

Incrementality APOCALYPSE: AN INCREMENTALITY SURVIVAL KIT

Who am I?

- Booster Box
- Advisor for Google's own equity fund Capital G
- @ktzstyle
- Not a Data Scientist

Gianluca Binelli



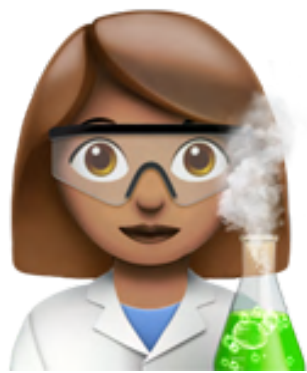


**An international team of +60
Data Scientists, Developers and PPC
Specialist**

We're the **best*** scientific
performance marketing agency

* *according to our mums*

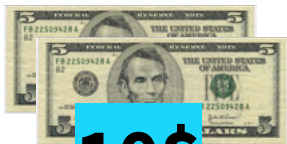








facebook



10\$

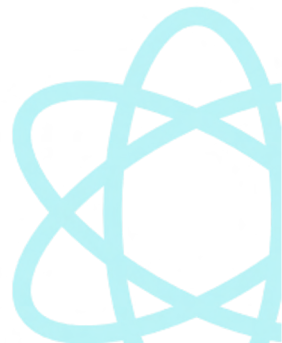
Google

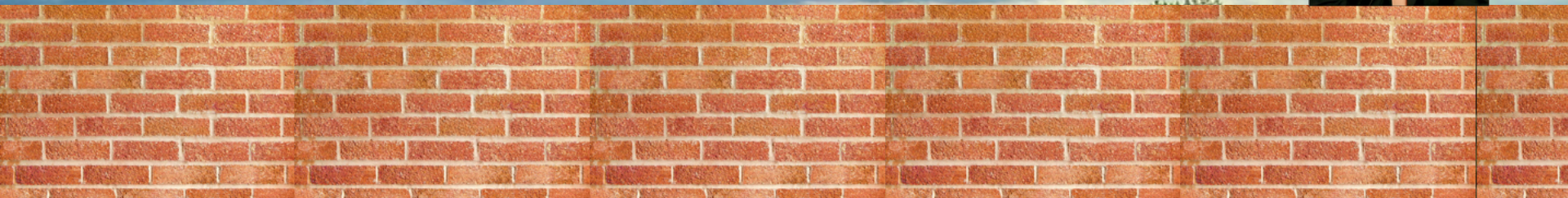


20\$



25\$







***** Cliche' alert *****



**“Half the money I spend
on advertising is wasted;
the trouble is I don't
know which half.”**

**John Wanamaker (1838-
1922)**



If you cannot measure it,
it does not exist!

PPC people
(all the time)

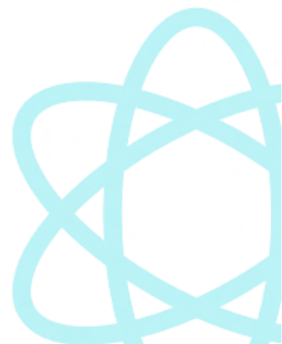




STOP



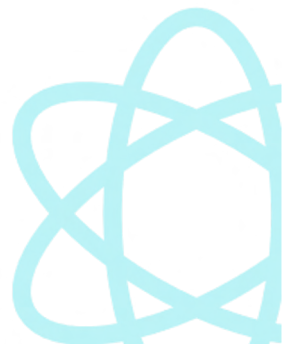
A simple source of truth does not exist

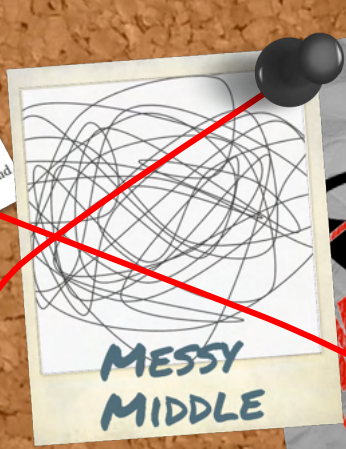
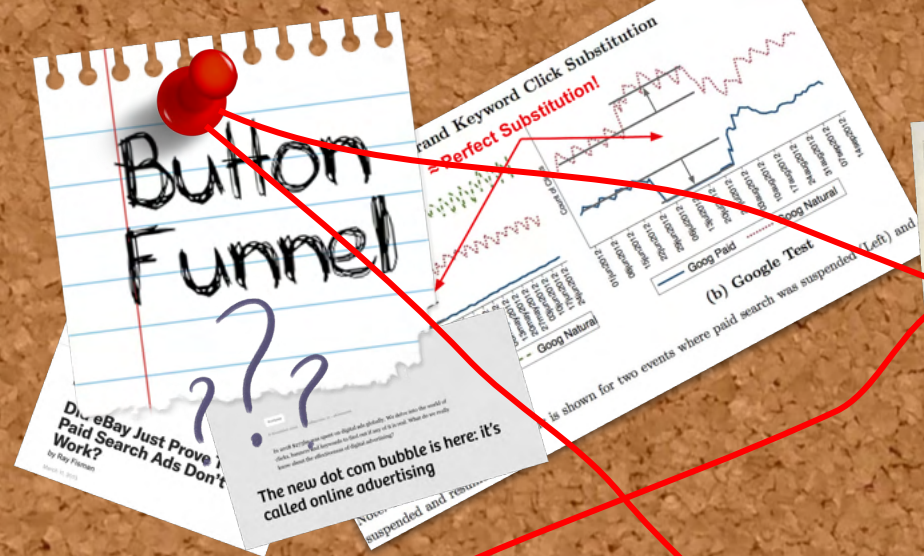


Agenda

Chapter 1 - Why measurement is a challenge?

Chapter 2 - How to survive?





Marketing

Did eBay Just Prove That Paid Search Ads Don't Work?

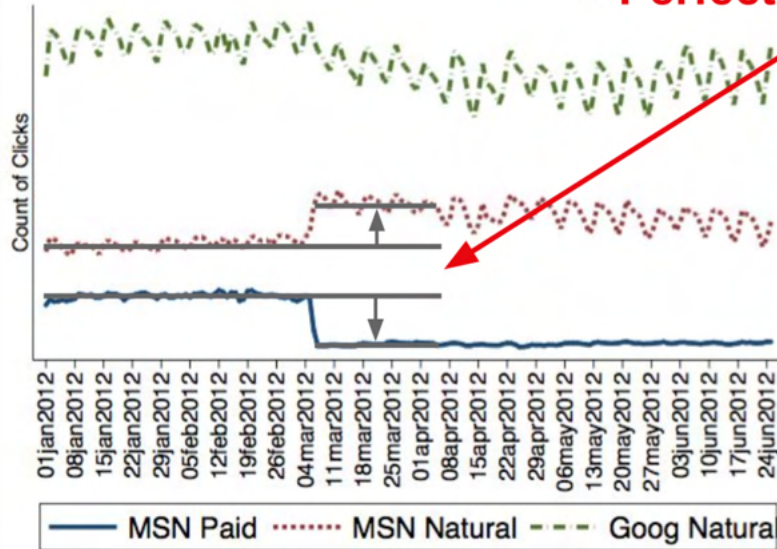
by Ray Fisman

March 11, 2013

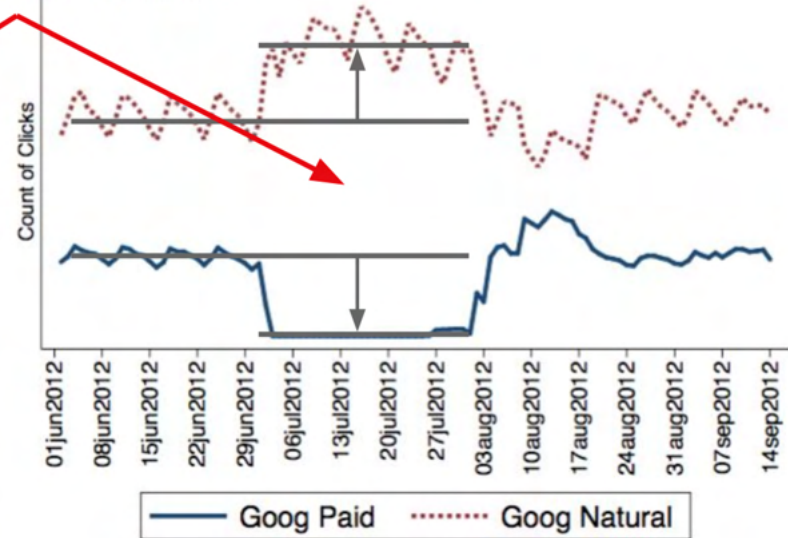


eBay Ad Tests Figure 2: Brand Keyword Click Substitution

$\approx$ Perfect Substitution!

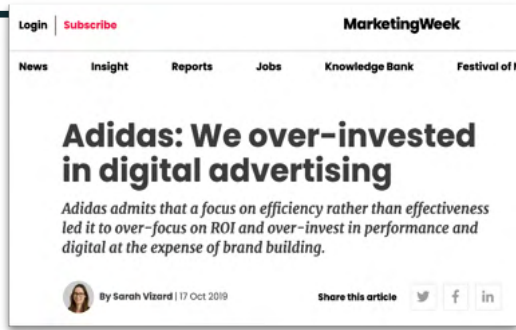


(a) MSN Test



(b) Google Test

Note: MSN and Google click traffic is shown for two events where paid search was suspended (Left) and suspended and resumed (Right).



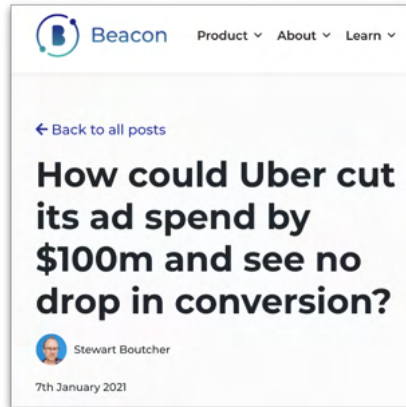
Adidas: We over-invested in digital advertising - Marketing Week, 2019 - Sarah Vizard



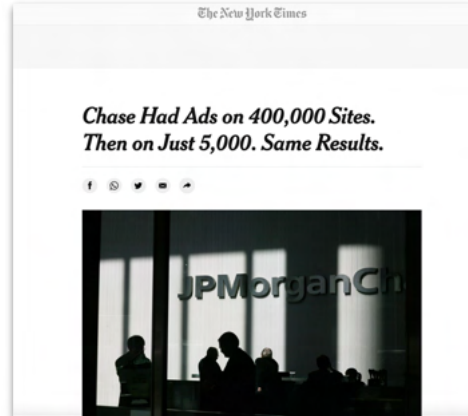
The new dot com bubble is here: it's called online advertising - The Correspondent, 2019 - Jesse Frederik and Maurits Martijn



Marketing Week, Michaela Jefferson 14 May 2021



How could Uber cut its ad spend by \$100m and see no drop in conversion? - Beacon, 2021 - Stewart Boutcher



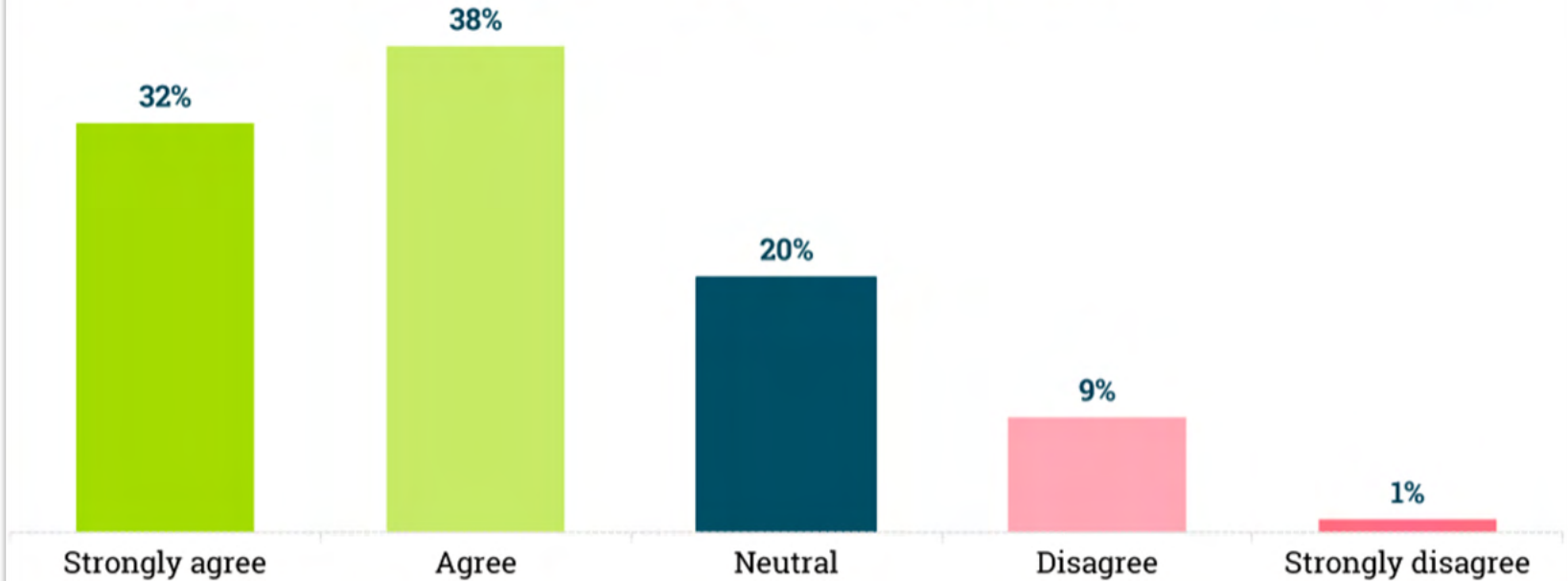
Chase Had Ads on 400,000 Sites. Then on Just 5,000. Same Results. - NY Times, 2017 - Sapna Maheshwari



When Procter & Gamble Cut \$200 Million in Digital Ad Spend, It Increased Its Reach 10% - AdWeek, 2018 - Lauren Johnson

Have Marketers Over-Invested in Performance?

"Brands have over-invested in performance at the expense of brand"



Published on MarketingCharts.com in December 2019 | Data Source: WARC

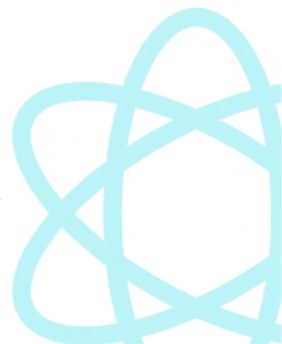
Based on a survey of almost 800 marketers and agencies around the world



How people decide what to buy lies in the 'messy middle' of the purchase journey

Alistair Rennie, Jonny Protheroe / July 2020







Perform.
Max

RSA

Smart
Bidding

UAC

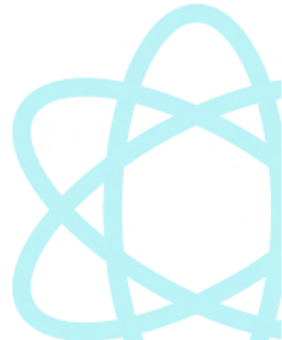
Smart
Shopping

Automated
Extension



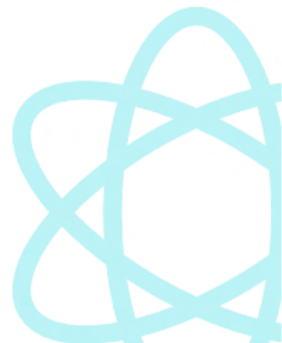
DSA

Discovery

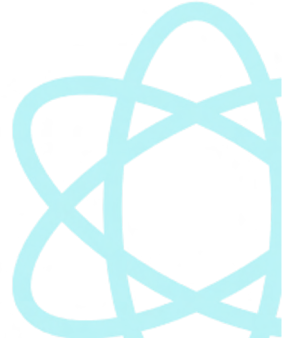


"When everybody is super, no one will be. "

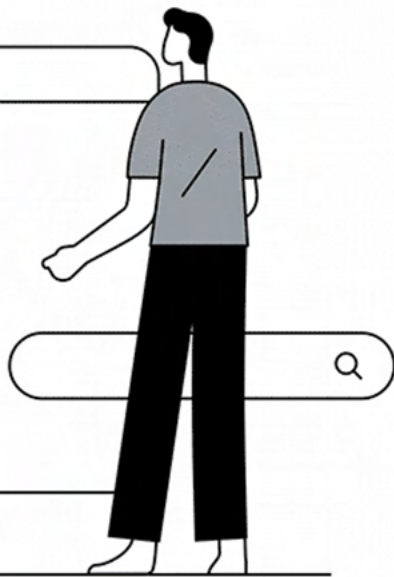
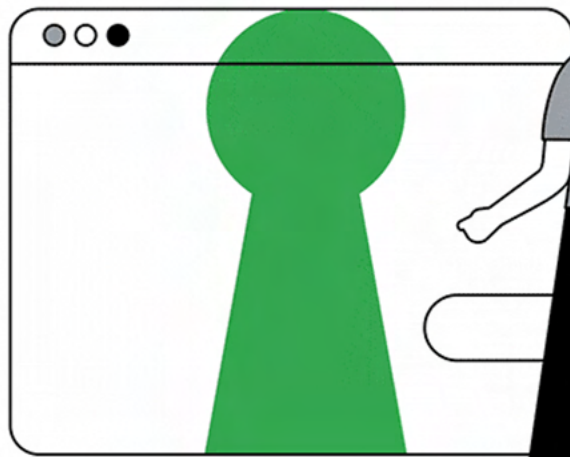
Syndrome, The Incredibles

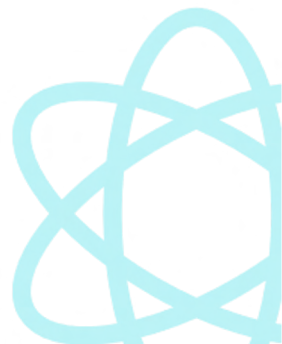


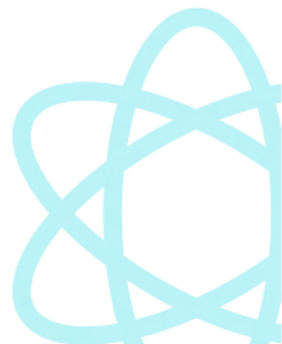
ML will level down
the competition



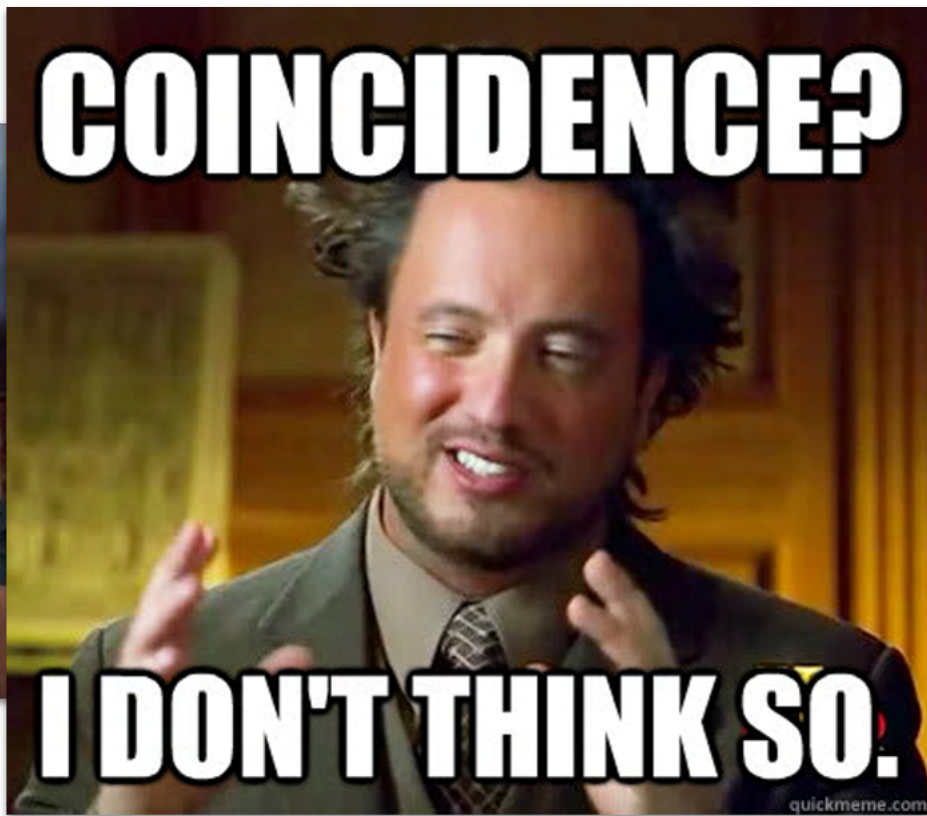






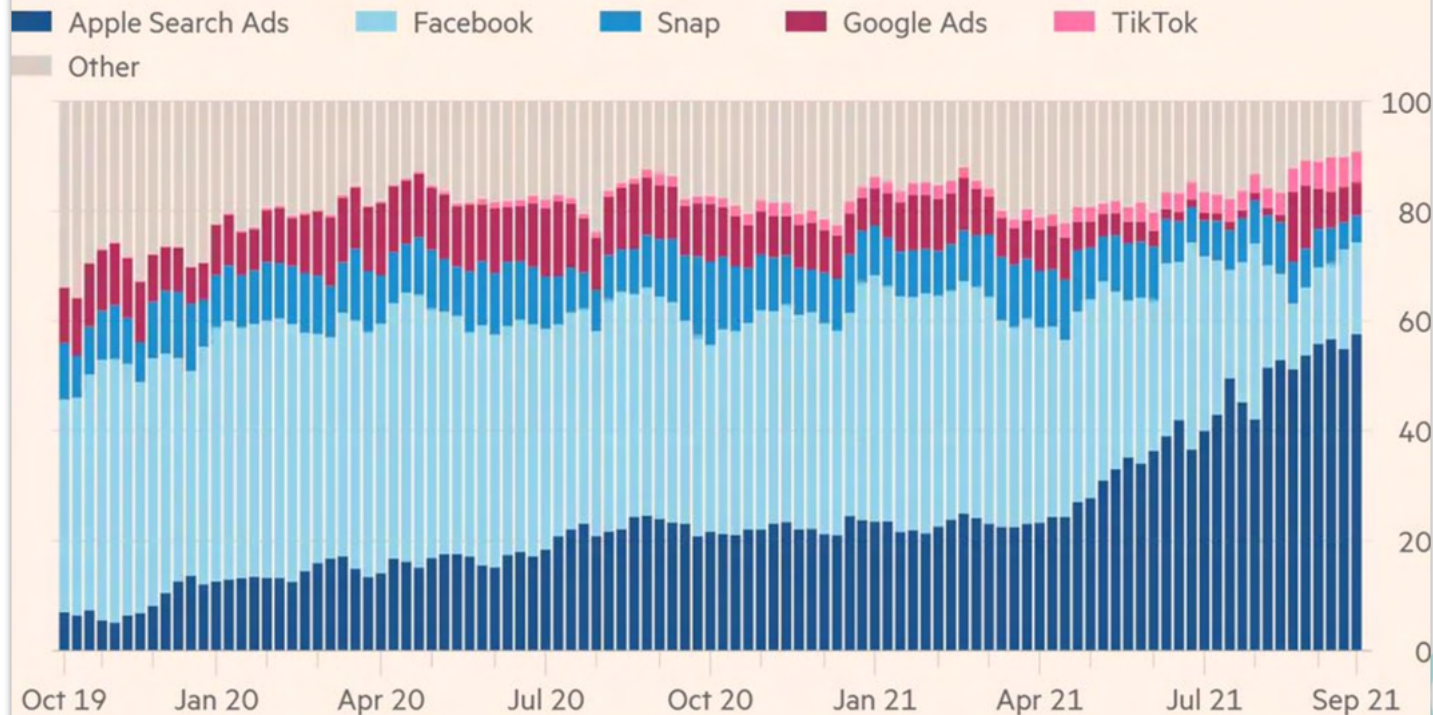






Apple privacy push capped rivals and helped its own ad network thrive

Share of total installs (%)



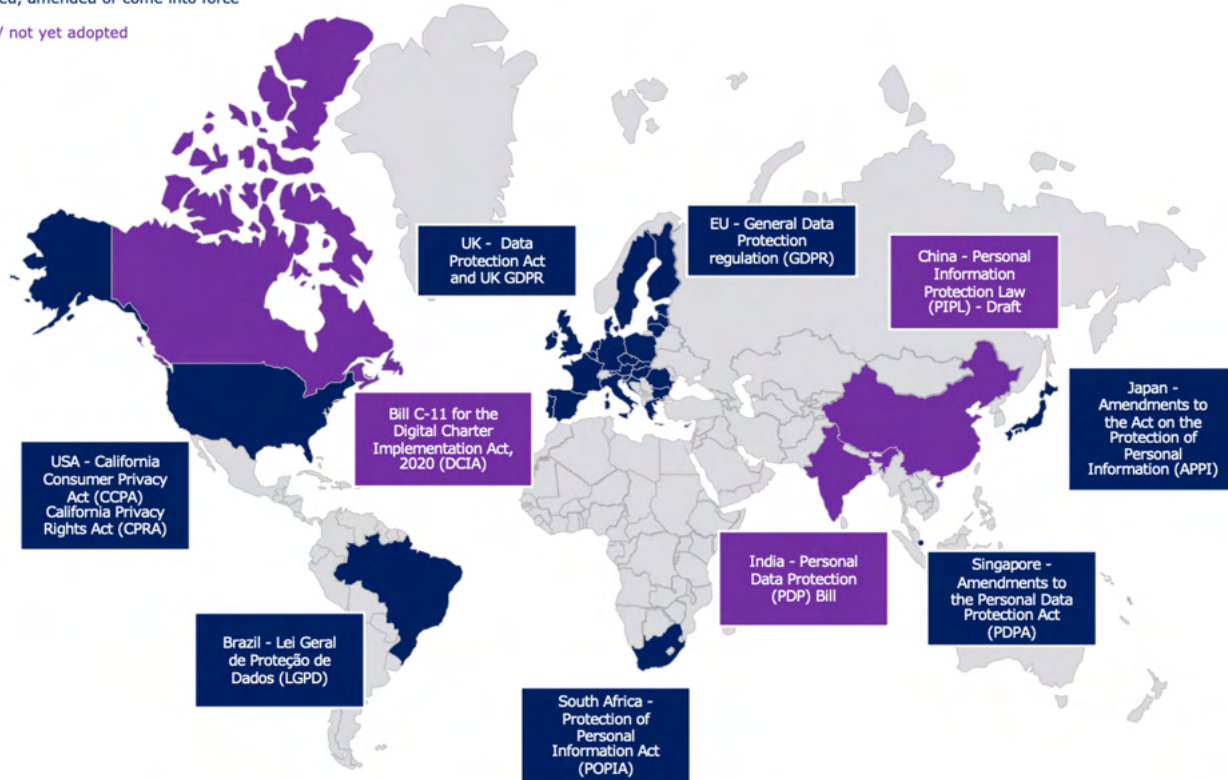
iOS 14.5 was launched April 26 this year

Source: Branch

© FT

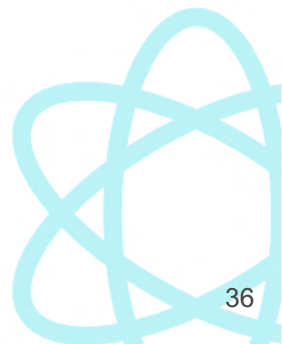
adopted, amended or come into force

draft / not yet adopted



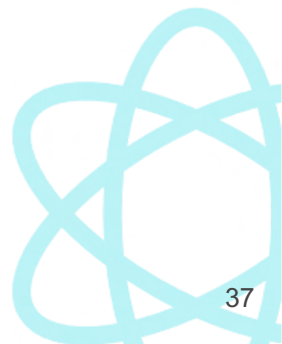
Cookieless? Possible impact on Measurement

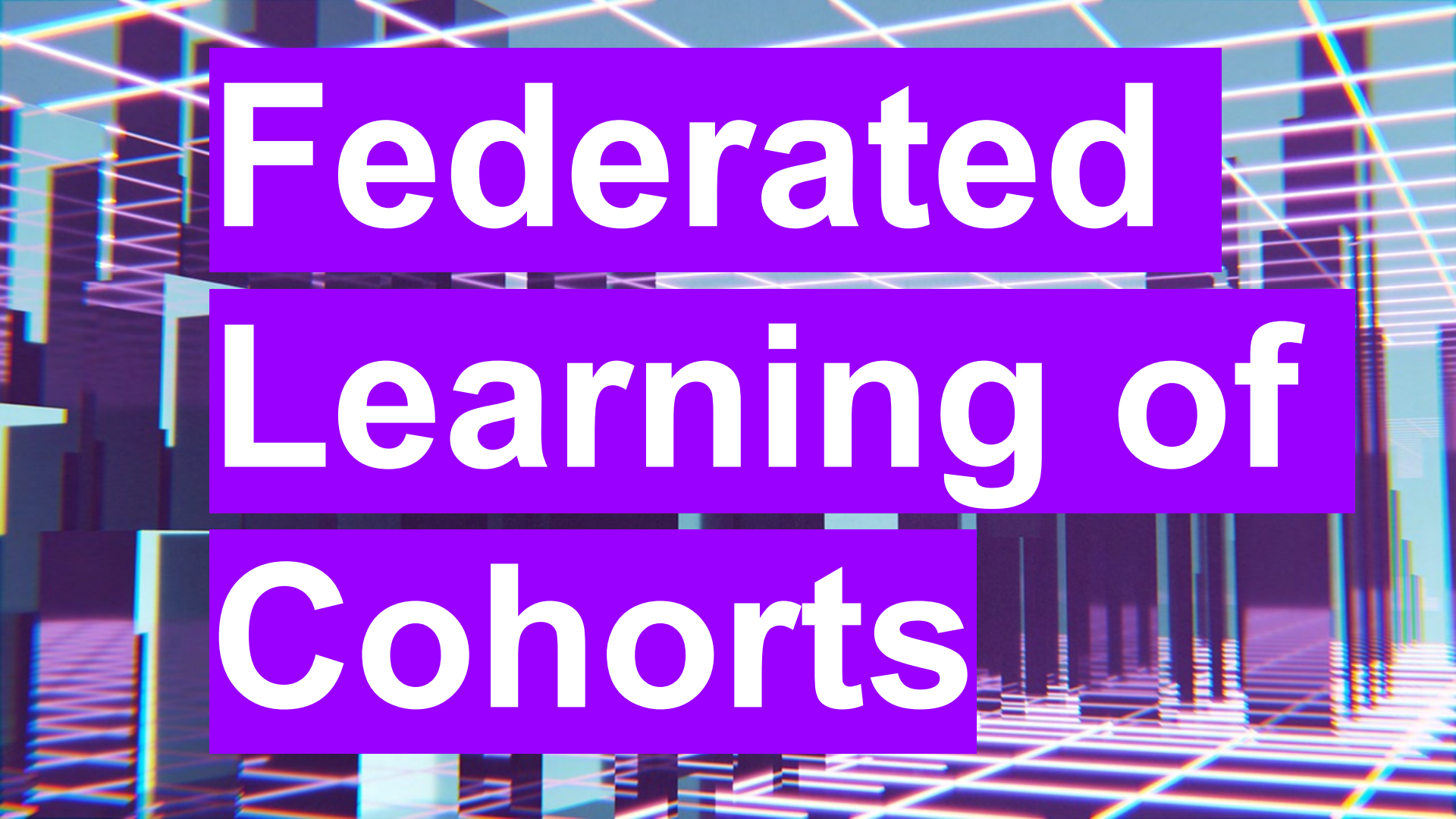
- No post view
- No granular path reporting
- No cross channel reporting
- No MTA?



How to Improve Tracking

- Conversion Linker
- Enhanced Conversions
- Server Side Tagging
 - FB cAPI
 - GAds





Federated Learning of Cohorts

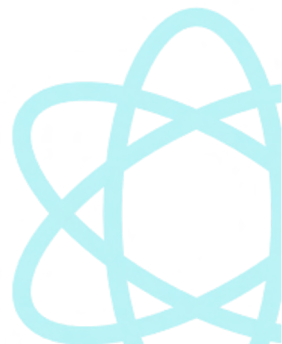




Agenda

Chapter 1 - Why measurement is a challenge?

Chapter 2 - How to survive?





$$\begin{aligned} &\textbf{Measurement} \\ &= \\ &\textbf{Incrementality + Attribution +} \\ &\textbf{Long term value + First party data} \\ &\dots \end{aligned}$$



Attribution

Who's getting the credit for the conversions we are getting?



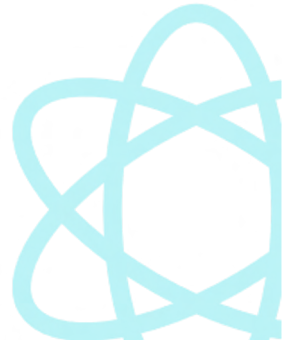
Incrementality

**How many conversions
would we have gotten
anyway?**



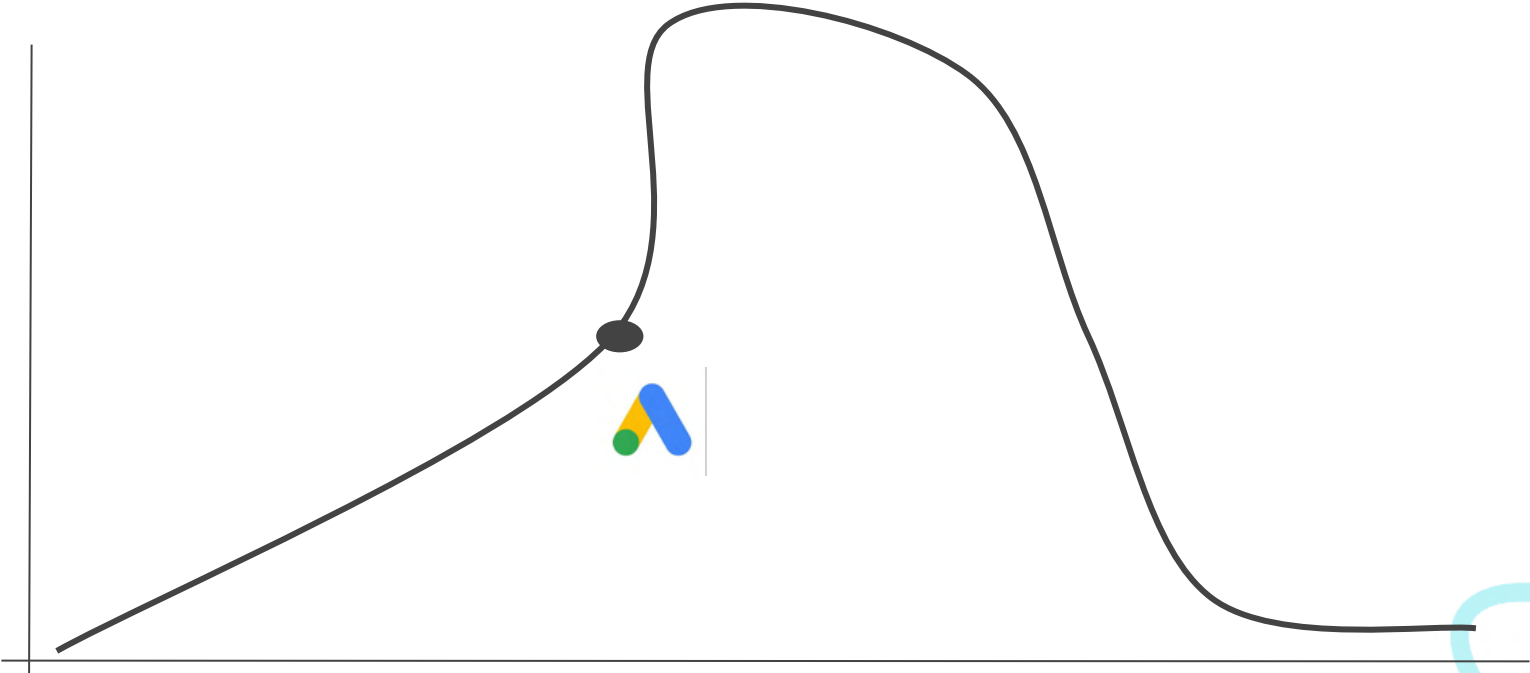


How many conversions would we have gotten anyway from Facebook ads if we went chilling on the beach?

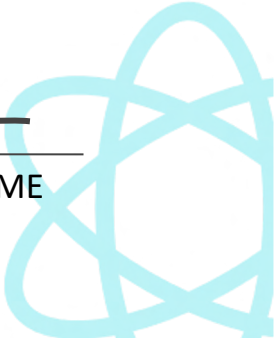




SALES



TIME

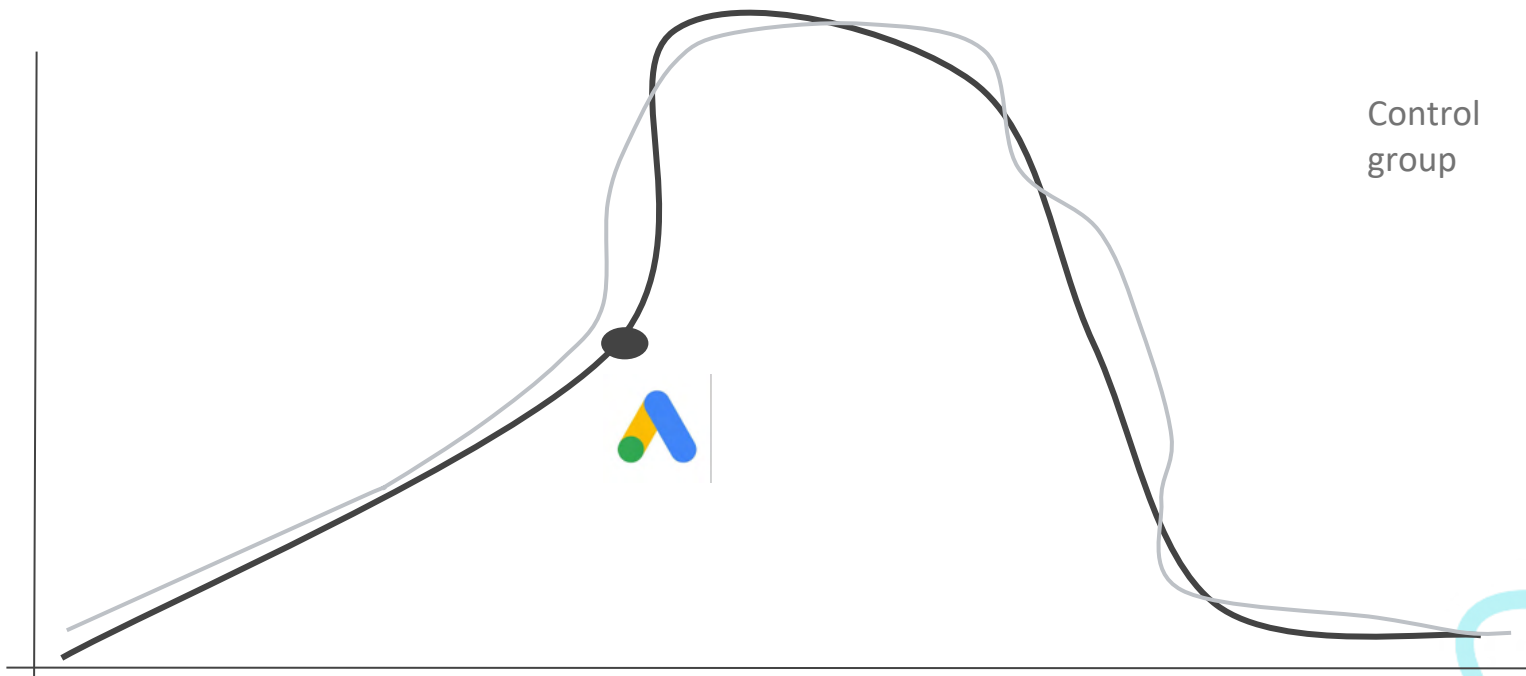


SALES

Control
group



TIME





$$\begin{aligned} &\text{Measurement} \\ &= \\ &\text{Incrementality} + \text{Attribution} + \\ &\text{Long term value} + \text{First party data} \\ &\quad \dots \end{aligned}$$





Attribution today = MTA





		HOW IT WORKS	PROS	CONS
FIRST TOUCH		Assigns 100% of credit to first AdWords touch point	Maximize TOFU credit distribution. Favors customer acquisition	Favors highly competitive terms – likely to be inefficient
U-SHAPED (POSITION BASED)		Assigns 40% of credit to first + last touch point. Distributes remaining 20% evenly	Emphasizes key touches while giving some credit to early efforts	Can undervalue middle touch points, especially for long purchase cycle
LINEAR		Every touch point is assigned equal credit	Every touch point is considered.	Undervalues key touch points, over values minor touch points.
TIME DECAY		Bulk of credit assigned to last touch, diminishing value assigned to earlier points.	High efficiency while distributing some credit to TOFU	Overvalues last touch efforts (brand, remarketing)
LAST CLICK		The worst Jerry, the worst.	Maximize efficiency	Significantly overvalues brand terms, remarketing. Favors customer recycling

Attribution models can be divided in 2 groups



Heuristic Models

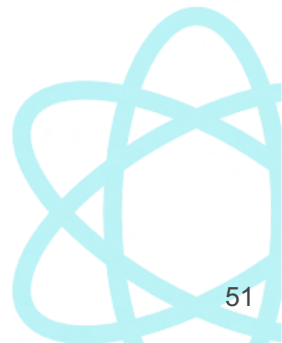
- Used by most advertisers
- Assign values across positions in the chain
- Examples:
 - Last Click
 - First Click
 - Position Based
 - Linear
 - Time Decay



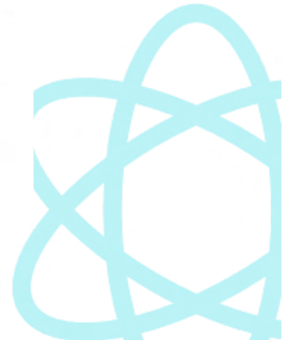
Algorithmic Models



- Used by advanced advertisers
- Assign values to each touch point based on user dynamics
- Examples:
 - Custom Models
 - Data-Driven
 - Markov Chains
 - ...



Markov's chain



The collage consists of several overlapping elements on a corkboard background:

- Top Left:** A spiral-bound notebook with the title "Button Funnel" written in large, bold, black letters. Below the title are three large question marks "???".
- Top Center:** A red pushpin is pinned to the notebook.
- Top Right:** A red line graph with a jagged red line and a smoother blue line. The red line is labeled "Perfect Substitution" and the blue line is labeled "Google Test".
- Bottom Left:** A newspaper clipping with the headline "eBay Just Prove Paid Search Ads Don't Work?" and the sub-headline "by Neil Patton".
- Bottom Center:** A white rectangular box with the text "The new dot com bubble is here: it's called online advertising".
- Bottom Right:** A white rectangular box with the text "is shown for two events where paid search was suspended (Left) and".

Did eBay Just Prove Paid Search Ads Don't Work?
by Ray Fisman
March 15, 2010

The new dot com bubble is here: it's called online advertising



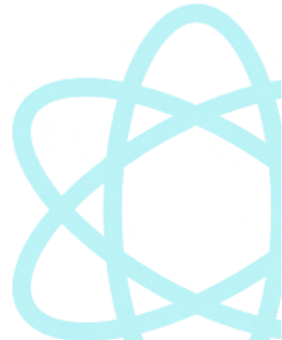
**\$1000 REWARD
DEAD OR
ALIVE**

A graphic on a crumpled paper background. At the top center is a black outline of a cookie with a bite taken out of the top right. A red pushpin is pinned to the top of the cookie. To the right of the cookie is a yellow sticky note with the year '2023' written in black. Below the cookie is a black banner with the word 'COOKIELESS' in white, uppercase letters.

2023

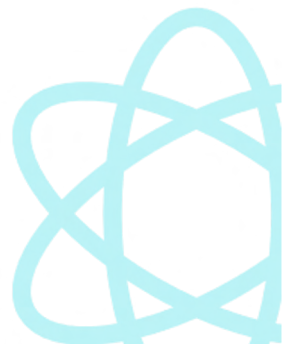


?

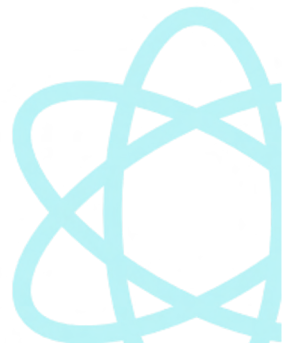
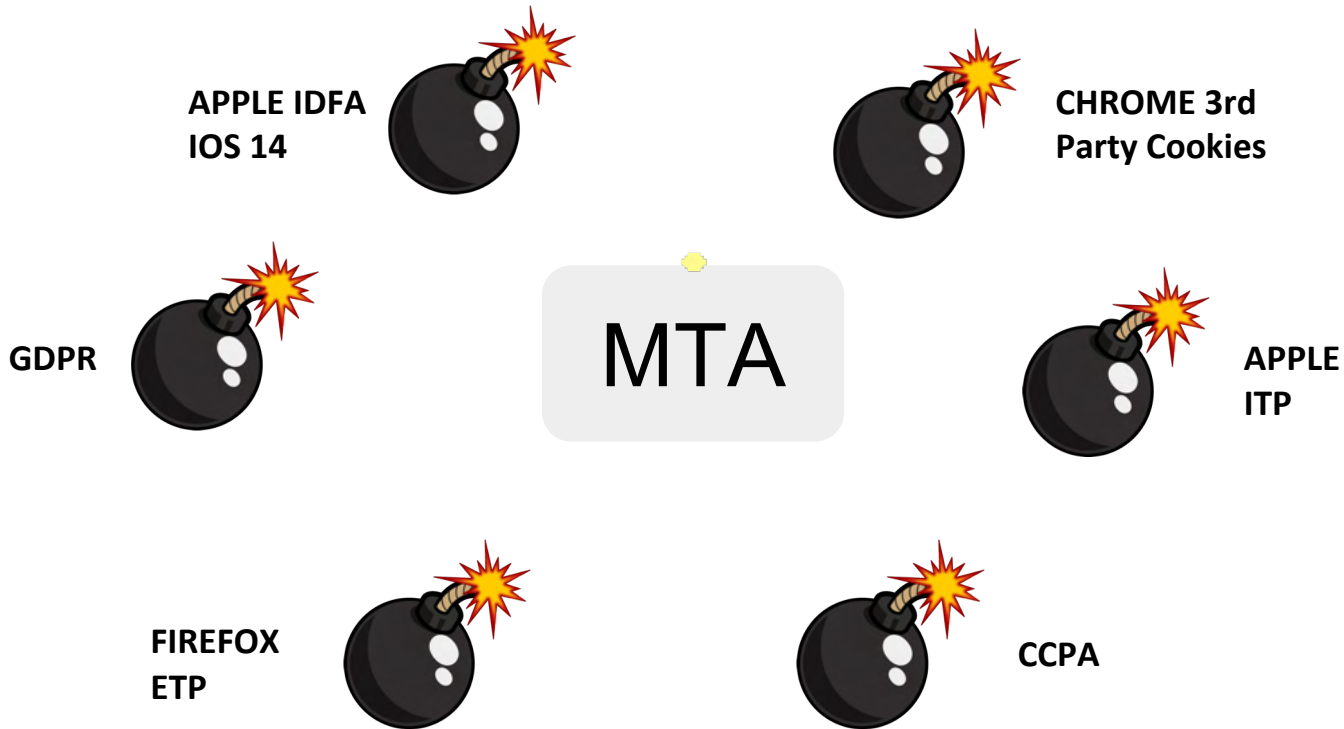


Challenges with MTA we always had

- Post impression
- Cross device
- Cross platforms
- User journeys is not a “funnel” but a “messy middle”



New technological challenges



Is MTA going to die?

- First party MTA (GA, FB Ads, G Ads ...) **probably not**
- Third party MTA **probably yes**

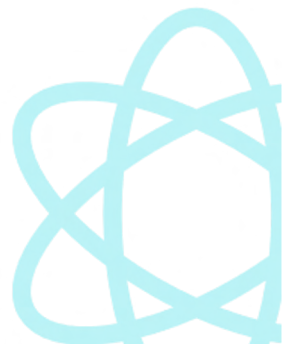


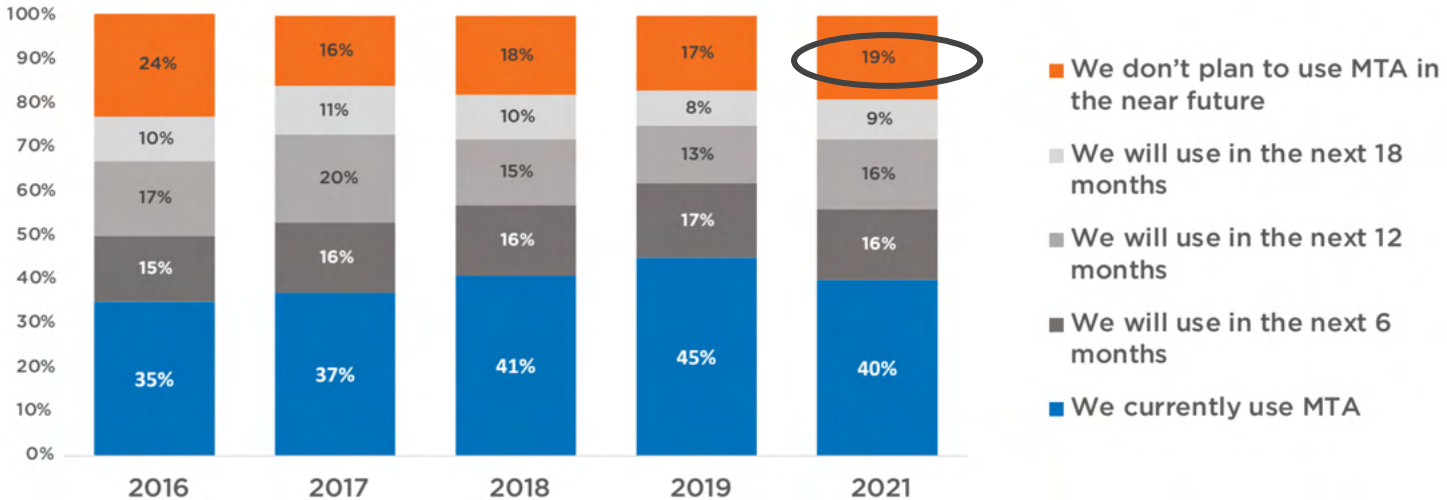
Figure 1. Hype Cycle for Digital Marketing, 2020



Source: Gartner
ID: 441648

MTA adoption has taken a small step back since 2019

Percentage of companies currently using MTA or planning to do so in the future



7 Does your company currently use a multi touch attribution (MTA) solution or do you plan to use one in the future? Sample size in 2020 (NA): N=, 324, EMEA N=186, APAC N=155, LATAM N=54 * small base.

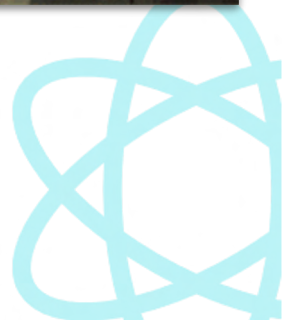
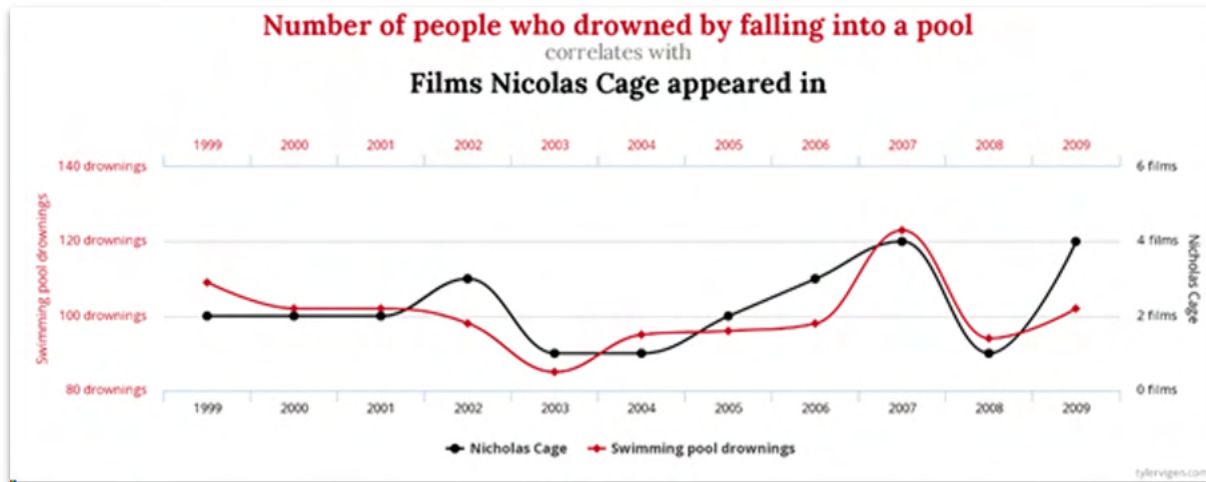




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A good reminder...

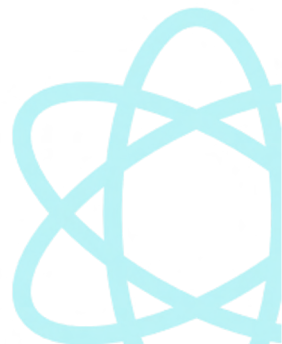


3 Approaches

A. Lift

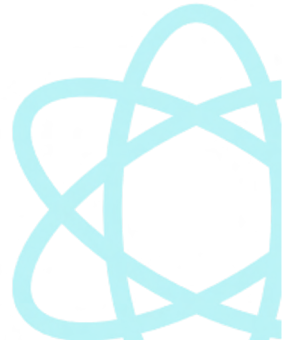
B. Geo Testing

C. MMM (Marketing Mix Modeling)



Goal of the Analysis	Focus	Approach	Type	Main Link	R Code	Python Code
Incrementality	User Based	FB Conversion Lift	External	https://www.facebook.com/business/m/one-sheeters/conversion-lift		
		FB Brand Lift	External	https://www.facebook.com/business/help/1693381447650068?id=546437386202686		
		YT Brand Lift	External	https://support.google.com/google-ads/answer/9038086		
		Google Conversion Lift	Internal	https://www.thinkwithgoogle.com/intl/en-gb/marketing-strategies/monetisation-strategies/a-revolution-in-measuring-ad-effectiveness/		
		Google Search Lift	Beta	https://support.google.com/google-ads/answer/10014316		
		Google Audience test	Beta	https://support.google.com/analytics/answer/6155470?hl=en#zippy=%2Cin-this-article		
	Geo Based	Geo X Light	Beta (only APAC availability in Australia, India and Japan)			
		Synthetic Control Group	Open Source	https://arxiv.org/pdf/1506.00356.pdf	http://google.github.io/CausalImpact/	
		Geo Experiment (GBR)	Open Source	https://research.google/pubs/pub38355/	https://github.com/google/GeoExperimentsResearch	https://github.com/google/trimmed_match
		Geo Experiment Time Based (TBR)	Open Source	https://research.google/pubs/pub45950/		
Optimization	User Based	Ad Variation	External	https://support.google.com/google-ads/answer/7438541		
		Draft & Exp	External	https://support.google.com/google-ads/answer/6318732?hl=en		
		Video Exp	External	https://support.google.com/displayvideo/answer/9040669?hl=en		

www.boosterboxdigital.com/fos2021/



Which of these smart home devices would you consider buying?

- | | | | |
|-----------------------|-------------------------------------|-------------------------------|--------------------------|
| Google Nest Hub | ☒ | Facebook Portal | ☐ |
| Lenovo Smart Displ... | ☐ | Amazon Echo Show | ☐ |
| None of the above | ☐ | Submit Answer | |

YouTube Surveys · 0:25 ⓘ



YouTube

YouTube Surveys

Which of these smart home devices would you consider buying?

- | | |
|-------------------------------------|----------------------|
| ☒ | Google Nest Hub |
| ☐ | Facebook Portal |
| ☐ | Lenovo Smart Display |
| ☐ | Amazon Echo Show |
| ☐ | None of the above |

Ad · 0:25 ⓘ

[Submit Answer](#)

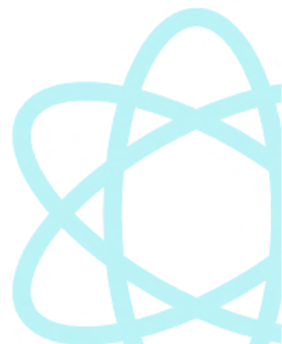


3 Approaches

A. Lift

B. Geo Testing

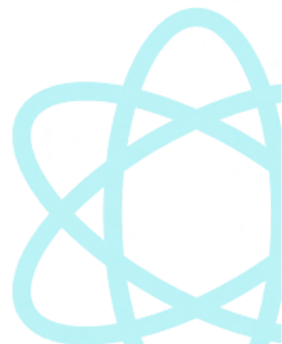
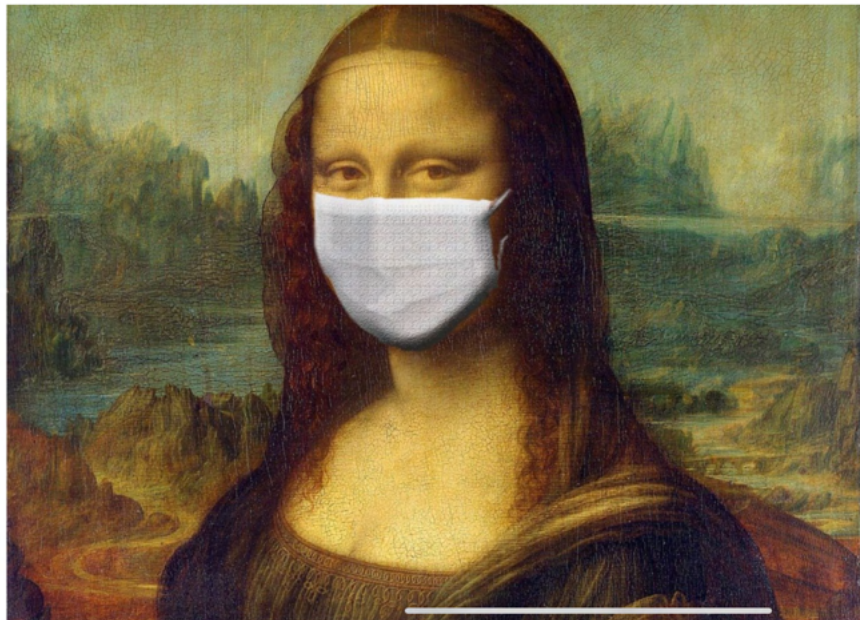
C. MMM (Marketing Mix Modeling)



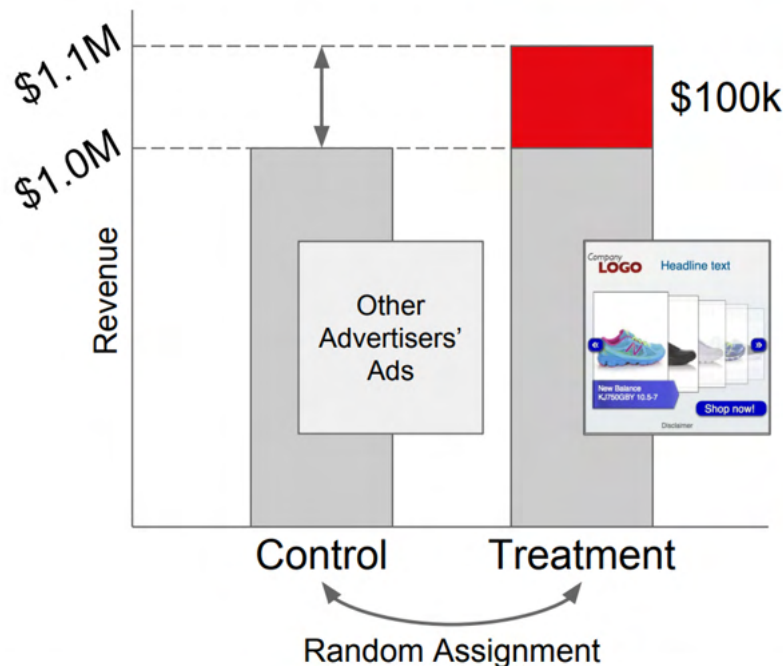
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		YT Brand Lift	External	https://support.google.com/google-ads/answer/9038086		
		Google Conversion Lift	Internal	https://www.thinkwithgoogle.com/intl/en-gb/marketing-strategies/monetisation-strategies/a-revolution-in-measuring-ad-effectiveness/		
		Google Search Lift	Beta	https://support.google.com/google-ads/answer/10014316		
		Google Audience test	Beta	https://support.google.com/analytics/answer/6155470?hl=en#zippy=%2Cin-this-article		
	Geo Based	Geo X Light	Beta (only APAC availability in Australia, India and Japan)			
		Synthetic Control Group	Open Source	https://arxiv.org/pdf/1506.00356.pdf	http://google.github.io/CausalMogul/	
		Geo Experiment (GBR)	Open Source	https://research.google/pubs/pub38355/	https://github.com/google/GeoExperimentsResearch	https://github.com/google/trimmed_match
		Geo Experiment Time Based (TBR)	Open Source	https://research.google/pubs/pub45950/		
Optimization	User Based	Ad Variation	External	https://support.google.com/google-ads/answer/7438541		
		Draft & Exp	External	https://support.google.com/google-ads/answer/6318732?hl=en		
		Video Exp	External	https://support.google.com/displayvideo/answer/9040669?hl=en		

HOW TO ESTIMATE THE IMPACT OF COVID-19 ON YOUR ONLINE MARKETING CAMPAIGNS

by Alessandro G | Mar 26, 2020 | Analytics, Google Ads News & Insights, PPC Strategy



Incrementality: The Causal Effect of an Ad



Example from “Ghost Ads”:
Sporting goods retailer who
ran an experiment:

- Retargeting
- 570k users
- 2 weeks
- 9 million impressions
- Ad spend: \$30,500
- Avg. CPM = **\$3.40**

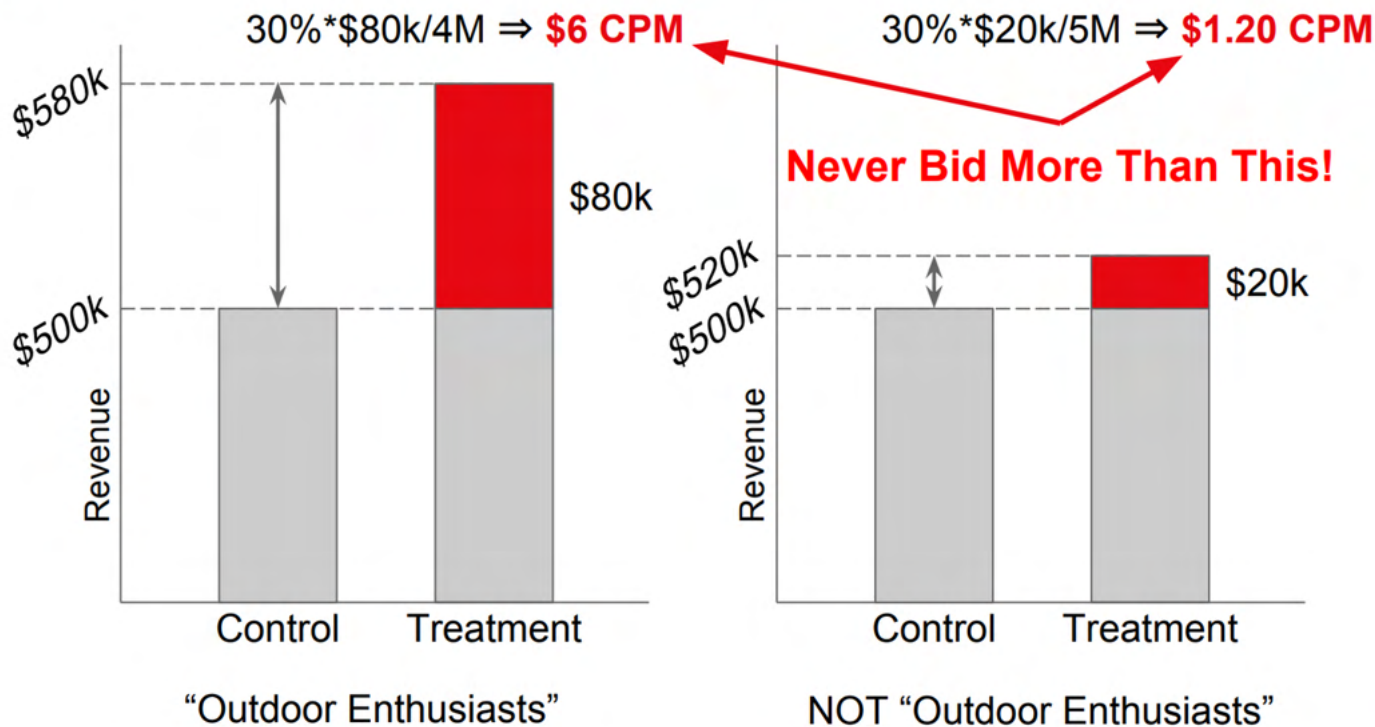
Incrementality: The
difference in the outcome
because the ad was shown;
the causal effect of the ad.

Per impression:
 $\$100k / 9M = \$0.011 \Rightarrow$ **\$11 RPM**

Johnson, Garrett A. and Lewis, Randall A. and Nubbemeyer, Elmar I, Ghost Ads: Improving the Economics of Measuring Online Ad Effectiveness (January 12, 2017). Simon Business School Working Paper No. FR 15-21. Available at SSRN: <https://ssrn.com/abstract=2620078>

NETFLIX

Optimizing Incrementality via Attribution



Stylized example not from "Ghost Ads" paper.

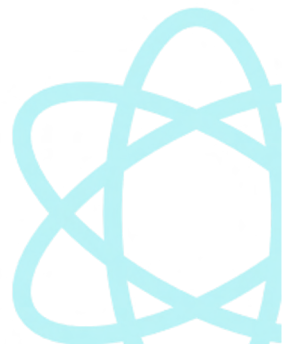
NETFLIX

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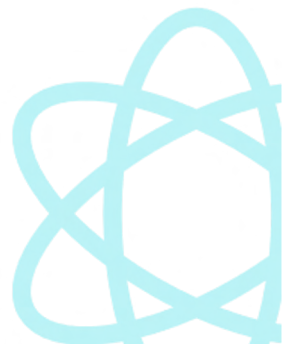
B. Geo Testing

C. MMM (Marketing Mix Modeling)



MMM

- Old tool



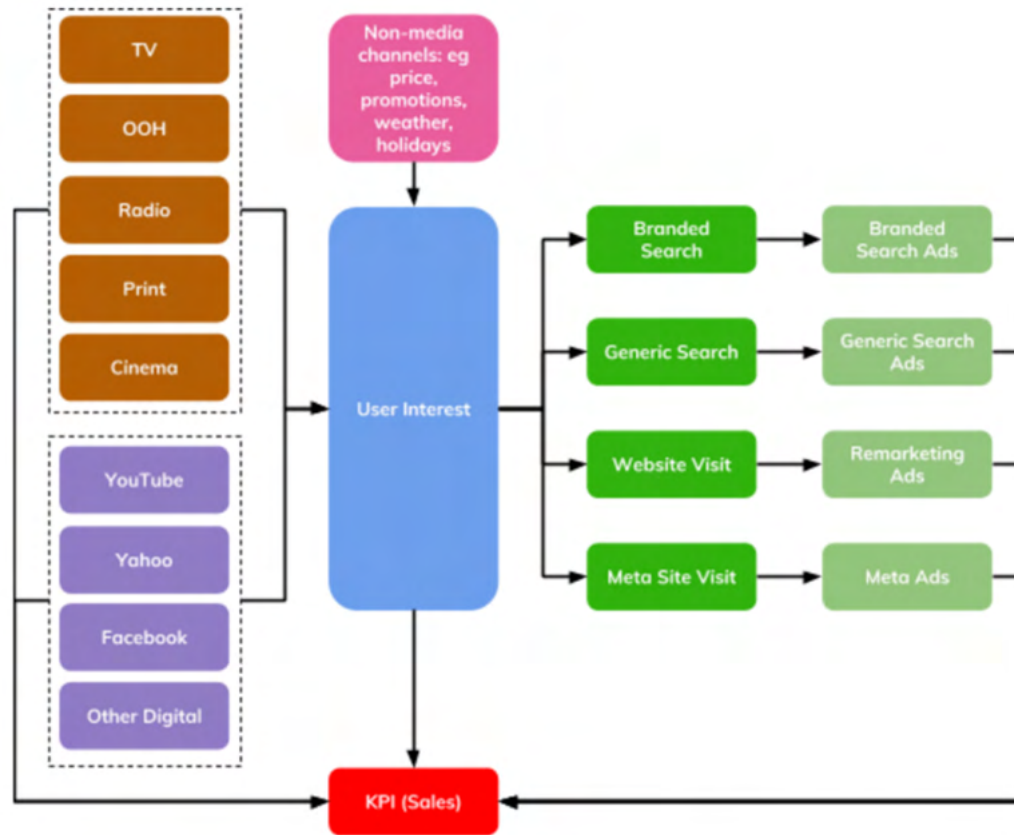
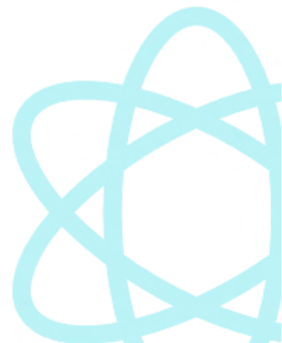


Figure 5: Example of media funnel effects on sales.

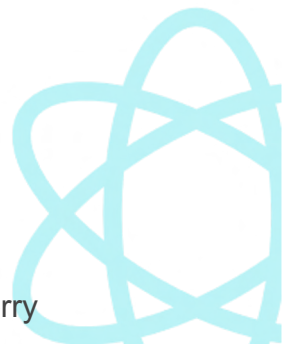
What's the difference between MMM and the rest?

1. MTA assumes we know everything about the user path (all the clicks & impressions). Bottom Up.

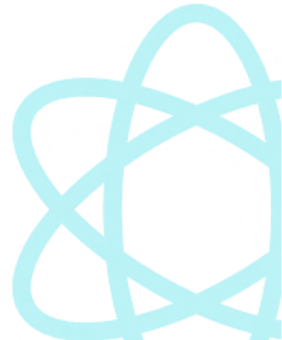


Limitations

- **Selection bias**
- Limited amount of data
- Correlated input variables
- Does not answer to 'what happens if I cease my ad spend?'

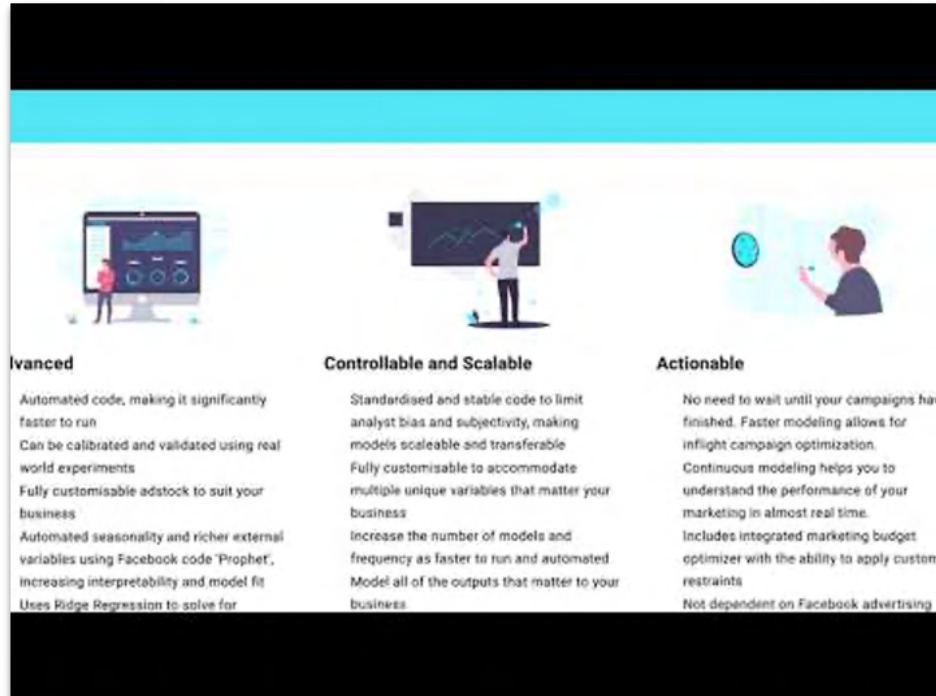


Guess who's going all in on it?



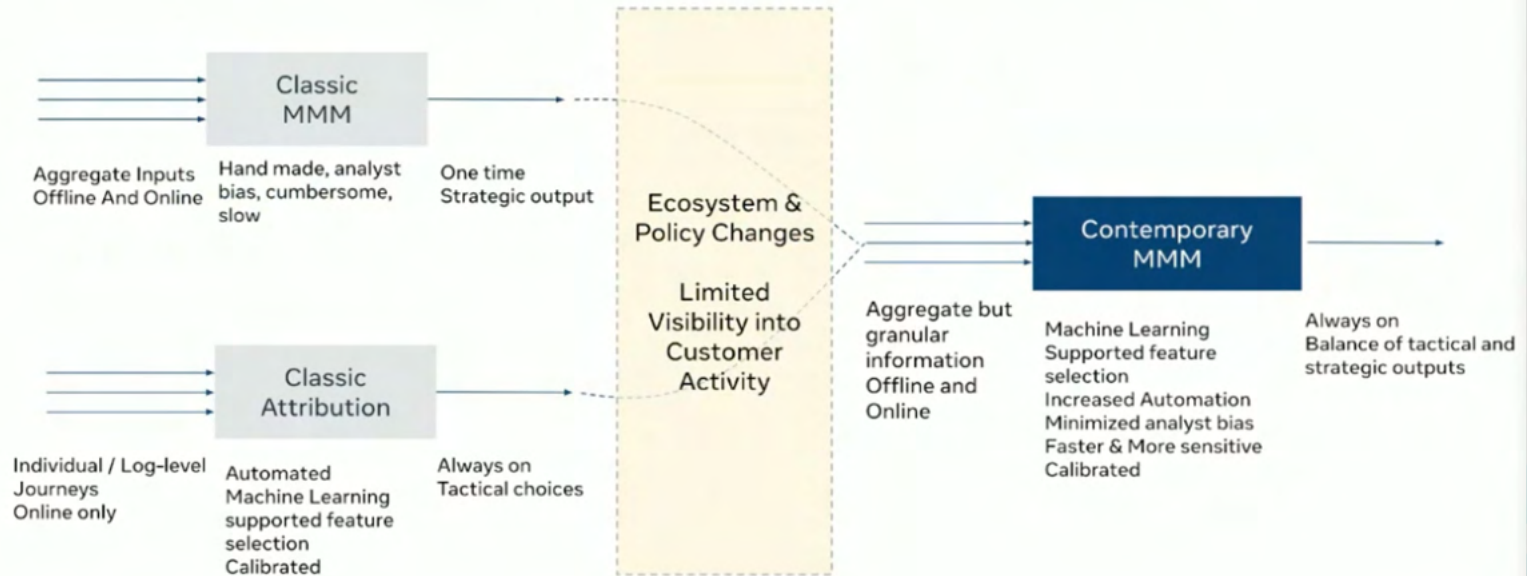
FB going all in on MMM (and reinventing it)

- <https://facebookexperimental.github.io/Robyn/>



Advanced	Controllable and Scalable	Actionable
- Automated code, making it significantly faster to run - Can be calibrated and validated using real world experiments - Fully customisable adstock to suit your business - Automated seasonality and richer external variables using Facebook code 'Prophet', increasing interpretability and model fit - Uses Ridge Regression to solve for	- Standardised and stable code to limit analyst bias and subjectivity, making models scaleable and transferable - Fully customisable to accommodate multiple unique variables that matter your business - Increase the number of models and frequency as faster to run and automated - Model all of the outputs that matter to your business	- No need to wait until your campaigns have finished. Faster modeling allows for inflight campaign optimization. - Continuous modeling helps you to understand the performance of your marketing in almost real time. - Includes integrated marketing budget optimizer with the ability to apply custom restraints - Not dependent on Facebook advertising

Contemporary MMM combines benefits of MMM, Attribution and advanced machine learning methods



FACEBOOK

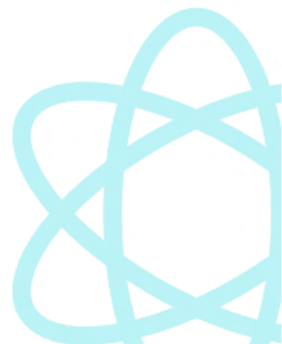


**“Talk is
cheap. Show
me the code.”**

Linus Torvalds

3 options

- SapientNitro - ❤️
<https://github.com/rkthakur/mediamixmodeling>
- Guang Fei - ❤️❤️
<https://github.com/Guangfei0/Market-Mix-Modeling>
- ThirdLove - ❤️❤️❤️
<https://github.com/mecommerce/ThirdLove-Tech-Blog>





So let's take a step back and...



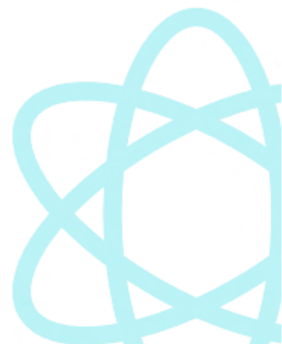
Want to improve your measurement? Get a grip on incrementality

Avinash Kaushik / January 2021



3 approaches

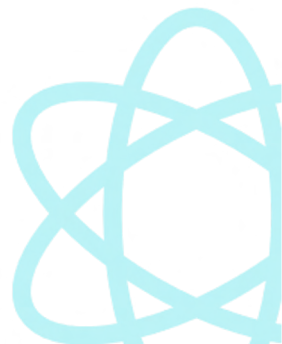
A. **Lift** → Channel-silo incrementality



3 approaches

A. Lift → Channel-silo incrementality

B. Geo testing → Cross-stack incrementality



GOOGLE SEARCH

YOUTUBE

DISPLAY

FACEBOOK

INSTAGRAM

HULU

CINEMA

PRINT

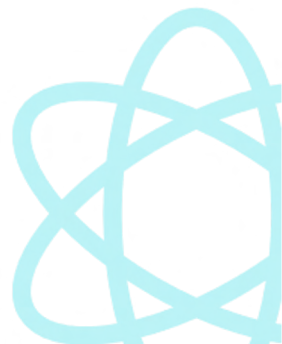
OOH

TELEVISION



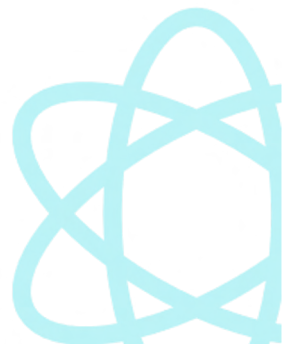
3 approaches

- A. **Lift** → Channel-silo incrementality
- B. **Geo testing** → Cross-stack incrementality
- C. **MMM (Marketing Mix Modeling)** → When testing the entire marketing activity



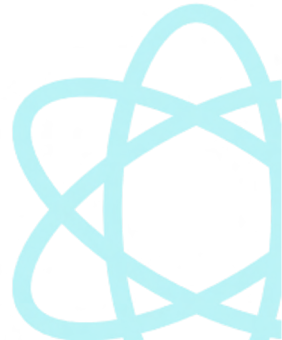


Wait...there is another way

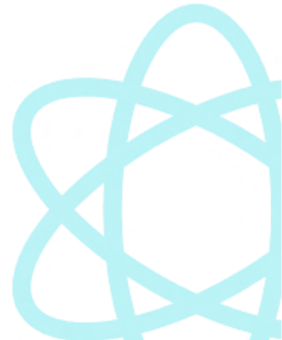


A potential theory of everything? UMA unified marketing mix

- Run geo testing to estimate impact of channel(s)
- Use them to calibrate Contemporary MMM to allocate the impact of the Mix
- Use MMM to feed Adv platforms and run campaigns leveraging 1st party MTA (Data Driven)

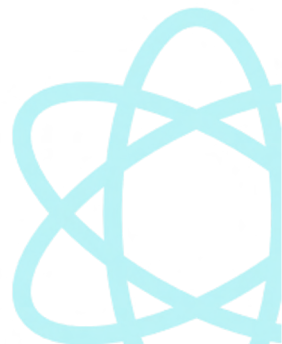


A lot of science, data analysis, modeling...





We are going to
become
**modeling
agencies**



Incrementality APOCALYPSE: AN INCREMENTALITY SURVIVAL KIT

Gianluca Binelli



[@ktzstyle](https://twitter.com/ktzstyle)

Want to know more about incrementality?

- People to follow on Twitter: @Mike_Kaminsky, @hammer_mt, @weird_ceo, @lfiaschi86, @MackGrenfell, @Leoubb
- <https://www.facebook.com/business/news/insights/considerations-for-creating-modern-marketing-mix-models>
- <https://projectrobynmmmsummit2021.splashthat.com/>

