Display Advertising



What is display advertising?

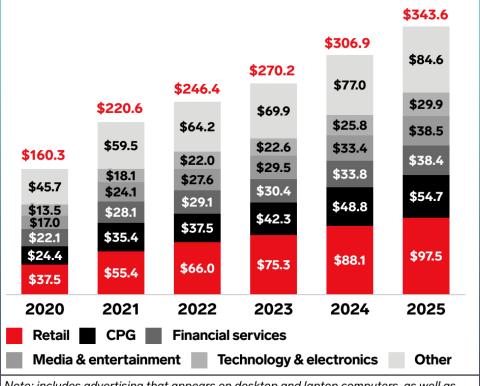
How are display ads bought and sold?

Click Fraud



Retail and CPG Continue to Be the Largest Buyers of Digital Ads

billions in US digital ad spending, 2020-2025



Note: includes advertising that appears on desktop and laptop computers, as well as mobile phones, tablets, and other internet-connected devices on all formats mentioned; numbers may not add up to total due to rounding Source: Insider Intelligence | eMarketer Forecast, Dec 2023

What is display ad?

When you search on Google, you see ads which are known as "search ads."

When you browse online (e.g., browsing YouTube, Wall Street Journal, Gmail etc.), you see adds known as "display ads."

How does the ad appear here?



How does the ad appear here?

POLITICS

Open Questions | 'Literary anarchist' Yan Lianke on Chinese writers, the Nobel prize and censorship

Former soldier and award-winning author discusses the 'tolerance and protection' he has received and the state of Asian literature.

29 Sep 2025 - 5:00PM









Historical Note: Banners

Banners seem to be the oldest standard format in use.

The first "banner ad" was launched by AT&T on Oct 27, 1994 on Hotwired, the web version of Wired.

Have you ever clicked your mouse right HERE?

Part of the AT&T "you will" ad campaign

The AT&T You Will Campaign

Each ad presented a futuristic scenario beginning with "Have you ever..." and ending with "...you will. And the company that will bring it to you: AT&T."

At that time, there were about 30 million people on the Internet.

The ad predicted a number of innovations including GPS navigation, Wi-Fi, tablet computing, smartwatches, distance learning etc.

Display Advertising

Struggling Rural Colleges, Towns Find Fates Intertwined

As America's rural colleges struggle with falling enrollments and local flight, they are realizing how their own futures are intertwined with the broader community.



 There's an Antidote to America's Long Economic Malaise: College Towns (Dec. 12)

Bring Back Jobs From China? In Shenzhen, They Aren't That Worried

Donald Trump's threat to compel Apple and others to manufacture more at home should strike fear into Shenzhen, where the



world's tech gadgets are made. Yet executives here aren't worried by Mr. Trump.

Stock Futures Edge Up as Dow Nears 20000

Futures pointed to a small opening gain for the Dow



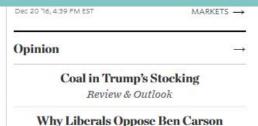


Myanmar's Right-Hand Cars Feel Wronged by State Ban



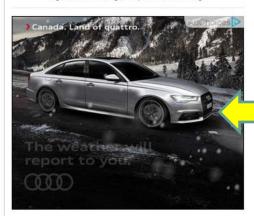
Trump's Israel Envoy Pick Helped Fund Settlers



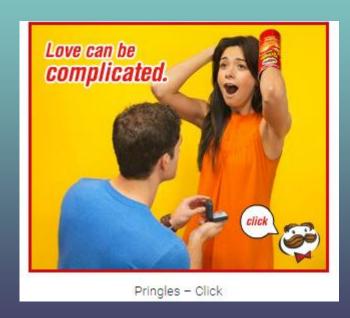


By Jason L. Riley | Upward Mobility

The Case for a Rules-Based Fed
By John B. Taylor | Commentary



Examples of interactive banners







Telegram app cracks down on IS propaganda channels

By BBC Mandoing

Diffhours ago: Technology



The secure mobile messaging app Telegram has started cracking down on propaganda from so-called latentic State group (SI), meany eight weeks after the terror group set up its own public brasslass; channels there.

IS and other (Realist groups have been exploiting new functionality introduced by the app in late September, which allows users to broadcast freir inessages to an unlimited comber of members als their our Television Inhancel?

In an apple programmer on Westmanton assessor, the September of Telegraph and It had shad down 76 tS-channels and promised to rease it easier for users to feig-"street on the content" shared via the soc.

We were disturbed to learn that Telegram's public channels were being used by SKS (abornative name for till) to speed their propagands," said a statement from Tolegater, which was not up in 2013 by Sen Russian brothers, Paver and Mikote.

The action followed claims by IS for the 15 Hovember Plants shacks and the downing of a Russian passenger jet over Egypt's Sinsi Peninsula on 31 October. Shortly before the key IS propagands channel on Talegram was strut down on 18.

November, it had been used to publish (5's Emplish-lampuage magazine Dable which halled the Paris attacks and featured an image of the bomb IS claims to have used to bring down the plane.

di nad entred te procepanda distribution to Telepaste from Yuriter on de September suct four days other Telegram transpersed the learnish of its new "Channels" sook

An efficial to channel dubbed blashir, which translates as "Distributor" in English, quiskly became the platform where till propaganda statest appearing first, other several minutes before being posted to Twitter - Grs. street favoured putes.



The charged had annused over 16 500 subscribes before I was also down about with a raft of other 15 channels used to distribute the group's propagance in a wide

range of languages, including English, French, Russian, Turksit and Units. But many other shaded Tologram channels continue to be active, including official

Top Stories

Paris Yingleader billed to raid The inter believed to have planned the attacks in Paris, Abportunist

CONTRACTOR NO US House volue to restrict refugues

ACVENTREMENT

Lisan More

Clicit window again World on cusp of 'post-amilitatio Cl di Francis ago

Sas He

Is your data

ready for analytics?

5 best practices.

More like this

Features & Analysis

Seal place to be a worsen?

Magnets is so confident of its electify that It finice differed a reward of foundreds of thousands of delians to the first person who could could be encryption.

BBC Monitoring reports and analyses news from TV, radio, web and print media around the world. You can bileve DDC Monitoring on Twitter and Facebook.







The one big thing there's never been a

The news you track 267, Disyour TV.

More Videos from the BBC

by hackers or government agencies.

Share this story wout many

US attorney calls for access to Geogle and Apple phones

Parks attacks: "Hingleader" Abdelhamid Abakeud killed in raid.

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More on this story Undate: Encryption row Interestina 16 November 2016

of mount and

Technology:



Elsewhere on BBC

























Toenel Hoard of 800 poin olippings

found in Forest of Dean









Unruly' passenger tries to open self door. The ancient protectors of England's







reflection or stoken on 15.

From Around the Web

















BIRTHRAD Hillary Chican Presents tier Plan to Beldie ISIS The New York Trees

This is an example of the BBC website. How many ads do you find on this webpage?





By BBC triansoring Analysis

Difference Technology



The secure mobile messaging app Telegram has started cracking down on propagands from so-called Islamic State group (IS), nearly eight weeks after the terror group set up its own public braselaset channels there.

IS and other (Radial proups have been emploiting new functionality introduced to the unlimited number of members via their own Telegram "channel

In an annual personners on Wednesday assering, the Selfonceard Telephon and It had and down 76 tS channels and promised to rease it easier for users to find "objectionable public content" shared via the spo.

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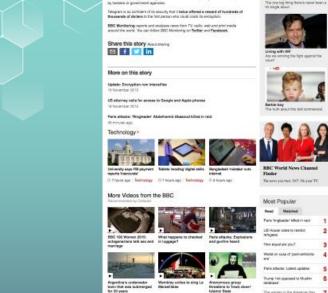
But many other shaded Tolegram channels continue to be active, including official





Both ads from SAS. This is a behavioral targeting ad. It is becoming popular to have two ads on the same page.





Elsewhere on BBC



Townell House' of 886 poin of points Why does the US Havy need pilots who found in Forest of Deen can fly the this?





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SEC NAME

World on cuts of post-antibiotic 4 Paris attacks: Lamet updates 5 Drump hel apposed to Muslim 6 The wasten in the Assessan flag 7 Transgender women dies in male 9 Francia activistic octional Ineffective or strikes on (5)

Webinar

Corrent Student Insights

From Around the Web Trump on the later/ic State: I would just

bonb those suskery' Washington Post Vi...

U.S.S. Henry S. Trumon. deploys from Nortals Westington Post 11 U.S. Prosidents Ranked from First to Worst Sami and Shin?

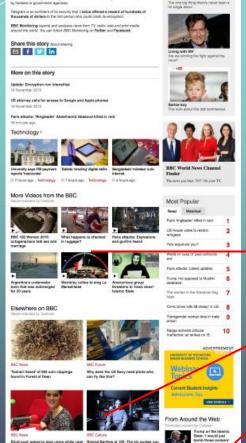
12 Animals You Should

Hillary Chotan Present Her Piers to Seitle 15/5

AGVERTISEMENT

This is an ad from University of Rochester Business School. It is a retargeting ad.





United consumer tries to open self door. The applications of final and a

U.S.S. Harry S. Trumon

Difference Between Sarmi and Shia?

Hillary Clinton Presents Her Plan to Selfie ISIS They are also ads, even though they look like real content. This is called native ad.





BBC News

'Toenail Hoard' of 500 coin clippings found in Forest of Dean



BBC Future

Why does the US Navy need pilots who can fly like this?



BBC News

Blind pupil asked to stop using white cane in school



BBC Culture

Roland Barthes at 100: The six quotes you need to know

Raqqa activists criticise Ineffective' air strikes on IS



UNIVERSITY OF ROCHESTER, SIMON BUSINESS SCHOOL

Webinar Topics



Current Student Insights Admissions Tips

VIEW SCHEDULE

From Around the Web

Promoted content by Outbrain



Trump on the Islamic State: 'I would just bomb those suckers' Washington Post Vi...

U.S.S. Harry S. Truman

Native Ads

Native advertising is a type of advertising that matches the form and function of the platform upon which it appears.

It is hard for consumers to distinguish between content and native ads.

More Videos from the BBC



Divorcees are 'not criminals'



Brazil dam burst: 28 still missing after dam burst



other laugh in six sec





Saudi Arabia





attacks to children?

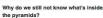
Elsewhere on BBC

Omar Ismail Mostefai?













salon Facebook post

Blind pupil asked to stop using white cane in school



BBC Culture

Andreas Gursky: The bigger the better?





Russia tourist suffers acid attack in India's Varanasi



Why does the US Navy need pilots who can fly like this?

	Read	Watched	
	Paris 'ringleader' killed in raid		
1/2	US House votes to restrict refugees		2
ds	How equal are you?		3
	World on cusp of 'post-antibiotic era'		4
aris	Paris attacks: Latest updates		5
	Trump 'not opposed to Muslim database'		6
	The woma	an in the American flag	7
	'Drink driv	er kills 38 sheep' in US	8
	Transgen prison	der woman dies in male	9
		tivists criticise e' air strikes on IS	10





Current Student Insights **Admissions Tips**

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From Around the Web



Ted Cruz Challenges President Obama to Debate on Syrian...



13 Hilarious Pictures That Prove Victorian Times Weren't That... BuzzEudge



Say hello to the deadliest thing in the



Check Out This Insane Navy Drone in Action



A Rare Interview With A Navy SEAL The Blog of Author Tim ...



RANKED: The 15 **Dumbest Presidents.** Ranked by IQ

Native Ads

Advertisers face a trade-off between ad clicks and brand recognition.

Publishers need to strike a balance between ad clicks and the platform's trustworthiness.

For policy makers, concerns that native advertising confuses customers prompted the U.S. Federal Trade Commission to issue guidelines for disclosing native ads.

More Videos from the BBC



criminals'

Divorcees are 'not missing after dam burst





other laugh in six sec





her arm chopped off in

Saudi Arabia



Omar Ismail Mostefai?

attacks to children?

Elsewhere on BBC

salon Facebook nost





Woman arrested after 'no Muslims' beauty

Why do we still not know what's insithe pyramids?





Andreas Gursky: The bigger the better?



Blind pupil asked to stop using white





cane in school

Russia tourist suffers acid attack in India's Varanasi



Why does the US Navy need pilots who can fly like this?

		Popular	
1	Read	Watched	
	Paris 'rin	Paris 'ringleader' killed in raid	
10	US House votes to restrict refugees		2
ds	How equ	ial are you?	3
6	World on era'	cusp of 'post-antibiotic	4
	Paris atta	acks: Latest updates	5
is	Trump 'n database	ot opposed to Muslim	6
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	'Drink dri	iver kills 38 sheep' in U	s 8
	Transger prison	nder woman dies in ma	ale 9
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		RSITY OF ROCHESTER, BUSINESS SCHOOL	
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Current Student Insights Admissions Tips



Ted Cruz Challenges President Obama to Debate on Syrian...



13 Hilarious Pictures That Prove Victorian Times Weren't That...

VIEW SCHEDULE >



Say hello to the deadliest thing in the



A Rare Interview With A



RANKED: The 15 **Dumbest Presidents.** Ranked by IQ





Are Display Ads DEAD?



Targeting based on simple rules

Geo-targeting

Target by country, state, city, IP address

OS / Browser / Devices

Segment based on technology

Day and time

Specify display times to the minute



Discussion

In addition to these simple targeting rules (geo-targeting, OS / browser / devices, day and time), which other targeting rules can you think of?



Contextual targeting

Ads displayed based on content of web site

Contextual Targeting





Email Story IM Story A Printable View

Google display network offer two options for contextual targeting

Keyword targeting: Choose words or phrases related to your product or service so Google can automatically target your ads to relevant websites on the Google Display Network that your customers visit (this is known as automatic placements).

Topic targeting: Target your ad to multiple pages about specific topics at once. Topic targeting lets you reach a broad range of pages on the Display Network.

Contextual targeting

Ads displayed based on content of web site

Behavioral targeting

Delivering relevant messages to audiences based on interests defined by recency and frequency of site navigation behaviors (web sites visited, search queries made, etc).

Contextual targeting

Ads displayed based on content of web site

Behavioral targeting

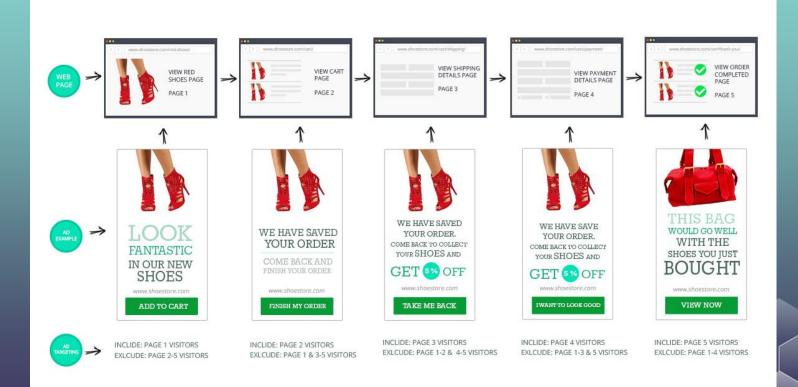
Delivering relevant messages to audiences based on interests defined by recency and frequency of site navigation behaviors (web sites visited, search queries made, etc).

Retargeting/Remarketing

Online ad is shown to a user who searched for (or saw) a particular kind of content.

Based on past sites a user has visited

Customize ads for different retargeting segments





Firms offer different consumers different prices based on their personal situations (e.g., geolocation, search history, purchase history).

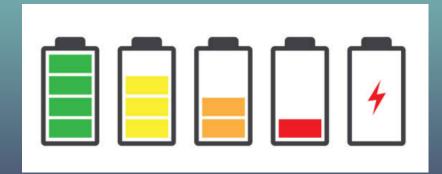
Do you use a MacBook or a PC?

Mac vs. PC

The Wall Street Journal investigated claims that Orbitz, a popular online travel agency, was showing higher prices for hotel rooms to Mac users compared to those who used a Windows PC.

Uber charges you higher prices when your battery is low, because it knows you cannot afford to wait!





Display has the largest share >50% of digital ad spending

Digital Ad Spending Worldwide, by Format, 2022-2026

billions and % change

2022	2023	2024	2025	2026
ending				
\$316.67	\$355.77	\$397.57	\$441.27	\$485.58
\$228.16	\$247.49	\$274.18	\$299.71	\$324.61
\$18.31	\$18.59	\$19.16	\$19.64	\$20.01
\$4.35	\$4.91	\$5.05	\$5.37	\$5.62
\$567.49	\$626.86	\$695.96	\$765.98	\$835.82
8.1%	12.3%	11.7%	11.0%	10.0%
10.1%	8.5%	10.7%	9.3%	8.3%
0.1%	1.5%	3.1%	2.5%	1.9%
8.5%	12.8%	2.9%	6.2%	4.7%
8.6%	10.5%	11.0%	10.1%	9.1%
	\$316.67 \$228.16 \$18.31 \$4.35 \$567.49 8.1% 10.1% 0.1% 8.5%	\$316.67 \$355.77 \$228.16 \$247.49 \$18.31 \$18.59 \$4.35 \$4.91 \$567.49 \$626.86 8.1% 12.3% 10.1% 8.5% 0.1% 1.5% 8.5% 12.8%	\$316.67 \$355.77 \$397.57 \$228.16 \$247.49 \$274.18 \$18.31 \$18.59 \$19.16 \$4.35 \$4.91 \$5.05 \$567.49 \$626.86 \$695.96 8.1% 12.3% 11.7% 10.1% 8.5% 10.7% 0.1% 1.5% 3.1% 8.5% 12.8% 2.9%	\$316.67 \$355.77 \$397.57 \$441.27 \$228.16 \$247.49 \$274.18 \$299.71 \$18.31 \$18.59 \$19.16 \$19.64 \$4.35 \$4.91 \$5.05 \$5.37 \$567.49 \$626.86 \$695.96 \$765.98 8.1% 12.3% 11.7% 11.0% 10.1% 8.5% 10.7% 9.3% 0.1% 1.5% 3.1% 2.5% 8.5% 12.8% 2.9% 6.2%

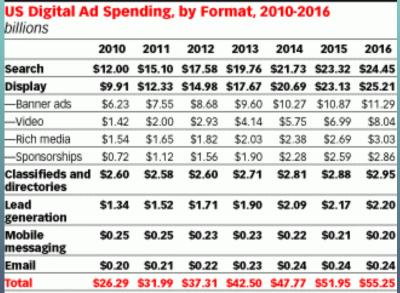
Note: includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets, and other internet-connected devices, and includes all the various formats of advertising on those platforms; "banners (static display), rich media, sponsorships, video (including advertising that appears before, during, or after digital video content in a video player); "*paid listings, contextual text links, and paid inclusion; "**email, mobile messaging, and lead generation

Source: eMarketer, Oct 2022

279254

eMarketer | InsiderIntelligence.com

Display used to fall behind search



Note: includes advertising that appears on desktop and laptop computers as well as mobile phones and tablets on all formats mentioned; data through 2011 is derived from IAB/PwC data

Source: eMarketer, Sep 2012

144427 www.eMarketer.com

The CTR (Click through rate) and conversion rate for ads on display network are 10 factors lower than ads on search networks. But Why?

The CTR (Click through rate) and conversion rate for ads on display network are 10 factors lower than ads on search networks. But Why?

- When consumers are browsing, they do not want to be disrupted. When they are searching, they are actively looking for something.
- There is a lot of fraud on display networks, so many clicks do not convert.

Display vs. Search

	Display	Paid Search
Users/consumers	Passive	Proactive
	Near top of the funnel	Near bottom of the funnel
Contents	Image, Video, Animation	Text
Pricing mechanism	Cost per thousand impressions (CPM)	Cost per click (CPC)
	Auctions + real-time bidding (RTB) Or direct buy at fixed CPM	Auctions + offline bids
Advertising objectives	Brand awareness Re-engaging	Lead generation Direct marketing
Placement	Publishers' websites	Search engine result pages



Direct Buying: Large buyers can purchase directly from large publishers. For instance, if you plan to order 1 million impressions to US users on the New York Time's finance related pages in July, you can contact the publisher directly and negotiate a deal with it.

Feasible to only large publishers and advertisers. Small firms cannot afford the transaction costs. Publishers are often unable to clear their entire inventory through direct buying.

Ad Networks: There are several display ad networks that act as intermediaries between advertisers and publishers, serving display ads through their networks --- You do not contact directly with publishers.

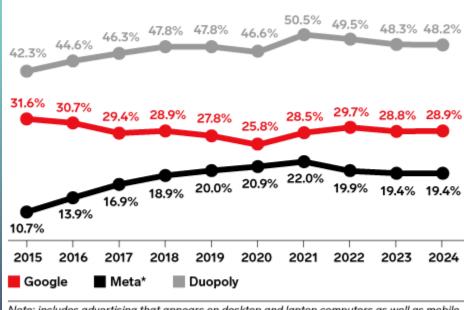
Top Ad Networks include:

Google Facebook Mediavine Apple Advertising

We take Google AdSense as an example to see how ad networks work!

Duopoly Net Digital Ad Revenue Share Worldwide, 2015-2024

% of total digital ad spending



Note: includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets, and other internet-connected devices, and includes all the various formats of advertising on those platforms; net ad revenues after companies pay traffic acquisition costs (TAC) to partner sites; Google includes YouTube advertising revenues; Meta includes Facebook and Instagram ad revenues; excludes spending by marketers that goes toward developing or maintaining a Facebook and/or Instagram presence; excludes revenues reported under Meta's Reality Labs segment; *paid advertising only Source: eMarketer, Oct 2022

At its simplest level, the Display Network works as follows:

Stage 1: Publishers with websites or apps join <u>AdSense</u> and become part of Google's Display Network. They agree to allow Google to place ads on their websites and/or apps.

Stage 2: Advertisers set up Display Network campaigns in Google Ads and tell Google where to place their ads via targeting methods such as keywords, placements, or remarketing (discussed in detail below).

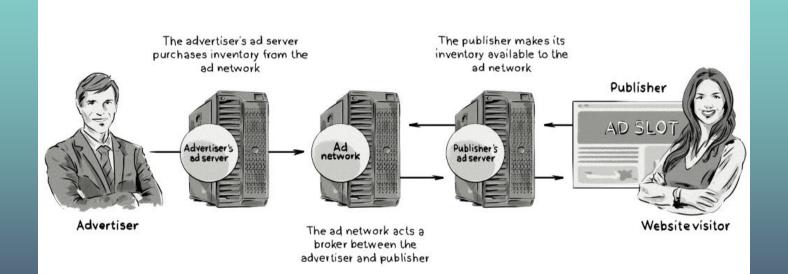
Stage 3: As users browse websites and apps, Google places ads on the websites or apps (called "placements"). Users see these ads as they browse websites, apps, YouTube, and Gmail.

Stage 4: Advertisers compete to get their ads on placements (websites and/or apps) in the Google Display Network by bidding per click and/or by impression. As mentioned earlier, Google switched from second-price auctions to first-price auctions.

Stage 5: When a user clicks on or views an ad, Google makes money off the click/impression and splits this with the publisher of the website and/or app.

Stage 6: If the user clicks on the ad, the user then leaves the website and lands on the advertiser landing page, where he either converts or does not.

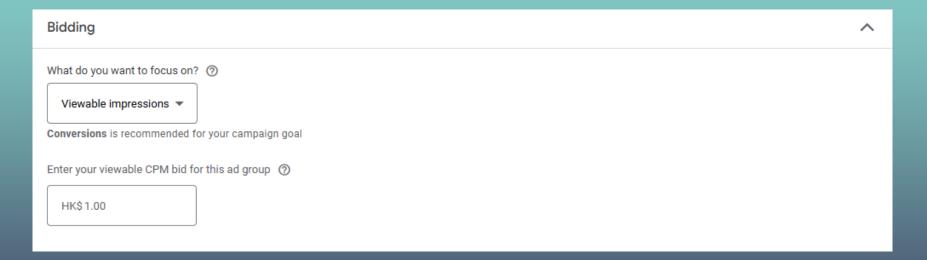
It is also common for advertisers and publishers to hire agencies to help them (e.g., optimizing the bid, providing data analytics)



Select Your Location

Locations	^
Select locations for this campaign ②	
All countries and territories	
O Hong Kong	
Enter another location	
Locations (1)	⊗
Central, Hong Kong Island, Hong Kong neighborhood	\otimes
Q Enter a location to include or exclude Advanced search	

Set Your Bids

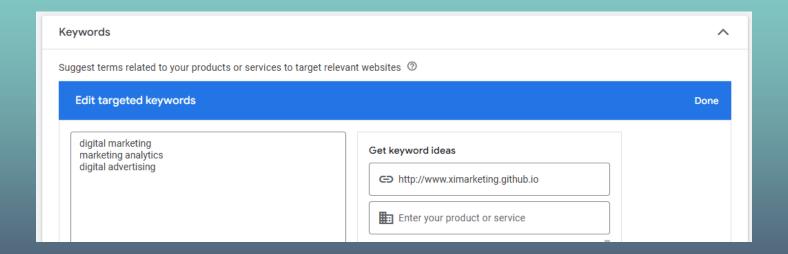


CPM = Cost per thousand impression (mille)

Add targeting	
Demographics	Suggest people based on age, gender, parental status, or household income ③
Keywords	Suggest terms related to your products or services to target relevant websites ②
Topics	Suggest webpages, apps, and videos about a certain topic ②
Placements	Suggest websites, videos, or apps where you'd like to show your ads ②

Next

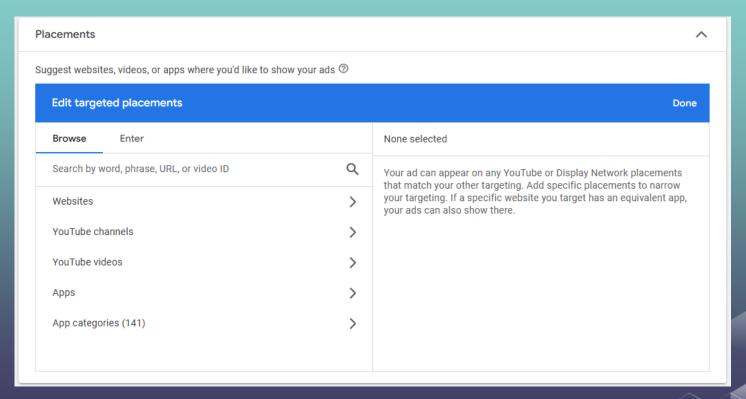
Demographics				^	
Suggest people based on age, gender, parental status, or household income ①					
Edit targeted demographics				Done	
Gender	Age	Parental status	Household income		
Female	18 - 24	✓ Not a parent	✓ Top 10%		
☐ Male	25 - 34	Parent	✓ 11 - 20%		
☐ Unknown ⑦	35 - 44	Unknown ③	✓ 21 - 30%		
	45 - 54		✓ 31 - 40%		
	55 - 64		✓ 41 - 50%		
	65+		Lower 50%		
	☐ Unknown ③		Unknown ②		



Your ad only appears on pages which match these keywords

Topics		^
Suggest webpages, apps, and videos about a certain topic (9	
Edit targeted topics		Done
Search by word, phrase, or URL	Q	None selected
Business & Industrial	^	Your ad will show to all topics that match your other targeting. Add specific topics to narrow your targeting.
Advertising & Marketing	~	topics to narrow your targeting.
Aerospace & Defense	~	
Agriculture & Forestry	~	
Automotive Industry		
Business Finance	~	
Business Operations	~	
Business Services	~	

Your ad only appears on pages which match these topics





If you know the placements you want to run on and you are sure that they are in the Google Display Network, then you can add them as URLs (domains). For example, both CNN.com and Entrepreneur.com run Google ads, so you can click Enter multiple placements at the bottom and then add them.







QUESTION

Why do people buy fake clicks/impressions?



Click Fraud

- Advertisers give money to agencies to purchase online display advertising.
- The agencies give the money to the ad networks.
- The ad networks give a portion of the money back to the agencies.
- Everyone is making money for click fraud except for the advertisers!

How Serious is Click Fraud?

A study shows that

- (1) Only 15% of impressions ever have the possibility to be seen by a real person.
- (2) Among the 15%, 54% of ads are not viewable, and you're left with only 7% of impressions that have the opportunity to be seen by a real person.
- That does not mean that 7% of impressions are seen. That means only 7% have the chance to be seen!





How to Combat Click Fraud?

There are (paid) online plugins available to detect and block visits by bots. They are not perfect but they are helpful.

Monitor your campaign. You can check the publishers of your display ads and manually remove the low-quality and suspicious publishers from the list.

Course Project

Choose a company/brand and analyze its DM strategy, including:

Its website (from an SEO perspective)

Online sentiment (How users talk about the brand online? E.g., user reviews on platforms such as TripAdvisor/Amazon; online discussions on platforms such as Twitter/FB).

Is the company's official social media accounts (e.g., Twitter/IG/FB/YouTube) well managed?

Competitor Analysis and Consumer Analysis



Get your presentation ready by Nov 24 [Monday]. You will present on either Nov 24 [Monday] or Nov 27 [Thursday].

The order of presentation will be drawn randomly.

Submit your project report by Nov 28 [Friday].



Course Project

Any questions?

