controls - Brand advertisers are disproportionately concerned that their advertisements are placed in "high quality" ad slots. Two important aspects of this are how recognizable the property (e.g., site or app) is and whether the maturity level of the adjacent content is aligned with values of the brand (e.g., Disney does not want to place ads next to Playboy articles). We will provide and improve features within DBM and AdWords that fulfill this need. This includes the rollout of our P-Score³⁹ product on all aspects of the DDM suite (including features for deals and open auctions), rethinking the Top Content Bid Modifier in AdWords and unifying Brand Safety controls in AdWords across YT, video and display.

³³ <http://www.emarketer.com/Article/YouTube-Owns-Nearly-20-Share-of-US-Digital-Video-Ads/1011191>

³⁴ https://docs.google.com/presentation/d/1tdLV6BfgeG8p54fllrKmXDf0THsFvoqS3TfyjcF0_mo/edit#slide=id.g11d43f2727_2_0

³⁵ <http://nativeadvertising.com/study-so-how-exactly-do-millennials-feel-about-in-feed-ads/>

³⁶ <http://www.emarketer.com/Article/What-Perks-of-Out-Stream-Video-Ads/1012645>

³⁷ https://docs.google.com/presentation/d/1tdLV6BfgeG8p54fllrKmXDf0THsFvoqS3TfyjcF0_mo/edit#slide=id.g11d08cdc5e_0_1241

³⁸ <http://adage.com/article/digitalnext/facebook-twitter-mobile-content-consumed-differently/302397/>

³⁹ Premium score, which is a Google-proprietary product for helping advertisers rate publisher sites and apps (like Page Rank for advertisers)

Sales Alignment - Right ad; Right context. While ad format and premium controls are essential for GDN Brand success, alignment across Brand sales is the key to scale. Existing sales positioning calls for contextual relevance of publisher content in order to serve the user the right ad, in the right context of user media consumption. For instance, a video on YouTube that plays with sound and full user-attention, reasonably will serve ads with audio on; Similarly a publisher page with non-video based content (where the user is reading articles or scrolling through a feed) should serve ads without sound. Google's Instream formats require sound-on and completed views to constitute billing events, restricting eligible inventory to Youtube and embedded video-player based publishers. Outstream on the other hand, opens up the inventory consignment by providing video-playback without sound and immediately dismiss-ability by scrolling or tapping away. Together, Outstream and Instream offer a full spectrum of brand video solutions that drives reach and impact across Google's inventory.

Competitive Analysis

Video increasingly is viewed as the one of most desirable formats because of the engagement and brand lift it's able to drive at scale, and advertisers are willing to pay accordingly. Consequently, publishers are aggressively seeking to create new quality video formats, even when not tied to video content. Additionally, all LCS brand advertisers utilize video as a core component of their media campaigns representing the biggest contributor to advertising spend worldwide.

Niche players like Vungle, Teads⁴⁰, Genesis, and Rubicon/Virol are bringing video experiences across platforms, and capitalizing on the growing multi-billion dollar market for non-instream video.

These players however, are a secondary focus; The primary competitive threat being Facebook which has captured a lead position in mobile advertising and digital display advertising overall. FB's mobile ad revenue accounts for 82% (Q1'16 and growing at 76% Y/Y⁴¹) of its \$5.85B Q1 rev, with a significant contribution coming from CPM based mobile video. It's further estimated that Facebook will take approximately 18% of the \$102.5 billion mobile advertising market this year and 31% of overall US display dollars⁴².

91% of surveyed LCS advertisers are strongly interested in buying Outstream Video from Google with nearly the same amount reporting they're buying mobile video from Facebook already. Combined with the competitive advantage Google offers (wider reach via Publishers and Apps, stronger viewability metrics, performance transparency, YT

⁴⁰ <http://adexchanger.com/digital-tv/teads-wants-to-fix-the-video-viewability-problem/>

⁴¹ <http://adage.com/article/digital/facebook-q4-2016-earnings/302378/>

⁴² <http://www.emarketer.com/Article/Facebook-Twitter-Will-Take-33-Share-of-US-Digital-Display-Market-by-2017/1012274>

video view increments, etc) our Outstream Video initiative is critical to addressing the rapidly shifting market.

Risks

External Competitive : Facebook and niche native players (teads, viool, etc) have a market lead on CPM based video in feeds and page content. While GDN brand has a number of benefits over these competitors we're not entirely first to market. Consequently, addressing gaps between FB FAN and GDN will affect the Brand business and help overcome competitive pressures.

Sales Adoption: With a stated prioritization to focus on TrV as the main/only product for LCS customers and increasing fragmentation of brand sales messaging (WAVE, Crane, Bumpers, AVOCs, GVP, etc), GDN's brand efforts may be lost amongst the confusion. Tight alignment with TrV and fitting OSV into the GVP umbrella as a complete "off-youtube" solution aims to mitigate the risk.

BuyFlow Challenges: With lack of resources available for buy-flow front-end systems, the GDN Brand strategy could be overshadowed by difficulty in buying workflow. Some internal conflicts exist as to where OSV and hybrid formats should be categorized under, imposing a delay and potentially depriving advertisers of a means to utilize the products.

2017 Charter: Gmail Ads

<p>Team Mission Statement</p> <ul style="list-style-type: none"> Monetize the leading display owned & operated property with next-gen valuable and unique ad experiences in Gmail. 	
<p>Leads</p> <ul style="list-style-type: none"> PM: Brad B, Omry P Eng: Bahman R, Ting L UX: Joe H 	<p>Headcount</p> <ul style="list-style-type: none"> PM: 4 Eng: 40 UX: 2
<p>Annual A&C Level OKRs and KPIs (2017)</p> <p>Inventory & Quality:</p> <ul style="list-style-type: none"> Gmail ARR (30 day trailing average x 12): \$480M EoY assuming some monetization of additional inventory (social & updates tabs) - 44% YoY. Move to rely primarily on long-term impact with organic and paid interactions(Tab Visits, Time on Tab, Long-term CTR....) Increase inventory 100% though conservative tapping into primary tab on Gmail. <p>Demand:</p> <ul style="list-style-type: none"> Simpler Gmail Ads Management(Frontfill): <ul style="list-style-type: none"> Adwords: integrate with next-gen Adwords for easier campaign construction (e.g. CreativesNext, AWNext, FullAuto, Gmail specific attribution); leverage signed-in signal to help advertisers target the right audience among 1B users (e.g. In-market, remarketing, dynamic); improve measurement and optimization to show full value of the unique Gmail formats (e.g. cross-device conversion tracking, video reporting, brand measurement) DBM: Initial integration with DBM for programmatic demand Backfill ads: "Autoextend" into Gmail from Shopping, Dynamic, DRA, App Install at 2% of EoY inventory, monetized at same rate. <p>Formats:</p> <ul style="list-style-type: none"> Personalized mini landing page experience: utilize the full Gmail canvas for native and engaging experience through beautiful creative layouts, rich elements(video, image, form), modern syntax(CSS3, animation), new funnel aware creatives, personalized creatives (dynamic ads). Mobile optimized: mobile only features(click-to-call, swipe, maps etc) to engage mobile users; mobile optimized features (CSS & MQ, Webview, AMP4A, Carousel) to improve mobile performance N2.0 Signals: Leverage Gmail, SMH, Play and potentially more signals to improve 	

audience targeting

Promotions Tab Redesign:

- Support consumer growth of the promotions tab through overhaul of the promotions tab. Goal is to launch new experience in exp by EoY.

Abstract: Grow Gmail Ads as a leading display O&O property and increase revenue from \$300M ARR to a \$1B business by EOY 2018 through increasing Gmail ads supply (inventory expansion) and demand (backfill, front fill, DBM platform); utilizing user email/Narnia2 data for better targeting; improving ads quality and user happiness; simplifying campaign construction and generating more engaging ads formats.

Strategic Overview

Opportunity

- \$1B by 2019, based on:
 - Various levels of monetization of 1B 30DAU 100% logged-in users.
 - Strong Android (520M 30DAU, +30% YoY), iOS (60M 30DAU, +50% YoY) and desktop presence.
 - Reduce Ad Blindness by 10%
- Current Performance Stats:
 - Revenue:
 - 2016: \$330M, +50% YoY.
 - 2017(exp): \$480M, +44% YoY.
 - Note that only 28% users visit the promotions tab, and those only visit 0.4 times/day.

Pillars

- **Inventory & Quality:** Gmail ads is currently showing only in the promotions & social tabs, which with current ad load caps revenue opportunity at \$640M. Goal is to set a new bar for an exceptional ads experience, through user-facing format innovation and good ad selection via highly personalized user profiles. We plan to establish new metrics and thresholds for ads on Gmail that would enable us to both enter the primary tab as well as be a benchmark for user quality for the signed-in network.
 - LTV at Auction: Using the financial metric of LTV will allow us to improve ad quality while also financially benefiting Gmail, sidestepping the “tradeoff” normally seen in quality vs revenue. To do this, we will begin implementing insights into

long-term behavioral changes from ad experiences at auction as a calculated LTV.

- **Demand:**

- Frontfill: currently Gmail ads is only available in AdWords under a display ads campaign. Goal in Adwords is tighter integration with Adwords through AWNext / CreativeNext / Full Auto for easier campaign construction, and launch features including in-market / remarketing /dynamic in Gmail ads to help advertisers deliver the right message to the right audience. Besides AdWords, we will integrate into DBM platform for programmatic demand and explore viability of API integrations with 3P.
- Backfill: advertisers want to reach Gmail inventory "Autoextend" into Gmail from Shopping, Dynamic, DRA, App Install at 2% of EoY inventory, monetized at same rate.

- **Formats:** New consumer experiences + new advertiser units.

- Personalized mini landing page: Gmail has a full canvas and personalized data for every one of our 1B active users, though currently creatives are static(every user sees exactly the same products), with limited syntax to render (e.g. no animation, very restricted CSS3 syntax). We plan to deliver personalized mini landing page experience through beautiful, out of the box auto-optimizing templates.
- Mobile optimized: 50% of Gmail revenue is already on mobile and the percentage is still growing, though we still have some gaps to close on mobile (lower-than-desktop conversion rate, lack of cross device conversion tracking, syntax restriction etc). In 2016, we successfully launched several mobile optimized layouts and mobile only features (click-to-call) and have seen performance improvement. Going forward, we plan to improve user engagement with mobile (swiping, location targeting, etc) and increase performance on mobile (cross-device conversion tracking, webview, AMP, etc).
- New Assistant-based Funnel Specific experiences tuned to be valuable to the user based on what step in the marketing funnel they are in. We will be able to nurture a commercial relationship over time with a user, instead of needing an immediate click action to create value.

- **Shared and Unique Signals:** Leverage Google-wide and N2.0-enabled signals with additional experimentation into conversational signals unique to Gmail.

- Conversational Signals: Using what is unique to Gmail (it's a conversational platform), we hope to discover and refine the use of new signals for funnel position of a user and use it to add value for the user. Detecting when someone mentions they're planning a trip, asking about hotel recommendations, or is complaining about a bad experience with a brand, as examples.

- Leverage Gmail, SMH, Play and potentially more signals to improve audience targeting features including remarketing/in-market/affinity, and help advertisers target the right audience from 1B Gmail users.
- **Promotions tab redesign:** Reimagine the tab to be perfectly-tuned for promotional email tasks, so it's a *must use* part of the Gmail experience
 - Helpful info to users' fingertips with key content visible from message thread list
 - Re-ordering and grouping emails by tasks and themes
 - Special coupon handling for visibility when and where you need it

Competitive Analysis

- **Consumers:** Gmail has 1B 30DAU, with 100% signed-in users across multiple devices. Gmail has a strong footprint in mobile (over 75%⁴³ of users check emails on mobile), and email is a top daily activities for people (most people check emails multiple times a day⁴⁴). Gmail is considered as the top email website and app, though key players such as Apple and Microsoft are making solid headways.
- **Advertisers:** Gmail ads perceived as both natural extension of email marketing as well as a top tier differentiated signed-in publisher, in the same consideration set as Facebook, Twitter etc.

Risks

- **Market & commercialization confusion**
 - Tactically, advertisers are concerned with their ability to spend, low inventory and high CPAs.
 - Strategically, Gmail ads don't fall naturally into either Performance or Brand, so advertisers are confused on how to think about them. There's also confusion around which team 'owns' Gmail client-side - do budgets come from Search or Display?
- **Gmail ads under display campaign confusion:** Gmail ads are 100% signed-in with email data (such as sender domain, receipts, booking confirmation), while display are mostly web-traversal data with biscotti. Advertisers are often confused with Gmail ads being under display campaign, as Gmail ads currently do not support common display targeting features such as remarketing and in-market, and Gmail ads have different creatives (two steps creatives, teaser and expanded ad) than display. Advertisers have asked for Gmail-specific targeting which are not available on display (such as receipt targeting)

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- **Segment Coverage:** Personal use of email is being replaced by chat apps for younger demos.
- **PR:** Secondary tabs are a natural place for ads. Showing ads in other tabs might create user pushback on Google "spamming" the account with ads.
- **REDACTED - PRIVILEGE**

2017 Charter: Identity, Privacy, and User Trust

<p>Team Mission Statement</p> <ul style="list-style-type: none"> • Provide privacy, identity, and targeting controls, infrastructure, signals, and solutions that empower DVAA and our users to improve their ads experience as well as their quality of life. 	
<p>Leads</p> <ul style="list-style-type: none"> • PM: Brad Bender, Jon Krafcik • Eng: Emil Ochotta, John Wedgwood, Shankar Ponnekanti, Gaofeng Zhao • UX: Joe Huang 	<p>Headcount</p> <ul style="list-style-type: none"> • PM: 6 • Eng: 69 (29 Privacy + Identity, 6 PUF, 16 Demographics, 18 Affinity / Custom affinity) • UX: 0.75 (Privacy, Identity, PUF only)
<p>Annual A&C Level OKRs and KPIs :</p> <p>Identity:</p> <ul style="list-style-type: none"> • Narnia2 Launched across all available sign-in moments, 500M users consented and 30-day active by 2016; 1.5B by 2017 • Transition Display into GAIA-based Measurement & Targeting infrastructure post N2 (GAIA driven x-device measurement, new audiences based on GAIA, Constellation seeding for anonymous serving); 1% by EOY 2016, 100% by EOY 2017 for GDN, DBM, DCM, DFP, and other approved demand/supply sources • Launch 3 new Narnia2-based use cases that capture the unique opportunity only available to us post-consent by 2016; expanded set of novel use cases and fully upgraded existing IBA and ads quality features w/ O&O data by 2017 • 2017: Full Circle: 80% of third-party pixels addressed via Full Circle solution (remaining 20% whitelisted, with no more than 10 whitelisted providers). All other 3P pixels decertified. • 2017: Launch unified sign-in infrastructure to minimize the number of impressions/users improperly identified as signed-out <p>Privacy / DAPT:</p> <ul style="list-style-type: none"> • Serving - Complete adoption of UIA v2 and UDA in all Display systems; privacy infrastructure for log processing pipelines. • Intelligence - Data leakage risk quantified and monitored; Florida updated for post-N20 world. • User Trust - Increase coverage for WTA; Additional transparency information (e.g. remarketing) in WTA and APM; leverage Utopia to drive product direction and design. 	

- Reviews - Handle all Launches for DVA (expected: 2,200), no major incidents; privacy review automation (Knowledge Repository, PALE, and additional review tools).

User Trust / PUF:

- Launch ads blocking API & ad setting for MTA + GKS
- Migrate MTA UI to AMP. Customize UI for different ad forms, e.g. native ads; interstitial ads.
- Reduce Mute Rate by 10%; Improve human rating by 10%; revenue neutral
- Launch MTA on DBM and ADX; Increase the MTA coverage on GDN from 56% to 70%
- Improve user experience quality and measurements for N2 consented users
- Enforce 10% Google publishers from Smoot standard unqualified to qualified. Expose Smoot standard and revenue impact to 50% of Google publishers.

Audience (Demographics/Affinities/Custom)

- \$8B Demographics Dec'16 ARR (+38% YoY) GDN/DBM/YT/Play Music
- \$2.3B Affinities GDN/DBM Dec'16 ARR (+53% YoY) GDN/DBM
- Support cross-exchange Google Audiences on GDN and/or DBM; launch Custom on DBM
- Re-launch all audience offerings for N2/GAIA. Demographics to support 100% Viral launch, Unicorn roll-out @ <5% drop in precision/reach
- YouTube Reserve precision 80% (Global), Auction precision 75% (Global), GDN Auction 75% (Global) (all precision goals coverage neutral; actual precision may be reduced to increase coverage); Mobile precisions to be within 5% of desktop, as measured by Nielsen + GRP (Nielsen -15pt gap now); GDN/DBM Precision-tuned US Affinity spend @ 100%, top 5 non-US regions @ 70%
- Lockbox and Firebase data integrated into Audience; both driving affinity/in-market mobile revenue to \$400M+
- Launch Household Income in the US and 2 other markets; Build and launch a Life Stages audience targeting product and beta test a similar users for brand targeting product

Abstract: Build out new Identity infrastructure (e.g. GKS, Full Circle) to support and grow our signed-in ads efforts; continue to protect user privacy and enhance trust across all of DVAA via our privacy programs and infrastructure. Grow Brand Audience Business to \$~11.5B (+~30%), including Demographics, affinities, custom affinities, and new products enabled by Narnia 2.0.

Strategic Overview

Opportunity

- Delivering on our privacy and user trust promises: protect all of Google's existing \$XXB DVAA ARR
- Build world's best multi-platform brand audience products that help advertisers reach users based on identity. Addressable brand advertising market alone: \$150B+ in brand ads. In addition, entire new brand and direct response markets may open if we find new opportunities using a comprehensive understanding of user activities, passions, and goals.

Pillars

- **Run a tight ship: Identify and nullify key privacy threats, data leaks, or potential mistakes** (proactively, 99%+ of the time)
- **Launch and evolve Narnia 2.0 infrastructure (Narnia 2.0 Track 1 + 2)** with excellence while enhancing user trust
 - Launch N2, get to 500M opted in users by EOY. Trend towards <20% opt-out rate for existing accounts.
 - Work with consumer product teams to increase login rates across Android, iOS, Desktop, and TV on our ad network
 - Launch GAIA Keyed Serving (GKS) for GDN, DBM, AdSense, AdMob, AdX, DFP, GMail, and Google Play Music
 - Deploy Full Circle to reduce risk of data leakage and empower our 3rd party partners with new analytical and other capabilities
- Commercialize new Narnia 2.0 capabilities (Narnia 2.0 Track 3)
 - Deploy hero use cases that overcome losses in revenue from enhanced data protection of Narnia 2 data silo. So far, identified \$3B opportunity in new ads solutions + enhanced use cases, all realized in <2 years, with even more to come
 - Expand use of authenticated and unauthenticated data to include many of Google's most used products: Search, Chrome Sync, Location (from Mobile), App usage (Lockbox), Google Analytics, Scion, etc.
 - Build a centralized identity signals library based on these data so that our targeting, quality, formats, and other teams can easily make use of the wide variety of data available across Google. These signals could be used across the funnel either to better describe ideal audiences (exposed in a product like custom affinity / in-market), or used to enhance performance.
- **Continually ensure our ads are user-centric:**
 - Build and maintain the industry's best transparency tools and privacy controls: cross-device opt-out via GAP/NAC, Why This Ad, Mute This Ad, and coming soon new remarketing / CRM data controls --- all to be available on the most popular buyer/seller combinations. Some of these features could be offered to the industry (other AdX buyers, non-AdX sellers), such that our users have an improved ads privacy management experience overall and therefore less likely to engage in ad blocking.

- Launch Utopia, a holistic user experience measurement metric for our ads, that we can use to further optimize our ads experience as well as tie into projects like Magnolia/Contributor (Google's answers to ad blockers)
- Deploy mute rate (and investigate other kinds of user quality metrics) that go beyond the click/conversion, so advertisers can improve the user experience of their ads. In particular, explore how mute rate can be used to identify how publishers should be improving the ads experience, since we now know that publisher effects account for 90%+ of mute rate.
- Build new, user-centric ads experiences and the necessary controls to manage them such as coupons/discounts and the ability to save these for redemption (top requested user feature)
- **Build industry-leading brand targeting products** that resonate with Digital-native Display, Rich Media, and Video as well as traditional TV, radio, and print advertisers alike.
 - Demographics: Industry leading reach and precision that allow advertisers to reach users based on their "facts of life": age, gender, household income, parental status, and other educational, occupational, familial, and household characteristics (potentially with a new household identifier). Work with Nielsen and Comscore to ensure we're being measured fairly, while continuing to strongly support our own measurement activities via ActiveGRP / Extra Reach and various sister projects.
 - Affinities: Lifestyle, lifestage, and psychographic segments that drive strong performance that will become the next industry standard in audience reach measurement using best practices (surveys, panels, N2 data) + continued partnership with YouTube team.
 - Custom affinities: Customizable brand targeting definitions that strongly drives brand lift (sales, awareness, consideration) + continued partnership / convergence with audience KW / custom in-market with GDN team, and partnership with YouTube team. Expansion of audience definitions into products / loyalty, store visitation, and other highly demanded audience segments.
 - Next generation products / research: Assistant Ads (in partnership with Display Next), Shopping (in partnership with remarketing team), Trend-based targeting, and other Narnia 2.0-motivated ideas
- One Team -- Privacy, Identity, and User Trust engage in close technical, product, and commercial collaboration with GDN, AdMob, DBM, YouTube, Platform, and the rest of DVAA

Competitive Analysis

- Privacy players: Ad Blockers, ISPs seeking a cut of our ads business vs. allowing for common carriage, cookie-deleting virus scanners / browsers / "privacy managers", aggressive use of incognito windows, rogue browsers/extensions, or other company/user reactions led by frustration with ads, mistrust with Google, rent seeking, or user exploitation in the name of privacy. These actors can inhibit our ability to show ads or

use identity to improve the quality of ads, constraining our business. Privacy service providers such as Ghostery / TRUSTe can end up sending us opt outs or misrepresenting what our ads products do.

- Social networks (such as Facebook) and verticalized purchase experiences (such as Amazon) that can reduce friction for users, advertisers, and product purchasers in ways that we may find difficult to respond to.
 - Facebook has a multi-billion user global footprint with 100% sign-in rate on their property, an aggressive mobile app network that is growing into web, and a powerful marketing message focused on “people, not cookies”. Based on our experience with Nielsen OCR (built using Facebook data, corrected w/ Nielsen panels and methodology), roughly half of Display/Video impressions map to an active Facebook user. Our own sign-in volume when applied to a network may not be so far apart (40-50% and growing for Display/Video respectively). Google arguably has far superior intent data to Facebook from Search, Chrome Sync, Android, and other data sources.
 - Amazon has become a default vertical search engine for many users -- skipping comparison shopping for many goods due to their collection, reasonable prices (or perceived low prices), and Prime shipping service. They have a vast data pool on their loyal users, leveraged both to improve shopping recommendations as well as to serve ads. Google in most geographies does not offer a comparable level of service or ads personalization, even through 3rd parties. Narnia2 and other projects are needed to reduce user friction to Amazon levels both with better data and streamlined “click to pay->ship->get with no hassles” experience.

Risks

- Researchers, regulators, or policymakers who could restrict our activities in order to prevent perceived user or market harm. They may react to actions taken by our customers/partners, more privacy-aggressive competitors, or bad systems/actors. These players may constrain our behavior specifically, or more generally our advertising industry's behavior, and hurt our ability to innovate / generate funds for content creators / other Google endeavors.
- Narnia 2.0: We are pairing arguably Google's most important consent / policy change with a completely new ad stack and aggressive timelines. We may have feedback from regulators that needs to be incorporated into the product ahead of launch; general PR risk, engineering execution timeframes.
- Overconstrained policies: We may not enable ourselves to use Google's best data to make our ads products as performant as we want. Although we sit on the world's best data, in part due to risks related to regulators/policymakers, we constrain ourselves more so than our competition does which would inhibit our ability to compete.
- Narnia2-powered data for targeting and measurement does not derive sufficiently improved user experiences, advertiser results or publisher monetization than our current offering and is perceived as at-best a parity play to Facebook's approach.

2017 Charter: DRX

(DoubleClick Reservations & Exchange)

(DFP + AdX)

Team Mission Statement <ul style="list-style-type: none"> Help publishers thrive by creating sustainable businesses with advertising. 	
Leads <ul style="list-style-type: none"> PM: Jonathan Bellack Eng: Aparna Pappu UX: Josh Weihnacht 	Headcount <ul style="list-style-type: none"> PM: 23 (incl 3 in SHA) Eng: [300 in 2015] UX: [9 in 2015] PMM: 3
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> Be the mobile and video ad platform of choice <ul style="list-style-type: none"> Mobile impressions YoY: mApp +50%, mWeb +40% 2B native impressions/day (tag-based + programmatic) Unification phase 1 (all DFP+AdX features in one UI) Convert tag-based serving to programmatic <ul style="list-style-type: none"> \$4.4B programmatic indirect revenue (+33% YoY) \$250m actual spend for Deals (PD+PG) (+105% YoY) AdX Buyers \$1.6B revenue (+28% YoY) 25% of impressions won in DRX auction (aspirational) 	

Strategic Overview

Opportunity

- Be the mobile & video ad platform of choice** for the world's largest sellers of display and video advertising (news & publishing, broadcasting & media, mobile apps, and commerce). [Desktop is no longer growing and is now a minority of queries] Est. of the market flows through DFP today, or **54%** of addressable (ex-YT, FB, Yahoo, AOL, Twitter).
- Convert tag-based serving to programmatic**, where Google can earn a revenue share.
 - Indirect sales (via ad network/exchange/SSP): **[\$4.4B minus the AdX-only piece]** in 2016
 - Deals (direct between buyer & seller): **\$250M** in 2016 (1.25% of est. \$20B via DFP)
 - AdX-only (passback from other ad server/exchange): **\$XB** in 2016 (ex. Yahoo, LINE, pubs using DFP but sending all queries to another exchange first)

Pillars

Unified sell-side front-end

- A single programmatic platform that allows publishers to seamlessly transact via any sales channel (programmatic, direct, and indirect) and across all platform types (mApp, mWeb, video, and desktop) with full transparency and control, and better serviceability.
- Reporting and Measurement: Data to monitor and optimize their business, with the tools and proactive insights necessary to make sense of that data. Help publishers navigate and shape the industry's move to new ways to measure performance and ROI.
- A customizable platform that supports publisher innovation (read/write API, data export to Cloud, leveraging publisher audience data, inventory extension via DBM).

Deliver great ads everywhere

- Serving -- low latency, reliable tags and SDKs, smart caching, server-to-server calls
- Mobile apps -- be the best platform for large apps ("whales") who do direct sales (deals)
- Mobile web -- be the best ad platform for AMP (Accelerated Mobile Pages)
- Video -- Grow our footprint and enable brand dollars by supporting YouTube and DRX video (see video charters for details)
- Formats -- keep up with the move away from banner ads (native, rewarded, audio, etc)

Deals -- Accelerate the move from tags to programmatic

- Programmatic Guarantees -- a true RTB solution for deals, giving buyers query-level decision-making that is not possible with tag-based solutions.
- Marketplace -- connect buyers & sellers with a discovery+negotiation UI for AdX & DBM.
- Forecasting -- predict future traffic and availability -- (finally) adding seasonality and manual events.
- Sales management -- support large publisher sales process and revenue reporting.

Indirect -- Increase publisher participation in our demand

- AdX yield management - finding ways to make more ad queries eligible to be sold, improving how they are priced, how buyers compete to buy them, and helping publishers configure their monetization with AdX in an optimal way.
- Unified yield management -- deliver the best global yield from non-AdX demand, via mediation and exchange bidding.
- Ads quality -- deliver ever-increasing yield through experimentation & machine learning. Includes reserve price optimization, dynamic revenue share, and finding opportunities.

Attract spend from programmatic buyers not on GDN or DBM

- Make our RTB signals competitive with the market, within our privacy principles.
- Help RTB buyers discover and buy inventory that delivers great ROI.
- Offer the industry's most trustworthy supply and most reliable infrastructure.

Make display ads better for consumers, publishers, and advertisers.

- Keep everyone safe -- detect, prevent, and remove malware, spam, fraud, and illegality.

- Make the consumer ad experience better -- stop bad ads, support the forthcoming acceptable ads standard, protect consumer privacy.

Competitive / Ecosystem Analysis

We are widely used, but _____ is not where we would like it to be, and our separate products are unwieldy to use together. Partners feel that working with us is too hard (esp. stringent policies), distrust of Google is a big factor in Europe, and our business in Asia is mostly nascent. We are not seen as the market leader in App advertising, though this part of our business is growing quickly. Publishers can make more money with multiple demand sources in competition, frequently putting us at a disadvantage through header bidding, high floors, and passbacks. Finally, the increasing diversity of revenue streams means we face a wide range of point competitors who can do better on specific market segments. Specific competitors:

- AppNexus: offering full stack with superior forecasting & insights thanks to YieldEx acquisition, more open, & lower revenue share. Several key wins in Europe (Schibsted, Le Figaro), heated competition on renewals (Fairfax AU, France Telecom).
- Rubicon: programmatic-only, leads on Marketplace and human services, won Spotify audio business because we didn't commit to invest.
- Other exchanges: Pubmatic, OpenX, Index Exchange, many others
- Facebook: retreated from ad tech but FAN is outperforming AdX and growing quickly in mWeb as well as mApp.
- Ad networks who put demand through header tags not AdX, esp. Amazon and Criteo
- Also: Twitter (MoPub), Comcast (Freewheel), Verizon (AOL/AdTech/Yahoo), & many regional players, esp in China.
- Point players: YieldMo, Sharethrough (native); Teads (outstream); Taboola, Outbrain (promoted content); etc.

Risks

- Google Search and the Web overall are becoming less relevant distribution mechanisms due to the growth of social and apps. Our inventory base is vulnerable because 28% of our mWeb traffic is coming from Webviews, leading publishers to experiment with FB Instant Articles. Even non-webview mWeb sites tend to be slow & poor experiences.
- More & more of our largest partners are comfortable with technology and can afford to hire their own teams to develop custom formats and targeting, especially in mobile apps. This reduces our ability to provide them with backfill, and leads to them wanting more platform-like features like server-side calls or more flexible APIs, that decreases our value. For example, Spotify turned to AppNexus and Rubicon for help with audio ads, LinkedIn built its own mobile native ad business years ago, and Snapchat left DFP to build its own ad platform from scratch. _____ is a big concern that the user experience of our ads is our control: in each of our apps should we pursue a "white-label" or "black-label" model?

approach. But that model is also increasingly competitive. To illustrate, only the DMG & King Publishers remain to fight a traditional war with publishers.

- **We are not participating in nascent digital ad markets like audio and out-of-home, opening the door for competitors to take the lead.**
- **Even if we eventually lose the right to become an important publisher, and we will need to eventually pay for more to add non-traditional value to traditional war, and we will lose the right to extend. However, Google's participation may decrease the effectiveness.**
- **Publishers of almost all types are growing consumer payments alongside ad revenues. This moves the critical decision from right ad - right user - right time to right (ad or offer or nothing). Since we do not offer consumer payments optimization or any way to integrate publisher consumer data into our ad selection process, this demotes us to just one input to the real decision happening in the publisher's system. And as consumers will begin to accept advertising, perhaps even quality advertising, may continue to decrease or be blocking rates and pose a more the industry is unable to do so to any extent on or non-entirely ad revenue for users of ad publishers' preference. We will face a new (they and sell) core business at risk.**
- **GDN and DBM together buy significantly outside of AdX, with arguably lower spam standards and potentially lower revenue shares.**

2017 Charter: Project Magnolia

<p>Team Mission Statement</p> <ul style="list-style-type: none"> • Ads power the open web. But the current ad experience is broken. Many ads are intrusive, poorly designed and disrupt the consumers' activities, driving them to opt-out through ad blocking. Ultimately this undermines publishers' ability to openly supply content, and disrupts the larger Internet ecosystem. Our goal is to fix this and save the open web / mobile web ecosystem by ensuring higher quality, less disruptive ads are delivered to consumers while also letting publishers sufficiently monetize their inventory. 	
<p>Leads</p> <ul style="list-style-type: none"> • PM: Scott Spencer • Eng: Aparna Pappu, Bahman Rabbi • UX: Neil Ramshaw 	<p>Headcount</p> <ul style="list-style-type: none"> • PM: 5 • Eng: 25(FT) + 25(PT) • UX: 4
<p>Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> • Establish a V0 for Sustainable Advertising Standard; reach alignment with 10+ industry bodies • Develop and finalize architecture and prototype for Thwarting solution; engage cross-functional team including Chrome on network design and operational impact of the plan 	

TL;DR:

Ad blocking is still a growing issue for Google and our publishers. Google has a multi-pronged approach to address it which starts with improving the ad experience via (global, industry based) standards. This is reinforced with a publisher ad wall, consumer choice, filtering of bad ads in Chrome, and tools to protect compliant ads.

Strategic Overview

Opportunity

Ad blockers are still growing 40% per year for desktop and 90% for mobile web⁴⁵, costing the industry \$22b per year and Google approximately . This is a threat to the open web. We need to protect the revenue loss for our publishers, but also establish a framework for a better, less intrusive consumer experience so users aren't driven to ad blocking in the first place.

What happens if we do nothing?

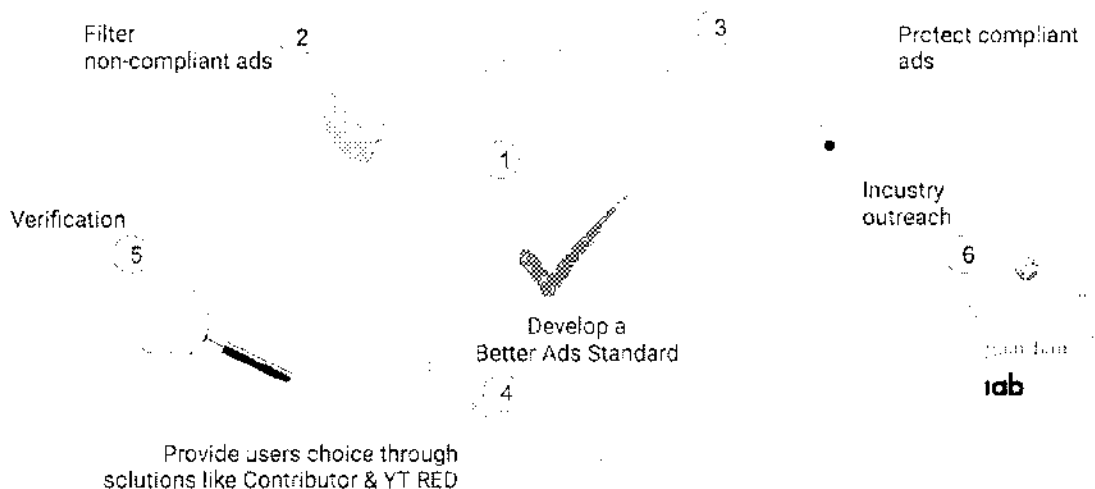
At the current growth rate of ad blocking (vs. growth of the internet) though we expect it to asymptote at around 65%. In addition,

⁴⁵ PageFair & Adobe | 2015 Ad Blocking Report, PageFair | 2016 Ad Blocking Report

mobile is a new front for ad blocking (US blocking, via iOS9's API, is about 1.5% and global mWeb blocking, via ad blocking browsers, is close to 15%). Doing nothing isn't an option.

Pillars

To address this, we need to establish a new, game stable equilibrium in the market where each constituent's reactions are taken into account and reinforce each other. Such a solution keeps the market in-check with each, co-dependent part:



1) Establish a data driven, consumer based standard for ad experiences [ongoing]:

This is the cornerstone of the overall solution. It must meaningfully improve the consumer ad experience, be externally defensible, and becomes a core dependency for other parts of the solution. To establish this standard we need to determine what parts of the ad experience (formats, creative weight, 3rd party pixels, etc.) actually negatively affect consumers.

We have developed a [redacted] for assessing these ad experiences and are running through it multiple ad experiences. This creates a robust [redacted] that can be used to create a standard (in conjunction with industry bodies via #6, industry outreach).

2) Use Chrome to reinforce the better ads standard by filtering non-compliant ads [beta]:

Develop controls in Chrome (desktop and mobile) to filter ads that do not adhere to the Better Ads Standard. This is effectively a Google ad blocker which will 1) improve the consumer ad experience, 2) allow ads to run on standard compliant sites (unlike 3rd party ad blockers), and uses the better ads standard (vs. a "pay to play" model of 3rd parties).

3) Incent publishers to improve their ad experience by protecting ads if they do [in dev]:

Create a means to circumvent ad blocking on a publisher's site if that publisher adheres to the better ads standard. This creates an incentive for publishers to adopt the acceptable ads standard and ensures that ads remain a viable way to monetize the open web. Publishers would then have an alternative to paying the ad blockers to be white-listed with the same net result – standards compliant ads show to ad block users.

4) Respect users desire to have an ads free option through Contributor [in dev]:

Develop a publisher configurable “ad wall” or in-site notice that is triggered when the user employs an ad blocker. In this notice, ask the user to whitelist the site in the ad blocker or to choose to have no ads (via Contributor). For non ad block users, simply offer the option to have a no ads experience (via Contributor).

5) Verify publisher compliance with the better ads standard [in dev]:

Develop a system to verify if a given site / publisher is compliant with the better ads standard. This includes the ability for publishers to be notified of non-compliance and if they are at risk for their ads being filtered. The information is available to publishers via the Search Console.

6) Work with industry to convert ad experience data to an international standard:

To be successful, the better ads standard needs to be an international, buy-side and sell-side supported standard. A Google standard would be considered biased and hamper adoption. Therefore, we need to do industry outreach to create a consortium of like minded entities to convert the ad experience data we collect into a viable standard.

Competitive Analysis

There are many competitors with the various parts of the proposal.

1) Establish a data driven, consumer based standard for ad experiences:

- AcceptableAds.org – Eyeo’s (AdBlock+) standard for acceptable ads. They are trying to make this more industry accepted.
- LEAN – IAB TechLab’s standard. It is currently just a statement of principles, but IAB envisions “LEAN Scoring” as a model for making it actionable and hope to define the standard in detail. (We are working to make our standard merge with the IAB’s LEAN effort)

2) Use Chrome to reinforce the better ads standard by filtering non-compliant ads [beta]:

The competitors to our filtering are the existing and future ad blocking providers. Some block all with an acceptable ads whitelist, some block all regardless, while still others are block ads at the network or corporate level.

3) Incent publishers to improve their ad experience by protecting ads if they do:

There are numerous companies developing ad block circumvention and ad wall technologies. Some examples include PageFair, SourcePoint, Instart Logic, AdExtent, SecretMedia, AdDefend, Tisoomi, BlockBypass, etc.

4) Respect users desire to have an ads free option through Contributor [in dev]:

There are a few competitive “pay-for-no-ads” offerings in market. The most well known is Blendle. Another is LatterPay. Finally, an interesting move was done by Eyeo when they acquired Flattr.

Risks

There are many risks to this project. They are captured per pillar:

1) Establish a data driven, consumer based standard for ad experiences [ongoing]:

- Standard isn't accepted by the industry (mitigated by working with IAB and others)
- Methodology for the standard doesn't capture key elements (e.g., latency, data usage, privacy)

2) Use Chrome to reinforce the better ads standard by filtering non-compliant ads [beta]:

- Solution is a poor alternative to traditional ad blockers
 - detection of non-compliant publishers is poor (too many pubs with bad ad experiences still have ads showing)
- Publisher backlash against Google for ad blocking

3) Incent publishers to improve their ad experience by protecting ads if they do [in dev]:

- Advertisers / Agencies decide to not support circumvented inventory
- Technical risk – ad blockers counter our circumvention solution
- PR Risk – countering ad blockers is not popular among certain, vocal user segments

4) Respect users desire to have an ads free option through Contributor [in dev]:

- Geo-deployment coverage – Contributor isn't available in a sufficient number of countries / currencies. Targeting US, CA, AU, DE in 2016. Western Europe and select countries in Asia, LATAM in 2017.
- Low usage – while expectations of usage are small (0.25% of consumers) even this is aggressive for paying for a no-ads experience.
- Conversion from Contributor 1.0 to 2.0 – While there are not many users, there is a risk that the transition from Contributor to Contributor 2.0 will alienate original Contributor users and create PR issue.

5) Verify publisher compliance with the better ads standard [in dev]:

- Coverage – unable to review a sufficient number of sites
- Accuracy – too many sites are being flagged as non-compliant that are, too many sites are flagged as compliant that are not
- Costs – automating verification takes longer than expected, continue with expensive manual process.

6) Work with industry to convert ad experience data to an international standard:

- Speed of coalition building – the process to create a coalition to own the org takes too long.
- Org goes rogue – the coalition we help charter drives a standard that we can't support.
- Standard seen as a Google standard despite the org.

2017 Charter: 3P Video

Abstract: The goal of our 3P video monetization efforts is to enable buyers to reach all of their audiences and drive incremental reach off YouTube by accessing and effectively monetizing high-quality partner video inventory across all screens as TV viewership migrates online. To acquire inventory, we seek to accelerate the transition of watch time and budgets to digital by building the best end to end system for video delivery, monetization and measurement across IP connected devices. Working together with the AdWords and DBM teams, we aim to make functional video markets and successfully scale transactions on high quality video content.

<p>Team Mission Statement</p> <ul style="list-style-type: none"> • Enable buyers to reach all of their audiences and drive incremental reach off YouTube by accessing and effectively monetizing high-quality partner video inventory across all screens. 	
<p>Leads</p> <ul style="list-style-type: none"> • PM: Rany Ng • Eng: Vlad Sinaniyev, Aparna Pappu, Jamie Kerns • UX Lead: Heather Cassano, Scott Hines 	<p>Headcount</p> <ul style="list-style-type: none"> • PMs: 6 (5 DRX, 1 GVN) • Engineering: 72 (53 DRX, 19 GVN), X DBM • UX: Shared Resources
<p>2016 Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> • Revenue: \$600M ARR on third-party video partners (online, apps, OTT) from advertisers extending reach beyond YouTube with 60% from AdWords and 40% from programmatic • Inventory: Get access to premium video inventory from 50% of the top 200 global video publishers; grow inventory volume 60% YoY • Grow OTT and Live content: Launch Truman & migrate 100% of live from mDialog and 50% of VOD; launch programmatic buying on OTT with 1B monthly avails • Enable Video for Mobile: 60% of total video revenue on mobile app and web by growing TrueView, programmatic demand and launching new formats (Native / InFeed, bumpers) • Integrate 3rd Party Audience Extension: Increase GVN attachment from 35% to 55% by launching GVN in sales tools, search and survey lift reporting, optimizing for reach and improving quality models • Scale programmatic deals for premium video: Get to 25% of revenue from deals by expanding video capabilities in marketplace and launching support for long-form ad breaks • Google Partner Select: \$60M in revenue through audience based programmatic buying of long-form and premium video inventory 	

Strategic Overview

Opportunity

- **\$200B of global TV spend is starting to converge across TV and Digital Video**
 - TV Buyers and budgets are following audiences and looking to plan, buy and measure their media across TV and digital - informed by data.
 - Global digital video advertising market expected to hit \$20B in 2016 with programmatic video spend growing 200% YoY to \$8B.
- **Viewers are spending more time watching digital video than ever before**

In the past 3 years, multi-screen media viewership has gone up by 500% as users have an abundance of programming options across TV, Netflix, YouTube, Hulu and others.

 - OTT consumption is the fastest growing channel, with viewership on Roku, Apple TV and other devices doubling in the last year.
 - OTT and pure-play digital watch time is growing 24% CAGR versus linear TV at - 2.8% CAGR
 - Viewership of live streaming content, especially sports, can now be consumed on-the go; driving growth at 113% YoY

Pillars

- **Maximize Audience Reach across YouTube & Google Video Partners** - YouTube has experienced tremendous growth in watch time, however, audiences are also spending time consuming entertainment, sports and news content across the web and apps. By extending our video partnerships beyond YouTube, we offer advertisers a single place to reach premium content and engaged audiences across YouTube, the web and apps. Through brand safe partnerships with companies like CBS, Fox News, Viacom, etc., we can enable advertisers to reach 25%+ incremental unique users beyond YouTube across a diverse set of demographics where YouTube under-indexes, e.g. Females 25-54. We are making it easier for advertisers to extend their audience reach to Google Video Partners by completing integration it into the plan > buy > measure workflow, extending innovative and user friendly ad formats beyond YouTube, as well as expanding unique reach and effectiveness (brand lift).
- **Power the Future of TV (OTT / Live)** - As viewers increasingly consume TV programming "over-the-top", we have the opportunity to capture and lead TV's transition to digital screens. TV broadcasters, cable networks and MVPDs want to reach their audiences across all screens from desktop to mobile apps to OTT devices (e.g. Roku, Chromecast, Apple TV) to traditional set-top boxes. By powering the platform for TV publishers, we can access premium TV inventory for our exchange and advertisers. With our DRX video platform in 2017, we will enable publishers to create a seamless TV-like ad experience and enable them to dynamically insert, target and measure ads to users watching live content at Superbowl scale and on-demand TV shows (e.g. CBS). Our video platform will also support traditional TV carriage agreements models, extend to cable set top box serving and integrate with the TV sales workflow. In concert with Cloud or Fiber, we'll look to providing TV publishers a simple on-ramp to delivering TV content to OTT devices by offering a video streaming platform, thereby helping accelerate TV 2.0.
- **Scale Video on Mobile** - As time spent on mobile continues to grow, it is critical for advertisers to be able to reach their audiences on these devices. We have the opportunity to re-imagine the 30s commercial and create new video ad experiences for

users on mobile apps and mobile web. Mobile app content beyond video can increase the scale of audience reach for advertisers. We are therefore investing in creating high value, prominent video placements through our native ads framework, while at the same time working with the Outstream Video team to create a brand demand focused on these new placement types.

- **Double down on premium video** - The way that TV advertising is bought is being disrupted by a shift in consumer viewership from linear TV to on-demand viewing across screens. While traditional TV viewing still commands the lion's share of watch time, this shift has created a desire from buyers to become more sophisticated in their approach to TV buying to mirror what is possible in the world of programmatic. Given the scarcity and premium nature of video, advertisers and publishers primarily want to transact through programmatic deals, but there is significant overhead in deals transaction today, and a video first mindset is sorely needed in both our buy-side and sell-side platforms, where video is largely tacked on today. That's we will build:
 - Cross publisher inventory packs in Marketplace (e.g. TV content pack, top 100 apps), including automated guarantees through Market Maker in the DBM UI, while leveraging our Partner Select program to secure and aggregate inventory.
 - Automated recommendations to showcase recommended DRX publishers/ DBM advertisers to send deals to,
 - video capabilities for the deals troubleshooter to make deals more reliable in DBM/DRX.
 - New targeting and infrastructure in DBM/AdWords, including better connected device targeting, content signals (e.g. TV, top content), and new forms of optimization.
 - Build cross device parity in measurement (viewability, GRPs)
- **Invest in quality:** Because our GVP inventory is bought side by side with YouTube through AdWords and DBM, it is important that we have comparable performance and quality. That's why our GVP team is investing in new video ads quality models, and viewability and presence filtering to maintain performance parity with YouTube. Also, with the rapid growth in queries from video aggregators (NPMs), we will double down on fraud protection capabilities and may consider more drastic measures (e.g. banning some classes of NPMs) to ensure advertiser performance.

Competitive Analysis

As TV and digital converge, there is increased competition and consolidation across TV, digital media and programmatic tech players in pursuit of TV & video brand dollars. Competitors are forming walled gardens with proprietary access to their media, data & formats, offering audience reach extension with a focus on mobile and video, and creating integrated programmatic buying platforms to capture these TV budgets across screens.

- **Comcast / Freewheel** is the leader on helping TV broadcasters, programmers and MVPDs (NBC, Fox, ABC, ESPN, Sky) manage the convergence of linear TV and digital video. They are building out support for digital / OTT streaming, enabling set top box ad serving including VOD and addressable TV, providing programmatic deal capabilities (FourFronts, acquisition of Sticky Ads), and creating integrated TV sales workflows such as ingesting TV schedules for digital (Hybrid Linear Digital Ad Scheduler). A key differentiator, Comcast is also offering TV publisher access to subscriber data to power monetization.

- **Verizon / AOL / Adap.tv/Yahoo!** - Verizon acquired AOL to combine their extensive access to TV, mobile and data subscriptions ("super cookies") with AOL's original content, video advertising platform (Adap.tv) and analytics tools (Convertro). AOL has been an early mover in "programmatic TV", aiming to provide x-channel media planning and sophisticated data targeting across video and addressable TV ads programmatically. Verizon's pending acquisition of Yahoo likely represents Verizon doubling down on this strategy.
- **Facebook / Liverail / Atlas** has been laser-focused on building out their video offering to attract TV budgets by touting massive reach on their O&O combined with audience reach (FAN), rich audience data for cross-screen targeting and mobile-first formats. FB is now creating a video only tab within their product, and in order to extend the reach of their walled garden, is also offering FAN guarantees to premium video publishers in the TV segment with exclusive content.
-

Risks

- Restricted access to inventory from walled gardens and premium video content;
- Linear TV buys extending to OTT diminishes the monetization opportunity (especially as Nielsen C3 moves to Nielsen C7); slower than projected OTT device adoption relative to mobile.
- Impact of YouTube shift to Viral and Narnia2 policies; focus on strengthening brand demand on our video network to provide incremental reach and position us against Facebook (FAN)
- Velocity and execution on TV, digital and programmatic convergence, including brand measurement, planning tools, etc.

2017 Charter: YouTube Ads

<p>Team Mission Statement Make YouTube the most lucrative video platform for creators while ensuring long term sustainability by delivering an ads experience that delivers compelling value for users.</p>	
<p>Leads</p> <ul style="list-style-type: none"> PM: Diya Jolly Eng: Vivek Raghunathan UX: Heather Cassano, Neil Ramshaw 	<p>Headcount⁴⁶</p> <ul style="list-style-type: none"> PM: 18 (YT) Eng: 230 (YT) UX: ~8 (in flux because of UX reorg)
<p>Annual A&C Level OKRs and KPIs (2016)</p> <ul style="list-style-type: none"> KR1: Grow YT revenue to \$7.7B ARR by EOY 2016 (\$6.35B in booked revenue) KR 2: Grow Video Revenue by 50% YoY, active advertiser base from 50% to 60% of LCS (+30K), APRA at 40% YoY and Always on YT customers from 10% to 20% of LCS + GCAS. KR3: +20/20/20 (20% increase in mhvtr (user quality of ad), 20% increase in present watchtime (advertiser quality) and 20% increase in non-budget constrained revenue) KR4: Viral at 100% of signed in auction traffic, 10% of signed out auction traffic and 1% of reserve 	

Strategic Overview

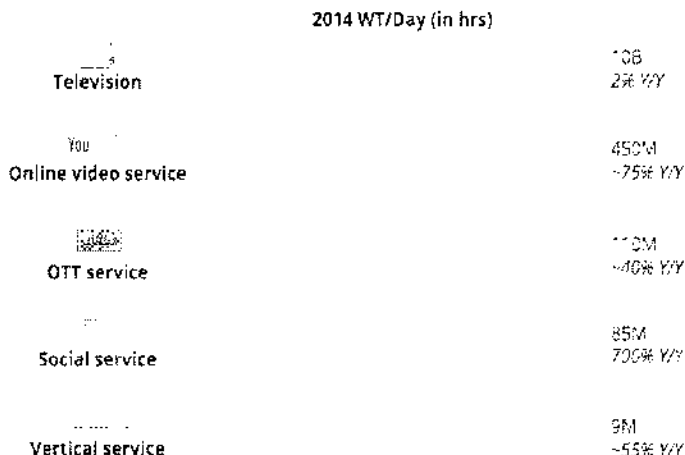
Consumer video viewing behavior is undergoing a rapid shift

The video market is undergoing a rapid transition as consumers go more digital/mobile. While TV still garners the lion's share of video consumption, online consumption is growing rapidly.⁴⁷ The two charts below show how video consumption in the U.S. is shifting and how we expect that by 2020. Similar shifts are happening globally.

U.S. Video Consumption by Platform - 2014

⁴⁶ Does not include to be hired heads

⁴⁷ Online video viewing consists of viewing both traditional TV content online as well as video content available online (e.g. PewDiePie, NBA highlights, Vice, etc.)



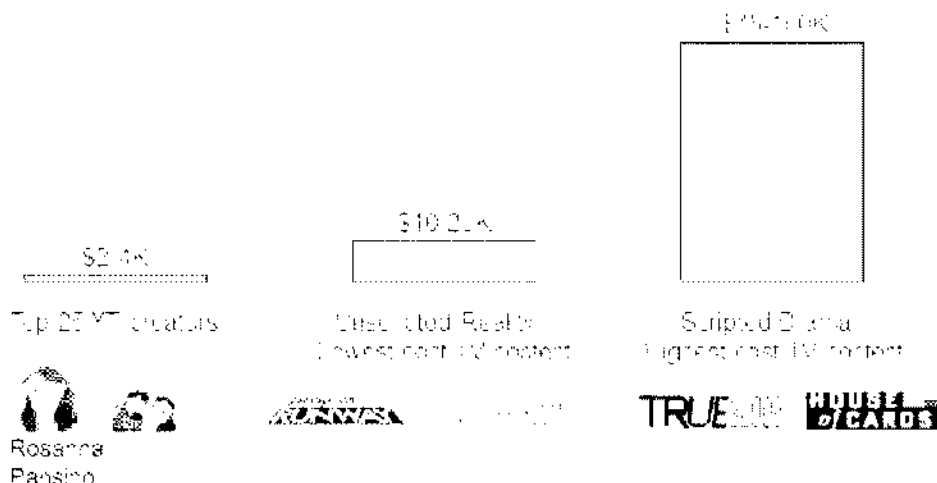
U.S. Video Consumption by Platform - 2020



YouTube as a platform is not as lucrative today for creators as TV

Although online video consumption is growing fast, we know that TV budgets are not moving fast enough to sustain the online video ecosystem. YouTube's top creators (amongst the best compensated in the industry) make 3-50X less online than they do offline (see chart below).

Revenue generated per uploaded minute



The lower monetization for creators is driven by a few different factors⁴⁸:

1. While eyeballs and watchtime has shifted to online video, advertiser budgets have not. Video is best positioned to capture large share of the \$300B brand advertising market. Although ~8-10% of video watchtime happens on YouTube, we have only tapped into 2-3% of online brand budgets.
2. Today TV has 8 - 10 minutes of ads for each 30 minute episode. These are interruptive non-skippable ads that prevent you from seeing your content. User research has shown that user tolerance for and expectation of ad load is not the same online as it is on TV. Users have more choice online than on TV - (a) they can install ad blockers, (b) they can go to competitors with lower ad load & watch the exact same content.

3-Year Goal

Grow the YouTube ads business to \$20B (actual revenue) by 2020 (3x 2016) while doubling user happiness⁴⁹ with the ads experience.

Pillars

To accomplish the above goal we have laid out 6 key pillars:

1. A _____ when they are on YouTube (user quality of ads)
2. Attract brand budgets and build a long term competitive business in brand by making brand as actionable as performance
3. Increase creator monetization by tapping into performance budgets
4. _____ for a step change improvement in user quality and driving advertiser ROI

⁴⁸ Cable companies also charge a subscription fee for cable channels, part of which they then pay out to the cable networks (content creators) as carriage.

⁴⁹ See go/yt-unified-user-cost-v0 for our current definition of user happiness.

5. Strengthen the core by providing leading edge buying and planning tools
6. Improve innovation velocity by building out

A compelling ads experience for users is crucial to sustaining the YouTube ecosystem. The right formats & quality optimizations allow us to show our users more relevant ads, and monetize our inventory in a lot more efficient manner.

We have a **three part strategy** to drive this:

1. **Analyze: deepen our understanding of user happiness:** Our current user happiness metric (mix-adjusted VTR) primarily focuses on short-term instantaneous ad quality for skippable ads, and doesn't capture user annoyance fully Ex1: for non-skippable ad. Ex2: different levels of annoyance between a repetitive vs. badly placed TrV ad. We have invested significantly in
 - a. New signals for user happiness, e.x. human eval
 - b. on a mix of timescales & formats (ex. non skippables) using ads blindness methodologies
 - c. Combine these insights into a new blended user cost metric (preliminary version)

We will continue to improve the state of the art in 2017, including calibrating our user cost metric better using ads blindness and unifying our notion of user cost across different inventory pools (overlays, Sparkles, in-display ads, MPUs). It is important to acknowledge that our understanding in this space will never be perfect (for e.g. today we have good data on relative user costs, but not very good data on absolute costs) and will always continue to improve. However it is abundantly clear even today that there is a cost of ads on users, hence we will need to make progress on managing this cost in parallel with improving our understanding of user cost.

2. **Optimize: Match & price ads to users better across auction & reserve**

Our vision is to ensure that every ad impression a user sees is revenue positive from a long term perspective for YouTube (after accounting for the user cost).

On the auction side, we can accomplish this via an **LTV auction**. While we have made significant strides in this direction, with over half a dozen launches since Oct 2015, we have a lot of additional work left to do in this area, including newer signals, e.g., topicality & better tuning & yield management.

On the reserve side, we have traditionally not prioritized user quality efforts. While this was okay while reserve was a very small part of our portfolio, with Google Preferred (GP), reserve is ~25-30% of our revenue/imps in some key countries (e.g. U.S.), and we've discovered that much of the user annoyance actually come from reserve campaigns, given the higher incidence of non-skips & repeat ads in reserve. We have had a couple of launches thru 2016 to improve the user quality of reserve ads⁵⁰. Heading into 2017, we want to **align our auction & reserve systems** in terms of how we treat bad ads. Additionally, we will also need to fix the current discrepancies in pricing

⁵⁰ E.g. In 1H 2016 we launched a frequency capping-revenue neutral tuning for reserve that reduced the repeat ad rate on YT-XFP by 5%.

across reserve & auction and ensure that reserve is priced fairly relative to the auction with an additional premium for the upfront guarantees.

Across both auction & reserve, we want to extend our systems from impression-based optimization to **session-based optimization**. This will allow us to pack ads smartly, e.g., show bumpers on pre-rolls coming from an external referrer, e.g., show 30s non-skips deep inside long sessions to engaged users. We can also look back even longer into a user's history, and modulate ad load for committed users (high DAV/MAV) differentially relative to casual ones.

We will start investing in **user fairness**. Today, our most sought after audiences are served more ads, longer ads, and less skippable ads, without the additional user cost being reflected in the pricing. In 2017, we will address this to ensure that pricing reflects a fairness in ad load.

Across the board, we have had to dial down many of our efforts in this area (or put them on hold) because of disagreements with sales on principles ("*are non-skippable in auction ok*") and implementation ("*what should the auction floors be*" and "*how much variability advertisers could see how quickly in pricing*"). Our strategy going forward in this area is to **peg future launches to a few simple principles**. For example --

- What should the format mix be, e.g. no more than 20% non skippable
- How to set advertiser incentives so (a) when advertisers do something user friendly, they get rewarded and when they harm users, they get penalized and (b) magnitude of the penalty/reward is such that incentives are sufficient to cause advertisers to react.
- What should the overall ad load be, e.g., cap average ad load at X% of current levels?
- What should the distribution of ad load (e.g. no user seeing more than X% higher load than average) be?

3. **Formats: Scale new lower annoyance ad formats and ad placements, while reducing the volume of non skip impressions on YT**

The number of non-skip impressions on YT has increased substantially in the last 2 years. In the U.S., & Canada 35-40% of impressions are non-skips. This non-skip ad load is very unevenly distributed. 20% of our users see 4-5 non-skip ads for every 5 impressions! Our user annoyance data indicates that users find these non skippables at least twice as annoying as skippable ads on an impression basis. We are partly getting this under control by ramping down auction non-skips in 2016. In 2017 we want to go further and reduce the number of non-skips in reserve via throttling controls (the stick) and pricing incentives⁵¹ (the carrot) and move to a more healthy non-skip to skip mix.

At the same time, we launched a new user-friendly 6s ad format called bumpers in H1 in beta. Large advertisers (e.g. NBC, Coke) have run over 1000 campaigns. These initial campaigns show that Bumpers drive similar brand lift per \$ as TrV. With no user quality optimization work yet, bumpers are very effective from a _____, and the format has seen very rapid adoption. We will fully launch bumpers in AWW/ DBM in 2H 2016 and focus on scaling these in 2017 via tools such as automated creation, bumpers in GP, optimizing bumpers placement to drive higher ROI etc. We also plan to experiment with other formats and placements with lower user annoyance (e.g. watch x ads and get y minutes of ad free content).

⁵¹ Note: today there isn't enough difference in our reserve non-skip and auction skippable based pricing to incentivize advertisers to want to buy skippables.

We need to pursue these new formats without regard to disruptions to other ads products. The ad formats with the highest value creation per user annoyance should not be held back due to risk of short-term disruption to less efficient formats.

Pillar 2: Attract brand budgets and build a long term competitive business in brand by making brand us actionable as performance

Our strategy to attract brand budgets has three different parts as shown in the diagram below:



Our top strategic big bets that go across both Google Preferred and TrueView:

1. **Pivoting our go to market approach** - For the past two years we have been leading the YouTube Ads pitch with Google Preferred in an attempt to break into TV budgets. However, we believe that long term both a copycat product is not a long term defensible strategy (especially because TV will always have more watchtime than YT in a foreseeable future). In 2017 we will pivot our pitch to lead with our TrueView products while balancing the need of traditional advertisers that want a like for like product with TV.
2. **Revamping our pricing:** We want to overhaul our pricing across our portfolio. Our pricing both for reserve/GP and auction needs to be revamped. On the GP side we do no basic seasonality and STR based pricing. Additionally, although we want to price GP higher than auction, the benchmarks we use in the auction to price against are incorrect. On the auction we kicked off a similar effort in 2016 to correct price floors which will continue into 2017⁵².
3. **Activating EMEA:** YouTube growth in EMEA has been anemic. Outside of the U.S. and Canada the rest of the top 8 ad markets are all in EMEA. Activating and growing our brand business in EMEA is crucial.
4. **Better yield management across reserve and auction:** Today we do not do any yield management across reserve and auction since they are two separate systems. Going forward we would like to invest in yield managing across both reserve and auction (e.g. today a run of YouTube targeting on GP or auction will eat up valuable demo inventory but be priced at non-demo targeting prices).

⁵² Given the magnitude of the pricing changes we are trying to make on both the reserve and the auction side we need multiple quarters to slowly move the market/ advertisers along

Our Google Preferred offering has seen significant success in the U.S. It has enabled us to break into the TV upfront markets. Our key strategic bets on Google Preferred for 2017 are as follows:

1. **A unified reserve and auction product (Viral Reserve):** Today our reserve and auction work on two completely different stacks and often have features and functionality that are quite different e.g. different targeting types, sales lift available on auction but not reserve, no premium content targeting in auction. We are also unable to leverage all of the quality work (e.g. throttling to increase advertiser ROI) for reserve buys. Finally, advertisers wanting a mixed campaign (i.e. spend 50% of my budget in reserve, 50% of my budget in auction) or wanting to optimize for ROI across cannot run such campaigns. Viral reserve is our big bet for 2017 to bring our reserve offering into Viral to solve this problem.
2. **Rethinking reserve from the ground up -** Today advertisers have rules of thumb e.g. X impressions in their target demographic on a given platform drives an ROI of Y for them. They insist on using non-skippables because we only allow them to reserve impressions. What if we allowed advertisers to reserve completed views or completed watchtime? Taking this a bit further, what if they could reserve number of lifted users for a given budget?

Our key strategic bets on our Trueview auction for 2017 are the following:

1. **Pivoting to Watchtime based billing and watchtime based reporting:** We know that brand lift increases somewhat linearly as the number of seconds watched in an ad increases. Billing on 30 second views for skippable ads limits the inventory that these ads can run on. It also makes it harder for us to fully optimize for ROI since we cannot bid for the partial views that could actually drive ROI at a lower price. Over the course of 2017 we would like to move to a cost per second billing and reporting model and away from CPV.
2. **Predictable Watchtime GRP based buying via Crane Reach:** Asking brand agencies who are used to a hard guarantee for a given number of GRPs to move into a skippable unpredictable auction world is a hard sell⁵³. This has made it difficult for us to transition dollars that we get from traditional TV buyers in GP over to the auction. We are building a product that is a bridge that allows you predictability of fulfilling your auction campaign budgets and calculating your GRPs as fractional watchtime GRPs for a non-skippable format. We plan to launch the product in early 2017 and then scale it thru 2017.
3. **Impact/ ROI based buying via Crane Impact:** Ability to buy based on the ROI delivered (i.e. how DR advertisers buy) vs. reach & frequency is the holy grail of brand advertising. In our discussions with advertisers there is a lot of interest for such an offering. However, there is no common currency for brand ROI, all brand measurement metrics are either too delayed, have too sparse data or the measurement isn't sensitive enough for us to be able to adequately optimize for impact/ROI. In Q2 we kicked off a joint effort with the brand measurement team to improve the quality of the brand surveys so that we can attack many of these issues (e.g. increase survey response rate to increase data availability, clean liars in the surveys to increase sensitivity of the measurement). Once this is complete, in 2017 we expect to launch and scale impact/ROI based buying for advertisers (i.e. target cost per lifted user).
4. **Brand formats innovation via Project Condor:** Through our experiences in search ads, display ads and on our YouTube for performance portfolio we know that format innovation can have a huge impact on advertiser ROI. We also see this when we look at the fact that brand lift for bumpers is same as that for TrV and when we hear advertisers say that FBs 3 second sound off format delivers brand/sales lift. In 2H 2016 we put together a team to start testing and experimenting with multiple different ideas for

⁵³ Auction doesn't give guaranteed delivery, nor do they know how to calculate GRPs on skippables

formats innovation with the aim of driving more watchtime and a higher brandlift (e.g. showing the brand logo as a 2second fade out when users skip the ad). They are just getting started and we expect most of the work and innovation to happen in 2017.

To make brand advertising as actionable as performance we need real time measurement solutions that allow us to understand the impact of brand campaigns. Key bets we have made in this area are covered in the Brand Measurement paper. Additionally, the YT ads team is looking into how we can come up with a brand ROI metric⁵⁴ more like the click: trackable in real time for all advertisers and not scarce (like sales lift or survey lift).

pillar 3: Increase creator monetization via performance advertising

While the traditional brand business is a huge market opportunity (\$300B) and our low share-of-wallet (2-3%) provides us a lot of remaining upside, lead times for brand budgets tend to be longer. Over the past couple of years, we've realized that while significant chunks of watch time on YouTube are not attractive to brand advertisers e.g. almost 30% of our watch time is gaming and another large chunk is considered non-premium, this inventory is a great place for performance advertisers, e.g., app promo advertisers. Additionally, as our usage transitions more to mobile, feed experiences are becoming more important, e.g., 25% of our mobile watch time is home page initiated (up from 15% in Jan'16).

With that in mind, over the last two years, we have spun up and grown a team to address the following strategic question -- what would it take to diversify our existing brand business and on-board new sources of always-on performance advertising demand? Across the board, we think of our performance ads opportunity on YouTube across multiple dimensions:

- Advertiser Performance Goal: which marketing objectives do we want to support? What's the supply of inventory in the relevant advertiser verticals look like? Is there anything unique about the YouTube audience and intent that would make it more attractive from a quality of inventory standpoint? What's the conversion goal and is it measurable?
- Placement and Format: will this demand show on the watch page, the home page feed, the search page or other placements of YouTube? What assets should we use to drive engagement, is the format a video ad, an extension or annotation on an organic video, or a text/image format outside of the player? How do users interact with this format (can we support actions inline?)
- Demand Source: is this an existing source of demand (e.g., GMob or PLAs or search ads), or do we have to bootstrap a new demand source? If the latter, are we bringing onboard a new set of advertisers, or moving our existing advertisers more to mid/down-funnel to grow ARPA?

Over the last two years, we have launched four new products on YouTube to drive performance ads use cases. In the last year, in particular, we have made significant strides. TrueView app install was the first real performance play on YT (launched Aug 2014) and has grown from \$150M ARR to \$550M ARR in the last 12 months. We have since kicked off multiple efforts around shopping and native non-video ads, aka Sparkles. Our performance efforts are at ~\$650M ARR. In fact, TrV app install has become one of the key drivers of growth for YouTube Ads revenue (4% absolute contribution to overall growth). We hope to close the year at \$1B ARR for our performance efforts.

Goal	Whats unique about YT?	Format/Placement	Demand Source	Product Offering	ARR
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⁵⁴ To replace the view since we have found over the last two years that it doesn't capture advertiser ROI well.

App install	30% of WT on gamers	Video in-stream on watch	AWV	TrV for app promo	\$375M
			UAC	Walnut	\$38M
		Text/Image on watch, home	Minecraft	Sparkles	\$57M
			UAC	Sparkles	\$80M
Online sales	10% of YT views today are product/shopping related and unboxing videos are growing 50% Y/Y. Over 1M product review channels on YouTube. As per IPSOS, ~47% of U.S. adults turn to YouTube to help them make a purchase decision at least once a month.	Video on watch	AWV	TrV for shopping	\$30M
		Text/Image on watch	PLA	Shopping ads on YT	\$7M

We plan to continue to push hard in this area in 2017 with a **three-pronged strategy**⁵⁵:

1. Scaling our existing efforts in the app promo & shopping verticals

We are shooting to grow **app install on YouTube to \$2B ARR** by EOY 2017 by focusing on: (a) redefining our attribution and billing for TrV ads (including for VTCs) via Project Taco, (b) doubling down on core quality improvements (we really only started focusing on quality in Q2 2016, so lots more to be done), (c) diversifying our advertiser base by auto-generated videos for all app install advertisers, and (c) format improvements (e.g. new initiatives after inline install and end caps and bumpers for app install). Additionally a key bet for us is YouTube's presence in Universal App Campaigns (Walnut Pie) which we believe will be a big ROI lever for us. Our goal is to have YouTube app install advertisers make a smooth transition into UAC starting in Q4 2016 and continuing through 2017.

Our shopping offering currently consists of two launched offerings: (i) PLAs that run on YouTube and allow search advertisers to extend the reach of their campaigns, and (ii) TrV for shopping (TrVfS) for advertisers that are looking for a more mid funnel solution, and is currently at \$30M ARR. In 2017, we will **scale YouTube's shopping offering to \$600M ARR** through (a) significant investment in format and quality modeling improvements to improve CTR, CPAs and conversion

⁵⁵ We have significantly increased the size of our team from 5-7 engineers & 1 PM on performance to 30-40 engineers and 4 PMs in 2016. We plan to continue to further double down do so in 2017.

volumes⁵⁶ (b) For PLAs, coverage improvements through i18n & better understanding of user commercial intent (c) For TrVfS, rehauling our attribution (like we have done for app installs), (d) For TrVfS, exploring and launching mid funnel ROI metrics like conversion lift and search lift.

2. Efforts to drive new performance goals on YouTube

We believe that ~30-40% of TrueView advertisers would benefit from being able to track and optimize for **store visits** (e.g. Telco, QSRs, Auto Dealers, Retailers, Movie Theatres, etc.). Just like search and display we plan to double down here. Initial analysis of store visit data for TrueView shows promising cost-per-visit results and with format, targeting, and optimization improvements we could have a very compelling offering. We are in the midst of putting together a PM-Eng team so that we can launch and scale our offering here.

At the same time, we are hearing many advertisers running ads on YouTube and demanding optimizing for traditional DR metrics (e.g. Netflix, Progressive, DirecTV etc.). In 2017 we want to build and launch an end-to-end video solution to allow advertisers to optimize for driving (incremental) **website actions and conversions**.

3. New sources of demand and inventory for non-interruptive DR formats.

Our initial launch of native non-video ads (aka Sparkles) taps into AdMob's "native" demand (eg - app install, DRA, and text ads). On the demand side, we are investigating tapping into a lot more sources: (a) nativizing GMob formats more (b) showing dynamic remarketing ads from display (c) location based formats (d) search ads demand. We'll also grow non-video DR demand for non-interruptive formats like (a) bumpers by auto-generating these creatives from display assets, and (b) TrV Discovery on YT search through a pivot to more keyword & contextually targeted advertising.

On the supply side, we plan to experiment with opening up more inventory for these native display ads as well as for non-interruptive video formats like TrueView Discovery ads. Inventory we are exploring includes (a) new devices like tablet and mobile web (b) new placements like interspersing more ads in mobile home/trending feeds and any new browsing interfaces (c) enabling lower CPM bumper inventory with DR-optimized formats for these slots.

As we scale our performance offerings, we will additionally invest heavily in quality across the board:

1. Bidding & quality optimization to drive conversion performance & advertiser value for DR goals on YouTube.
2. Invest in understanding & pricing user annoyance on non-instream formats to protect the user experience on YouTube.

By EoQ3'16, Viral will scale to 100% of signed in instream traffic to allow us to fully leverage GAIA ID and Gaia data for targeting and measurement.

⁵⁶ Current CTRs are too low and CPAs are too high for TrVfS to be attractive to lower-funnel performance advertisers. PLA CVRs are too low causing smart pricing down.

On the targeting front, modeling users in GAIA space means we can understand users at a deeper level, inferring their interests, traits, preferences, and habits in a holistic, long-term, cross-device, and cross-property manner. On the measurement front, GAIA enables x-device measurement and unlocks store visits.

We will apply this new level of user understanding to the following initiatives⁵⁷:

- 1. Power under the hood quality improvements** We believe using GAIA signals from watch history, app installs and search history in our quality models (e.g. LTV models, pVTR, pWatchTime, pBrandLift, pCTR, pCVR models) will allow more accurate matching and pricing of ads based on what users like/dislike e.g., knowing whether a user has interacted with a brand in the past might be a strong signal for consideration lift. We can also potentially use long-term GAIA signals to modulate ad load & auction thresholds differently for committed users (high DAV/MAV) relative to casual ones.
- 2. Order-of-magnitude improvements to existing targeting products:** Cross-property GAIA data gives us richer and more precise data sources from which to build existing targeting models such as Affinity, Custom Affinity, Demographics and In-Market. For example, through Q2-Q3 2016, we conducted experiments incorporating search data into existing models, and saw huge wins in both online and offline metrics:

Search experiments show big potential gain from using GAIA data for targeted in-market

Product	GAIA	Control	Improvement
Affinity	+600% recall Business Professionals	+40% recall at constant precision	
	+65% recall Bargain Hunters	+15% nbcRev	
In-Market	+350% recall Employment	+20% recall at constant precision	
	+63% recall Travel	+15% nbcRev	
Custom Affinity	n/a	+60% coverage at constant quality**	
		+92% nbcRev	

⁵⁷ The assumption here is that Full Circle will land in Q4 2016 without which we will not be able to scale these initiatives.

** Note: nbcRev is revenue from targeted products. It is provided for in-market with a slight lift. It represents a four-fold increase in revenue for the advertiser.

We are planning to further refine these models and also incorporate additional cross-property data (such as apps), and fully launch these improvements in Q4'16 - Q1'17.

- 3. New targeting and reporting products that take advantage of GAIA:** While we offer a broad suite of audience targeting products including Demographics, Brand Affinity, In-Market Interest Category, Remarketing, Customer Match, and Similar Audiences, there is still a constant demand from advertisers for new ways to better define, refine, and improve their audience. We are

⁵⁷ The assumption here is that Full Circle will land in Q4 2016 without which we will not be able to scale these initiatives.

currently in the process of building multiple new targeting types & reporting products that natively leverage GAIA data from Search, Location History & Apps Data:

- a. **Evidence Metrics:** Except for Demographics, audience buying in today's industry is generally on a trust basis, and there is little, if any, verification on the quality of audience segments. Evidence metrics works by surfacing behavioural insights about your audience both during campaign construction (e.g., "Outdoor Enthusiasts are 80% more likely to visit a national park than general YouTube population") and in campaign reporting (e.g., "your movie-trailer campaign reached 2.3M users that visited the movie theater and 3.6M users that searched for your movie").
- b. **Custom Affinity v2:** Today, Custom Affinity (CA) gives advertisers a powerful tool to define audience beyond pre-built taxonomic segments. Today, CA takes a list of keywords and URLs, and finds users who are generally interested in those. With GAIA, we can supercharge CA to be much more granular and semantic. We will allow advertisers to use location categories, apps, and search queries as part of their CA language, and find users who visit / install / issue those elements, as well as users who are similar to those users.
- c. **Search Remarketing:** Search queries are among the most intentful data anywhere, and have long been a cornerstone to drive DR actions on Search Ads. We will allow YouTube advertisers to define audience segments in terms of (recent) search queries, both via fuzzy match and (possibly) exact match.
- d. **Lifestyle, Lifestage, and Other New Segments:** Cross-property GAIA data allows us to leverage both online (e.g., Search) as well as offline (e.g., Location) data to define new audience segments that address advertiser demands and allow us to scale in verticals where we have low penetration today (e.g., CPG). Lifestyle (e.g., Grocery Shoppers, Spa Lovers) and Lifestage (e.g., Moving, Graduation, Newly Wed) segments are two prime examples.

We plan to alpha-test these new products with select advertisers in Q4 2016, and launch and scale them through 2017.

4. **New GAIA based measurement products** e.g., store visits on YouTube. Initial analysis of store visit data for TrueView from the Viral stack shows promising cost-per-visit results, and we are putting together a PM-eng team to define & launch an offering here soon.
5. **New transparency and user control tools:** We are planning to build and launch tools such as more granular reasons in WhyThisAd, cross-property ad blocking, and more precise verticals in Ad Settings that put together give users comprehensive transparency & control over their personal data.

Pillar 5: Building the core with leading edge buying and planning tools

Making it easy for advertisers of all sizes to plan and buy their campaigns is crucial to scaling all of the above mentioned initiatives. Strategic pillars for planning included here. Key initiatives for buying (AWV) for 2017 are

1. **Pivoting AWV to Watchtime based predictable buying (Crane Reach) and impact buying (Crane Impact)** - This requires a significant revamp of the front end and is a major effort.

2. **Adwords Next** - Pivoting and supporting the move to Adwords Next for video.
3. **Supporting TrV growth in DBM** - TrV in DBM is seeing huge growth. TrV in DBM is a front end to the Adwords for Video API. The AWV team often needs to do significant work to ensure that all TrV features can be supported in DBM. Given the growth of TrV on DBM we plan to continue to focus here.
4. **Moving BART into AWV (stretch)** - Today reserve is booked via BART (an internal tool). This leads to a number of issues: (a) inability for a self-serve reserve offering which is required by our top SMBs, (b) no ability for advertisers to manage their reserve and auction campaigns holistically, (c) lots of engineering effort to support two different buying FEs and gtech effort to support implementation. In 2017 we would like to migrate BART functionality in AWV (at least for simple reserve campaigns if not for GP campaigns).
5. **Goal based buying (stretch)**: Given the plethora of goals we are trying to serve for our YT advertisers a goal based buying flow is a key bet we have wanted to make to simplify AWV. We had to put this on hold because of AWV going into the tent. While we do want to double down on this in 2017, it is unclear if we will be able to because of AWNext. However, it is still a stretch goal that we would like to focus on.

Infrastructure built right unlocks velocity across the entire team, while maintaining reliability of the main products. With all the investment in the five feature-pillars, along with the many YouTube-driven initiatives and the rapidly changing ecosystems, it is imperative that our infrastructure assists and not impairs our many efforts to build innovative features required to succeed. In 2017, we have several key initiatives to get us on a rebuilt ads serving stack, from client UI through ads selection. The primary motivation and use-cases for the team is to allow for rapid innovation for quality, formats, and UI, from experimentation through launch and post-launch stability. By building out such infrastructure, while bringing all clients and use-cases onto this well-understood flow and adding the tools needed for developers to add more features, we can significantly increase the velocity of the whole team while reducing the volume of bugs and escalations.

Our vision in this space is a single unified infrastructure to rule them all. The major initiatives include:

1. **Viral for 100% of YouTube ads**: In 2017 the goal is to serve all Google-served ads on YT in the Viral stack -- this includes all signed out auction traffic, all reservations (signed in and signed out), and non-instream formats. By doing this, we will have a common backend for quality, pricing, and more generally ads selection for any YT ad we serve. This will significantly simplify our existing infrastructure stack, increase feature velocity, and make it possible to unify our feature sets across our product offerings.
2. **Reformat for 100% of YouTube ads**: "Reformat" is a redesign of the YT Ads "front-end infrastructure," from clients and YouTube organic interaction through to routing to Viral or 3rd party ad backends. The primary goal of Reformat is to increase the velocity of formats and slot experimentation, new feature development, and allow for yield management across multiple systems and formats. With specific attention on principled APIs, flexibility for anticipated and unanticipated future features, developer tools, tests and monitors, we expect to dramatically increase feature velocity while also improving reliability of the overall system. A key component of Reformat is "**server-side everywhere**," which is to say that all clients and features flow through a single consolidated path: from client to YouTube (for YT processing) to Ads Frontend (Reformat) to Ads Backend (Viral). In 2016 great strides were made to increase server-side coverage, and we expect to complete all the work on

this front in 1H 2017, which allows us to develop features on one stack and understand and monitor behavior in one place.

3. **Fast ads:** Presenting ads to users before content is interruptive -- and it shouldn't be slowed down beyond that! In 2016, there are numerous causes of user-facing latency that ads introduces, from client processing, YouTube serving structure, ads serving infrastructure, ads data lookups, and video ad streaming. In 2017, we want to tackle all sources of user-facing latency with two high-level goals in mind: ads brings no more than 200ms/500ms of median/95%ile of end-to-end latency, and any video transition between ads and content has imperceptible (100ms/250ms median/95%ile) interruptions. The main project to achieve this is a joint YT & Ads project to achieve gapless video stitching, but there are numerous projects across the full stack required to help our users at the median and long-tail to have a good experience.

Competitive Analysis (short overview)

TV & Cable networks	<ul style="list-style-type: none"> • Incumbents that today account for 90+% of video watchtime globally and 95% of brand advertising dollars.
Facebook	<ul style="list-style-type: none"> • FB video is growing very rapidly and FB has clearly stated that video as a big bet. • Launching a dedicated video watch area (direct competition with YT). • Unlike YouTube currently most video ads are in-feed with sound off. • We expect that FB will move into instream ads as their video consumption in the new video watch area grows.
OTT (Netflix)	<ul style="list-style-type: none"> • Charge monthly subscription fee. Carry content from the major TV and cable networks and also significantly invest in producing Netflix original shows.
Social Video (Snapchat)	Newer social networks like Snapchat are also exploring with video and video ads.
Other	FEPs (e.g. Hulu) Vertical Video (e.g. Twitch)

Risks

The biggest risk is the triad of organizations (Ads, Sales, YT organic) that are influence the YT Ads roadmap. Often these three organizations end up having very valid but different point of views on how to grow the business (e.g. Sales wanting to go all in on GP and non-skips, YT Ads wanting to move to skippables and watchtime based buying). In 2016 we've found that this has often led to a slowdown in execution as well as a confused go to market strategy. As competition from Facebook, Snapchat on the video front increases we must find ways to ensure that we are able to be more nimble internally.

Other key risks include:

1. Increased competition from competitors like Facebook
2. TV network retaliating by moving prices down.
3. Our inability to decrease non-skips on the platform without significant revenue loss.

4. Our inability to unlock budgets in EMEA given that TV in EMEA is stronger than in the Americas
5. Advertisers & agencies rejecting our pivot to watchtime based billing and Crane Reach & impact
6. Inability to make direct response ads work at scale on YouTube outside of App Install (because of the type of inventory we have and our user base).
7. Our inability to move the needle on targeting with Gaia in a manner that is acceptable to advertisers & users.
8. Our inability to build & simplify the infrastructure hampers our feature velocity.

2017 Charter: Mobile Apps

(App Install, Re-engagement, Mobile Identity, AdMob)

Abstract: Our mobile app strategy aims to grow our app business for Display to \$1.25B ARR, Search to \$1B and YT to \$475M by shifting UAC to LTV and delivering a fully automated app promo and re-engagement product, unlocking new inventory such as in Google Play, ensuring that we get all the credits we deserve with measurement initiatives, such as with 3P program, as well as by leveraging mobile identity and location signals to support innovative new targeting and measurement solutions besides app promo. We will provide a best in class mobile apps monetization platform to enable both manual and automated yield maximization for app publishers, while delivering app-first formats (Native, Rewarded, Video)

<p>Team Mission Statement</p> <ul style="list-style-type: none"> Accelerate magical app experiences by helping app developers grow their businesses through user acquisition (app install and re-engagement ads) and monetize through advertising (AdMob). Deliver a single, fully automated, paid user acquisition advertising product across Google and 3p inventory. Also build out re-engagement product. Deliver a best in class mobile apps monetization platform to enable both manual and automated yield maximization for app publishers, while delivering app-first formats (Native, Rewarded, Video). Leverage mobile identity and location signals for connect the gap between app, web and offline and build innovative mobile targeting and measurement solutions, e.g. cross-device targeting, local ads and store visits. 	
<p>Leads</p> <ul style="list-style-type: none"> PM: Sissie Eng: SSanan, CKHarris, Bodhi UX: Joe Huang 	<p>Headcount</p> <ul style="list-style-type: none"> PM: 20 Eng: 110 UX: 4
<p>Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> Grow Display ARR at \$1.25B, Search ARR at \$1B, YT ARR at \$475M. Launch Walnut Pie on iOS and Android Improve Google Play Integration Grow App re-engagement business Grow GDN ads in Apps (Backfill) to \$1.35B ARR Bootstrap location by launching Display LE local formats and Store Visits. Launch X-Device RMKT based on GAIA & N2 Increase Brand spend: at \$100M ARR, full launch of Admob breakout in PINOT, Admob inclusion in brand lift tools Grow AdMob revenue to \$3.5B ARR & \$2.75B actual revenue by end of 2017 Grow 30-day active Apps to 2M apps 	

- Grow Native revenue to \$1B and Rewarded ads revenue to \$200M
- Grow mediated and platform requests to 50% of all requests on AdMob
- Pivot towards user LTV & \$/user time for measuring monetization

Strategic Overview (Buy-Side)

App Install and re-engagement is a core component of the overall apps ecosystem, estimated at \$50B (revenue across iOS and Android stores, digital goods alone) in 2016 doubling to \$100B by 2020. User acquisition marketing is a key lever for app developers, who can use \$s to drive growth strategically (whether it's to launch an app, sustain growth and momentum, or drive to a target ROAS or ROI).

Google's apps business has made tremendous progress over the last year, particularly on Android, with a doubling of our annual revenue run-rate that stands at \$2.47B. Powered by Universal App Campaigns (UAC) and Search Ads in Play launches and the growth in YouTube inventory, we have tripled the number of Android paid installs in just one year. Our customers have acknowledged our growth and according to AppsFlyer's latest report, Google has climbed several spots to become #1 in Android gaming retention and in iOS global retention index. In addition to app promo and re-engagement business, we also have a healthy and growing "GDN in App" business that is at \$1.2B ARR and 72% YoY growth.

Our goals are to:

1. #1 in App Install and Re-engagement across the industry by EOY 2017, as measured by revenue.
2. Launch a unified automated product for driving app installs and furthermore re-engagement, across 2 platforms: iOS and Android
3. Unifying 3 channels - Search, Display, YT (with further channels like Gmail etc.)
4. Achieving \$4B ARR (EOY 2016 OKR)

Big initiatives

Shift to User LTV

Almost all advertisers are now measuring post-install user engagement and this marks a shift compared to two years ago when the install volume alone mattered the most. Based on this feedback, we are doubling down on UAC by introducing goals that help developers acquire high quality users. We are leveraging strong machine learning capabilities to reach high quality users across the network while retaining the simple advertiser experience of UAC by requiring minimal advertiser input.

Reengagement

As a follow-on to quality installs, we want to help advertisers keep their customers coming back to apps. We're rebooting our Reengagement strategy to focus on (1) "Appifying" existing campaigns to make sure advertisers can use tools like Dynamic Remarketing to drive sales in

both web and apps, particularly as the lines between apps/web blur. We're also planning a UAC-like Reengagement campaign type for cross-channel, mostly automated Reengagement.

Mobile Identity & Location

As mobile apps team, our strategy continues to invest in Mobile Identity & Location infrastructure in an effort to connect the measurement and targeting gaps between app, web and offline using our identity layers. We will continue to build on this infrastructure for innovative targeting and measurement solutions across our entire demand sources, such as with local ads, offline remarketing, location-based audience signals, cross-device targeting and measurement.

"Appify" GDN

With the ever blurring lines between app and web on the mobile device, as well as the rise of "hybrid" advertisers that spend both in web and app campaigns, we seek to decisively pivot on transforming our GDN demand to be a first class citizen in apps. This would require investment in managing multiple presences in mobile campaigns easier, providing new app-first formats that enable our advertisers' to maximize the effectiveness of their message to users, as well as enable reporting that delivers useful insights and metrics to improve advertiser assets across app and web.

Unlocking Inventory

To get the most volume for UAC and Reengagement, we're unlocking key inventory like Google Play -- including throughout the Store, in "Browse" experiences, etc. We are constantly on the lookout for new inventory, including e.g. YT's sparkles, YT Search, x-exchange (AWBid style), and across Google's other O&O properties (e.g. Gmail, Now, etc.) Our breadth of inventory and diversity is a strength for us as we touch users across the funnel with different creative assets and calls to action.

Formats

To also reach users in the right times and the right places, we're continuing aggressive investments in formats, with particular focus on Video (e.g. moving to more portrait video, 360 videos, and more), Native (getting advertiser assets, growing CPMs, winning on the sell-side), and Rewarded (bringing video demand, growing sell side), and Brand.

Measurement

To get full credit and help advertisers optimize, we're making sure all conversions are measured and attributed correctly to all advertising touchpoints. This is a multi-year effort, with short-term focus on tracking all conversions (e.g. cross-device, in-store, all platforms like iOS, etc), deep 3rd party partnerships and partner program, appropriate credit for VTCs as well as "engaged" views and trials, and ultimately true multi-channel multi-touch attribution via Google Attribution.

Going beyond AdWords: DBM

We're also bringing Apps buying to DBM, via project "Procraft".

iOS

Only 1/4th of our apps business is on iOS and we continue to lag behind the industry due to platform restrictions on measurement, insufficient inventory, and lack of sufficient GAIA signed-in users. We are soon launching Spaniel, a way to measure app installs driven by ads on the web including Search and mGDN. This will enable valuable additional inventory in UAC for iOS. We are also exploring with Apple if they would be willing to use our ads technology for monetizing search queries within their App Store. Apple recently launched Search Ads in App Store but given our deep advertiser relationships and experience in monetizing Google Play, we are approaching Apple to partner in their app store monetization. Finally, Narnia2 will help us serve more relevant ads on the display network.

Competitive Analysis

Facebook is the market leader in app install ads in terms of revenues and we are often compared with FB. Citi conservatively estimates FB will make \$3.9B in app install ads this year. But FB is growing at 50% YoY while Google's growth rate is upwards of 76%. FB's strong O&O presence on both Android and iOS with over 1.5B mobile monthly active users, new inventory such as Instagram, strong format strengths with carousel and native, and their head-start on setting up a measurement program have powered their growth. Facebook Audience Network (FAN) is already at over \$1B in revenues. Clients consistently highlight the strong performance of lookalike targeting in FB and they recently launched app event optimization similar to Walnut Pie. On Android, we expect to close the gap with Walnut Pie and additional inventory from Play Browse.

Apple's recent launch of Search Ads in App Store can put further pressure on our iOS business. Based on our internal analysis, we expect App Store search ads may be worth well over \$500M in revenues. iOS 10 is causing further issues on conversion tracking as Apple is eliminating IDFAs for users opted into Limit Ad Tracking (LAT). However, their own ads product will not be affected as their measurement may be based on iTunes IDs.

Snapchat is experimenting with app install ads too. According to MachineZone who is part of the beta, the product is too early with very limited targeting options and the performance is well below par.

Strategic Overview - Sell Side

Opportunity

The overall mobile apps ad network market is valued at \$6B today, and expected to be \$10B in 2017. Today, AdMob revenues make up about 30% of the market, with revenues are growing at 50% YoY over the past 2 quarters. With time spent in apps growing by 63% in past 2 years to 37.5 hours per month, and with developers increasingly turning to ads as a reliable supplementary source of monetization, AdMob is in position (with 75% SDK penetration amongst apps with ads monetization), to win a larger share of this market and help app developers continue to build sustainable businesses.

Pillars

Today

Future

Managed by
Publishers

Provide
Insights
&
Controls

Automate
by
Google

Automated by
Google

1) Innovate on Ad Formats and provide the controls for publishers to monetize on AdMob ad network

- ❖ App-friendly formats
 - Grow Native and make it a high performing format vis-a-vis FAN through demand, quality of assets, and ads quality
 - Launch rewarded ads to all publishers, scale up with app install buy-side
 - Continue to make video ads amazing - caching, new formats like 360, portrait demand
 - New format and inventory types - e.g. icon ads
- ❖ Expanded demand sources
 - Expand volume of ad network demand from AdX and DBM. Invest in Marketmaker to get higher revenue deals on consolidated AdMob inventory in the AdX marketplace.
- ❖ Provide the Ad Network controls to help publishers to give first look to AdMob, decide on CPM vs Fill rates, etc
- ❖ Make it easy to deploy changes to ad formats through server-side specifications like Native Express, A/B experiments, and simpler policies
- ❖ Provide Insights to publishers on revenue opportunities in their applications.

2) Provide a strong yield optimization and revenue maximization platform across various revenue sources

- ❖ Enable controls for larger app publishers to more efficiently manage and target their inventory (E.g. segments, prioritization, targeting, call other networks with floors, etc)
- ❖ Reduce the inefficiencies in the mediation space, by bringing it closer to RTB. Enable shift of 3rd party ad network and exchanges to AdX RTB, and where it cannot, push towards real-time price evaluation in mediation, with and without SDKs.
- ❖ Grow out the reservations features to enable publishers with very small sales teams to

- manage and serve on our platform (e.g. Key value targeting, day parting, formats)
- ✧ Provide access to programmatic deals on AdX through the AdMob platform with simpler controls in a self-service manner.
- ✧ Provide a total yield management solution that automatically optimizes all available revenue sources, factoring in priorities, CPMs, forecasting, etc.

3) Data insights, controls, and automation to move from request-based ads monetization to user, application, time, session-aware holistic monetization

- ✧ Leverage Firebase Analytics, Ads data, and publisher-provided data to move from request-based monetization to session-based, user-time based, and user lifecycle-based monetization.
- ✧ Provide monetization insights, A/B experiment framework, and controls to enable publishers to further control the monetization by themselves where we cannot automate

4) Delightful developer/publisher experience at every stage of the app monetization cycle

- ✧ Grow the monetizing publisher funnel by integrating tightly into app development platforms (e.g. Firebase, Dev tools, Game engines)
- ✧ Make it easy for any app developer to automatically insert ads and see the value for themselves (e.g. provide monetization oppty sizing, automatically insert ads without developer having to insert, automatically do A/B expts, and expand)
- ✧ Integrate deeper into Firebase with SDKs and sign-ups
- ✧ Continued focus on a great end-user experience (e.g. Small SDK, latency, quality)
- ✧ Help pubs be nimble & reduce need to push app changes (e.g. Server-side config, A/B expts)
- ✧ Enable pubs to easily manage monetization with easy-to-use interface (e.g. Fenix, Mobile-friendly, controls, insights)

Competitive Analysis (Sell-side)

- **Formats and Ad Networks - FAN** has grown to be our strongest competitor, especially in formats they've "invented" like Native. They have moved from a High CPM and Low Fill to High CPM and High Fill network (with some inconsistent performance across pubs and times of the year). Rewarded continues to gain ground, although the players here are the 2nd tier ad networks such as **Vungle, AdColony**, etc, but with the threat of FAN joining soon. In addition, certain **country-specific networks** are strong in local geos such as Japan, Korea, and China.
- **Platform - MoPub** continues to be the platform where the larger app developers have been running their apps business. Although MoPub has not been investing much in development, there are some large app focused features + rev share deals + support services + publisher inertia that come in the way. As MoPub has fallen behind on rewarded mediation and as we have been building up on mediation features, there is a slow shift. **Home-grown** mediation is the second most popular source where larger app publishers such as Outfit7 have built up a lot of logic over a period of time and connection to various ad networks that they find it difficult to move out of. **FAN Native mediation** is in Beta and is starting to be used by a few app publishers but has clearly shown

Facebook's intent to get the first look to Native inventory. Smaller players like **HeyZap** have emerged and have focused on simpler UI as well as provide more transparency to the publishers. **Home-grown** mediation is also very popular with bigger gaming/app houses.

- **Game development engines** moving into monetization - The most popular games are built on platforms like **Unity**, Cocos, and Adobe Air. As apps weave in monetization into the gaming experience, it is critical for us to be part of the development process and tools. Platforms like Unity have acquired ad networks and are starting to compete aggressively with us e.g. with Unity Ads as an adjunct revenue stream from their mainline businesses.

Overall Mobile App Risks and Opportunities

- (?) Instant Apps, voice/chatbots, and the fight for the next mobile platform
- (-) Head heavyness (app, and user) - poses an ecosystem challenge. App fatigue.
- (?) Growth of subscription models
- (?/+) Emergent platforms like VR and AR, autos, living rooms, IoT
- (+) Pokemon Go! And other new creations yet to emerge
- (-) Android fragmentation and the fight for the premium device market
- (?) SDKs, fairly broken model. Will GTM and other such technologies improve this?
- (-) Lack of consistent message from Google to developers on whether they should build a native app, website, or AMP/PWA
- (-) No clear solution in sight for growing iOS business

2017 Charter: Attribution

Team Mission Statement <ul style="list-style-type: none"> Enable marketers to measure and optimize their ROI 	
Leads <ul style="list-style-type: none"> PM: billkee Eng: pnorwood, ccai UX: deckerhibbel 	Headcount <ul style="list-style-type: none"> PM: 8 Eng: 97 (BE: 59, FE: 16, QA: 8, Mgr: 14) UX: 2 (1 TBH) AMT: X HC
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> Migrate all Adometry customers to Attribution 360 rebuild Launch Google Attribution Free version (Airborne) 20% (TBD) of Ads Revenue using non-last click attribution 	

Strategic Overview

Abstract

Attribution is the primary way digital marketers measure ROI. As such, providing attribution both showcases and protects the value of Google advertising (leading to at least 3-5% revenue uplift, worth over \$1B). Our strategy is to deliver comprehensive, easy-to-use, unified attribution:

- Through our Google Attribution effort (Airborne) we will make attribution:
 - Cross-Channel: for all Google and non-Google media, and also online to offline
 - Cross-Device: leveraging Google signed-in identity
 - Actionable: can be used in bidding
 - ...and *Unified*, by collapsing all of our disparate offerings in AW, DDM & GA into a single one
- In addition: For enterprise-level advertisers, through Attribution 360, we will make attribution:
 - Comprehensive: to include all channels, online & offline, through techniques like marketing mix modeling
 - Flexible: to accommodate clients specific data types and taxonomies
 - Serviced & prescriptive: through partners and our own resources, and tools like Optimization & Scenario planning

Opportunity

Target Segments

- **Enterprise (Google Attribution 360)**
 - Focused on the needs of the top 1000 global advertisers, Attribution 360 seeks to provide a comprehensive view of marketing ROI for both strategic budget planning and tactical spend.
 - Revenue Opportunity: This segment represents 30% of Google spend, and better attribution has been shown to result in 3-5% incremental spend increases⁵⁸, so this is a \$750M-\$1.2B annual media uplift opportunity
 - Strategic Opportunity: Enterprise Attribution also strengthens strategic client relationships and drives direct revenue with an opportunity of \$30-\$40M in 2017. With features like TV Attribution & MMM, we can also facilitate large scale budget shifts from traditional to digital media.
- **Free (Google Attribution/Airborne)**
 - Revenue Opportunity: Focused on the needs of the advertisers representing next 50% of Google revenue, our Free attribution efforts represent at \$1.2-\$1.5B annual media spend uplift opportunity.
 - Strategic Opportunity: By providing free, multi-channel attribution Google can also prevent disintermediation by competitors such as Facebook.
 - In addition, the existing set of free attribution tools at Google (GA MCF, DDM MCF, AdWords Attribution), while impactful, are partial and potentially confusing solutions. Airborne is an opportunity to replace and consolidate these to provide a simpler and more actionable solution for advertisers.

Pillars

Top 2017 Efforts

- **Full Launch Attribution 360** (rebuild of Adometry) and customer migration
An alphalaunch of the rebuild is planned for Q4 2016, and full launch and customer migration is planned for 2017. As a result we aim to increase customer retention (90%+) and increase new customer growth.
- **Full Launch of Attribution Free** (project Airborne)
We're planning to launch Airborne v1 in Q2 2017. This new product provides advertisers with a new, free, comprehensive and actionable attribution product. It will be known externally as Google Attribution and positioned as the free version of Attribution 360. Between the existing AdWords Attribution feature and Airborne, we aim to move 20% of revenue beyond a last-click attribution model.

Ongoing Efforts

- **Data Collection**

- Data Collection represents one of the most significant challenges for Attribution, both Free & 360. Marketers need to be able to track nearly all touch points (impressions, clicks & conversions) across channels.
- Our Data Collection strategy leverages existing Google data collection infrastructures that already have scaled market adoption. Specifically:
 - Web clicks & conversions: Google Analytics
 - Off-site impressions & video views: DoubleClick Campaign Manager
 - GDN & YouTube Impressions: direct integrations with these systems
 - Mobile in-app conversions: Firebase Analytics
 - Cost & Campaign data from AdWords and DDM
- Our Data Collection offering is the simplest for advertisers to leverage because it uses tools many have already adopted, and is also the most comprehensive, covering on-site, off-site, and in-app data (Firebase).
- For Attribution 360, we also collect custom aggregate and reference data and are able to leverage infrastructure at Google such as the Google Analytics Data Import Service and the Google Cloud Platform for these data. We will also leverage Towerbridge & Panels to collect TV airings & audience data.
- Identity: initially, we will be using biscotti as the core user identifier, and leveraging Constellation for cross device. In 2017, we need to explore deeper use of GAIA following Narnia 2.0, which may unlock more use cases and Google-specific data sets around Search and O&O user events, store visits, etc.
- **Data Management**
 - Once data is collected for attribution, marketers need to be able to organize, enrich and validate it. This is a particularly significant challenge for large enterprise with many marketing partners and agency relationships.
 - For both levels of Attribution, we will offer Channel and Conversion classification
 - For Attribution 360, we add the ability to join additional reference data, and perform transforms.
 - We also need ongoing data validation with diagnostics for both free and 360.
- **Modeling & Analytics**
 - We believe that modeling should be both 1) open, transparent and evaluated so that we can offer both the best insights and also provide an industry benchmark for trusted modeling evaluation, as well as 2) comprehensive, particularly for the 360 use case, so that we can cover as many marketing channels to align with customers' strategic needs.
 - Core efforts include:
 - **Data Driven Attribution (DDA)**: continue to enhance our core digital attribution model which assigns credit to marketing touch points
 - **TV Attribution**: we'll expand TV Attribution to include estimates of impact on conversions (in addition to website visits & search queries)
 - **Marketing Mix Modeling**: Migration to new Bayesian Hierarchical modeling approach to better support heightened granularity of reporting, as well as decrease time to value through faster model refreshes

- **Predictive Optimization:** we will further automate the optimization & scenario planning capabilities for both MMM & Digital.
 - **Controlled Experimentation:** provide a robust, transparent, and flexible experiment design and analysis tool that can measure O&O, DoubleClick, and to the extent possible, non Google-served media. Geo Experiments continues to be the solution closest to product/market fit for A360 and we are exploring both geo and user-based solutions for Airborne.
 - **Online to Offline:** working to integrate with the DDM Offline Conversions API to facilitate the transfer of customer-supplied offline sales data. Also exploring how to leverage Google-owned offline data, such as Newfie store visits.
 - **Grand Unification:** A360 uses a variety of modeling techniques that are only loosely connected (MMM, TV & Digital Attribution, Experiments). To provide a coherent offering across strategic & tactical, as well as online & offline measurement, we need to better integrate the models
 - **Evaluation & Validation:** our Attribution Evaluation Platform provides a framework to benchmark models against ground truth.
- **Actionability**
 - Easy-to-use reporting that surfaces insights
 - Integration with Data Studio for easy, customized business intelligence reporting.
 - Programmatic buying integrations with the rest of Google's ad stack.
 - Integration with Google's cloud platform for direct, event-level data access using scripts (BigQuery) and other programmatic ways.
 - Event-level data export for individual clients connecting with 3rd party systems and DMP's (Data Transfer) - will require integration with Full Circle
 - Integration with Planning Tools (DCM Planning, Mediaocean, etc)
 - **Other Bets**
 - Customer centricity- including notions of acquisition, retention and customer lifetime value more centrally in attribution
 - Surveys: leveraging Google Surveys 360 as a KPI metric for brand and brick & mortar advertisers
 - Suite-integration with Optimize, Audience Center, etc. - big opportunities to provide audience performance in AC360, programmatically driving performance-based audience buying.

Competitive Analysis

Enterprise

- **AOL/Verizon:** AOL acquired Convertro, a main competitor to Attribution 360. Convertro is a significant competitive threat and has begun to win deals, leveraging a stronger story on integration with AOL's ad tech/dsp, as well as more willingness to share cross-device data. They are positioning that Verizon's consumer data will add additional value to advertisers for cross-device tracking. Convertro also recently acquired Dratfield Analytics, an experienced MMM modeling firm who used to partner with Adometry (pre acquisition).

- **MarketShare:** Marketshare is the leader in MMM for many verticals (but not CPG). They are focused on the very high end of the market, and only have 70 customers after 10 years of building their MMM business. They are extremely consulting driven, but try to position themselves as a technology business. They have added and acquired MTA technology, and are an increasing threat in many competitive prospect situations - not least because several ex-Attribution360 salespeople have recently joined Marketshare. Marketshare was recently acquired by Neustar
- **Visual IQ:** Visual IQ used to be the primary direct competitor to Attribution360, but they are becoming increasingly invisible in the market. We still see them in deals, but they have failed to be acquired (despite heavily selling themselves) as Adometry and Convertro were, and we believe they are becoming marginalized in the market, not seen as a viable competitor. They share many of the same onboarding/data quality issues as legacy Adometry, but don't have a credible path for addressing them.
- **Thinkvine, Hudson River Group, Nielsen, etc:** the rest of the MMM market is fractured among a set of older (primarily) and newer providers. HRG and Nielsen are two of the main players, with Nielsen owning the CPG space. One of the key advantages here is Nielsen's access to retail sales data that is leveraged for CPG companies (i.e., CPG companies typically only own data about their wholesale product sales to retailers, not about end store sales trends. This data needs to be aggregated across retailers, and Nielsen provides this service, along with others like IRI. To compete effectively in CPG MMM, Google needs to find a source for this data).

Free

- **Facebook/Atlas:** There are persistent rumors that Facebook is developing a full-fledged, free, multi-touch attribution solution; either as part of Facebook directly or more likely as part of Atlas. Given its inherent strengths, both Facebook and Atlas consistently tout their ability to track cross-device behavior across the conversion path, but so far without offering fractional conversion attribution. It's worth noting that their native measurement capabilities are still restricted to their own data and ads.
 - **Facebook:** For now, most of Facebook's attribution efforts focus on their [Attribution](#), which compares different Facebook campaigns against each other. The few multi-touch attribution case studies they put out include a partnership with a paid attribution vendor (e.g., Visual IQ).
 - **Atlas:** Atlas [positions](#) itself as the ultimate solution for people-based, cross-device measurement. Recently, "path-to-conversion"-reporting was made [available](#) to all Atlas customers, with a strong focus on cross-device reporting. Note, however, that this kind of reporting falls well short of fractional attribution, let alone data-driven attribution modeling across channels.
- **(none):** Beyond Facebook/Atlas, there are no challengers on the horizon who can provide a full-fledged, free, multi-touch attribution solution. This allows us to set the industry standard for all of our advertisers who represent, say, the middle 50% of our ad spend; the top advertisers will ultimately need a paid multi-touch attribution solution and the long tail doesn't need one at all. Our free attribution product serves a clear need and market segment - and has the opportunity to show the market the way forward.

Risks

- Enterprise (360)
 - Servicing - Enterprise customers expect a high level of service, especially as we move into areas like MMM. We want to cover as much of this servicing with partners as possible but this will be a competitive weakness.
 - Conflict between Google proprietary assets and sharing granular data back to advertisers. As we integrate more Google data such as cross-device and Newfie, we'll be able to share less back to advertisers at the granular level they expect, putting us at a competitive disadvantage relative to other providers who do such sharing. We need to explore leveraging projects such as Full Circle to address this.
- Free
 - Self-service onboarding/migration flow: Airborne will be targeted at existing users of AdWords Attribution, GA MCF and DDM MCF. We need to ensure the conversion and retention rate for setting up and using the product are extremely high so that we don't lose lots of customers in the migration process.
 - Data integration: since our Free offering depends on bringing in cross-channel data from other Google products (GA, AdWords and/or DDM), we're dependent on the advertiser's implementation and configuration of their GA, AdWords and/or DDM accounts as well as the business context provided in their Attribution account (e.g. channels, conversion types).
- Both
 - UX Staffing: Both the 360 and Free tiers have specific UX challenges. For 360, we need to convey complex data warehousing and quality concepts to customers. For Free, we need setup and onboarding flows that are very low friction to ensure high adoption and retention. Both of these are difficult to achieve with the current levels of UX staffing.

2017 Charter: Brand Measurement: TV Strategy

Team Mission Statement <ul style="list-style-type: none"> Provide advertisers and publishers with a cross-screen measurement offering 	
Leads <ul style="list-style-type: none"> PM: emilyrapp, mrthomas, rickydanger, gideons Eng: mehdish, tomva, eaton UX: jamaral 	Headcount <ul style="list-style-type: none"> PM: 2 (BL), 1 (UR) Eng: 4 (BL), ? (UR) UX:
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> TV Lift (PrimeTime): Launch TV Search Lift measurement for YouTube campaigns in AdWords ConsumerIQ/Panels: Build cross-device, calibration quality, industry-trusted Google panels 	

Strategic Overview

Opportunity

Brand advertisers need to measure the relative effectiveness of digital video vs. TV. We have an opportunity to provide industry-leading cross-media measurement by extending brand measurement products such as Brand Lift and Unique Reach enabled by Panel data to fully support TV. This is a critical step toward securing a larger share of brand budgets.

Pillars

Theme	Description	Projects	Ask
TV Brand Lift	Search & Survey lift measuring impact of video across screens	<ul style="list-style-type: none"> Search & Survey Lift + TV for YT DCLK integration Unified measurement with Adometry Integration into planning tools 	+X SWE
Cross media Unique	Extend Google's proprietary reach	<ul style="list-style-type: none"> OTT Measurement 	+Y SWE

reach	metric (unique reach) to TV		
Panels	Ground truth calibration quality data for TV	<ul style="list-style-type: none"> • TV meter rollout • Living room measurement (including OTT) • Google-Powered US Calibration Panel 	+3 TV/OTT SWE +3 GPP SWE +3 gTech (operations) TBD

Brand Lift

Brand Lift is making several big bets with the launch of Primetime (Search Lift for TV, September 2016) and continued pursuit of launching Apogee (Survey Lift for TV, 2017). Through several 2017 projects, we will establish Primetime as a leader in x-media measurement.

- **Adding benchmarks, slices** (device, daypart, genre), and **more signals** (conversions, site visits, surf lift) that allow clients to understand their results in a meaningful way.
- **Integrating with Extra Reach**, allowing clients to not only plan and optimize their campaigns against reach, but also lift, and **Interactive Benchmarks**, allowing advertisers to compare the success of their campaigns against their previous campaigns and those of their competitors.
- **Launching Apogee**, which allows advertisers to measure Survey Lift-based metrics.
- **Extending to DCLK**, adding TV measurement to all Google ad buys.

Reach/GRPs

Goal: Make Reach a true cross-screen metric with coverage across all video.

With Unique Reach, we are launching a global cross-device measurement solution (currently available for AdWords and YouTube via internal sales tools) across all Google properties and platforms (AdWords, DoubleClick, and YouTube). In 2017, we want to bring TV (programmatic and linear) as a core component of our reach measurement offering.

OTT Measurement

- **Co-viewing Reach**, extending our cross-device solution to include all devices that can serve video on demand content and inventory with a “co-viewing” reach model.

X-Media Reach

- **Self-serve cross-screen Reach planning**, bringing “Extra Reach” planning into DoubleClick to enable self-serve offerings for agencies and advertisers and extending the available inventory to include programmatic TV.
- **Cross-screen Reach reporting**, extending our “Extra Reach” planning capabilities to mid- and post-campaign reports, enabling advertisers to understand the incremental reach across digital (starting with YouTube) and TV campaigns.

Content Reach

- **Cross-screen Reach measurement for TV and content providers**, giving them the ability to understand their audience across all delivery channels.

Panels ()

Goal: trusted provider of cross-device, calibration quality truth data to internal teams, external measurement providers and external agencies in Google’s key video markets under a managed cost structure.

In 2017, Panels objective is to minimize Google’s dependence on 3P audience and demographic data, and power measurement of total video consumption, from Set-Top-Box (STB) to Over-the-Top TV (OTT), x-device and mobile apps.

- **Deploy our Google TV meter and launch 3-screen Google-Powered Panels (GPPs) in key (Tier 1) markets.** 3-screen GPPs will power core ads video measurement efforts, eliminate Google’s dependency on Nielsen/Rentrak, and achieve a calibration-quality 3-screen measurement dataset for linear TV.
- **Enable living room measurement** by building in additional functionality to our TV meter to measure OTT TV viewing.

Parallel Efforts

- **Adometry** - Adometry is a paid product that allows direct response advertisers to measure and optimize their TV spend in a media-neutral way. Primetime is offered free of charge with eligible Youtube campaigns, and is designed to demonstrate Youtube ads as more impactful than TV to brand advertisers.
- - Fiber enables us to provide exact reach measurements, and a apples to apples comparison Brand Lift. While there are currently only 75K subscribers, the potential for measurement is incredible if those numbers can reach tens of millions.
- **Programmatic TV in DoubleClick** - For our programmatic DoubleClick platform business, we need to expand our video efforts to include TV to be successful. TV measurement will be critical, with Reach and Brand Lift metrics the top priority for measuring video across screens.

Competitive Analysis

Video DSPs

Competitors	What we compete on
Video DSPs (TubeMogul, Videology, AOL)	
Measurement companies (Nielsen, comScore)	Methodology, Price, Behavioral Signals

Risks

- **Market acceptance:** Google is not the preferred global provider for measurement and verification, and does not have credibility in the TV space.
- **Building TV models:** We may face difficulties in building the truth sets and cross-screen panels required to build "co-viewing" reach and GRP models.
- **Enabling Survey Lift for TV:** While digital advertising platforms lend themselves to experiment configurations (control and exposed groups), identifying those groups on a TV campaign poses a significant technical challenge.

References:

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2017 Charter: Brand Measurement

This paper outlines that state of brand measurement investments. Looking ahead at 2017 our key investments are positioning DoubleClick as the home for brand measurement across viewability, reach and lift, increasing our portfolio of sales lift solutions and continuing to establish brand lift as a trustworthy metrics for optimizing and measuring efficacy.

Team Mission Statement <ul style="list-style-type: none"> • Make brand advertising as actionable as performance advertising through delivering actionable and trustworthy metrics that measure a consumer's purchase journey, unlocking significant revenue for Google's media (primarily Youtube) and our DoubleClick platform 	
Leads <ul style="list-style-type: none"> • PM: Sanaz Ahari • Eng: Thomas Williams • AMT: Elissa Lee • UX: no single lead - varies by customer product 	Headcount <ul style="list-style-type: none"> • PM: 6 • Eng: 130 • AMT: 8
Annual A&C Level OKRs and KPIs (2016) <ul style="list-style-type: none"> • KR1: Become the leading viewability provider via Omni strategy & Active View and Reach product improvements (viewability measuring 90% of DCM Display/Video impressions, 50% of Apps) • KR2: Brand Lift measures 50% of eligible Google brand revenue and available on 90% of DCM Display/Video impressions (via Omni efforts) • KR3: Sales Lift launched in top 8 markets and running on 100+ campaigns • KR4: Unique Reach Reporting with demographic data in top 8 countries; significant progress on Sales Lift and Media Mix Modeling tools 	

Strategic Overview

Opportunity

As consumers consume more content online and shift away from TV, advertisers are also shifting their budgets to digital. Brand Advertising is a \$200B global market opportunity. One of the critical barriers in increasing advertiser confidence for this shift to digital is measurement. Measurement is critical for showing how efficacy of digital compares to digital and also metrics that show the unique actionable aspects of digital. Measurement in brand advertising spans across three phases in the consumer journey:

- SEE: Did you reach the right consumer and did they view your ad?
- THINK: What did consumers think after viewing your ad?
- DO: What do consumer do after viewing your ad? Do they purchase the product?

Pillars

Measurement investments spans across 3 key pillars of See/Think/Do.

- SEE: Viewability: viewability determines whether people are actually seeing ads and the depth of their ad engagement. We have our own technology (Active View) but also support 3rd party viewability on YT. Core investments in viewability span across:
 - Increasing coverage: measuring 90% of display and video impression across DoubleClick for viewability, included impressions that served or tracked
 - Deeper metrics: offering deeper metrics that measure engagement and are indicators for lift
 - Protecting YT's viewability: powering 3rd party viewability vendors with Active View and keeping YT's industry leading viewability rates
 - Optimizing for viewability: powering DBM with advanced viewability optimization/buying solution

- SEE: Reach: reach measures how many people see an ad, broken down by their demographics (age and gender). We have our own technology (surfaced as unique reach in AWFE and soon in DoubleClick) and support 3rd parties providers like Nielsen/comScore on YT and DoubleClick. Core investments in reach span across:
 - Transitioning from cookies to users across AdWords, Athena and DoubleClick
 - Delivering demographic breakdown globally, across device
 - Measuring across screen including OTT and linear TV

- THINK: Brand effectiveness: our own measurement technology, Brand Lift, measures impact of brand ads on user mindset across 6 different measures (ad recall, awareness, interest, consideration, favorability, purchase intent) using YT surveys and search data (Google and YT). Core investments in lift span across:
 - Primetime (measuring lift on TV campaigns)
 - Correlations across different lift metrics as well as meta-analysis of benchmarks and insights
 - Enabling lift measurement on DoubleClick (DCM and DBM)
 - Optimizing for lift in collaboration with YouTube (Crane)

- DO: Sales lift: we partner with 3rd parties (DataLogix in the US for CPG) to measure offline sales impact. We plan to expand beyond the US and into more verticals using Google tech like Location Extensions/Newfie (store visit lift). Core investments span across:
 - CPG sales lift in US
 - CPG sales lift in UK, FR
 - Store Visit lift
 - Partnership with CMMs
 - Receipt scanning

Competitive Analysis

- Summary: there are two competitive dimensions for measurement:
 - We need to ensure that our media (primarily YouTube) can provide compelling insights and measurement to win larger brand budgets. In this sense, YouTube's insight and measurement offerings are competing with TV and digital media (e.g. Facebook) who offer compelling insight and measurement suites.
 - We'd like advertisers to prefer our proprietary measurement solutions (Active View, vCE in DoubleClick, Brand Lift) vs. competing 3rd party solutions from vendors like Moat or Nielsen.
- Facebook: Overall Facebook is ahead of YouTube measurement in some areas (many solutions for sales lift, especially in international markets) while is behind in other areas (doesn't have a scalable brand lift offering comparable to Brand Lift).
- Moat: Moat is a leader in 3rd party viewability and ahead of Active View (our solution) based on client feedback. Moat offers more metrics than Active View, is available for use across many ad technology platforms and media venues, and is supported by a dedicated sales and services team. Their vision is to be the single source of brand measurement data that publishers and advertisers transact on (trying to take torch from DoubleClick's impression tracking position). They have forged relationship with advertisers and agencies (notably GroupM) to use Moat as a transaction currency and put revenue pressure on publishers that don't support their measurement code. Moat is strongest in the US, but is aggressively expanding worldwide.
- IAS/DoubleVerify: IAS/DV started out as verification providers and expanded into viewability. They have strong existing ties with advertisers, but are losing business to Moat, as Moat offers a more complete and 'exciting' user attention product. IAS/DV are strongest internationally, but Moat is expanding into their existing business.
- Nielsen: Nielsen is the leader in reach measurement (GRPs), representing 80% of our YT audience guarantees vs. 20% by comScore. Nielsen is strongest in the US, however is also strong in markets like AU and UK. comScore is a strong second metric in markets like US, UK, IT and ES. All these providers have struggled with mobile app measurement due to lack of panels and/or demographic sources.

Risks

- Viewability
 - Strategic
 - Advertisers/agencies are locking-in 3P vendors for apples-to-apples across their buy
 - Lock-in could lead to push for attribution/optimization to be based on 3P measurement as well
 - 3P metric strength reduces 'space' for Google-led innovation on new metrics and products

- Could be forced to use 3P metrics to transact YouTube (e.g. GroupM guarantees on GroupM Metric)
- Revenue loss when 3P demands not met
- Revenue risk that 3P metrics don't value Google inventory correctly
- Tactical
 - Measurement Coverage: Long turnaround time to sign partnership deals with SSPs, OVPs, and Publishers;
 - Need to close product gaps with 3P to compete; Google measurement spans numerous teams and products which makes this take time.
- Sales Lift
 - Match rates are a key challenge to measuring sales lift effectively with viral signed in and signed out. Without the ability to increase match rates we risk a high failure rate of studies
 - Running successful studies at scale is an overall risk, as it strategically limits our capability to correlate brand lift and prove brand lift as a leading indicator for sales lift

2017 Charter: Brand Sales Lift

Executive Summary

Measuring offline Sales lift at the campaign level continues to be a top ask from our largest brand advertisers. We have multiple projects planned to support expansion beyond our initial integration with Datalogix in the US both internationally and across verticals. However, we are currently not funded to keep up with the rapid pace of competition in this space, particularly from Facebook who have launched 5 such products in the 1H 16 alone.

Team Mission Statement <ul style="list-style-type: none"> Bring reliable, trustworthy and actionable sales measurement to our top brand verticals across countries 	
Leads <ul style="list-style-type: none"> PM: mrthomas Eng: troy AMT: elissaee 	Headcount <ul style="list-style-type: none"> PM: 1 Eng: 6 Analyst: 2
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> 	

Strategic Overview

Opportunity

Measuring offline Sales lift at the campaign level continues to be a top ask from our largest brand advertisers. If we can show that \$1 of YouTube branding leads to \$3 in sales, budgets will flow. Globally the Sales lift measurement umbrella represent an opportunity to tap into \$80Bn+ in TV spend.

Pillars

Our goal is to provide **reliable, trustworthy and actionable** campaign-level sales measurement for our top 20 brands across CPG, Retail, QSR, Auto, M&E and Tech in our top 8 markets for brand advertising (US, UK, FR, DE, BR, JP, CA, AU). Our priority is to measure online video on YouTube (TrV and reserve/GP), DBM, and then GVP.

In general, our solutions will serve two purposes:

- Short term, we will measure a small number of large campaigns directly with sales lift and anticipate a **"halo effect"** of increased investment from positive results.
- Longer term, our **strategy is to prove that our brand lift metrics (search and survey**

lift) are credible proxies for offline sales. For example, an advertiser will know that their campaign's 10% lift in purchase intent correlates with a 5% offline sales lift, without needing to directly measure sales lift for every campaign.

We have four pillars of investment in 2017:

Theme	Description	Projects	Ask
Scale US CPG	Extend ODC DLX support to new platforms & improve quality	<ul style="list-style-type: none"> Reservations support DBM support Quality & automation 	4 SWE
Close the gap with international CPG coverage	Due to fragmented data sources and different privacy/regulatory environments, there is no one-size-fits-all solution for international support for our largest opportunity (CPG). We need to invest in multiple partnerships e.g. with major retailers and measurement providers in order to close the coverage gap in our top 8 markets.	<ul style="list-style-type: none"> Dunnhumby/Tesco (UK) Quantium (AU) Carrefour (FR) Kantar CMMs (UK, FR, BR) GFK (DE) 	5 SWE
Expand support to new verticals.	Though CPG is our largest opportunity, measuring offline impact for (e.g. Retail) represents a major opportunity.	<ul style="list-style-type: none"> Store Visit Lift Swipe for Brand (sales lift using credit card transaction data) 	5 SWE
Innovate to leap ahead	While we look to close the competitive gap, we need to continue to invest in research into better, more scalable methods of measurement in order to leap ahead.	<ul style="list-style-type: none"> Offline Geo Experiments for CPG 	X SWE

Competitive Analysis

- **Mobile is a barrier for 3P measurement companies.** 3Ps (NCS, IRI, Kantar, etc.) cannot accurately measure mobile without deeper integrations with publishers.
- **Facebook is leading this space.** They have announced 5 major launches in 1H 2016

alone (, , , ,), aggressively expanding their measurement offerings across countries, verticals and advertiser segments. This is in addition to an already strong suite of products, including US CPG measurement and their

- **High match rates are a competitive advantage for FB & others.** High sign-in rate, more matchable PII & more lax privacy standards allow competitors like FB, Snapchat and Pinterest to move faster, measure more campaigns and have a greater chance of showing higher lift with statistical significance.
- **Other competitors are following Facebook's lead.** and both launched integrations with Oracle Data Cloud. Like FB, match rates are a key competitive advantage as is a more lax approach to privacy. They will be able to move much more quickly than us in this space.

Risks

- **Metric Quality.** Some partners are trusted by advertisers, but do not pass our quality standard (e.g. CMMs). Partnering with these providers may be a useful stopgap, but may lead to unpredictable results and cause advertisers to draw conclusions based on dubious datapoints.
- **Match rates.** Google has relatively low sign-in rates and less matchable data (e.g. non-Gmail emails) than competitors. Our lower match rate means we will require larger campaigns and may show lower lift.
- **Privacy.** Sales lift requires matching online exposure data with offline sales data, often outside of Google. This is a major privacy concern and could cause severe damage to Google's brand if not handled appropriately.

Strategic questions:

- Should we invest in metrics that are industry-accepted, but don't pass our quality bar (e.g. CMMs)?
- Do we have the appetite to invest in major match rate improvements, recognizing that this may require significant marketing efforts to get proper consent from users around useful data (e.g. secondary email address)?

2017 Charter: Consumer IQ (aka Panels)

Executive Summary:

Single-source Panels (SSPs) are a critical enabler to Google's TV and video strategy in that they provide the necessary ground-truth viewership data for both digital and 'traditional' linear TV across Google and non-Google properties, enabling Google to measure and report on cross-screen, cross-channel reach. In order to support Google's TV and digital media ambitions our SSPs must surpass certain industry standards for quality and measure key media across mobile, web, linear TV and over the top (OTT) TV.

Panels and AMT teams are ensuring that we'll be ready for 2017 by focusing on the following:

- Developing and deploying a TV meter to measure linear TV viewing. This meter will attach to the TV and use Towerbridge to match the audio stream to a specific program.
- Add TV measurement to Single Source Panels in countries where we need cross screen video measurement (in US and 1-2 additional markets in 2017).
- Calibrating Fiber set top box data with panel ground truth data and adding individual level measurement (household to user).
- Evolving the quality of Google Powered Panels to be able to achieve industry accreditation (e.g. MRC) to allow us to defensibly use our data in the market.

<p>Team Mission Statement Accurately & comprehensively measure relevant media and consumer behavior across all devices to provide Google with the ground truth needed to power our Ads, Brand, TV products, and beyond.</p>	
<p>Leads</p> <ul style="list-style-type: none"> ● PM: Dylan Lorimer ● Eng: Danny Eaton ● AMT: Elissa Lee ● UX: Alicia Bennatts 	<p>Headcount</p> <ul style="list-style-type: none"> ● PM: 1.5 ● Eng: 23 ● UX: .5
<p>2016 KPIs:</p> <ul style="list-style-type: none"> ● Total SSP costs : \$43M ● Attributable revenue : \$232M (based on ExtraReach; not including aGRP) ● Markets currently launched : US, FR, NL, JP, UK, DE, BR, IT, RU <p>2017 Annual A&C Level OKRs</p> <ul style="list-style-type: none"> ● Objective: Sustain the existing SSP business for reach and measurement <ul style="list-style-type: none"> ○ KR: Renewed each 3P SSP deal in existing markets ○ KR: 3P SSPs accurately reporting data for reach and measurement ● Objective: Build cross-device, calibration quality, industry-trusted Google panels <ul style="list-style-type: none"> ○ KR: ExtraReach, GRP, TV Attribution powered by US 3-screen (incl. TV) GPP ○ KR: Launch ~5 new GPP 2-screen panels to support GRP priority markets ● Objective: Panels data is indispensable to use cases outside of measurement <ul style="list-style-type: none"> ○ KR: Calibrated panel data made available to Google product teams 	

- KR: Dashboards for top 5 use cases shared internally through Data Studio

Strategic Overview

Opportunity

Consumer IQ (aka Panels) is Google's initiative to accurately and comprehensively measure media and consumer behavior across devices (including mobile, desktop and TV).

Panels are a critical enabler to Google's TV and video strategy. Panels-enabled TV measurement is part of measuring total video consumption, including Set-Top-Box (STB) to Over-the-Top TV (OTT), x-device and mobile apps. TV captures > 35% of media spend in the US (~\$70B+ a year). Single-Source Panels (SSPs) are the only data source that provides a high quality ground truth calibration dataset for both digital viewing and 'traditional' linear TV viewing across Google and non-Google properties, enabling Google to measure and report on cross-media, cross-channel reach.

Google invests in Panels to provide accurate, ground truth data for several key capabilities:

Power Google's reach products: Consumer IQ provides single-source panel data powering first party (1P) and third party (3P) reach and measurement tools in major TV markets through Brand Lift, Extra Reach and Unique Reach/GRP. Single-source panels are critical for cross-media measurement and are becoming more so. Based on ExtraReach revenue models alone, the estimated attributable 2016 opportunity is ~\$232M against a cost of \$43M

Ensure accurate and fair measurement of Google's ads: Panels data calibrates our demographic models for Gross Rating Points (GRP) and keeps third parties such as Nielsen accurate in their reporting of our ratings. Conservatively, Panels help sustain an ARR of ~\$100M through a 2-3% precision gain on demographics. A 1% loss of precision in Google Preferred will cost ~ annually once YT Auction adopts audience guarantees. Panels data is also used downstream by YTRC and RelayLogs to enable third parties to report on and measure YT.

Calibrate Fiber data - Consumer IQ is building a TV-metered calibration-quality SSP to calibrate the geographically limited and biased Fiber dataset. This will power AMT's TV measurement tool (XMA), which will be integrated into GA 360.

Provide audience data for TVA360 and X-Media Brand Lift / TV Lift - SSP data is used to power TV and video measurement products including TV Attribution 360 and X-Media Brand Lift (including TV Lift / Prime Time). Both products currently source data

from third parties (Rentrak) which do not fully serve their needs. Consumer IQ is exploring the opportunity to provide GPP data to TVA360 and TV Lift directly, removing third party dependence and giving both products improved coverage, greater control and increased data quality to power the global roll-out of real-time TV and video ad measurement.

In addition, Consumer IQ has identified _____ where SSP data is currently being used (or will be used) to generate value across Google's Research, Brand and Ad teams outside of reach and planning. Enabling these is an important part of Panels strategy.

Historically Consumer IQ has achieved the above through operationally complex, costly and technically difficult (albeit fixed-term) third party partnerships with research agencies (e.g. GfK, Nielsen) using their own metering software. Due to legal and technical requirements and the shift to Viral, third party meter partnerships will (likely) no longer be possible by end of 2017, putting the models and products that depend on SSP data at risk.

The strategic opportunity (and imperative) for Panels is to minimize our dependence on 3Ps and shift to Google-Powered Panels (GPPs). Progress towards this opportunity has been made. Consumer IQ is launching our own _____ and deploying our (forthcoming) TV meter to the Development Panel and then to the full calibration (probabilistically sampled) panel in 2017 to measure linear TV. There is potential to add additional functionality to the TV meter to measure OTT TV viewing. These efforts help Google bring our own higher quality dataset to the market, achieve measurement independence and scale to more markets at a lower cost.

Consumer IQ's end-state goal is to be Google's provider of **cross-device, calibration quality truth data to internal teams, third party measurement companies and external agencies in Google's key video markets under a managed cost structure.**

Pillars

The 2017 Panels strategy is built around the three work streams below:

Sustain our existing SSPs (_____ ; _____):

- Renew existing 3P SSP deals in core markets* to power Ads planning and reach
- Solve technical and business issues across Visitor ID, Viral, 3P meters, Privacy Shield to ensure 3P SSPs continue working through 2017
- **2017 end state:** 3P SSPs renewed and accurately measuring media reach, powering ER/GRP

** france, netherlands, us, japan, uk, germany*

Grow GPPs for Google to "own our destiny" in measurement (_____ ; _____):

- Launch & scale 2 screen GPPs in markets that will measurably increase GRP accuracy

- Build and deploy to tier 1 GPP markets a Google/TowerBridge TV meter to achieve calibration-quality 3-screen measurement
- **2017 end state:** 3 screen, calibration-quality, industry-trusted Google-owned and operated panels (GPPs) in key markets powering core Ads video efforts; allowing us to eliminate Google's dependency on Nielsen/Rentrak

Increase panels usage and value at Google ()::

- Extract maximum value from Google's investment in SSPs
- Expose clean calibration, broad reach and research panel data through Data Studio or similar BI tool
- Automate key strategic reports and insights (FB/YT, brand insights, mobile usage)
- **End state:** Teams using calibrated panel data through Data Studio with data dashboards built for top 5 use cases and complete documentation in place (incl. Help Center, Usage Guide and Protocol)

Competitive Analysis

Google is currently licensing US TV data from 2 main 3Ps (comScore acquired Rentrak this year; see). Panels strategy is to reduce reliance on 3Ps to support our needs, increase data quality by using our own meters, and reduce per-panelist cost by using our own Google-Powered Panels platform.

Risks

Given the opportunity to shift Ad spend from TV to YT and the adoption of Viral by the end of 2017, PMCs **cannot** continue to serve Google's reach and measurement use cases effectively including:

- **Collecting Gaia IDs:** PMCs have policy or legal restrictions from providing Gaia to us;
- **Solving Viral & VisitorID:** YT serving moving off DoubleClick for all users; and
- **Generating in-app insights:** Nielsen do not provide mobile data nor GAIA IDs, and other PMCs struggle to meter mobile activity effectively.

With VisitorID rolling out we need to have a viable replacement for Nielsen by end of 2017 in order to maintain ExtraReach in the US; and need to have a viable replacement for 3P SSPs in order to maintain ExtraReach in international markets.

GPPs enable Google to own our destiny for cross-device measurement -- incl how/where we use the data and in what markets. By 2H 2017, est. Consumer IQ hopes to be able to launch GPPs in 1-2 markets per quarter, and control spend relative to panel size. That said, shifting to GPP has its own risks as follows:

Risk category	Description
Cost structure	Flat & possibly lower cost per panelist, but full GPP costs unproven
Metering quality	Panels may continue to need to support 3P requirements for their data needs (e.g. MM requiring eTag support) in the near future
Platform maturity	GPP is still nascent, hasn't proven it can recruit @ calibration quality, with accurate demos, isn't localized
Market acceptance	Difficulty in securing market acceptance for our own measurement, including difficulty convincing customers we can measure ourselves
Operations	GPP creates a direct support relationship between Google and panelists; and our ability to do this at scale in multiple markets is not yet proven

2017 Charter: Google Analytics (Free & Paid)

Abstract

Google Analytics is the most widely used marketing analytics solution in the world. It is one of the largest, most important measurement products in Google by most measures, e.g. imputed revenue impact (), net new direct revenue (tracking to \$135M ARR as of mid-Q3'16), number of customers (Paid: ~ , Free:), volume of data (), penetration in market (), etc.

Its mission is to be the source of truth for understanding & taking action on a business' customer experience, behavior, and interactions. At a high-level, it: 1) helps a business understand the entire customer journey 2) deliver intelligent insights 3) empower actionability.

In 2017 we have four major product areas: "Data", "Integrations", "Reporting & Intelligence", & "Analysis & Users". "Data" is focused on ensuring we have a best-in-class data model & product performance at enterprise scale. "Integrations" ensures that we have a comprehensive view of the customer journey & seamless way to take action on these insights inside and outside of Google. And lastly "Reporting & Intelligence" & "Analysis & Users" work together to provide ways for simple, powerful, intelligent, and actionable insights & exploration.

<p>Team Mission Statement <i>Be the source of truth for helping a business understand & take action on their customer experience, behavior, and interactions</i></p>	
<p>Leads</p> <ul style="list-style-type: none"> ● PM: jsavage <ul style="list-style-type: none"> ○ Data Pillar: breenbaker ○ Reporting Pillar: ajayna ○ Analysis Pillar: danstone ○ Integrations Pillar: abhiagg ● Eng: <ul style="list-style-type: none"> ○ sagnik, nmoon, thakkar, dnakos, nbenayoun, tthelin, madhuk, yzhuge, hetait ● UX: jrome, hsunt 	<p>Headcount</p> <ul style="list-style-type: none"> ● PM: 8 ● Eng <ul style="list-style-type: none"> ○ FE: 20 ○ CS: 11 ○ BE: 72 ● UX: <ul style="list-style-type: none"> ○ Design: 3 ○ User Research 1
<p>Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> ● See the "KPIs" section below 	

Strategic Overview

Opportunity

Product Segments - The product has the following two different major customer segments and corresponding objectives:

- **Google Analytics (Free)**
 - Focused on the needs of smaller businesses with simple marketing strategies and straight-forward analytics needs for site optimization
 - Targeted to businesses who use Google media, from startups to hosted ecommerce stores, to businesses with small, dedicated marketing teams
 - The objective is to grow Google media spend & impact

- **Analytics 360 (Paid)**
 - Focused on the needs of Fortune 1,000 marketers with complex marketing strategies and sophisticated analytics needs for holistic customer experience optimization
 - Targeted to Google's largest media-sales verticals (like Retail, Travel, Finance, and Technology), i.e. the Top 1K LCS, and with secondary focus on Classifieds & Local, Automotive, Healthcare, Education, and Media & Entertainment
 - The objective is to grow coverage of the overall media measurement of these customers, and secondarily to drive new direct revenue for Google

Product Pillars

Google Analytics is organized into the following 4 major product pillars (areas):

This area is focused on technical innovations to ensure best-in-class performance at enterprise scale. The roadmap includes, but is not limited to, aligning custom client reporting needs with our aggregation pipeline (resulting in higher quality data), providing sub-minute fresh data across the product, enhancing bulk and real-time data collection features to improve the flexibility and power of our clients' data models and workflows, and scaling our infrastructure to meet client growth & needs.

Why is the "Data" pillar important?

- GA has suffered from a still persistent negative market perception wrt sampling since launch. Many clients are now not affected - we currently serve >92% of all 360 client

queries unsampled - however our largest clients still suffer acutely from accuracy issues and in order to grow LCS we must eliminate this issue entirely.

- GA is currently as fresh as 4 hours (max), but clients in the short term require minute fresh data to react to real-time events in social/mass media (20% of 360 queries include today's date). Clients are also looking for automated real-time bidding and content optimization solutions, which requires minute fresh data.
- GA continues to grow in a multitude of ways, and we need to keep up with adoption: GA free has grown by XX% YOY and 360 has grown YY%; we now process ZZ% more hits than we did the same time last year. Additionally we seek to adopt more/larger clients, as well as enable our existing clients to grow - one of DVAA's strategic LCS clients recently requested that we support 2X our normal capacity for them going forward, we accepted.

Top KPIs

- Improve retention rate related to scale, sampling, cardinality, or freshness for existing clients and increase the size and number of clients to be onboarded
- Cost / Efficiency
 - Processing Cost per Hit
 - Serving Cost per Query
 - Maintenance Cost

Top Initiatives

1. Scale our storage, processing, and reporting infrastructure to allow for more/larger clients while maintaining processing latency SLAs and improving resource efficiency (includes but not limited to: sharding, processing latency optimizations, ad hoc data storage rewrite, extractor rewrite, and aggregation pipeline rewrite).
2. Provide <1 minute fresh data across all standard and custom reports (currently ~1 to 4 hours fresh).
3. Eliminate sampling for all regular reporting by launching a customizable left navigation that is aligned with our aggregation pipeline.
4. Allow for automated and on-demand reprocessing of client data and eliminate Data Import barriers by enabling historical data import via reprocessing.
5. Update our processing pipeline and all our existing ad integrations to support Narnia 2.0.

The mission of Google Analytics Reporting & Intelligence is to provide universally accessible, meaningful, actionable insights on business data. The challenge is that businesses & users vary greatly in their needs. Over the years, Google Analytics has responded by adding numerous reports & features. While each of these elements serve the needs of some users, the additional complexity alienates. We must work to build a reporting platform with a strong simple core, intelligent assistance, and extensibility that allows the reach of various use cases without complicating the core experience.

Why is the "Reporting & Intelligence" pillar important?

- GA is too complex, causing users to churn. 70% of new users churn out of the product in their first month, and 40% of users who use the product in any given month do not return the following month. The primary causes of complexity are due to a) too much data that

users don't understand, that's hidden b) over 100 different reports (and growing) that are themselves drowning c) too many widgets and features layered in inconsistent ways.

- Core high-value features have low adoption. For example, 93% of GA properties do not have goals set up.
- Marketing tools are increasingly going to differentiate on the quality of insights and actions you can get from your tools; Intelligence helps us ensure users get to insights & actions without barriers.

Top KPIs

1. User Growth, broken down by retention and new acquisition
2. User Engagement, determined by the incidence and frequency of users conducting key activities in GA
3. Media Influence

Top Initiatives

1. Google Analytics Assistant helps users discover data & answer questions by leveraging Google Machine Intelligence.
2. Improvements in reporting UX drive up user engagement through a simplification of controls, more intuitive actionability flows, and user level "progress bars".
3. Replace dashboards in GA with Data Studio functionality (), including the ability to embed data studio dashboards in GA with CLeN (Partnership with Data Studio)
4. Increase feature adoption at the profile/property level for new and existing customers by revamping implementation flow, simplifying path to feature adoption, and property level "progress bars".
5. Increase network effects through growing GA as a platform. user-generated content can be consumed by others (dashboards, apps, Insights, etc.). GA tools & resources are promoted through the core experience.
6. Begin Customer Profiling () to understand who our GA users are (Partner with Suite).

For more information, please review this

The mission of Google Analytics Analysis & Users is to pivot Google Analytics from sessions to people. This means transitioning the product to a people-based data model, and providing intelligent user-based insights along with powerful user-based analysis techniques to enable businesses to predict and personalize their customers' digital experience.

Why is the "Analysis & Users" pillar important?

- Drives \$2.3B direct Google Media spend. Investments from this pillar in audience marketing integrations (fka remarketing) allow GA businesses to act on their customers' behavior throughout Google Media, driving business value for our businesses and for Google (\$2.3B as of Q3'16, growing 100%+ YoY).

- Retains GA's position in web analytics. Investments to shift from session-based to user-based measurement are critical to staying relevant in a world where an accurate single view of people is the . Both existing (Adobe) and startup (MixPanel, Kissmetrics) competitors have invested heavily in this area and promote a narrative that GA is not user-focused.
- Keeps 360 customers using (and highly engaged with) GA. Currently, 30%-40% of 360 customers are not using the product, opting to use only APIs to do their most valuable, deep analyses of customer interactions. Investments from this pillar to provide new user-based insights and techniques will allow our customers to return to the product for their most valuable use cases- measuring the customer journey and personalizing it for their users.

Top KPIs

1. Audience media spend driven by Google Analytics (curr. \$2.3B)
2. Percentage of GA's report views that are user-centric
3. Increase total time customers spend doing within the product (vs. exporting data outside the product).

Top Initiatives

1. Enhance Google Analytics' cross-device solutions, including integration of Google signed-in data (Narnia 2.0) for cross-device measurement and cross-device remarketing
2. Launch " " to include the "Users" metric throughout key reports along with lifetime user-level attributes, and other user-based reporting upgrades
3. Launch new " " section, providing fast, flexible, and unsampled people-centric Analysis for 360 customers
4. Upgrade Audiences to be a primary actionability currency in Google Analytics reporting as well as at a suite-level, while ensuring they are at parity with other Google remarketing features re: Narnia 2.0 and Constellation
5. Continue investments in machine learning-driven Smart Data. This includes launching new predictive metrics (like session quality, pLTV, pConversion) along with their underlying models, shipping these signals to Google media systems for optimization, and building "Discovery" and "Predict" techniques in Vero Analysis

Our mission is to provide a comprehensive understanding of the customer's entire journey and make it insightful and actionable. We focus on providing first-class marketing analytics via turn-key integrations with both Google and third-party products.

Why is the "Integrations" pillar important?

- Our integrations with Google media products set us apart from other measurement solutions in the industry and drive Google media spend. For example, we are currently linked to ~65% of AdWords revenue across LCS and SMB. drive ~\$2.2B ARR in direct

Remarketing spend across AdWords and DoubleClick, and drove between \$5.4B to \$7.0B in imputed AdWords revenue in 2015.⁵⁹

Top KPIs

1. Revenue under management (RUM): Ads (Google and non-Google) revenue linked to Google Analytics
2. Media Influence: Ads (Google and non-Google) revenue using Google Analytics to drive decisions

Top Initiatives

1. Provide Online to Offline (O2O) measurement at scale, by integrating with Newfie (store visits) and other differentiating in-store capabilities (store sales, Swipe etc.).
2. Extend GA's offline measurement capabilities via a CRM integration at the Suite level.
3. Enable advertisers to measure customer journeys across "web and app" by integrating with
4. Provide self-serve linking support for all GA-DDM (DCM, DBM, DS) integrations, to increase the velocity of adoption and RUM and media influence.
5. Support key GA 360 suite integrations between GA and the other Suite products - for example (AW integration support for Optimize via GA, GA conversions export to Attribution 360, etc)

Competitive Analysis

- TBA Overall
-

Risks

- **Staffing / Headcount** -- Remains a concern. GA's core staff have been used to fund the GA 360 Suite products (Optimize, Data Studio, etc) and Firebase Analytics (Scion). All while the scope of GA has continued to grow, i.e. we have on-going maintenance and support for many existing ad integrations (across AdWords, AdSense, DoubleClick Campaign Manager, DoubleClick Bid Manager, DoubleClick Search, Search Console, DoubleClick for Publishers & AdX etc). Some investment areas are underfunded while the existing product threatens to become unwieldy & fall behind industry state-of-the-art (e.g. user-centric functionality, cross-device, our core UI & navigation, impact of Narnia 2.0 etc).
- **Cross-Team / Product / Company Coordination & Integrations** -- Google Analytics sits at the heart of both the GA360 Suite and all its products, as well as being both an

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importer / exporter / and integrator with many Google and external products (across AdWords, AdSense, DoubleClick Campaign Manager, DoubleClick Bid Manager, DoubleClick Search, Search Console, DoubleClick for Publishers & AdX etc). The product continues to be challenged to stay up with all the relevant product and infrastructure changes that happen across these products on an on-going basis (including basic support, notification, and communication from these teams).

- Privacy & Legal -- As modern marketing analytics needs to continue to move toward providing a truly "single view of the customer" and move to be more cross-device, more comprehensive in the data it includes / analyzes (like PII), privacy and legal challenges continue to slow our development velocity and in some instances keep us from being competitive with outside products / businesses altogether (especially on the PII front). It is also especially challenging given many of our own internal Google products are not allowed to use / dogfood GA.

High-level KPIs

Level	Goal	Metric	Comments
GA, Product Area	Drive Growth	- 7d and 30d Active Users	GA-wide, per-organization, per-property
GA, Product Area	Drive Loyalty	- 7d and 30d Retention	
GA, Product Area	Drive Customer Happiness	- HaTS - # of customer-reported bugs	
GA, Product Area	Drive Actionability	- # of users whose data is exported (e.g. like on a remarketing list)	Covers non-media actionability (eg, email)
GA, Product Area	Drive Media Influence	- Media Revenue *using* GA data	- GA+RMKT Rev. - Conv. Export Rev. - Smart Goals

Rev.

GA Drive Revenue - Direct Revenue

Segment by: GA360, GA Standard, Geo, Vertical, AdWords Tier, Hits/mo Tier, User Role

2017 Charter: Firebase Analytics

<p>Team Mission Statement</p> <ul style="list-style-type: none"> To empower developers to build better apps, attract new users, better engage existing users, and improve monetization through the power of data. 	
<p>Leads</p> <ul style="list-style-type: none"> PM: rketchum, foxworth, sganem Eng: mkwong, nbenayoun, georged, sagnik, thebaldwin, tthelin TPM: maitruong UX: mariamoon 	<p>Headcount</p> <ul style="list-style-type: none"> PM: 2.5 Eng: 35 UX: 2
<p>Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> KPIs (EOY 2016) <ul style="list-style-type: none"> Ads: 10% of AdWords App Install spend using Firebase Analytics conversion tracking (Subject to change based on revised) Ads (Secondary Goal): 30% of AdWords App Install spend using Firebase for any reason and sharing Firebase Analytics data with Google (Subject to change based on revised) DPG: Firebase Analytics integrated in 50% of Top 1000 apps on Play; 25% of Top 1000 apps on iOS; 200k total integrated Scion apps Launch Goals <ul style="list-style-type: none"> [LAUNCHED] Public Launch Scion 1.0 in Q2 2016 	

Abstract

As the core of Firebase, Google's mobile app developer platform, Firebase Analytics is the source of truth for mobile app data at Google (largely to enable various machine learning efforts) and a primary springboard to Google's media and platform businesses. With a successful launch at I/O 2016, Firebase Analytics is in market and rapidly scaling. Looking to H2 2016 and beyond, Firebase Analytics is aligning tightly to the the specific user personas it serves within Firebase and as they mature into to Google's other products (namely Marketers via the Google Analytics 360 Suite, Advertisers via AdWords, Publishers via AdMob, and of course Developers via Firebase, GCP, and Play). Firebase Analytics has a critical role to play as part of Google's overall measurement offerings and to win over app developers from Facebook's offerings – and is well positioned to do exactly that.

Strategic Overview

Opportunity

- With the launch of [redacted] at I/O 2016, Google has introduced a unified mobile app developer platform – making it easier for developers to build apps that incorporate Google services.
- Firebase Analytics is the core of Firebase, a free and unlimited apps-first analytics platform that's designed to support developers as they Develop their apps, Grow users and engagement, and earn money. Moreover, Firebase Analytics is the data layer that unifies the other Firebase features and Google products – providing developers and Google with a common source of truth for in-app event data.
- Firebase as a whole is [redacted] to Google because it 1) acts as an on-ramp to Google's many businesses (e.g. Cloud, Ads, Google Analytics 360 Suite, etc.) and 2) provides Google with valuable in-app data (when shared) such as in-app purchases on iOS. Firebase Analytics, specifically, is the primary source of the aforementioned in-app data and the primary connection point to Google's ads and enterprise marketing measurement businesses.
- With Firebase Analytics in market and [redacted], the next phase of Firebase Analytics will focus specifically on supporting Google's enterprise measurement, ads and publisher businesses while continuing to provide the unifying data layer across Firebase proper.

Pillars

Firestore Analytics is the nexus for several "app centric" user personas, each targeted by a specific Google product area. "Marketers" are addressed by the Google Analytics 360 suite; "Publishers" are addressed by AdMob; "Advertisers" are addressed by AdWords; and "Developers" are addressed by the rest of Firestore and the umbrella Cloud offerings.

Depending on the sophistication of a given organization, the same individual is often expected to play each of these roles. As organizations mature, roles becomes specialized and the functionality demanded by each often increases. Firestore Analytics is intended to meet users "where they are" in terms of sophistication. Those looking for a one-stop shop approach and/or not of a sophistication level addressed by a dedicated product will find their needs met in the Firestore console. Sophisticated users will come to rely on Firestore Analytics as the common

implementation layer and source of truth for in-app event data regardless of which Google product they identify with most. In all scenarios, it's the same Firebase Analytics and is designed to grow with a given organization.

The foundation of this vision was laid by the initial launch of Firebase and is already real to varying degrees. H2 2016 and beyond will see these connections deepen by area as persona-specific functionality is developed while maintaining a high bar for product excellence when it comes to core app analytics. The following are highlighted investments by each of the four focus areas:

- **Enterprise Measurement Focus:** The Google Analytics 360 suite is the umbrella for several offerings intended for sophisticated marketers (namely the top 1000 LCS parent companies). App-centric businesses, be they exclusively app or hybrid, will use the GA 360 suite in conjunction with Firebase. The implications here vary by each of the suite products:
 - a. *Google Analytics:* The _____ for analytics at Google including web, app, in-store, etc. Firebase Analytics and app analytics in GA will be made synonymous as Firebase becomes another source of data to GA. Further unification will happen as the result of extending the "360" premium service, SLA, and features model to Firebase apps under contract with GA 360. Cross web-app, user centric analysis will all happen in Google Analytics.
 - b. *Google Tag Manager:* Firebase is already the implementation layer for GTM and future linking and other integrations will make it even more seamless. For Firebase, GTM becomes a primary way of using app data with 3rd party providers.
 - c. *Attribution 360:* While Firebase Analytics provides cross network install and other in app conversion attribution, the attribution models are limited. Attribution 360 will provide sophisticated data driven and multi touch attribution features that take in Firebase Analytics conversion data.
 - d. *Data Studio 360:* Through BigQuery integration, Data Studio allows for ad hoc analysis on raw Firebase Analytics data that is otherwise not possible in the Firebase console. Future integrations will have the Firebase data in BQ be natively supported in Data Studio and templated reports will make it easy for users to quickly develop insights.
 - e. *Optimize 360:* Marketers correctly expect a unified approach to A/B testing and experimentation. Firebase Configs provide a mechanism to test in-app and use Firebase Analytics for reporting. Through Firebase, Optimize 360 can extend it's reach into apps.
- **Advertiser Focus:** Firebase Analytics intends to be the ubiquitous source of two critical types of data for Google's advertising solutions:
 1. *Conversion Event Data:* Conversions are the specific behavior that advertisers are driving with their marketing efforts. These range from First Opens (installs), to in-app purchases, to custom conversion events. With the introduction of Universal App Campaigns v2, conversion data is required as these are the behaviors

advertisers are trying to maximize. Offered as an alternative to third-party tracking solutions, Firebase Analytics is a free and seamless way of tracking AdWords conversions.

2. *In-App Behavioral Data*: This is the rich set of engagement data that surrounds and contextualizes conversion events. With Universal App Campaigns v2, behavioral data is critically important to Google's targeting models.

In order to provide both sources of data, Firebase Analytics is intended to complement the already diverse ecosystem of external networks and 3rd party measurement solutions. Firebase Analytics is both an easy-to-use cross-network attribution solution and a free and unlimited behavioral analytics product. Since it is enabled automatically and can be used side-by-side with 3rd party measurement solutions, behavioral data is always available and conversion events can be used as a standardizing tool across partners.

To maximize the number of advertisers using Firebase Analytics for conversion tracking, the following Product efforts are planned through 2017.

- Doubleclick integration (DCM/DBM/DS)
- Twitter Attribution
- Additional Attribution sources (App Indexing, dynamic links, iOS Search, China domestic)
- Expanded network support
- Impression/View-through tracking
- Configurable attribution windows
- Fraud strategy definition

Product innovation alone won't drive adoption. A key part of the adoption of marketing and attribution features will be sales and outreach. 2016 has a focus on pitching advertisers not engaged with 3P analytics providers. In 2017 Firebase Analytics will have more networks and closer feature sets, so could be a strong alternative to 3P conversion tracking. This could provide an opportunity for more aggressive sales and outreach as advertisers migrate from 3P to Firebase Analytics.

In addition, through the integration with Attribution 360 and the Google Analytics 360 Suite, multi-channel and data driven attribution will be enabled for Google's most sophisticated advertisers.

- **Publisher Focus**: One-size-fits all monetization efforts are a thing of the past. Firebase Analytics gives publishers unprecedented insights into how their apps are being used so they can tailor their monetization experiences and maximize earnings.

Through integrations with AdMob, publishers will be able to correlate ad performance with in-app behavior and demographics information. This has the potential to produce insights which help publishers choose optimal ad formats and intelligently target placements. In

addition, Firebase Analytics' rich behavioral data can be used for programmatic optimization.

These integrations will also allow publishers to gauge how much time users were exposed to each ad unit. And, since Firebase Analytics will track screens in apps, publishers will be able to understand which screens generate the most ad exposure and revenue.

- **Developer Focus:** As the core of Firebase, Firebase Analytics provides the unifying data layer across the stack. These efforts will continue and deepen in 2017 and beyond as the developer focus is the key enabler for the other strategic pillars. Key efforts include :
 1. *Google Play Integration:* Firebase Analytics currently offers reporting on uninstalls, which is a very popular feature among developers because uninstalls are a key signal from end-users that is otherwise very difficult to capture. Deeper integrations with Google Play will allow Firebase Analytics to capture other key events such as store page views, installs and ratings, which fill in the gaps of understanding in the full user journey.
 2. *Growth and Measurement:* Firebase already offers a number of products which developers can use to grow their user base and increase user engagement. However, Firebase Analytics presents the opportunity to do so intelligently and optimally. Analytics audiences and user properties will be available as targeting criteria in Firebase's growth products, and Analytics will also capture all of the events which fuel the reporting on all growth efforts in Firebase. Lastly, Firebase Analytics will also serve as the reporting infrastructure for A/B tests across these products.
 3. *Cloud Integration:* The current integration with BigQuery allows developers to analyze their raw, unsampled analytics data. Future efforts will allow developers to access this raw data in real-time and to react to it programmatically using Firebase Functions.

And as developers become sophisticated and mature into Google's role specific products, Firebase Analytics will grow with them and provide the consistent source of data across those tools.

Competitive Analysis

The competitive landscape for Firebase Analytics is broad. While there is no single product with the same breadth and "free and unlimited" positioning, Firebase Analytics faces competition from functionality-specific "point solutions" and challenges as the result of Facebook's role in the space.

- As part of an integrated development platform, Firebase Analytics faces competition from the other large providers. Twitter's Fabric, and Amazon offer compelling alternatives. Facebook's decision to shutter Parse creates an opening to attract disenfranchised Parse customers, however, with F8 2016, Facebook has demonstrated that they will continue to incorporate Parse functionality into Facebook proper.
- As a conversion tracking solution, Firebase Analytics is positioned against point solutions like Tune, Kochava, and others who have established strong relationships with advertisers. Making things more complex, these same competitors are also partners through Firebase and with Google's ad products.
- As a behavioral analytics solution, Firebase Analytics is well positioned as a free and unlimited solution where the developer is in control of and owns their analytics data. The Facebook SDK is, however, ubiquitous and their analytics solution (now 2 years old) is very strong. Firebase Analytics needs to continue to innovate in order to catch up from a feature standpoint while emphasizing user and developer controls that Facebook has neglected. At the same time, point solutions such as MixPanel provide high-touch support for sophisticated analytics customers, a role that must be fulfilled by the Google Analytics 360 Suite going forward.

Despite these challenges, Firebase Analytics is extremely well positioned. The Firebase "Develop, Grow, and Earn" foundation puts Analytics at the core of app development. Then, by being so tightly intertwined with Google's advertising, publisher, and enterprise marketing businesses, Firebase Analytics becomes increasingly critical to developers as the source of truth for in app data.

Risks

- Cross-Team Prioritization
 - Living at the center of Google's developer, measurement, advertising, and publisher businesses requires Firebase Analytics to balance the requirements of multiple disciplines – while not losing sight of the core analytics use cases that uplift all users.
 - Certain features are valuable to all constituents, while others are directly valuable to one and only tangentially valuable to the others. When such features require deep investment (in a world of limited resources) this causes difficult prioritization discussions across the other teams.
- Time to Market vs. Project Scope
 - Firebase Analytics remains an incredibly ambitious and high-profile effort. The initial launch – into an already saturated market – was strong but competitors will not remain static.
 - We should expect Firebase to motivate customers to innovate and there's a lot to do for Firebase to keep pace, let alone take the lead, given our intended scale.
 - Also, with the launch of v1, there's the risk of losing focus in general and trying to do too much at the same time.

- Cross-Team Coordination
 - Tactically, Firebase Analytics is very much a cross-team (cross-PA effort)
 - Delivering a successful product assumes successful cross-team integrations.
 - Integrations at Google are slow and can be difficult to navigate.
 - Fortunately, the initial launch of Firebase went a long way to establishing Firebase as a platform which should make future integrations even easier.
 - The complication there, however, could become too much demand for too many integrations than we have the resources to fulfill.
- User Privacy and Legal

REDACTED - PRIVILEGE

2017 Charter: Optimize

Abstract

Optimize enables GA customers to improve their site experience and conversion rates through experimentation, targeting, and personalization. Ultimately, better user experiences and higher conversion rates will lead to increased spend with Google. Optimize is built on top of GA and GTM, enabling users to get up and running quickly, in many cases with no tagging changes. Optimize launched in August 2016 as a paid product in the GA 360 Suite. To build support and expertise for the product among a broad community, we will launch a free version of Optimize in Q4 2016.

Major investments in 2017 include:

- Media Integrations. Initially an integration with AdWords.
- Personalization. Advanced capabilities to drive site wide dynamic personalized experiences.
- Intelligence. Providing insights and automation from opportunity discovery and analysis to deployment.

<p>Team Mission Statement</p> <ul style="list-style-type: none"> • Enable customers to optimize their websites and apps by putting their Google Analytics data to work with experimentation, targeting, and personalization, boosting conversion rates and generating increased spend with Google. 	
<p>Leads</p> <ul style="list-style-type: none"> • PM: kgharrison, jmesh, dcary • Eng: jwogulis • UX: elimb 	<p>Headcount</p> <ul style="list-style-type: none"> • PM: 2.5 • Eng: 10 • UX: 1
<p>Annual A&C Level OKRs and KPIs</p> <ul style="list-style-type: none"> • Optimize 360: <ul style="list-style-type: none"> ◦ 33% of Analytics 360 customers also buying Optimize 360 ◦ 80% 30DA retention • Optimize Standard: <ul style="list-style-type: none"> ◦ 33% of active Analytics Free accounts also using Optimize Standard ◦ 20% 30DA retention • Overall: <ul style="list-style-type: none"> ◦ Launch mobile app testing ◦ Launch DS integration ◦ \$XXX million in spend running through Optimize ◦ X% uplift in conversions ◦ X% uplift in spend 	

Strategic Overview

Opportunity

The Google Analytics 360 suite helps advertisers make the most of their digital properties. Google Analytics provides powerful site and app measurement as well post-visit marketing actionability with remarketing, while other tools help measure broader advertising performance, make ad tagging easier, or provide enterprise-level data consolidation and actionability. As most advertising campaigns are intended to drive traffic to a website or app, Google Optimize is meant to help maximize the post-click, on-site conversion rates - an area of critical importance to our advertisers, and a strategic opportunity for Google to build customer relationships, lift conversion rates, and increase Google media spend.

Key Market Trends and Insights

- Importance and Impact: **30% of companies rank experimentation and personalization as their #1 investment** in 2015. Businesses personalizing the customer experience report a 14% uplift in sales. (Adobe Digital Trends 2015)
- **Personalization is finally becoming more approachable.** Optimizely introduced simple but sophisticated personalization in June 2015.
- Pure-play testing vendors **Monetate, Maxymiser, Optimizely and Visual Website Optimizer are besting traditional suite vendors** due primarily to innovations in ease of use.
- **Optimizely originally entered the market as a low cost provider and still has the largest market share.** Adobe countered with its own low cost WYSIWYG solution in response, but acceptance has been slow due to Optimizely's free penetration.
- **New competitors have entered the market with ML-driven automated personalization strategies** - CXense, SailThru, IgnitionOne, and a large number of others - all aimed at providing truly automated personalization, disrupting the more manually-driven Optimizely and Target.
- **ROI-driven marketing continues to bridge gaps** between previously siloed teams focused on website optimization or marketing performance.

Google Analytics 360 Suite Context

- **Easy actionability and tight optimization integration** continues to be a necessary and expected component of an enterprise analytics suite; Optimize's native GA integration is a significant strength.
- **Site optimization increases conversion rates and thus improves advertiser ROI.** This leads to an increase in advertiser spend and subsequently drives increased auction pressure and revenue to Google.
- **GA Users have tremendous value locked up in their GA data.** Optimize allows users to unlock that value through site optimization and personalization.

Investment Pillars

Optimize Free provides a gateway to experimentation/personalization for new users and expands the impact of Optimize' media spend lift to SMB clients. Optimize Free includes a sizable subset of Optimize 360s capabilities and usage limits that are sufficient for small to medium sized teams.

Optimize will provide the toolset for advertisers to create a consistent journey for their users, one that starts with Google ads and ends with conversions on a personalized version of the advertiser's site. With Optimize's media integrations, any advertiser can provide the same, ideal experience that the largest advertisers toil to produce and can do so in a fraction of the time. Optimize will provide cost-based optimizations and produce superior lift for Google channels via predictive modeling with proprietary signals.

Optimize enables marketers to deliver the ideal, tailored onsite experience for each and every user. In the short term, this entails client-configured, rule-based personalizations based on existing customer data. In the long term, this includes user modeling that aims to predict and serve the best version of the site to first time visitors that the client has never seen before.

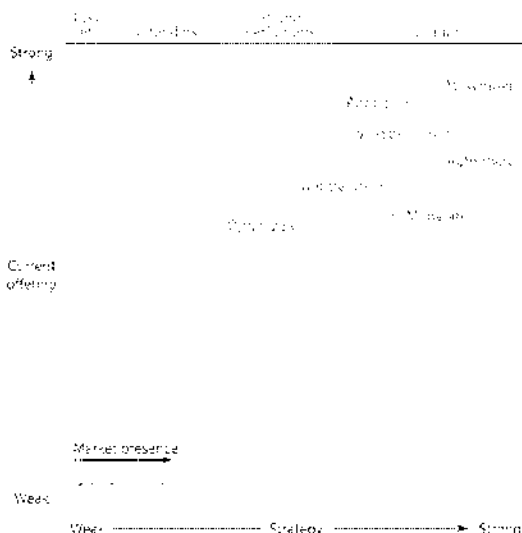
Companies often employ dedicated experimenters. These experimentation experts express difficulty in continuously coming up with new testing ideas, understanding subpopulation test results and predicting the impact of experiments. Optimize will seek to understand the structure and content of clients' sites and recommend specific tests based on models that ingest aggregated GA data as well as crawled site content. Furthermore, we'll cluster tested users and detect impactful subpopulations with needs that are best served through a non-dominant variant.

Optimize will address these needs and deliver faster results by transferring learning between models. We'll be reallocating media budgets in real time and faster results lead to more efficient distributions of advertising dollars to the very best landing pages.

Competitive Analysis

Several long standing competitors, including Adobe Target, Maxymiser, SiteSpect, Monetate and Web Trends, provide a broad range of experimentation and personalization capabilities. However, relative newcomer Optimizely has expanded the market through innovations in ease of use. Other players are starting to replicate Optimizely's strategy. Newer entrants into the

website personalization space include marketing automation players such as Marketo, and yield management software such as IgnitionOne. Detailed web competitor analysis available in Trust Radius' A/B Testing and



On the mobile app side, Optimizely and Apptimize represent the strongest A/B testing players and are growing rapidly. Many mobile marketing automation vendors (AppBoy, LeanPlum and others) have also made inroads into the space. The mobile app testing space is currently growing rapidly.

Risks

- **Continued underinvestment.** With the current team size, Optimize will struggle to address critical holes in the basic offering (e.g. multi-page tests, personalization).

Furthermore, the team can't expand sufficiently into areas of differentiation, such as predictive serving of variants on landing pages, or deep ads integrations.

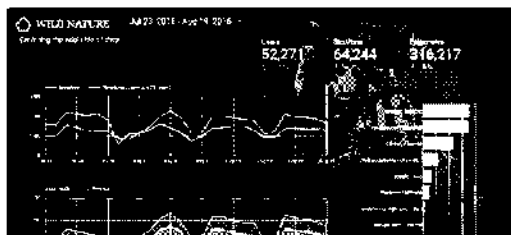
- **Lack of investment in an app solution.** Customers are already asking regularly about Optimize for mobile apps, and are particularly interested in how they can coordinate experiments and experiences across channels and devices. The current team will not be able to address other devices or channels.
- Lack of resourcing to appropriately service & support direct clients.
- Lack of integration with other offline data sources - CRM, data warehouses, etc. Companies want to personalize based on all of their available data, not just that in GA.

2017 Charter: Google Data Studio

Google Data Studio is a next generation Business Intelligence tool. Our vision is to help all business be more data-driven by making access to data (and analysis) easier. As the amount of data and datasource businesses have access to explodes, businesses are having a difficult time taking advantage of this data to make better business decisions. Google Data Studio dramatically simplifies accessing, visualizing, and sharing data, enabling companies to get the most from their data.

Team Mission Statement <ul style="list-style-type: none"> To help all business be more data-driven by making access to data (and analysis) easier. 	
Leads <ul style="list-style-type: none"> PM: nm, nikhilroy, doleson Eng: balachandar, jerrychen, maaz UX: hmenchaca 	Headcount <ul style="list-style-type: none"> PM: 3 (+1) Eng: 19 (4BE / 15FE) UX: 1
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> Increase 28-day actives Increase number of Advertisers using Data Studio 	

Strategic Overview



- Market Size:**
 IDC estimates the total market size of the Query, Reporting, and Analysis segment to be \$10.4B in 2014 (SAP largest, Tableau ~1.5%), growing to \$14.7B in 2018.
- Target Segments:**
 We want to re-segment the market by level of sophistication, vs size of company. This better represents customer need, as small companies can be very sophisticated. It also helps Data Studio avoid competing with established players, allowing us to get a foothold in the Business Intelligence (BI) space. We plan to go after the market in the follow sequence:

- **Google Internal:** Google is ranked 124 in the Fortune Global 500 list. We want to see how Data Studio gains traction within an enterprise, by making Data Studio available to all Googlers and integrating with PLX / Logs data. We want to use the feedback to make sure the product is ready for prime time when we add external customers.
- **Google Large Customers:** Focusing on underserved users of existing BI tools, who value self service, initially in marketing departments, leveraging Google's existing client relationships. (Customers of Google Analytics Premium, Adometry, AdWords, DoubleClick, etc...)
- **Google For Work (GFW):** To grow beyond the marketing organizations, and gain broader company adoption, we are looking to integrate with GFW. This includes both Enterprise and SMB customers.

- As more product capabilities are added, we expect the product to move upmarket to reach more sophisticated customers. To stay relevant to less sophisticated users, we will employ techniques such as smart defaults, progressive disclosure, in addition to abstracting complexity through templates.

- **Strategic Value:**
 - **Retaining Customers:** User research shows when customers find limitations in an analysis tool, they exit to a different tool. As data processing is becoming cheaper and new analytics solutions come to market, we want to provide a solution so customers stay with Google.
 - **Upsell / Cross Sell Google Cloud and Apps:** Data Studio integrates tightly with Google Apps storage and sharing models. Data Studio also integrates with Google Big Query, Cloud SQL and Cloud Storage. Data Studio is in a unique position to provide Apps customers a BI solution, while being able to upsell this broad base of business customers to Google Cloud services.
 - **Increasing Google Services Value:** Google's services teams spend a tremendous amount of time digging through products to pull reports. Data Studio will allow these services teams to configure once and automate away many of these time consuming tasks, allowing teams to do more productive work.
 - **Generate Revenue:** Many Google products generate data. By providing powerful data analysis and reporting, Data Studio will:
 - i. **Imputed Ads Revenue:** The more time using data to make better decisions typically lead to an increase in Ads spend.
 - ii. **Attributed Revenue:** By offering Data Studio as part of GMS, GFW and integrating with cloud infrastructure, customers who use Data Studio will want to buy other products at Google.
 - iii. **Direct Revenue:** There is a big market opportunity to capture. We will be competing in the same market that Tableau software operates; for reference, their 2015 revenue was . If the market is \$14B by 2018 (as referenced above), we are hoping to capture 10-15% of that by 2018 given proper sales/services resourcing.

Pillars

Our strategy is to define a set of high order capabilities, and reinforce them through activities and projects with tight fit. These activities and projects will leverage many of Google's unique capabilities. Overtime, competitors might copy some features, but it will be difficult to copy everything.

- High order capabilities:
 - **Tools that map to the 5-stage workflow:** Through user research, we identified 5 steps all customers go through: Collect, Prepare, Analyze, Report, Share. We plan to build 3 tools that directly map to these stages and offer a high degree of interoperability.
 - **Simple to use for non-technical users:** We will strive for this in all features we add. This might require us to iterate a few times before we get it right. By making the product simple, we can tap into the underserved market. Also we can reduce support cost.
 - **Flexible and highly customizable:** Since we can not determine all the use cases ahead of time, the product will be very flexible to adapt to different customer needs, as well as adapt to the customer as their needs change. We plan to make this easy by providing defaults and templates.
 - **Fast performance at scale:** The product must be fast for both small csv files and multi-TB files. If we are limited by speed, we will try to isolate the slow part (eg scheduling or pre-fetching) to not slow down the rest of the system.

- Google capabilities we want to leverage
 - **Google owned infrastructure:** We have many data centers with huge processing power and can support huge amounts of bandwidth. All of this has world class security. This sets us apart from many other hosted solutions, who offer limited infrastructure.
 - **Custom processing through cloud:** Google cloud offers hosted custom processing and data storage services. By integrating with cloud, customers will be able to perform very specialized data tasks, that few competitors offer.
 - **Large customer base:** Google already has a large customer base, in Ads (GA/DCLK/AWS), Publisher (DFP/AdSense), Media (YT), and Businesses (Apps). By integrating with these tools, we can quickly convert these into Data Studio customers.
 - **World class sales and services team.** Each sales team sells products that generate data. By integrating with these datasources, we can empower those sales teams to surface data through Data Studio and indirectly promote Data Studio to their customer base, effectively giving Data Studio free advertising / massive distribution.

Competitive Analysis

- **Full service / high sophistication:** At the high end, with the largest market share, SAP, IBM, SAS, Oracle, Microstrategy offer big expensive products that do many different things. These typically involve large investments, and the implementations require a dedicated IT team. While these product generate the majority of the segment revenue, their market share growth is quite low.
- **Off the shelf / agile BI tools:** At the middle end are QlikTech and Tableau. While they have comparatively small market share, both are growing market share at very high rates. IDC attributes this high growth to a broader theme of self service BI. An estimated 60% of IT project funding is now driven by business units that has resulted in many more "shadow" IT and analytics efforts. Because QlikTech and Tableau are relatively easy to use, they have attracted this new segment of self service customers.
- **Self-service BI tools:** At the lower end are a number of solutions DIY solutions that offer different aspects of Business Intelligence. Of note, Microsoft Power BI, is a web hosted BI solution, with a very low price, and tightly integrated with Microsoft's Cloud (Azure) and Productivity (Office) solutions. This has helped Microsoft also achieve high user growth. Other offerings that include BI like functionality include: Chart.io, Klipfolio, Dash This, DucksBoard, GeckoBoard, Analytics Portfolio, New Relic, Chartbeat and Domo.

Data Studio will enter the market by competing within the self-service BI Tool segment. Overtime, as we add capabilities, we will move up market to compete with middle end agile BI tools.

Features (ordered
by importance)

Table 1

Table 2

Table 3



Risks

- **Target audience**
 - Data Studio is new with limited capabilities. Adoption will be limited if we only focus on the most sophisticated customers.
 - Data Studio is cloud based. Some companies might not want to host data in the cloud.
- **Internal cross PA issues**
 - Data Studio intersects between Ads, Cloud, and Apps. If we do not work well together, the project can stall.
 - Data Studio is data / source agnostic. Another PA could build a competitive product and undercut our value. We need to work with other Google teams.
- **Revenue model that scales**
 - Data Studio must support data beyond Google Ads data (research shows limitations cause customers to use other tools). If we do not have a good revenue model, then we will not be able to support resources to growth.

2017 Charter: Google Tag Manager & Tag Manager 360

Team Mission Statement <ul style="list-style-type: none"> To solve tagging problems for Google's customers, enabling them to a) make informed decisions based on reliable data from Google and third-party tools and b) focus on improving marketing efforts and developing better experiences. 	
Leads <ul style="list-style-type: none"> PM: scottherman, bgram, rketchum Eng: bkuhn, rbm UX: wlarsen, aismail 	Headcount <ul style="list-style-type: none"> PM: 2.5 Eng: 16 UX: 1
Annual A&C Level OKRs and KPIs <p>KPI (EOY 2016):</p> <ul style="list-style-type: none"> % of LCS RUM. 2016 Annual OKR: 35%⁶⁰ <p>KPI (New -- replacing above):</p> <ul style="list-style-type: none"> % of Suite customer adoption <p>Secondary Metrics</p> <ul style="list-style-type: none"> % of Suite LCS RUM % of LCS RUM 	

Abstract

Central to running successful marketing campaigns and building delightful user experiences is measurement. The means by which measurement occurs is the use of tags placed on web sites and in mobile apps. Google Tag Manager plays a crucial role in solving tagging problems for customers and increases the quantity and quality of data being collected through tools provided by Google and 3rd parties. Tag Manager continues to focus on solving complex problems for Google's enterprise customers, but starting in H2 2016 Google Tag Manager is doubling down on this strategy by focusing on adoption and growth of Tag Manager 360. Major areas of development include enterprise workflows, ease of use, vendor neutrality, and increased platform support.

⁶⁰ Counting methodology of AW RUM for GTM was changed at end of 2015 to be more accurate and better represent the full story of adoption growth, by linking at GA property level vs. GA account level. To maintain context of our RUM growth, the historical numbers were also adjusted downward by a multiplier.

Strategic Overview

Opportunity

- Among other benefits, use of a Tag Management System (TMS) helps decrease deployment time for new tags⁶¹ and improve data quality.
- When customers use a competitive (i.e. non-Google) TMS, Google tag updates depend on the intervention of a third-party and can be more difficult to troubleshoot.
- In addition to the general benefits of a TMS, Google Tag Manager helps us:
 - Prevent disintermediation by competitors
 - Increase the stickiness of the Google product stack
 - Maintain control of and increase our product velocity
- While these benefits exist across the entire market, we see the highest opportunity (and competition) in the top of the market:
 - **Suite** - Tag Manager 360, our paid enterprise offering, was launched as part of the Google Analytics 360 Suite earlier in 2016. While it is available standalone for a fee (base price: \$48k/yr+), customers of other Suite products are eligible for a full-cost discount. In this role, Tag Manager 360 is a benefit to customers and to Google in that it enables easier, less error-prone deployment of Google tools and allows support teams to standardize their services. The specific opportunity here varies by customer segment:
 - **Suite customers without a TMS**
 - ~75% of this is addressable. The rest is made up of companies unlikely to widely adopt any third-party TMS (e.g. Twitter, LinkedIn, etc.).
 - **Suite customers with a competitive TMS**
 - Switching costs for TMSs are high, but given our Tag Manager 360 value proposition and expanding enterprise feature set, we expect that ~90-100% of this should be addressable with enough turnover time and sales effort. We can gain share here by continuing to focus on these areas, and by pursuing a beachhead strategy of getting GTM on the page in a limited capacity (e.g. just for GA or dynamic remarketing.)
 - **Suite customers with GTM**
 - Of these customers, approximately 20% also use another TMS. GTM is also sometimes used only partially within a company. GTM can increase impact here by improving intensiveness of use (having users use GTM across more of their sites, more of their tags, or by expanding the pool of people at the company who can accomplish tagging tasks.)

⁶¹ In a study by the gTech Operational Efficiency team, GTM reduced time to live for complex tagging efforts by 98% after initial setup

- **LCS** - The free version of Google Tag Manager presents a low cost, competitive option for LCS customers looking for a TMS. Improving our feature set and tag templates, increasing the value of Tag Manager 360, and crafting messaging to shift market perception will help us gain share among LCS customers.
 - The same adoption hurdles and tactics for the Suite apply to the wider LCS customer base
 - Certain LCS companies, however, are unlikely to adopt a Google tracking or analytics solution altogether (e.g. those with an entirely homegrown tech stack, a competitive tech stack, etc.)
 - GTM as a free product addresses the feature needs of a large percentage of LCS customers but lacks the hands-on support model and SLA that are common in enterprise-class TMS. Tag Manager 360 as a standalone product is intended to address these needs, making such LCS customers equally 360 Suite prospects.

Pillars

- **Enterprise workflows**
 - In order to increase and maintain adoption in the top of the market, GTM needs to have features that streamline large enterprises' tagging workflows. Large companies often have multiple users, teams, and agencies involved in tagging their sites and apps for various marketing and measurement tools.
 - Improving our enterprise-focused feature set also helps us increase penetration and usage amongst existing GTM customers. For example, improved security, ACL granularity, and governance features may enable IT teams to feel more comfortable democratizing use of GTM within their organization and with third parties.
- **Ease of use**
 - While expanding our enterprise-focused feature set, we risk losing some less sophisticated customers and less technical users to other tools more specifically tailored to simpler deployments (e.g. Segment). It's important that we maintain (and improve) our product's ease of use.
 - One way that TMSs help solve tagging problems is by improving collaboration between marketers and developers. To that end, it's important that GTM be usable by developers and less technical users alike.
 - We achieve the above by:
 - Keeping the UX simple and easy to use
 - Making it easier for non-technical users to do things (i.e. core tagging improvements, more tag templates, etc.)
 - Simplifying large scale and cross-platform deployments

- While our current efforts are aimed at increasing adoption among enterprises, we may decide at some point to target less sophisticated users with e.g. a light version of GTM.
- **Vendor neutrality / Openness / Comprehensiveness**
 - A primary benefit of a TMS is being able to manage all of your tags from different vendors in one place without constantly updating the code on your site or in your apps.
 - TMSs are often classified as either:
 - 1) Standalone TMS (e.g. Ensegment, Tealium, Signal, etc.)
 - 2) Product Suite TMS (e.g. Adobe Dynamic Tag Management)
 - There is a general perception that Product Suite TMSs are less vendor neutral, and are not interested in being open. More specifically, there is a perception and frequent competitive messaging that Google Tag Manager is a Google-centric tool that is really only best used for Google tags. Failing to fight this perception will result in customers going to tools that handle Google and non-Google tags equally well.
 - Google Tag Manager currently supports turnkey templates for tags from 25 non-Google vendors (across web and mobile).
 - Other tags may be implemented with one of our Custom HTML, Custom Image, or Custom Function Call tags.
 - We are competing with TMSs that offer hundreds to thousands of turnkey tag templates.
 - The best way for us to combat this competitive messaging and perception is to increase the number of turnkey templates that are natively supported in Google Tag Manager.
- **Platform support**
 - Customers are expanding into an ever increasing number of platforms including web, mobile apps, AMP, Facebook Instant Articles, etc.
 - GTM is set to be uniquely positioned to be a single platform for tag implementation and deployment. Building on our existing framework, we are able to rapidly build new runtimes for emerging systems and provide easy paths for tag vendors (both internal and external) to have a presence in these new systems.
 - Having better native support for various platforms than other TMSs will help to both position GTM as the best tool for managing tags on all of a customer's touch points, and also potentially act as a beachhead within companies that are otherwise onboard with another TMS or no TMS.

Competitive Analysis

Further market and competitor analysis at

- **Standalone TMSs:**
 - Often more successful at winning top 300 customers than GTM due to a better overall enterprise offering. Their #1 advantage is an enterprise sales and support model that has been unmatched by Google, and is only now starting to be handled by Tag Manager 360 and the Suite team. This advantage is bolstered by a holistic enterprise feature set.
 - Hoping to meet revenue expectations by providing additional features and services on top of core tag management (such as DMP or personalization.) In some cases, like Signal, their primary message is around personalization and tag management is secondary.
 - Top competitors:
 - **Signal** (formerly BrightTag)
 - **Tealium iQ**
 - **Ensighten** (includes acquisition of TagMan)
 - **Segment** (formerly Segment.io)
 - Emphasizes ease of deployment (on/off switches)
- **Product Suite TMSs:**
 - Top competitors:
 - **Adobe Dynamic Tag Manager** (formerly Adobe TagManager & acquisition of Satellite)
 - Available free for all Adobe Marketing Cloud customers, with first-class support for Marketing Cloud products.
 - DTM is also easier for non-technical marketers to use than GTM for many common tracking tasks (recently added a visual tagging tool).
 - Highlights their enterprise workflow capabilities and native support for both Adobe Analytics and Google Analytics
- **Mobile App-specific TMSs:**
 - Top competitors:
 - **mParticle**
 - Aims to be the “most complete way to manage app data”, providing a single API that’s used to capture data across app platforms
 - Provides data enrichment, experimentation, segmentation, etc.

Risks

- **Customer Retention** - We aim to be the best tag management solution at the top of the market. Currently we have a strong presence in the torso and tail. There is a risk that by focusing solely on the head we may be developing features and workflows that alienate our user base that wants a more simplistic solution to tag implementation and modification.

-

REDACTED - PRIVILEGE

- **Loss of forward momentum** - Based on current resourcing for the GTM engineering team, we are unable to focus on all of our slated strategic features to close the enterprise gaps. Further, the necessity of closing these feature gaps reduces the team's ability to focus on longer term innovative projects that will drive the product into
- **Adoption of non-suite customers** - If LCS sales and support for non-Suite customers is not significantly improved, we may not have the enterprise engagement model to meet our growth goals outside of the suite.

2017 Charter: Suite Core

Abstract

Suite Core is the platform that ties together all of the suite products and provides administrative and management capabilities. The stated mission of the team is to enable suite cross-product management, insights, and actionability through seamless product integrations, holistic data management, and consistent user experience. Suite Core launched in July 2016 providing a common header across suite products, cross-product summary reporting, basic user management capabilities, and integrated billing.

2017 Major areas of investment include:

- Advanced user management and organizational modeling
- Data and integrations: Facilitating integrations among suite products as well as with external data sources
- Common Assets: Starting with shared audience capabilities
- Suite wide Insights and actionability

Team Mission Statement <ul style="list-style-type: none"> • Enable suite cross-product management, insights, and actionability through seamless product integrations, holistic data management, and consistent user experience. 	
Leads <ul style="list-style-type: none"> • PM: kgharrison, matyas, jobberbeck, akef • Eng: rgardner, tthelin, fuz, rmaher, arkady • UX: wlarsen 	Headcount <ul style="list-style-type: none"> • PM: 3.5 • Eng: 38 FTEs + 8 TVCs • UX: 1
Annual (2017) A&C Level OKRs and KPIs <ul style="list-style-type: none"> • Adoption: 2,000 customers using the Suite (2016: 1,500) • Suite RUM: 50% of LCS Top 1000 (2016: 43%) • Direct Revenue: \$300M Suite ARR (2016: \$200M) 	

Strategic Overview

Opportunity

Market Context

- The Google Analytics 360 Suite is a collection of marketing measurement and optimization tools that serve to protect and grow spend on Google media. A full overview of the effort is at [redacted]
- The Suite currently includes: [redacted], [redacted], and [redacted] (in 2H 2016).

- It's imperative that Google's measurement and optimization solutions continue to be the tools of choice for transacting media. If we become disintermediated by third parties, we risk becoming dumb pipes, and media budgets will eventually shift elsewhere.
- Suite Core is the platform that connects this suite of products. In addition to providing table stakes user, organizational management and billing capabilities, Suite Core also integrates data flow across suite products to enable advanced suite-wide insights and actionability.

Pillars

Suite Core has identified four key investment tracks that collectively maximize the value of the combined set of suite products. The projects highlighted in each track are those we hope to accomplish in the next 12-18 months.

GA 360 Suite customers need the ability to manage suite products in a holistic manner. Suite Core will provide a management layer that enables comprehensive enterprise-grade user and organizational controls that span all products.

- Enterprise-grade user management, including support for user groups
- Google for Work integration for user and organizational management
- Organization Profiling to better understand and model customer organizations
- Suite ICS
- Comprehensive billing

Suite Core provides first class integrations across all suite products, streamlining data flow with other products at Google, and enabling seamless data import into the suite.

- Integration Center to facilitate streamlined management, visualization and auditing of integrations between suite products and with other Google products (e.g. GA and AdWords)
- Suite-wide data import, including CRM data. Enable reuse of data across products.

To help maximize user productivity, suite products should look and behave similarly. We will unify suite products using a common language and user experience. In addition to user experience, common assets will streamline usability. For example, Audiences should be easily reusable across all products.

- All products utilizing common UI components
- Common audience object on shared configstore

With seamless data integrations in place across all suite products, Suite Core will be positioned to provide suite wide insights and actionability. For example, recognizing that an organization

could benefit from sending conversion data to AdWords, and recommending that as an Opportunity. These capabilities will help ensure that the suite remains a primary decisioning tool for marketers.

- Opportunities in Suite Overview
- Notifications and Actions infrastructure

Competitive Analysis

The most formidable competitor to the Google Analytics 360 Suite is Adobe's . Adobe's platform is supported with a robust set of (such as digital asset management, product integrations, collaboration), several of which are similar to our own investments. Some analysis of competitive capabilities is detailed .

Risks

Current risks are largely execution related.

Much of our strategy relies on capabilities that require changes to the individual products in the suite. As a result, those product teams will need to either take on the development burden themselves, or empower the suite core team to work within their respective codebases.

Failure to gain alignment and support across the organization and product teams on our overall strategy and investments will result in a poorly integrated set of products which will diminish the overall value proposition of the suite.

2017 Charter: Google Surveys (formerly Google Consumer Surveys)

<p>Team Mission Statement</p> <p>Google Surveys mission is to provide external businesses and internal Google teams with a simple platform for conducting high quality, low cost, fast turn-around research for data driven decision making and data collection at scale.</p> <p>Through the platform, Google Surveys: (1) provides publishers with a simple and effective way to monetize their content; (2) compensates respondents fairly for their time; and (3) drives incremental spend in the Google Play ecosystem.</p>	
<p>Leads</p> <ul style="list-style-type: none"> • PM: Dylan Lorimer • Eng: Brett Slatkin • UX: John Skidgel 	<p>Headcount</p> <ul style="list-style-type: none"> • PM: 2.5 • Eng: 24 • Ops: 3 • UX: 1 • Marketing: 3
<p>2016 KPIs</p> <ul style="list-style-type: none"> • Forecasted external revenue by EOY: \$14M • Forecasted # Enterprise customers by EOY: 200 • GOR 30D active users: 4.187M • # active publisher sites: ~1150 • Avg # 30D internal surveys / avg # 30A internal survey responses: 1.2M / 28M • Avg # 30D external surveys / avg # 30A external survey responses: 22K / 1.8M • Forecasted amount to be paid to pubs: \$28M • Forecasted amount to be paid to GOR users as Play Credits: \$32M <p>2016/2017 Annual A&C Level OKRs</p> <ul style="list-style-type: none"> • Objective: Bring research into the GA360 Suite <ul style="list-style-type: none"> ○ KR: Launch Google Surveys in Q4; expand to all GA360 markets in 1H 17' ○ KR: Close \$14M in 2016 revenue; grow 100% Y Y in 2017 • Objective: Grow demand to retain GOR users and web publishers <ul style="list-style-type: none"> ○ KR: Launch Forms integration; serve 1M Google Forms surveys in 2017 ○ KR: GOR: > 60% NPS promoters; < 15% NPS detractors; 4+ stars in Play/iTunes ○ KR: Grow 30D avg pub fill rate from ~20% to 50% ○ KR: Grow internal API survey volume by 50% (1.2M 30DA surveys > 1.8M 30DA surveys) • Objective: Provide research as a service to all Google products <ul style="list-style-type: none"> ○ KR: Measurable SLAs applicable to internal teams and external customers ○ KR: Launch prioritized requests on GOR by partners (e.g. receipt scanning, France, India) 	

Strategic Overview

Opportunity

Google Surveys is a developer platform, 2-sided market and B2B tool. Across these we view the opportunity for the product in four ways:

Democratize access to decision making tools: Google Surveys provide a fast turnaround, high quality, research capability to the entire spectrum of businesses and developers including the digital marketer, the traditional market researcher and the everyday non-researcher. **Across this spectrum of use cases we believe our Total Addressable Market (TAM) is \$5.4B in 2016 .**

Monetize web content: Google Surveys provide publishers with a complementary (to Ads) way to monetize their content -- ~\$28M is forecasted to be paid via AdSense in 2016. **The opportunity** is to continue to provide publishers with a user-friendly way to monetize their content above and beyond ads and support Google's narrative on supporting quality content on the web (e.g. Contributor, AMP).

Deeper Play/Hotels/Newfie partnership: Google Surveys infuses capital into the Google Play ecosystem -- ~\$32M is forecasted in 2016. Most of this comes through A&C funded surveys (e.g. from Newfie, Hotels) and is provided to A&C funded new Google Opinion Rewards (GOR) users (via the ~\$3M they've funded for CPI installs). **The opportunity** is to take a more holistic view on how we spend A&C budget to drive installs, balancing survey demand vis-a-vis user churn and happiness, and consider spending some of the install budget on "filler" surveys to reduce churn and increase CSAT. Further there is a _____ to promote GOR in the Play Store to drive installs *if* Hotels/Newfie in turn funded new users with free credits, which is another option for where we will consider applying budget instead of through CPI ads.

Lower the barrier for Google products to seek ground truth: Through our platform as a service we allow any Google product to incorporate surveys without needing to worry about respondent quality, sample size, reach, or other details. **The opportunity** is broad: enabling Ad measurement, UGC collection, training machine learning models and improving demographic labels. Throughout 2016 new teams are integrating with Google Surveys on an almost bi-weekly basis.

Pillars

There are three pillars to our external research strategy:

GA360 adoption goal: With Google Surveys re-launching in the Suite in Q4, **our product strategy** post-launch is to focus on product polish (historically lacking) and Suite integration, with

a goal of launching it to the global GA sales team early in 2017 (In Q4 we'll launch only to the existing Google Surveys sales team).

GAFW adoption goal: ~3K external users find us online and create surveys in our product each month. Most of these users are underserved by the product because it's built for experienced research professionals. **Our product strategy** is to shift these non-researcher users to use Google Forms as their front-end for conducting causal research. Forms will integrate with Google Surveys as a platform to collect survey responses. This will allow us to focus our Google Surveys product on the GA360-aligned use cases and let Forms focus on the Apps productivity audience and revenue opportunity.

Research platform API goal: In Q1 2016 we launched the Google Surveys API @ [redacted] to allow third parties to programmatically create and run research on our platform in the same way internal Google teams do today. Within 2 weeks we closed our first two deals > \$100K each. **Our product strategy** is to pitch, close and launch 5-10 named API partners to prove the concept that there is an external developer opportunity for Google Surveys worth pursuing.

There are three pillars to our internal platform strategy:

Achieve sufficient scale and reach to meet the needs of internal partners: Our internal partners have historically driven many of our core use cases and market expansion. **Our product strategy** is to partner with the highest volume partners (e.g. Hotels, Newfie, BrandLift) and ensure that we are (a) expanding to the markets they need (e.g. India, France), (b) expanding to the platforms they need (e.g. iOS), and (c) providing a large enough respondent base to meet their needs (e.g., statistically significant, location-history enabled).

Provide measurably high quality survey responses: Our internal and external researchers expect Google Surveys to filter out low quality responses, provide for true representativity, ensure accurate demographic labels and take care of "quality" for them. **Our product strategy** is to continue to focus on the most important items of our [redacted] through 2016 and 2017, including improvements to our weighting model and more effective filtering out low quality respondents on web and mobile.

Run Google Surveys as a service for internal teams: When internal partner teams integrate with us, they typically build research into their product in a way that they depend on our service and a set of guarantees it offers them. Historically we've met some expectations and fallen short on others in this capacity. **Our product strategy** is to expand our SLA to our new API and cover *all* of our major integration partners* and internal users.

Competitive Analysis

There are few competitors that offer the scale, accuracy, and ease of use that Google Surveys provides for both DIY and enterprise clients. There are however several solutions that our users

consider when evaluating decision making tools, ranging from outsourced research to established firms like Kantar and Ipsos, to use of various online DIY survey tools from SurveyMonkey, Survata and Qualtrics. With its representative sample and mobile install base Google Surveys stands alone. A more in-depth review of survey options is captured

Risks

Risks for our external research strategy:

- Google Surveys cut a lot of corners to get to market quickly. The primary **risk that we see** is that as we relaunch in the GA360 Suite, we'll get caught up in feature development and not be able to prioritize the polish and automation we need.
- Our sales team are not on a sales comp plan because we don't yet have forecastable revenue. Our transition to a GA360-aligned business model may delay this further. The **risk is that** it could take us another year before we can forecast revenue and during this period we risk attrition from our sales team.
- The Forms integration strategy is to launch a freemium research model to 3M 30DA Forms creators. **The risk is that** if our earlier experiments and models mis-calculated the opportunity we need to pull back on the free aspect of our integration, resulting in materially lower survey demand, Apps revenue and possibly wasted engineering.
- We're betting that we can grow direct revenue by attachment to GA360. **The risk** is that if the GA360 user doesn't take to our product, then our sales to traditional researchers via our own direct sales team will flat line if we don't grow our sales resources and we'll be faced with a decision on whether we exit the business.

Risks for our internal platform strategy:

- Our infrastructure hasn't kept up with demand and the shift from fewer surveys with many responses (e.g. Tidbits) to millions of individual GAIA targeted surveys (e.g. Hotels). We're constantly trying to scale to support growth, and **the risk is that** we're focusing too much on band aids and not spending time to scale out our system for the next two orders of magnitude of growth we expect.
- The virtuous circle of paying GOR users in Play credits, thereby driving more spend in the Play ecosystem and costing us 70 cents on the dollar won't apply to our planned launch in France with PayPal as the payment provider. **The risk is that** we may grow our use of PayPal to get to new markets more quickly and to launch on iOS, which demotes our Play partnership and may change the economics of how Hotels/Newfie fund GOR installs.
- We're presently unable to grow our publisher network any more -- publishers have expectations on fill rates and our growth in new surveys is largely mobile only through our GOR android app. We have certain bets in place that will solve for this (e.g. Google Forms and BrandLift on Google Surveys publisher network). **The risks are that:**
 - If neither of these bets pay off then our publisher network will continue to stall, which may mean failure of our publisher network as a source for sample.
 - While we have the BD resources today to grow publishers, we may lose those resources due to attrition and then be unable to ramp up quickly.

- We have a few very large publisher conglomerates that all told represent a huge % of our respondent base. If we lose any of those conglomerates we risk the collapse of our publisher network.
- Google partner teams need us to keep growing the GOR install base to meet their business objectives. However more GOR users mean potentially fewer surveys for each; and so **the risk** is that if we don't grow survey demand as well we may see our App rating and CSAT go down, our users churn (leading to greater acquisition costs), in turn making it harder to meet install base needs.
- There are strategic internal partners that could help drive additional value to our platform (eg. Crust). We've prioritized our resources to satisfy only our existing API customers first. **The risk** is that if we continue with our current resource allocation we forgo potential collaboration/integration opportunities with 1-2 new partners that can add value to the platform and help increase survey demand.
- Publishers expect us to keep up with the latest efforts by Google to fund the open web -- namely AMP and Contributor. To-date we haven't been able to staff integration with these services. **The risk** in continuing to ignore these emerging features is that we force sites to choose between monetizing with Google Surveys or adopting the other features Google is promoting.

2017 Charter: ACUX

go/acux-2017-strategy

Team: Cordell Ratzlaff, Heather Cassano, Steve Rogers & Neil Ramshaw

1. ABSTRACT

"Publishers and consumers have reached the tipping point, finally realizing that display advertising presents them with a no-win proposition. If they show enough display ads to turn a profit, they risk alienating their readers and driving them to block ads. And brands, for their part, are looking for a more effective medium than display ads for the upper-funnel advertising traditionally reserved for TV — the kind designed to drive brand awareness and purchase intent."
, Techcrunch

Though we've seen improvements over the past few years, consumer ad experiences are still frequently intrusive and not relevant, leading to a rise in ad blocking. Ads should be viewed as useful, so that users will welcome them into their lives, trust the ads (and Google by extension), and then in turn be more open to share personal info, which will allow us to create even better ad experiences. We need to allow consumers to both search for ads with prior intent (we do this very well, obviously), as well as discover new products and brands they don't know they are looking for (we are not doing this as well). Seth Godin said that search is "the action of knowing what you want until you find it," while discovery is "when the universe (or an organization or a friend) helps you encounter something you didn't know that you were looking for." Facebook is excelling at this today, with its sponsored content/native ad model, as well as tools to easily allow the spectrum of advertisers access. (This video describes the situation we're in quite well.)

To allow for proliferation of these better consumer ad experiences, advertisers and publishers must be empowered to easily and effectively utilize them. Today, our advertiser and publisher offerings are often disconnected, difficult to traverse, and contain a "one size fits all" approach, not targeted toward specific user roles. We can fix this by focusing on holistic user experiences across our product lines. For advertisers, this means taking a high-level look at our segmentation strategy across the advertiser buying funnel, and rethinking how we offer needed capabilities to each type of user across Doubleclick, AdWords and Google Analytics. For publishers, this means looking at integration points across Triton, AdSense, DRX and AdMob and reducing friction points for the entire spectrum of publishers. As we proceed, we need to consistently measure our progress toward excellence in a way that makes sense for enterprise products. Most importantly we can make a major leap forward by taking a user-first focus,

building targeted experiences that decrease the complexity that exists today, with many competing workflows, processes and product experiences.

2. CONSUMER AD EXPERIENCES

TODAY

We need to invest in new, compelling and highly relevant ad experiences for consumers. Skipping or avoiding ads is a rational defense mechanism for users who fear being duped, taken off course, contracting malware, identity theft, or are just sick of repetition. It's a simple psychology: "Losses hurt more than gains feel good." Good ad experiences exist, but not often enough to overcome consumers' general bad perceptions. See: [\[redacted\]](#), [\[redacted\]](#) (older but still relevant).

We've made progress on better ad standards with Magnolia/Smoot. The standard should help reduce annoyance by removing the worst ad offenders, but we aren't yet working on *increasing positive perception of ads*. ([\[redacted\]](#))

[\[redacted\]](#) identifies a series of principles that flip the focus from the ad to the user—the delivery of the best ad at the right moment (and only that moment). These aspirations will only work if we give advertisers and publishers the tools to deliver these kinds of ad experiences, by cleaning up our offerings, empowering advertisers to plan effectively, create the most impactful campaigns & inventory, execute & target most effectively, and optimize quickly. Search Ads aren't immune. Project [\[redacted\]](#) has uncovered examples of irrelevancy: e.g., users searching for reviews aren't ready to engage in buying products or services. Answers and Knowledge Panels have trained users that we show these when we understand their query. We don't show them for commercial queries leading users to requery. For many commercial queries users are visiting dedicated, well advertised sites for info and searches, e.g. Edmunds.com instead of starting their autos search on Google.

TOMORROW

Ads need to be relevant, timely, presented in the appropriate context, not hide (or move) content, not be distracting, and provide useful info (e.g. comparative info, price changes, and for products user will genuinely be interested in). To accomplish this, we need to:

- Take advantage of Narnia 2.0 for better targeting.
- Create ad formats that are more engaging, informative, and entertaining
- Create ad formats that give consumers more control over the ad experience, not just indicating annoyance but helping us deliver more relevant useful ads.
- On Search: provide rich (often organic) content, including answer cards to keep Google Search relevant for highly commercial queries.

3. ADVERTISER USER EXPERIENCES

More than ever, advertisers must be empowered to easily and effectively create the best possible connections with their customers. However, today we make this too difficult. Our product offerings are often disconnected, difficult to traverse, and contain a “one size fits all” approach. We can fix this by shifting our focus to users, instead of products/features. This means taking a step back and gaining a deeper understanding of our user segmentation across the advertising ecosystem, leading to an improved design strategy for advertisers at every stage of the buying funnel, and rethinking how we offer needed capabilities to each type of user across Doubleclick, AdWords and Google Analytics. Following are the specific strategies we’ll need to focus on:

1. Better segmentation strategy will lead to better experiences for all

Our products are often not clearly targeted to a specific user segment, and the user experience presents a “one size fits all” approach, which misses the mark for many of our users and hurts our business. Many advertisers straddle AdWords, DoubleClick, and Google Analytics to find the feature set and flexibility they need. For example, on AdWords there is a high level of churn, primarily driven by SMB. We know that

, and . Other point players in video and app install (e.g., Facebook, TubeMogul) are providing more targeted and seamless user experiences. With a deeper understanding of user segmentation and roles across the ecosystem, and the connections between our advertisers, marketers, and agencies, we have an opportunity to transform our approach to user experience across our products. The knowledge we gain will allow us to shift our focus to users, rather than products and features, and design holistic solutions that meet their specific needs. We have made some progress already. We’ve kicked off to explore a product agnostic view of user segmentation. Additionally, we’ve completed investigations into segmentation, clustering and personas:

- 1.
- 2.
- 3.

2. Provide a flexible, assistive UX for users (no longer a one size fits all approach)

Our user experiences are not sufficiently flexible to meet the needs of the wide range of users we serve. This is further complicated by the focus on quickly launching features, products, and tools—while these launches often meet immediate needs, they can cause broken workflows, overwhelming product UIs, and poor user experiences. We can solve this by focusing on holistic strategies for specific user roles and goals. Our UIs should be flexible, dynamically adjusting for users based on previous use, current behavior and models based on aggregate data. AdWords Next has taken steps in this direction to make the platform advertiser-centric: showing relevant navigational elements in the Page Menu (aka “Skinny Nav”), surfacing key data/insights automatically, and revealing controls & widgets at the right time for users. Now, we need to double-down/expand this across our products. We can intelligently increase complexity through

progressive reveal, surface guidance as needed, and balance simplicity through automation, while still allowing for the right level of control. We can accomplish this by using a UX capabilities model - allowing for reuse of similar workflows across products and building upon the growing movement for UX component sharing using ACX and other shared component libraries. Recent work in this area includes:

-
-
-
-
- May 2016 - a simple, role based permissions model for advertisers

3. Make it easier to create native, feed-based ads

"...despite scale of Android adoption, Google's mobile success is just the continued success of its existing search business on a different screen. It relies on users behaving the same way on mobile as they do on desktops; namely, searching through browsers for things they already want. But as the browser gets replaced by the feed, and search replaced by discovery, Google is in as much of a disadvantage on mobile as anywhere else."

Techcrunch

Facebook is excelling at feed-based advertising, with its sponsored content/native ad model, as well as user experiences that easily allow the spectrum of advertisers and creative teams access. While we've made progress with native ads, they are still and, in many cases, not compelling for users. We need to make native ads extremely easy to create and manage, and most importantly, target them to the right user at the right moment in the right place. We should invest in more automated, precisely targeted, out-of-the-box solutions (like Universal App campaigns, Native, Dynamic, FBX Canvas-like experiences, etc.) that leverage our strengths in automation, big data, and responsiveness. The below work sets the stage for these goals, but we still have a lot of work to do.

1. - simple feed-based dynamic ads
2. - June 2016 - allowing destination ads beyond search
3. - March 2016

4. Allow for more human-centric, bespoke brand & video advertising

"The business of digital content monetization is moving to a human-centric focus on quality and engagement. It is a shift that is not only technological in nature, and Google will need more than just new technology to get ahead of it. It needs a less Google-y approach to content and creativity — a cultural shift and departure from the company's left-brain comfort zone."

, Techcrunch

We need to get better at brand and video advertising. Our innovations in programmatic and automation, while boosting performance and revenue in the short term, have damaged consumer trust. There are many voices calling for the death of brand advertising as a result of annoying, intrusive experiences. We have an opportunity to solve this with a return to human crafted messages and engagement experiences. Our work on suggests that, with some creativity and user-focus, there are better ways to increase awareness of brands, and disrupt the current model. We can empower advertisers to facilitate a real conversation with their consumers through great content, storytelling, and, most importantly—making great products. For us, this means enabling a content creation and distribution platform that facilitates a bi-directional brand to consumer relationship, and opens channels of communication across advertiser teams. We

have only begun exploring this area. The below projects, and others, will help lay the foundation for this new world of better, more effective brand advertising:

1. [redacted] - sprint in Feb 2016 - making creative
2. [redacted], sprint in June 2016
3. [redacted] (Using Director to make awesome, automated video ads)
4. [redacted]
5. [redacted]

5. Insights & opportunities everywhere

While we've begun to incorporate insights into some of our workflows, there are still many opportunities to provide contextual insight into what advertisers should do to be most successful. Opportunities are insights on steroids—they allow users to gain insight into performance and forecasting, along with a call to action to allow for improvement or optimization. Insights and opportunities should be embedded throughout our products; integration of features from Google Analytics into other products' workflows is a prime example. The GA Insights Panel is an extremely useful tool that today is only available in GA, yet could provide high value to users across Doubleclick and AdWords. It allows users to quickly answer questions about their data using natural language, instead of going through the tedious process of creating a report manually. Opportunities are surfaced in AWN Opportunity Center and in the alerts framework (Hedwig), but we need to bring these into other workflows. Other products need more insights and opportunities threaded throughout the workflows as well. Interesting explorations and information below:

1. [redacted], July 2016
2. [redacted], June 2016
3. [redacted]
4. [redacted]
5. [redacted]. August 2016

6. Holistic advertiser planning

Today, we don't offer a holistic, strategic set of products or tools that allow advertisers and internal sales teams to plan campaigns easily and effectively. There are too many gaps (e.g., the Doubleclick product line, TV to digital planning, etc.) and disparate solutions that require specialized expertise and have limited access to users. Planning is taking a lot more of our sellers' time than it should (they want to spend most of the time talking to clients, not trying to find numbers across our many tools). By building better planning tools we empower these sellers to create better pitches, which leads to them hitting revenue goals. We should be able to offer more—holistic planning that is designed and built for the various planning roles across the entire spectrum of advertisers across Doubleclick, AdWords and Google Analytics. Whether it's an uber-planning tool or a set of connected, thoughtfully designed products that work together, we have an opportunity to decrease the complexity that exists today. We've made some progress in this area, especially in the area of TV planning, but we have work to do in order to create a truly holistic vision. Interesting explorations below:

1. [redacted], June 2016
2. [redacted], July 2016
3. [redacted], June 2016
4. [redacted]

5. , 2015

7. Better UX measurement will raise the bar

A consistent process for measuring the success of our products will allow us to accurately measure our progress over time and understand the impact of development and product decisions on users and our business. Measurement today is inconsistent (when it is done), preventing a comparison across products, and often does not include revenue-impacting UX metrics, such as users' productivity, sentiment, and engagement. While many frameworks for measurement exist throughout Google (e.g.,), they have primarily focused on consumer experiences and do not address the unique needs of enterprise. We strive for product excellence, but struggle to validate our progress and make informed tradeoffs between speed and quality. We now have an opportunity to come together as UX, PM and Eng teams to develop a common approach. This effort has already begun with the creation of the (proposal in progress, requiring iteration & validation). We still need to refine this model and implement it across our products. This will provide stakeholders a transparency into live metrics and tracking across our products. But this program needs to be supported with resources, included in launch criteria, and integrated into our OKRs and evaluations. If we succeed, we'll have greater accountability into decisions about prioritization and resourcing, and ultimately we'll be able to make better long term tradeoffs between quality and speed. Recent work in this area includes:

1. - focused on measuring the consumer ad experience, June 2016
2. - focused on advertiser & pub experiences, August 2016
3. - a new measurement framework for enterprise products
4. For SMB (video focus): (measuring offline conversions)

4. PUBLISHER USER EXPERIENCES

TODAY

Publishers are in a market which is changing significantly; the shift to mobile is effectively complete for consumption with desktop now seen as legacy. however many publishers have still not made the shift, hence the need for projects such as Google Publish (Triton) and the rapid acceptance of AMP. Revenues have been falling for publishers for quite a while and the initial reaction was to increase the volume and visibility of Ads which led to a degradation in the User Experience and combined with quality of many Ads was a significant driver in the rising adoption of Ad-Blockers. The increase of walled gardens such as Facebook has further constrained the freedoms publishers have to control their own experience, production and brand values. There is a clear perception from many publishers that Google should best know how to monetise content and they expect us to be able to optimise. There is a contradiction which needs to be understood and addressed which is that publishers look to control the types of creatives which are displayed next to their content through tools such as ARC to ensure that it is relevant to the context of content, however an Ad system which is fully relevant to the consumer such based on Narnia 2 data may well be in conflict with that.

There is an interesting development within new publishers which is that some leading edge creators who previously would have relied on Ads next to their content for monetisation are increasingly being paid by brands for endorsement across multiple social platforms.

Publishers have multiple pain points / points of friction;

- Degraded User Experience, there is significant evidence that publishers are at least as worried about the quality of the experience of their sites as they are the revenue generated. Evidenced by the use of allow and block ads as well as ARC.
- Falling revenues
- Loss of trust in the ecosystem due to the necessarily strictly enforced policies due to abuse through rogue publishers.

TOMORROW

Publishers need better and more integrated user experiences across Triton, AdSense, DRX and AdMob. We need to just plain make it easier to get the job done, and reduce friction points for the entire spectrum of publishers. We've only just begun exploring the connection points between our publisher products. Here are a few recent examples of these explorations:

- July 2016
- Triton Intelligent Editor Sprint
- AdSense Primo
-
-

To accomplish our long-term publisher vision, we need to:

- Understand the impact of an increase in quality of ads coupled with a decrease in ad density on engagement and ultimate revenue.
- Easier creation of inventory and access to high quality ads.
- Automation to enable a simultaneous increase in inventory with the ability to experiment and optimise with lower friction.
- Tools to enable publishers to take advantage of new forms of monetisation across multiple platforms.
- Tools that enable a publisher to make clear trade-offs of UX over revenue, we have significant anecdotal evidence coming from Pub Panels, both in AdMob and AdSense (yet to establish if this is also the case in DRX but the assumption is that it is) that this is a strong and clear goal for publishers.

5. SUMMARY

Ads experiences of the future need to be relevant, timely, presented in the appropriate context, not hide (or move) content, not be distracting, and provide useful info. To accomplish this, advertisers and publishers must be empowered to easily and effectively create the best possible connections with consumers. However, today we make this too difficult. Our product offerings are often disconnected, difficult to traverse, and contain a "one size fits all" approach, not targeted toward specific user roles. We can fix this by shifting our focus to the user, understanding them better and designing holistically around their needs.

2017 Charter: AMT

<p>Team Mission Statement</p> <ul style="list-style-type: none"> Develop innovative and higher quality advertising capabilities through statistical research 	
<p>Leads</p> <ul style="list-style-type: none"> Mgrs: Elissa Lee, Penny Chu, Tony Fagan Analyst TL: Jim Koehler Eng TLM: John Day-Richter 	<p>Headcount (86.36)</p> <ul style="list-style-type: none"> Mgrs: 3 Analysts: 47.36 Eng: 28 PM: 2 UX: 1 PMM: 5 (client leads)
<p>Annual OKRs</p> <p>OB1: Develop a new way for brand advertisers to buy ads across Google</p> <ul style="list-style-type: none"> KR1: Trend campaigns for 25 brands with Viral and Search KR2: Integrate Category Trends and Brand Health with Insights Finder <p>OB2: Develop US cross-media video measurement at 10x scale of SSPs</p> <ul style="list-style-type: none"> KR1: Launch TV measurement to Fiber publishers and DBCK advertisers KR2: 80% TV attribution accuracy with embedded panel <p>OB3: Develop industry leading attribution methods</p> <ul style="list-style-type: none"> KR1: Develop new MMM methods and simulator KR2: Increase transparency and accountability in the industry. Provide Google data for 250 brands and 8 countries KR3: Develop new DDA methods and simulator <p>OB4: Develop Brand Measurement methods</p> <ul style="list-style-type: none"> KR1 (reach): Cross-device unique reach with demos KR2 (brand): Brand lift method across platforms KR3 (sales): Pilot sales receipt scanning <p>OB5: Provide custom research for GCAS clients</p> <ul style="list-style-type: none"> KR1: Custom research for GCAS clients KR2: Launch TBR in Geo Exp, 10 experiments in 5 smaller markets KR3: Predictive model for creative performance 	

Strategic Overview

Opportunity

Ads & Commerce (A&C) would like to launch industry-leading products fast and at scale. Measurement products require foresight and research to achieve this goal. AMT tries to make this possible by applying statistical and domain expertise to problems early, before they are needed in production, and to work with other teams to implement solutions in our products. This has been shown to work over the years as AMT has made significant contributions to ad

planning, targeting, and measurement. Examples include Reach (Unique Reach, Extra Reach, TV), Brand Lift, Sales Lift, Geo Experiments, Marketing Mix Models, Data Driven Attribution, and Consumer Trends. Almost all failures have occurred from not working on a problem early enough or not having tight enough coordination with other teams.

Pillars

- Expertise - AMT is a team of PM, QA, SWE, and domain experts. A high number of QAs keep the team focused on analytical problems. The SWEs enable prototyping and better product integration with other teams. AMT has direct relationships with our largest clients. The domain experts work with clients, which provides ideas for new problems to work on and helps make sure what is developed will be accepted in the market.
- Structure - AMT is organized as a single centralized team. This provides flexibility to work on the biggest opportunities and develop consistent solutions across products.

Risks

- Data - High quality measurement requires signed-in user data at scale and permission to use. We don't have this today. Consumer sign-in rates across Google properties and access points should be 90%+ to achieve Google quality measurement.
- Structure - AMT is one of the few centralized teams in A&C. Success requires a willingness to collaborate, which is not always shared by other teams.

2017 Charter: Education

Owner: jcutroni@

Director / VP Sponsor: Paul Muret

Abstract: Educational programs can help us connect with users, help them succeed at their jobs and in their careers, and build a strong relationship with them. This ultimately drives product adoption and Google revenue. Educational programs include documentation, online courses - like [Google Analytics](#), [Google Ads](#), [Google Tag Manager](#), social media management, product launch support (for B/C launches) and [Google Cloud](#). All of these programs work together and help create a relationship between Google and our users. This paradigm, #educate and engage #users, is not just for SMB and long-tail users - it's for all of our users.

Overview

People love digital marketing, digital advertising and digital analytics.

Seriously, they really do!

As one of the leading platform providers in all of these industries, our products are widely adopted. Users are passionate, almost obsessive, about our products. We have a unique opportunity to connect with users, help them succeed at their jobs and in their careers, and build a strong relationship with them. This helps drive product adoption and Google revenue.

To do this, we can focus on two main areas: learning and certification and engagement/activation.

Learning and Certification: Users need to understand how to use our products effectively - that's the core of any education program. But, education is more than just documentation. Sure, we create documentation for all of the products in DVAA, but we think of documentation as the product manual. We want to do more and engage the user via other learning formats - like video and self-paced online courses. We are even expanding into classroom education at leading universities around the world. This will help us scale to meet our massive user bases.

Engagement/Activation: Many users, "get to know us" by accessing our educational materials. But the relationship can continue after that. We run a number of engagement and activation programs that encourage the relationship between Google and users. For example, we manage the social communities for Google Analytics ([Google Analytics](#): 950k followers, [Google Ads](#): 7M followers) and publish multiple monthly Google Analytics newsletters (Advanced User newsletter: 2.9M users per month, GA360 newsletter reaches ~80k users per month ~25% open rate and ~ 1.5% CTR for both). Partner programs can also help scale user engagement in regions where we have smaller. For example, the [Google Ads](#) is 400+ partners in 50+ countries.

All of these programs work together and help create a relationship between Google and our users.

This paradigm, **#educate and engage #users**, is not just for SMB and long-tail users. Customers, many of whom pay for our products and spend a fantastic amount advertising on our platform, need to educate internal teams and users. It might be a global agency with 30,000 advertising professionals. Or, an international CPG company with various marketing and analytics teams. Our programs can help both of these groups.

Steve Lipscomb, the Senior Director Analytics, Johnson & Johnson was asked for a comment about our platform when it launched. He said, "I'm really looking forward to seeing this [Analytics Academy] come out of beta. **We have a digital mini-MBA program at J&J and this would be perfect for the analytics part of the class.**"⁶²

In addition to individual orgs, agencies also need help scaling education. Paul Muret relayed the following information after a meeting with Dentsu Aegis. **"We talked about scaling education efforts to raise the knowledge of 30,000 DAN employees."**⁶³

Pillars

Our mission is to educate and engage users - people who use the products every day to get their jobs done. We take the time to understand users and their work so we can speak their language and create content that help them do their jobs more effectively. But, we're not just here to explain our products, we're also here to help them understand how features impact the larger business.

The Education team is a service to all of the products within DVAA. We work alongside PM, Engineering, and UX teams to ensure that we understand the products and how they are designed and built. This close collaboration gives our team a better understanding of the mental models and workflows within the products, which helps us to create materials that speak to the users and the work that they do every day.

Focusing on the user also means understanding, at an individual user level, what each person needs to be successful in their job. Just as marketers strive to provide consumers with the right message at the right time, we want to provide users with the right education at the right time.

⁶²

⁶³ Paul Muret, EMEA Trip Report email, April 25, 2016

Competitive / Ecosystem Analysis

There are many vendors, third parties and traditional educational outlets that provide educational materials for digital marketing, advertising and analytics. Below is a small sample of what a few of our competitors provide for educational materials.

Resources:

- (publically accessible)
- (internal doc)
- : Overview and Assessment (internal doc)

Comparables Google Efforts:

-
- &
-

Adobe offers several in-depth training courses for each of their products spanning implementation, basic usage, and advanced usage. These training courses are either in-classroom courses or virtual courses. The majority of courses are more than one day in length. Often, these courses are negotiated into new client contracts on a cost-per-participant basis. Clients can also bring an Adobe consultant on-site to teach a customized training for the client company. All courses are paid.

Pros: Certificate available, covers all Adobe products

Cons: Expensive, Adobe centric, infrequent offerings

Resources:

-
-

64
65

Comparables Google Efforts:

-
- Google Analytics Certified Partner training

Many online education providers and traditional colleges and universities offer digital marketing courses. These courses usually contain elements of digital marketing, digital advertising and digital analytics. Udacity, edX, Market Motive, Lynda, and a number of other players all offer courses and are developing more.

We do not believe that these courses are competitive to our educational offerings - in fact we see them as complementary. They usually include our tools because they are free, widely adopted in the marketplace, and can provide students with hands-on experience. This helps our tools and platforms become industry standards.

One opportunity for us to explore is our ability to form partnerships with these providers. Many have reached out to us to partner and create content for their programs.

Pros: Tremendous global reach

Cons: We have less control over how our products are portrayed

Resources:

-
-
-
-

Comparables Google Efforts:

- -
 -
 -
- &

Risks

In the past, it has been difficult to get funding for educational programs - and it's become increasingly more difficult in the last year. On the DVAA side, Eng teams have traditionally donated heads for writers. Securing funding can be difficult as the impact measurement of our programs can be challenging and the impact can be delayed.

While we collect a lot of data for all of our programs (), Dashboard,), measuring revenue impact is difficult. The challenge is joining data across our various platforms (gKMS, CourseBuilder). We are building systems for better metrics () and hope to launch them in 2017.

2017 Charter: APAC

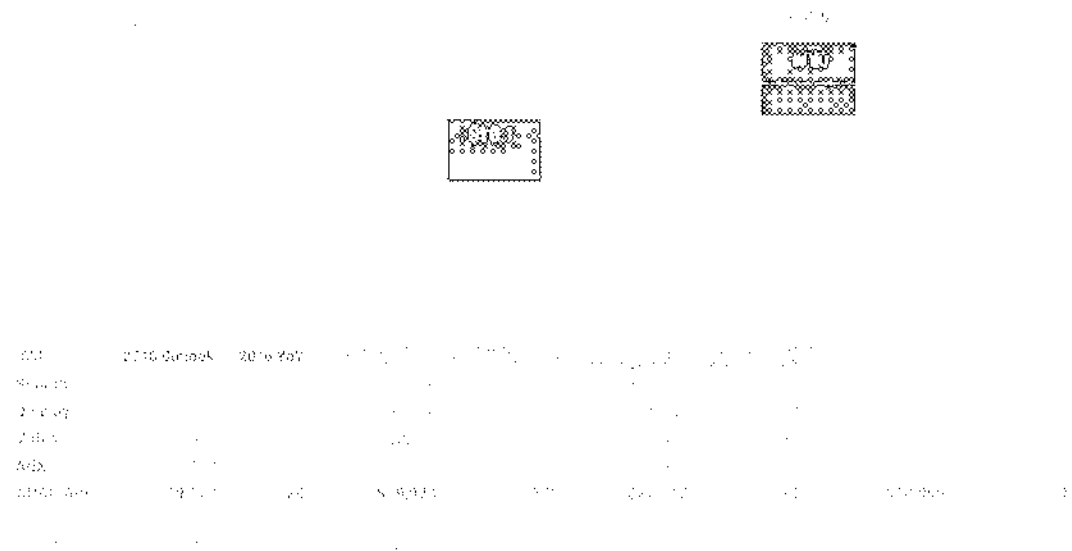
Team Mission Statement <ul style="list-style-type: none"> Grow APAC revenue across ads and commerce while establishing APAC as the center of excellence and innovation for mobile monetization strategy. 	
Leads <ul style="list-style-type: none"> PM: tommyk@mbidzos@ Eng: xchen@ UX: 	Headcount <ul style="list-style-type: none"> PM: 6 Eng: 62/0 UX: 0
Annual A&C Level OKRs and KPIs <ul style="list-style-type: none"> APAC Basics: 4.2 Billion Population; more than 1.14B smartphone users 980M forecasted smartphone shipments in APAC in 2017 Ads Market Size: \$174B total annual ads market <ul style="list-style-type: none"> In 2016, APAC will overtake North America as largest digital ad market in the world (at \$59.7B), according to Strategy Analytics DVA to grow 18% CAGR '15-'20 to become a \$51B market. Significant growth from native (est. 32% CAGR), mobile (29% CAGR), video (29% CAGR vs. 14% CAGR for display). Programmatic estimated to grow from 13% to 41% of all DVA buying. Detailed Country and Segment Market Sizes Current Countries of Historic Strength: Australia and Japan Focus for Growth: China, India, Indonesia Biggest concern is declining transaction volumes on Android, especially on the low end. This reflects the increasing marginalization of Search: <ul style="list-style-type: none"> India and Indonesia overall search queries only growing ~10% y/y today, down from ~30% in 2015 for India and ~40% Indonesia in 2015 Cause of concern given stage of development and the number of users coming online. More detail on search decline Key take away: 2016 market share for Display <i>only</i> is estimated at 13%, growing to 15% by 2020. FB overtook us last year. 	

Strategic Overview

Opportunity

Background: APAC is a mobile first (mobile only) market, and the acceleration of the move away from desktop and browser towards an app-based, mobile-centric digital experience is happening much faster than the rest of the world. Other markets will go in the same direction, but several years later than APAC users are experiencing these trends. It's critical for Google to address APACs market reality today, as similar trends will appear in Europe and the Americas down the road.

Current Run Rate and 3-Year Plan



Most users in APAC coming online for the first time (appx 100 million new users in 2017) have only one device -- a smartphone -- and conduct all of their online activities through that one device. Most users' digital experience is anchored in **four** apps. They buy a smartphone on a prepaid mobile plan, and download a messaging app (whatsapp, line, kakao, or wechat), a social app (facebook or qzone) a commerce app (flipkart, amazon, rakuten, taobao), and a video app (youtube, youkou). These four experiences are the center of their digital life, and other activities typically come after these four core elements. These secondary activities include gaming, utilities, news, sports, travel, and video, and stock/banking apps. Mobile Web is not a primary digital activity for these users, amounting to less than 10% of their time spent online., and discovery is not conducted via traditional Web-based search. Discovery is primarily conducted in balkanized, app-centric search tools. Also note that ad blocking is not commonly used in APAC (with the exception of UC Browser), though in some cases there may be appetite to pay for digital content and we should explore that as an option for apps. App developers struggle to monetize their users as a result of this, as there are almost never install fees for an application, and the only realistic mechanisms that currently exist for monetization are IAPs and advertising (the latter is typically only 8-10% of users, and in-app advertising is largely limited to app install in most markets). Also note that mobile data can be very expensive in many markets -- especially India and Indonesia -- so users are sensitive to the cost of ads delivery and conduct many of their activities in offline or wifi-only mode.

Key Bullets:

- APAC is currently a \$174B market, of which Google captures \$9B per year.

- The market is nearly all mobile, and moving rapidly to in-app, Web-view digital consumption
- Mobile Web is important in Japan and Australia, but limited to less than 10% of the overall digital experience for most users.
- Google's transaction volumes on low end android are falling rapidly, especially on low end devices.
- We are not fully leveraging Play and need to monetize better and introduce new ads products to leverage this growth.

Pillars

As APAC is heavily centered around Mobile and App, our strategy for success is built around leading this shift and defining and leading and the App-based monetization experience. There are four key pillars to success in executing this strategy:

- 1) Grow O&O
- 2) Create a Comprehensive Path for In-App Monetization
- 3) Lead in YouTube and OTT Video
- 4) Drive the shift to data-driven targeting and measurement

Summary of What We Need in Order to Do This:

1. Add 300M new MAUs through regional O&O acquisitions
2. Drive up the value chain for app developers by focusing on Mediation, Diversity of Monetization (including performance, brand, IAP and subscription in a single package), and format innovation (Rewarded, Interactive and other new formats).
3. Develop a solution for Whale Developers optimized for S2S and Native, with special solutions for Messaging/Social and Commerce/Travel
4. Win Video by Expanding Reach on YT and allowing GDN/GVN/YT to deliver integrated reach
5. Expand 3P measurement
6. Win programmatic by Winning Audience: Combining Narnia, 3P Data, and Policy Regionalization

Grow O&O

In an app world, we cannot be successful unless we have a robust O&O portfolio in app. We have been consistently losing digital mindshare to Facebook, Commerce and Messaging apps and this will continue to weaken our platform position. Our focus for O&O growth should be entirely based on mobile apps. In addition to global M&A, we should focus heavily on 1) regional O&O development in the key markets in APAC and 2) organic application development centered on regional issues (for example localized Android Launcher, News feeds for Japan, Commerce aggregation for India). Global plays will be complex and risky. However, regional plays will be smaller and easier to execute, and will create substantial business momentum.

Action:

- Create a funded, actionable program to identify and flesh out 8-10 acquisition or JV/partnership opportunities in the regional apps space in APAC, with specific focus on China, India and Japan.
- Create a COE for app development in region and encourage the development and experimentation of new mobile apps

Create a Comprehensive Path for In-App Monetization

There are two components to this -- secure and grow the long-tail, and develop a path to be relevant for the large apps providers (eg Flipkart, Snapchat, WeChat, Twitter).

Long-Tail: In-App advertising is largely restricted to app-install, which has reached a clear saturation point in APAC and does not help developers monetize. They are looking to Google to provide a comprehensive approach to monetization that spans the development life cycle -- from performance to IAP, brand, and new forms of monetization. Facebook has done a much better job at expanding monetization options and higher CPMs for developers. They clearly have an inventory advantage that we need to reverse. To succeed here, we must:

- Win the mediation battle and drive towards a dominant mediation position. This is a foundation to moving up the stack into new forms of monetization
- Innovate on formats, especially interactive and mobile-specific formats.
- Launch and accelerate Rewarded formats and extend to brand/sponsored opportunities such as sponsored wifi, sponsored data access, etc.
- Develop solutions for IAP and other direct pay methods
- Help developers monetize subscriber data

For the Head/Torso, we do not have a strong story and virtually every major app provider, when they become large enough, end up developing their own ad network/solution. This is a major threat not just in terms of creating competition, but it essentially removes our ability to participate in the monetization process for 60%+ of consumers' digital experience. We need to accelerate efforts to establish Google relevance for these key apps -- social, messaging and shopping -- in a world where search and browser are increasingly marginalized. Some examples:

- Exploring the card/bot search model within messaging apps (ie licensing assistant and bot for Line, Kakao, etc and potentially to 2nd tier messaging providers as they emerge).
- Extend the Rakuten model to ecommerce and travel apps, and allow them to create a white labeled private marketplace for merchants to manage a single marketing budget across Search/Display/In App.
- Embed Translate, Brain, and Speech Rec APIs in every major app by creating better tiered pricing models and using this position to leverage monetization
- Explore creating a "plumbing app" (ie DFP) optimized for S2S, Native implementation where we provide raw tech to key App devs that want to create their own ad serving ecosystems

Lead in YouTube and OTT Video

YouTube growth is primarily a function of corpus and measurement. We need to improve in each, but the team is especially concerned with lack of expansion of unique views on YT (which we believe is a function of corpus and lack of access to long-form entertainment) than on measurement (though both are important). For this reason, we strongly believe that using the YouTube platform to attract TV/Long-Form content is our highest priority, so exploring a platform play beyond DNI is critical.

- **Enable / empower agencies and enable greater 3rd party validation of our reach**
 - **Simplify/ integrate our planning, buying and measurement suite and make it externally shareable**
 - Proposals
 - Externalize tools, specifically YT Reach Explorer and ERL (was a strong ask from multiple agencies in the region as we conducted our Brand Measurement Agency Roadshows in Q1)
 - Integrate our planning tools with our buying platforms (Adwords, BART) to simplify the end-to-end process for agency planners / buyers

- **We need to explore a white-labeled platform more seriously. This derives from our need to drastically increase total video reach, daily reach buildup of YT & lead in acquisition / coverage of demo targetable inventory.**
 - Context:
 - For the majority of APAC markets YT reach is smaller than TV reach (this is particularly a huge issue in India, Indonesia, Japan - where we have a magnitude of difference on reach).
 - YouTube's total reach is very similar to estimates of FB's video reach (@50% of total reach), but Facebook APAC video reach in the last 9 months while YT DAV grew 5% YoY.
 - YT reach build up (DAV) is also drastically low, particularly when compared to FB performance.
 - Of YouTube's reach, the % demo targetable reach (how TV advertisers want to plan) is as low as 60% in some markets (IN, ID; where we are challenged on overall reach of YT as well). Need to fit our product corpus to capture demo.
 - Our most attractive demo MF18-34 has a demo targetable coverage between 39% (ID) - 55% (AU) -
 - Current STRs in APAC for MF 25-44 might be relatively low (~30+%), but when it comes to commercial reach, we often run into constraints due to the heavy proportion of heavy users. (Inventory health , Col AG)
 - F25-34 is our most valuable yet scarce demo segment. JP, KR, IN have the smallest portions of F25-34 inventory (~6% vs 8% APAC avg).

- Need to continue improving daily viewing behavior on YouTube e.g., FB daily reach in a number of markets is . This is a huge differentiator for FB and is in demand by advertisers
- **Accelerate launch of outstream on GDN.** Include non O&O video reach products like GDN Outstream in our video planning, buying and measurement capabilities, esp. in markets such as and India Integrate GDN (more specifically Outstream) into our planning tools (Reach Explorer, ERL, Reach Curves) to enable demo-based planning across YT and GDN [*What do we need to do on GVN / GDN to make it a super effective complement to YouTube and make our reach much more compelling?*]

Grow the Platform Business (But First, Define What this Means!)

Fundamentally, APAC has to decide what our platform strategy (by platform strategy meaning our approach to third-party properties) is. There are two main options 1) DBM only. 2) Other platforms in addition to DBM.

Why is this relevant? DFP has almost no penetration anywhere in APAC outside of Japan/Australia, so a strategy centered around DEALS and pub migration to programmatic will not be successful. We need to figure out our sellside focus and non-admob methods of gaining inventory.

If programmatic in apac just means DBM, then our focus in region should be heavily heavily built around Audience, where we are clearly behind the competition due to Google having stricter targeting/privacy policies and the lack of signed-in users/email addresses, etc. Inevitably, targeting data will come down to a combination of Play signals and 3P data.

- What is our holistic end to end targeting solution if programmatic = DBM = audience?
Need to invest heavily in an audience solution, and that audience solution must incorporate 3p data -- especially telco data or some form of detailed ties to the mobile device. This is especially true in China, where we have no Play signals.
 - Launch of Narnia 2.0 aims to address the lack of robust audience signals on O&O and managed inventory. With time our audience targeting solution will improve as more users accept the signed-in global consent.
 - In addition to this we're actively solving for having Audience Data (demo, affinity, custom affinity, in-market) x-exchange. Timeline for launching Google Demo x-exchange - end of 2016. Timeline for In-market, affinity, custom affinity (exchange co-op) - 2017, more precise timing TBD.
 - To hedge against limitations of Narnia in region (lack of email addresses, lack of signed in user experience) we need to pursue a strong solution.
- We need a better inventory solution for large apps and publishers that just want a strong demand channel. We don't have a good sellside solution for S2S, Native-Optimized

publishers. Apac believes these are not corner cases but the “new normal” and we need to prepare for it.

Competitive Analysis

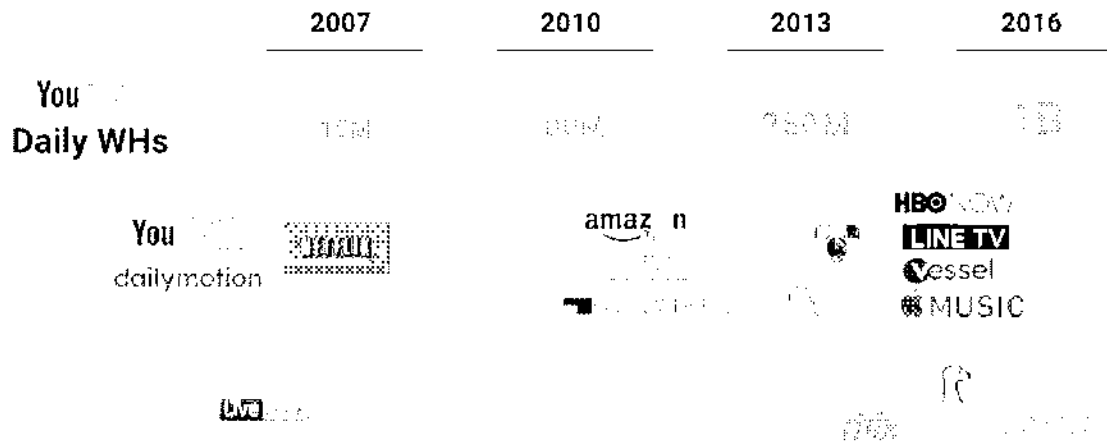
Competitive Landscape: The biggest competitor in APAC, by far, is Facebook. Facebook has leveraged its O&P position (social and messaging) along with a more liberal approach to targeting and measurement data, to create a strong position amongst app developers. Facebook has also paid specific attention to building product features that suit advertiser language (such as targeting undecided voters, for instance). This is largely a battle for Audience/Data that we need to step up on. Mopub has also been active and has taken a strong position in app mediation.

APAC’s cultural, political & linguistic diversity allowed for the proliferation of a heterogeneous mix of competitors with very strong footholds in local markets & a few extremely well funded regional players. This analysis will not be comprehensive but focus instead on the companies most relevant to the 4 pillars.

App Adoption:

- Top apps in terms of MAUs (covering AU, IN, JP)
- **In App Monetization**
 - Facebook’s dominance in the mobile ad inventory space has squeezed margins from inventory arbitration offered by legacy mobile ad-networks/exchanges across APAC (examples: Vizury, InMobi, etc.)
 - Opportunity to leverage contextual signals to deliver hyper relevant advertising alternatives. Overview of how affiliate networks are using these signals . Privacy sensitive area where smaller players can be hit aggressively by regulators (\$950k USD).
 - New networks have risen promising higher CPM’s across APAC but offer non-sophisticated ad-fraud prevention systems which make them vulnerable to fake traffic (examples: YeahMobi, CheetahMobile, etc.)
 - Mediation players succeeding for niche service (Rewarded & Native):
 - **MoPub** succeeding b/c of granular control for publishers (e.g. DRX doesn’t allow freq. Capping at network level, but MoPub can do) and native mediation.
 - **Fyber/Heyzap**: doing rewarded mediation well, this is very attractive to gaming developers.
 - **Facebook**: native mediation launch imminent. Outbound mediation.
 - Success is reliably mediate all forms of demand sources (traditional media, rewarded & native). Do it all through Google.
 - Summary , details of main players & features . Further details on competitors also available on
- **Video Competition**

- Consumer appetite for online video consumption is accelerating and multiple new entrants across APAC are eager to fill the gap. Three main business models exist: Subscription, Ads & Hybrid (Sub & Ads).
- Global competitive summary
- APAC summary



Risks

- Grow O&O
 - Gaming - eg. what's the risk if a competitor were to buy Unity and disintermediate us from our strongest in-app market?
- Create an Comprehensive Path for In-App Monetization
 - Ability to adopt new formats (native, rewarded, etc) at sufficient speed. New entrants/competitors with first mover advantage can become entrenched.
- Lead in YouTube and OTT Video
 - Creators flocking to proliferation of video platforms: Facebook, Snapchat, etc. Can learn from what's happened to Vine (?)
 - Strongest players in Cable (with strong subscriber base & content agreements) already investing millions into OTT solutions (e.g. (IN, Fox) , (Singtel), etc. Will they be willing to scrap existing investment in favor of whitelabel?