



Scale Measures

THICKNESS

METRICS:

Buyers (Advertisers)

NUMBER & DIVERSITY

Sellers (Publishers)

NUMBER & DIVERSITY

TRANSACTION VOLUME

METRICS:

Impressions

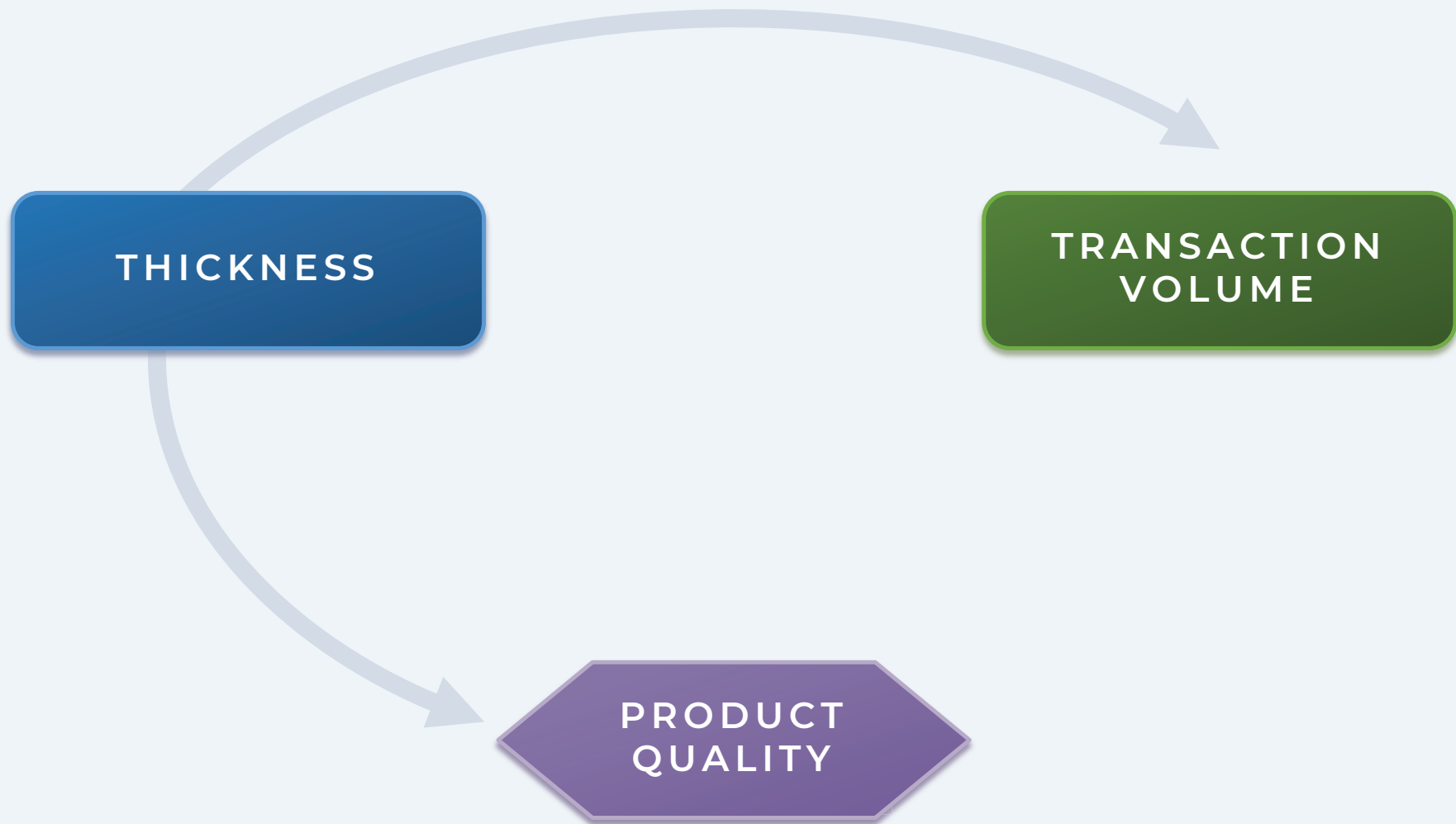
Ad Spend

Queries

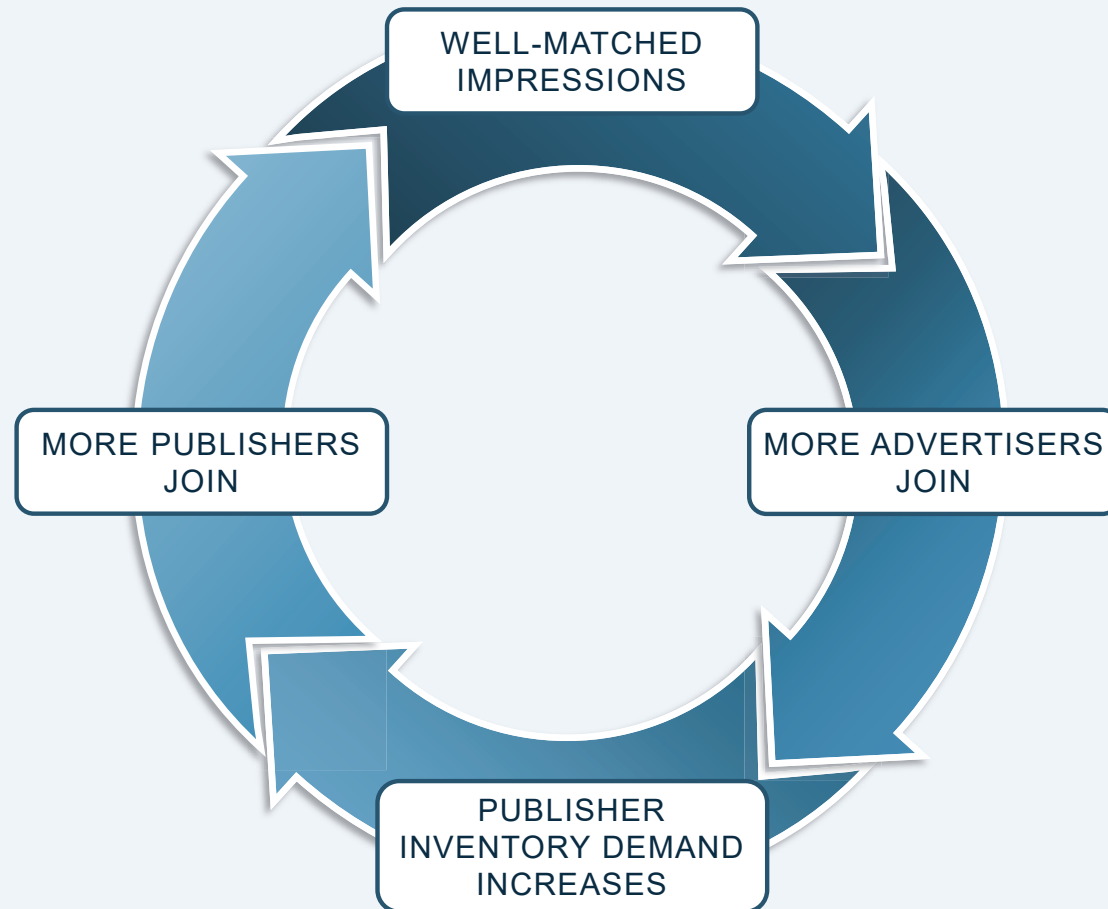
Win Rate



Why Scale Matters: Thickness

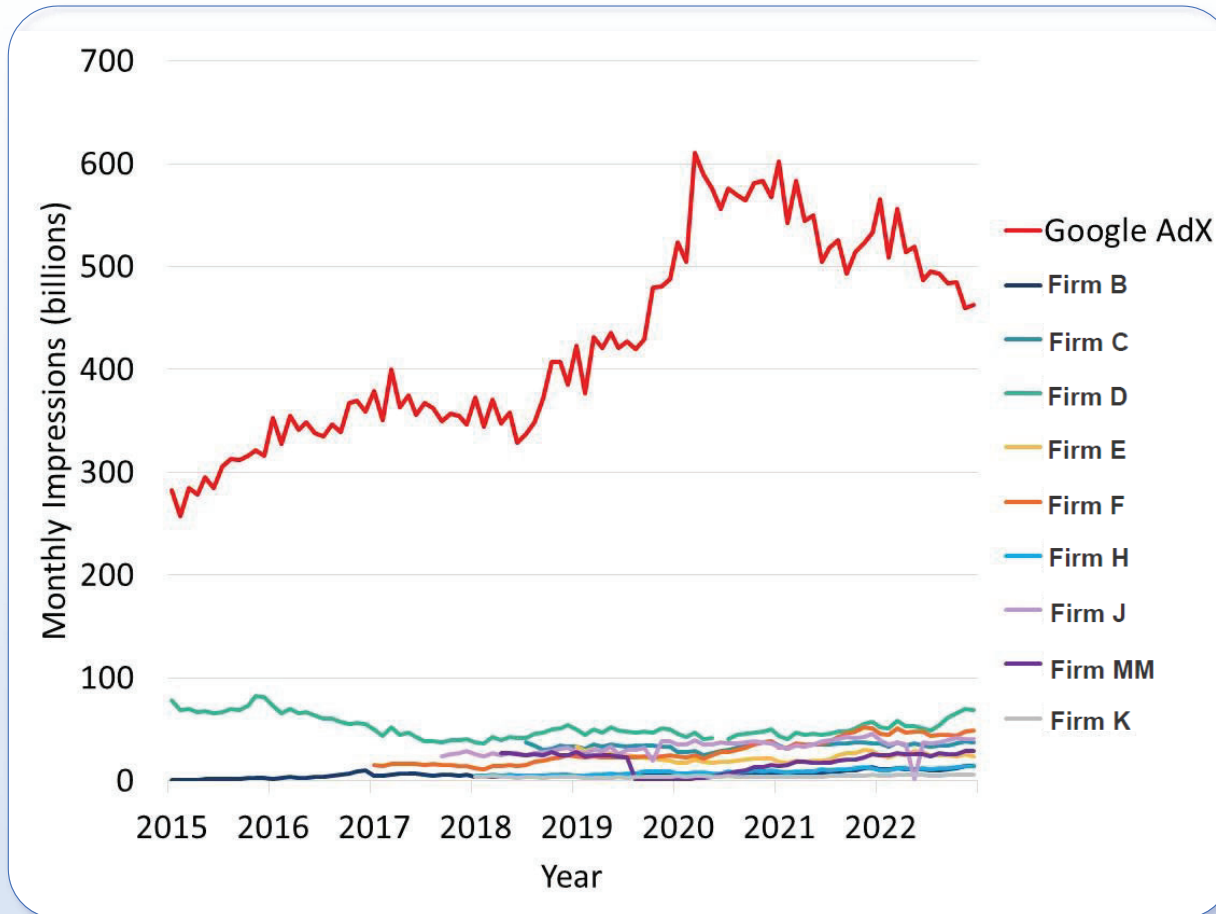


Indirect Network Effects Create Growth



Source: Expert Report of Gabriel Weintraub, Ph.D., Figure 3.

Transaction Volume: Impressions by Ad Exchange



Why Scale Matters: Transaction Volume

THICKNESS

TRANSACTION
VOLUME

Experiments

Algorithms

Cost Efficiencies

PRODUCT
QUALITY





Scale And Experiments

NUMBER OF DAYS UNTIL THE EXPERIMENT CAN DETECT A 0.05% INCREASE IN WIN RATE

SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1  (1 day)	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Source: Expert Report of Gabriel Weintraub, Ph.D., Figure 17 and Power Analysis Workpaper.

Scale And Experiments

NUMBER OF DAYS UNTIL THE EXPERIMENT CAN DETECT A 0.05% INCREASE IN WIN RATE

SEPTEMBER



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 (1 Day)	2	3	4	5	6	7
OpenX (15 days)						
8	9	10	11	12	13	14
OpenX						
15 OpenX	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Source: Expert Report of Gabriel Weintraub, Ph.D., Figure 17 and Power Analysis Workpaper.

Scale And Experiments

NUMBER OF DAYS UNTIL THE EXPERIMENT CAN DETECT A 0.05% INCREASE IN WIN RATE



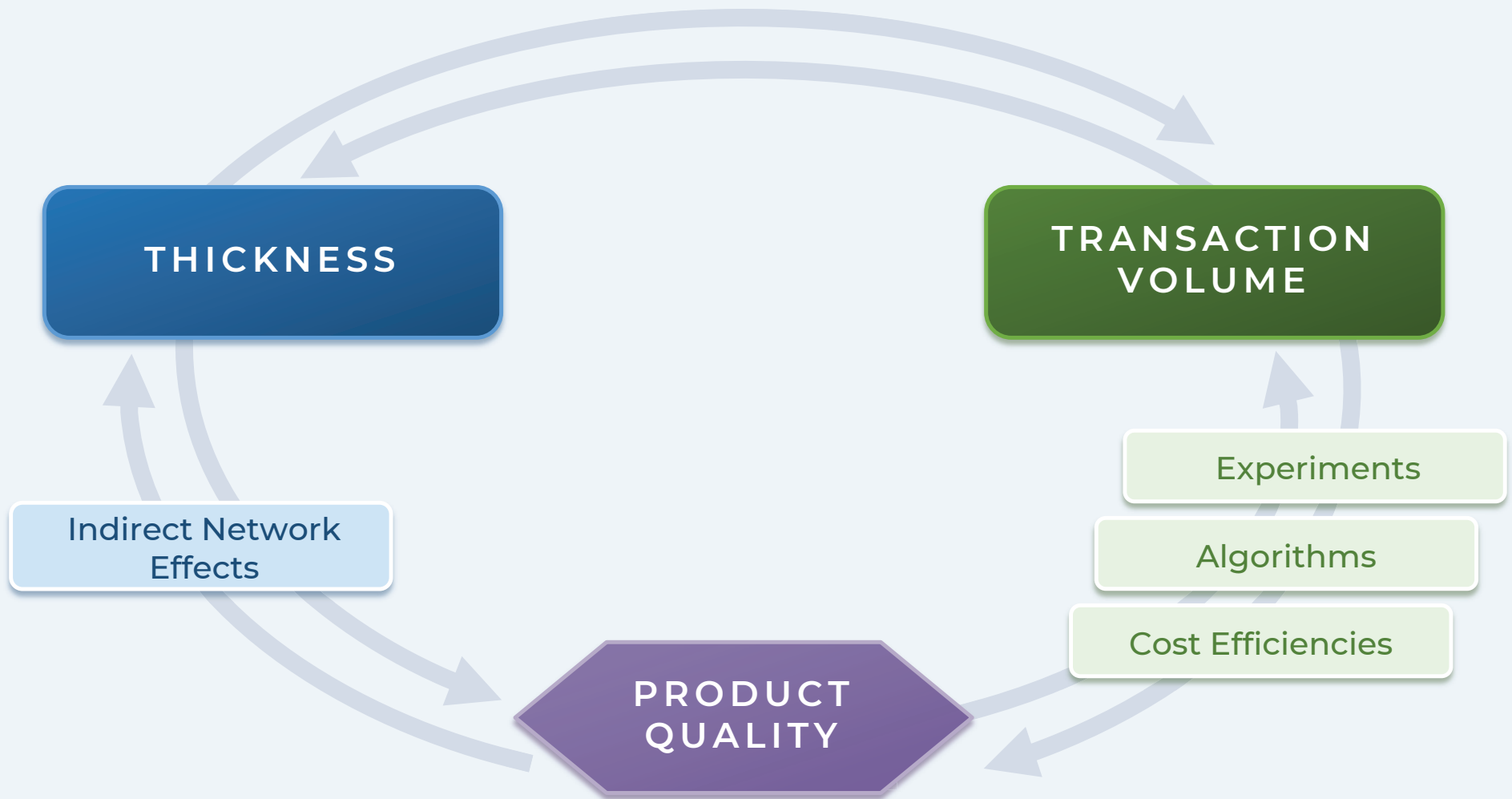
SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 (1 Day)	2	3	4	5	6	7
OpenX (15 days)						
		Sovrn (30 days)				
8	9	10	11	12	13	14
OpenX						
			Sovrn			
15	16	17	18	19	20	21
OpenX						
			Sovrn			
22	23	24	25	26	27	28
			Sovrn			
29	30					
Sovrn						

Source: Expert Report of Gabriel Weintraub, Ph.D., Figure 17 and Power Analysis Workpaper.



Scale Benefits From Feedback Loops





Data Sources Relied Upon

Google's Experimental Results

Monthly Data on Impressions and Ad Spend

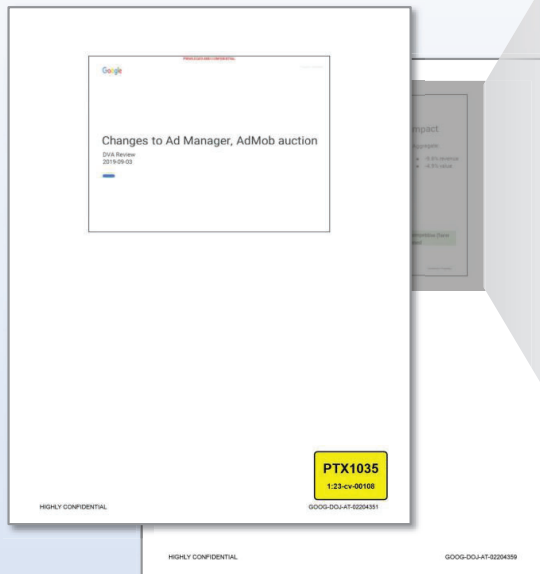
Google

Third-Party Exchanges

Google's Auction-Level Data

Google's Experimental Results

September 3, 2019,
Google Presentation,
"Changes to Ad manager, AdMob Auction"



Removing Last Look* has significant negative impact

	Impressions	Value Clamped	Revenue	Google Profit	GDN profit	Post Revshare Payout
LastLookOverDfpRemnant::GlobalControl 246003051 TOTAL * Adx_Only * Web	548,549,820	1,786,486	690,764	154,233	56,196.1323	511,824
itPriceFromSettingWinnerCostExperiment 246003052 TOTAL * Adx_Only * Web	496,914,005 -9.41% [-9.56, -9.26] %	1,699,227 -4.88% [-5.65, -4.12] %	624,314 -9.62% [-9.95, -9.29] %	144,356 -6.40% [-7.95, -4.86] %	54,296.8083 -3.38% [-7.79, 1.03] %	457,340 -10.64% [-10.79, -10.50] %
LastLookOverDfpRemnant::GlobalControl 246003051 Adwords_Buyer * Adx_Only * Web	333,223,170	418,763	248,815	73,917	35,312.8161	174,720
itPriceFromSettingWinnerCostExperiment 246003052 Adwords_Buyer * Adx_Only * Web	298,497,863 -10.42% [-10.58, -10.26] %	375,698 -10.28% [-11.15, -9.42] %	220,983 -11.19% [-12.16, -10.21] %	69,427 -6.07% [-9.41, -2.74] %	34,838.0716 -1.34% [-8.48, 5.79] %	151,396 -13.35% [-13.48, -13.22] %
LastLookOverDfpRemnant::GlobalControl 246003051 Dbm_Buyer * Adx_Only * Web	108,676,700	1,164,124	287,571	62,827	20,883.3162	200,201
itPriceFromSettingWinnerCostExperiment 246003052 Dbm_Buyer * Adx_Only * Web	102,152,821 -6.00% [-6.18, -5.83] %	1,147,250 -1.45% [-2.59, -0.31] %	269,666 -6.23% [-6.43, -6.02] %	59,667 -5.03% [-5.32, -4.74] %	19,458.7367 -6.82% [-7.04, -6.61] %	187,530 -6.33% [-6.52, -6.14] %

Aggregate:

- -9.6% revenue
- -4.9% value

But allows bundling of other valuable changes, that can be positioned as pro-competitive (fairer platform for *all* buyers); Pub outreach to reduce HB boosts planned

* This impact is measured in a 2P auction state comparing performance with and without last look; [Rasta source](#)

Google

Confidential + Proprietary



Conduct

First Look

Last Look

Sell-side DRS (SSDRS)

Unified Pricing Rules (UPR)

Poirot

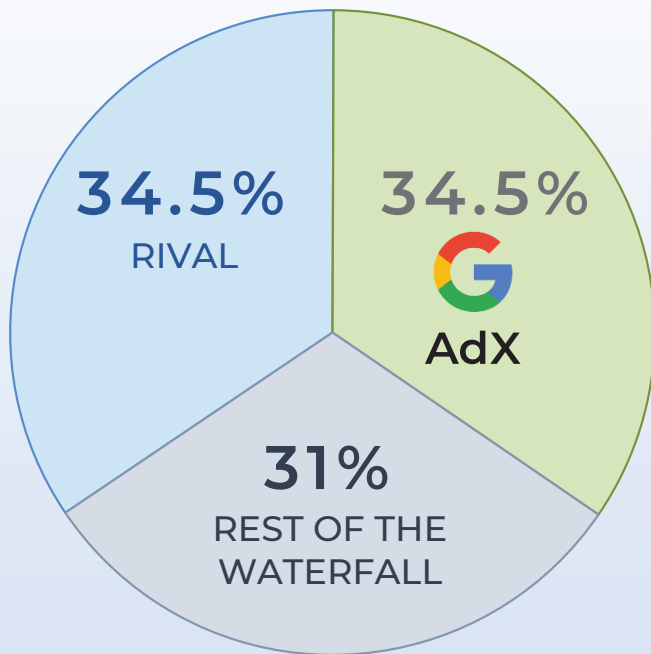
Exclusivities



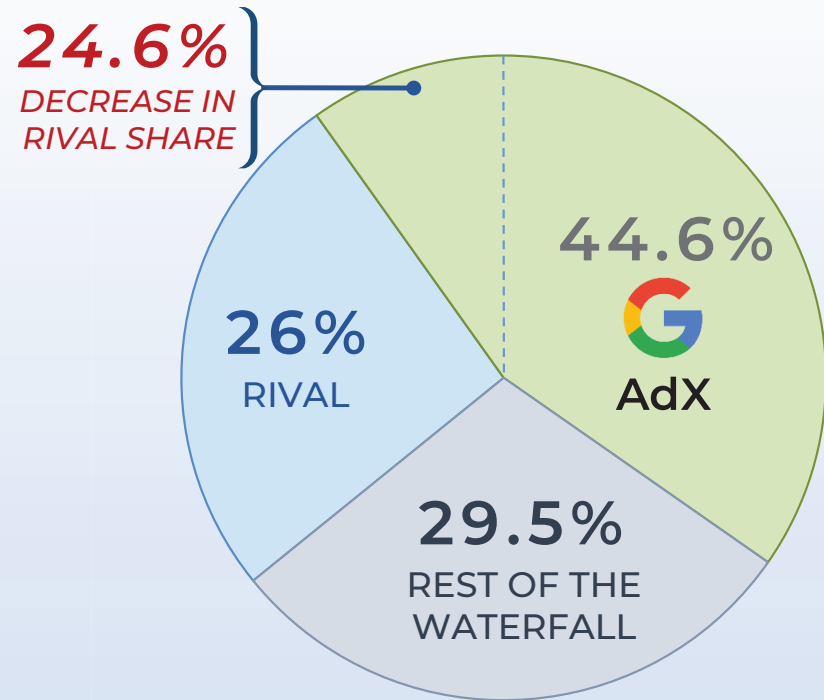
Effects: First Look

SHARE OF IMPRESSIONS WON

HEAD-TO-HEAD



FIRST LOOK





Annual Effects of Conduct

LAST LOOK

(Substitution from Rival Exchanges)



-492.4 BILLION IMPRESSIONS

(- 14.25 %)



-\$473 MILLION AD SPEND

(- 8.72 %)



Annual Effects of Conduct

SELL-SIDE DRS

(Substitution from Rival Exchanges)



- 81.7 BILLION IMPRESSIONS

(- 2.39 %)



-\$161.6 MILLION AD SPEND

(- 2.74 %)



Annual Effects of Conduct

UNIFIED PRICING RULES

(Substitution from Rival Exchanges)



-366.9 BILLION IMPRESSIONS

(- 7.95%)





-\$220.9 MILLION AD SPEND

(- 2.75%)

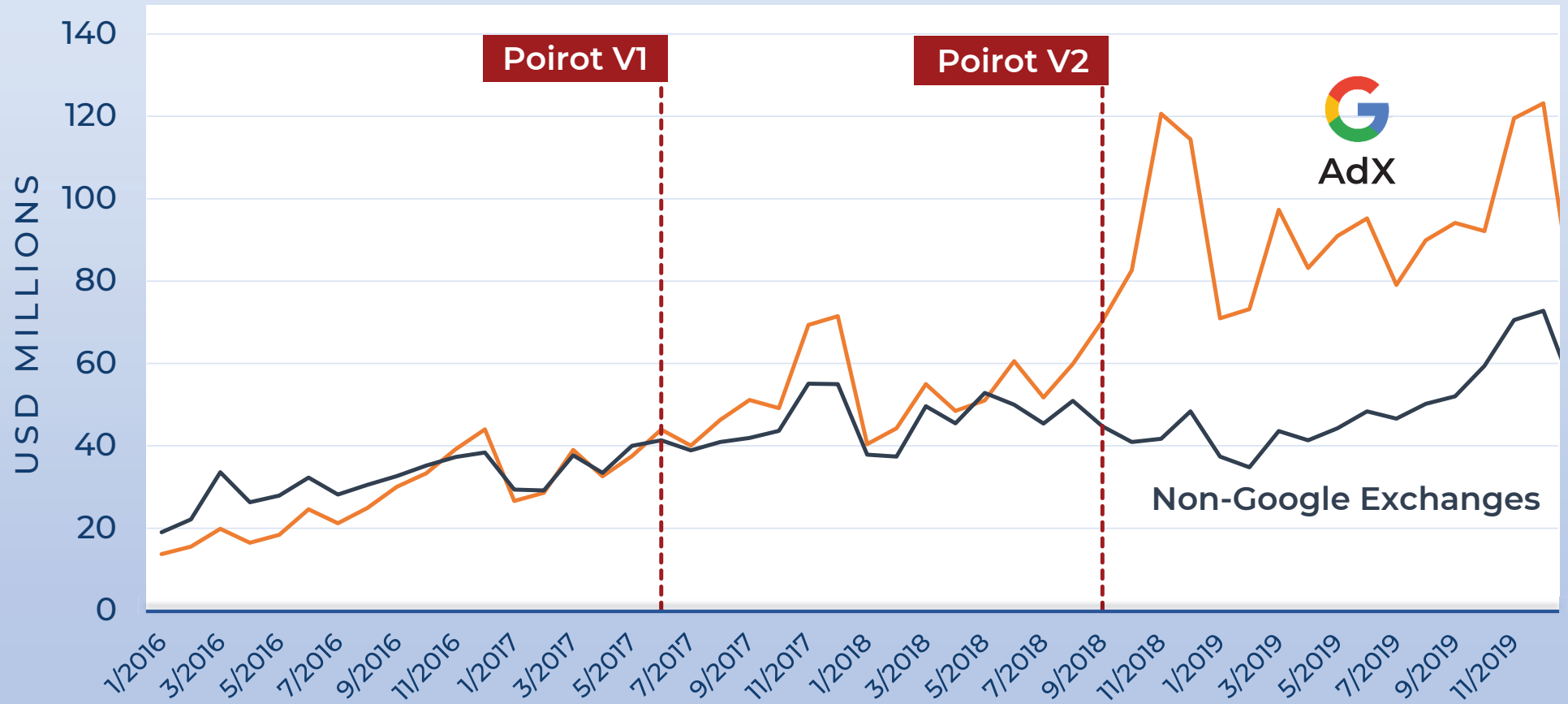


Annual Effects of Conduct

PROJECT POIROT

	VERSION 1	VERSION 2
	-42.4 BILLION IMPRESSIONS (- 1 . 2 6 %)	-245.6 BILLION IMPRESSIONS (- 4 . 1 0 %)
	-\$59.5 MILLION AD SPEND (- 1 . 7 6 %)	-\$267.9 MILLION AD SPEND (- 4 . 4 5 %)

Poirot: Ad Spend by DV360



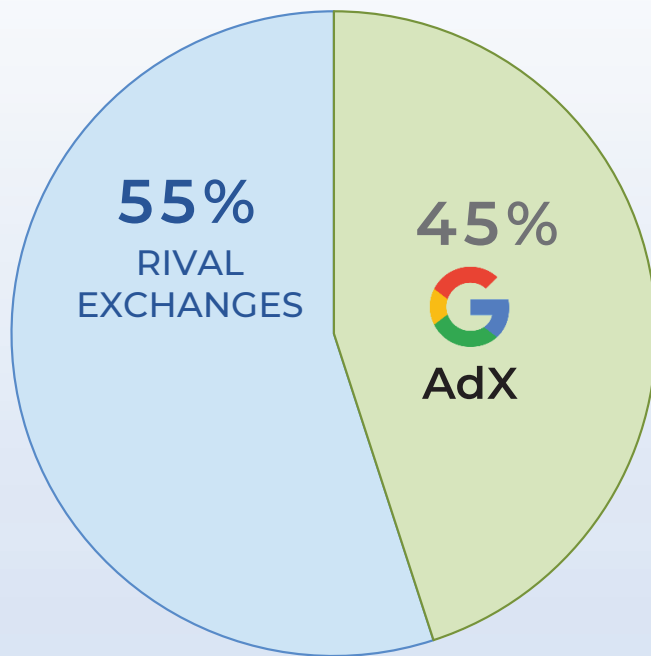
Non-Google Exchanges



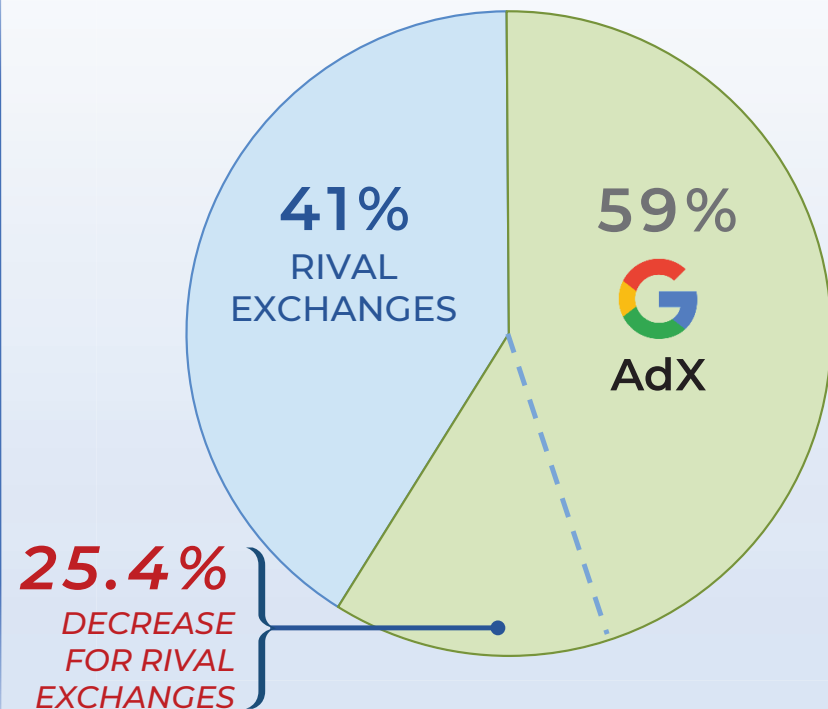
Effects: Google Ads Exclusivity

SHARE OF IMPRESSIONS AMONG IMPRESSIONS
WON BY GOOGLE ADX OR RIVALS

WITHOUT GOOGLE ADS RESTRICTION



WITH GOOGLE ADS RESTRICTION





Effects on Rivals' Ability to Compete

