Paid Search

Paying search engines to get traffic

Simple Methods Available

There are two, “off-the-shelf” methods that you can use almost immediately to check progress

HubSpot website grader:
Can evaluate any website you enter into their query
Assess the health of website architecture

Google Analytics:
Need to have administrative access to the website as webmaster
Obtain insights from website traffic

Today's Agenda

01

Google Analytics

An exploration of Google's powerful tool

02

Paid Search

How does pay-per-click (PPC) work?

Google Merchandise Store

The store's website: https://shop.googlemerchandisestore.com/

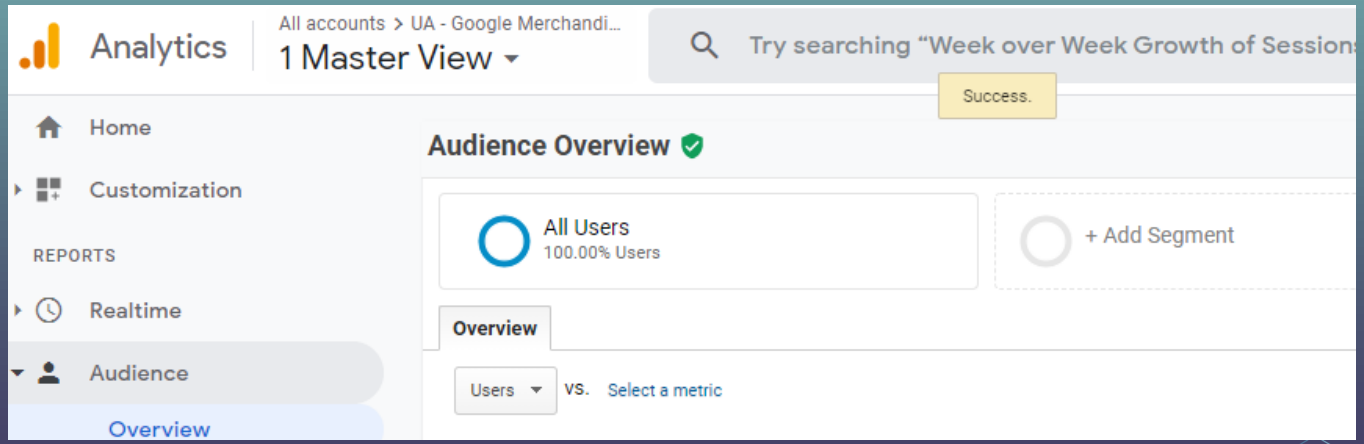
This is a real store for selling products related to Google:

We are using the store as an example for Google Analytics.

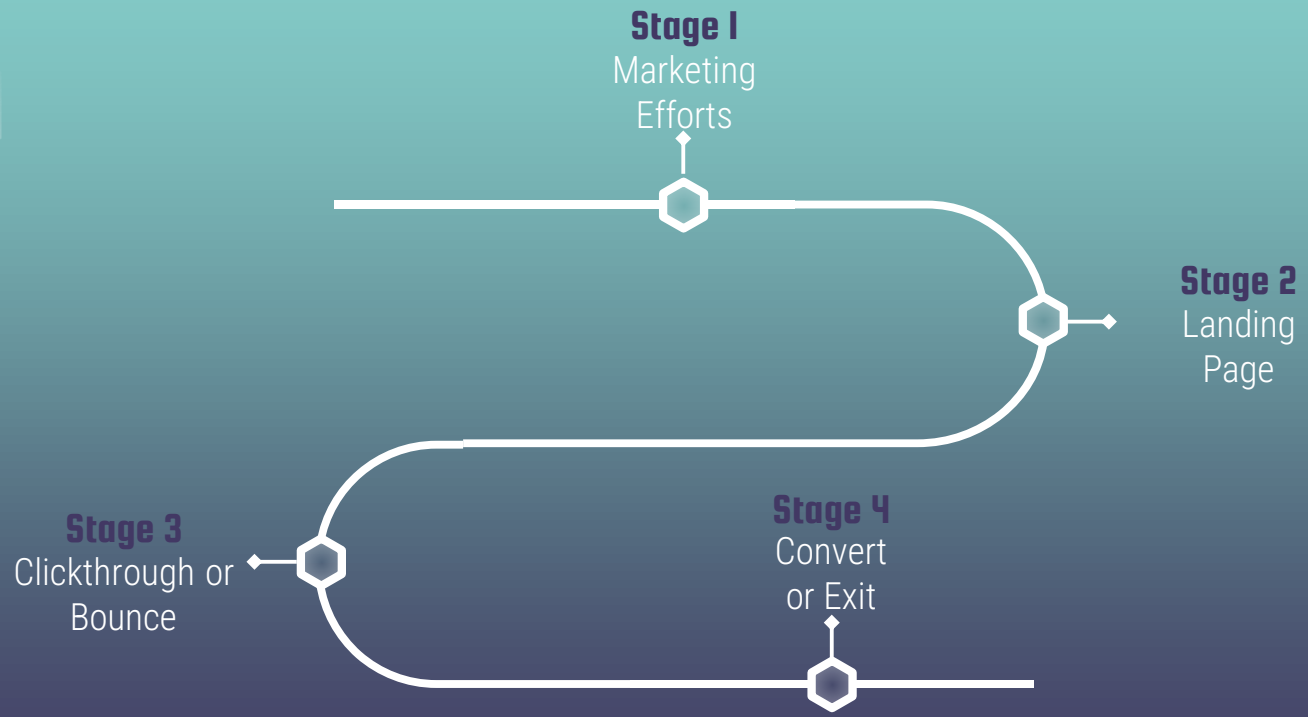
Google Analytics in Action

Go to https://support.google.com/analytics/answer/6367342?hl=en

Sign Up for a GA account & Add Demo



Purchase Funnel



Upon Entry

Source/Medium

- Organic search (www.google.com)
- Display advertising/search advertising
- Referral: the URL that originally generated the request for the current visit
  - A social media URL (www.facebook.com)
  - An email server (www.gmail.com)
  - A website URL (e.g., affiliate marketing)
- Direct (not a referral): the URL of the website (www.hku.hk)

Landing page

The page that identifies the beginning of a visit

During a Visit

Impressions: number of times a content was seen

Clickthrough: the number of times a link was clicked by a visitor.

Clickthrough rate (CTR): the number of times a link was clicked divided by impressions.

During a Visit

During a Visit

Sessions – the total number of times users visit the website.

A session is a group of user interactions with your website that take place within a given time frame. E.g., a single session can contain multiple page views, events, social interactions, and ecommerce transactions.

A session can include multiple Pageviews (PV).

Exit

Bounces (or single page view visits) – visits consisting of a single page view.

Bounce rate– percentage of visits consisting of a single page view.

Conversion – Complete a purchase or generate a lead

Conversion rate (CR) – the number of conversions divided by the number of visitors.

ABC's of Google Analytics

A is for Acquisition: What brought visitors to your site?
How do visitors find your website?

B is for Behavior: What did the visitors do once they got there?
Behavior not only includes what pages they visited, but specifics of how they interacted with your pages and site

C is for Conversion: Did they do what you wanted them to do?
Here is where you can see all your goal conversions, like downloading material, form submissions, add-to-carts, completed checkouts, etc.

Exercise

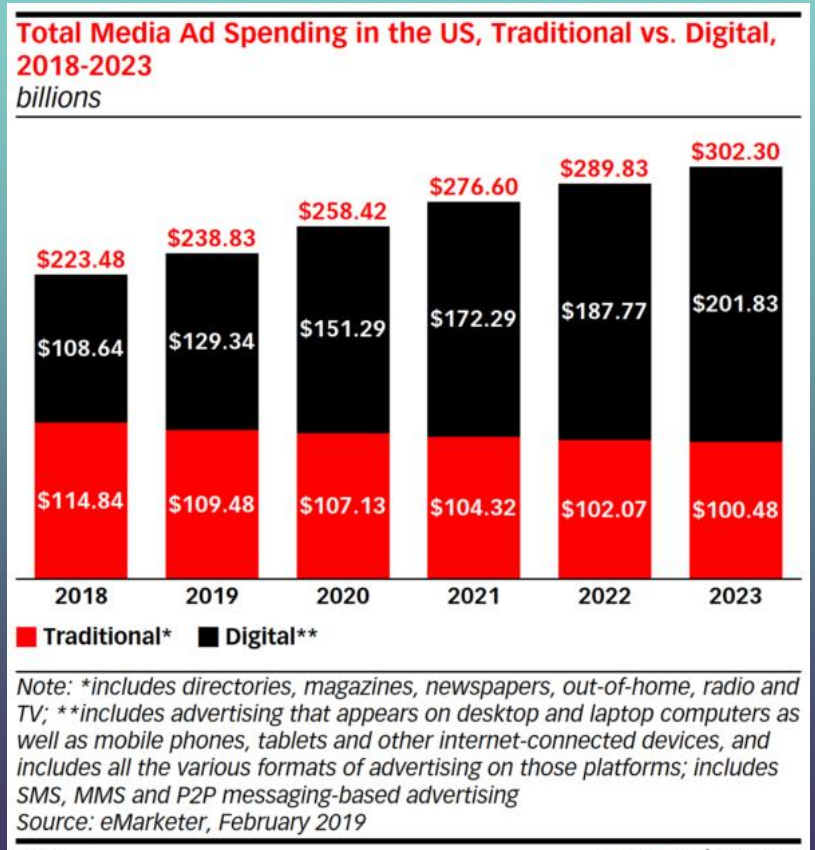
Explore the Google Analytics for the Google Merchandise Store

See what you can learn from the Google analytics and share your findings with us!

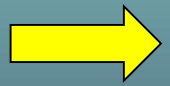
Examples: What drives people to the store? The performance across different devices? The performance across different user groups?

Online Advertising

The Growth of Online Ad



Paid Search is about 40% of Online AD



Digital Ad Spending in the US, by Format, 2019-2023
billions

	2019	2020	2021	2022	2023
Display	**$70.06**	**$81.38**	**$92.53**	**$100.71**	**$107.91**
—Video	$36.01	$42.58	$49.02	$53.99	$58.39
—Banners and other*	$25.94	$30.20	$34.23	$37.12	$39.70
—Rich media	$5.28	$5.44	$5.85	$6.00	$6.10
—Sponsorships	$2.84	$3.16	$3.44	$3.60	$3.72
Search	**$53.73**	**$63.90**	**$73.31**	**$80.43**	**$87.15**
Lead generation	**$2.59**	**$2.84**	**$3.05**	**$3.15**	**$3.24**
Classifieds and directories	**$2.19**	**$2.34**	**$2.49**	**$2.53**	**$2.56**
Email	**$0.49**	**$0.55**	**$0.61**	**$0.65**	**$0.68**
Mobile messaging	**$0.28**	**$0.28**	**$0.29**	**$0.29**	**$0.29**
Total	**$129.34**	**$151.29**	**$172.29**	**$187.77**	**$201.83**

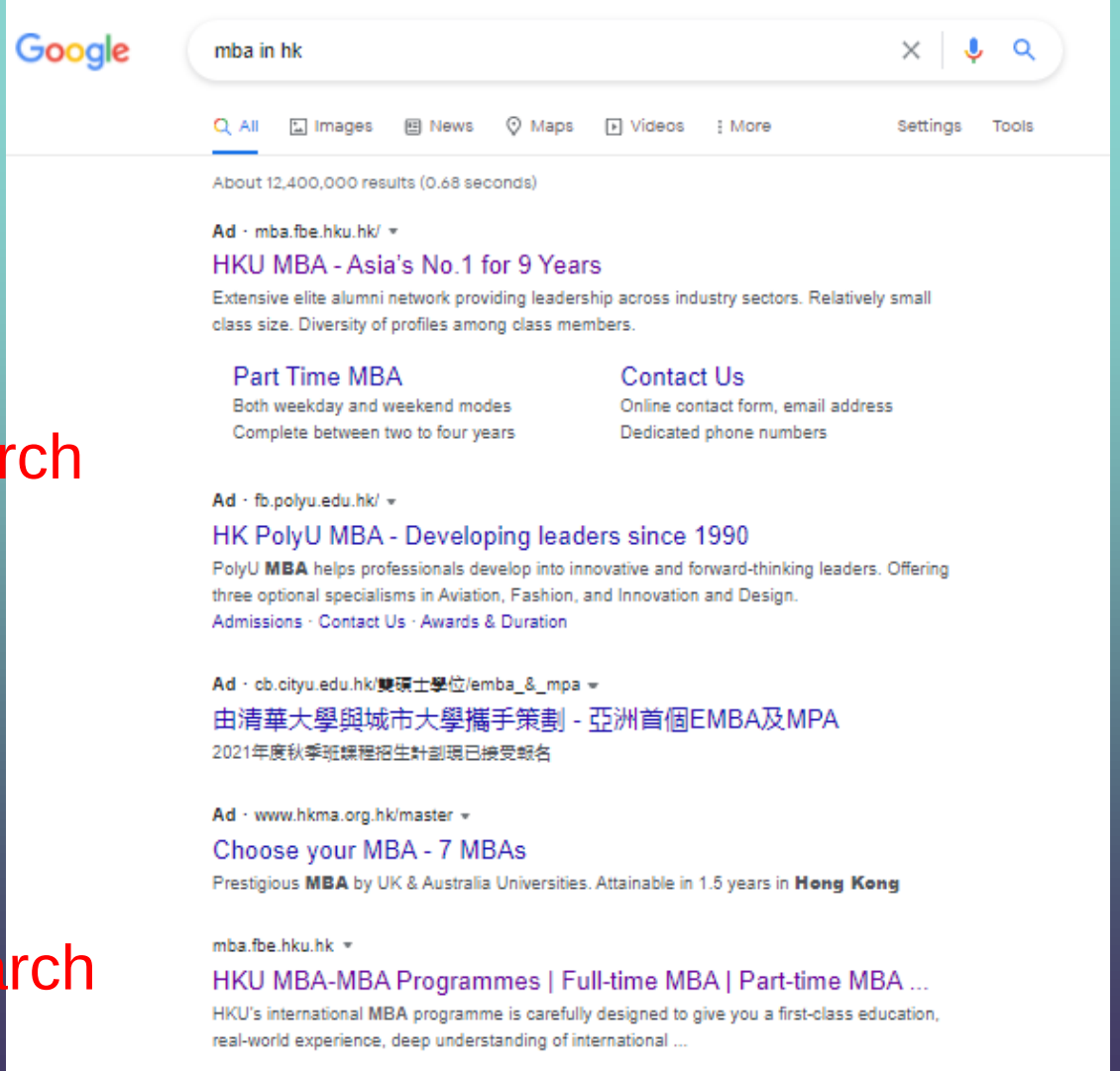
*Note: includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices on all formats mentioned; *includes ads such as Facebook's News Feed Ads and Twitter's Promoted Tweets*
Source: eMarketer, February 2019

T10056 www.eMarketer.com

Paid Search Advertising

Paid search

Organic search



Organic Search (SEO)

Less direct control over ranking

Limited control over message

- Message is typically generic / brand driven
- Pulled from code on website

When done well, it can be a very effective method of increasing traffic and leads

High organic rankings have a positive effect on the brand (and vice-versa) 69% of total search clicks are organic

Can be expensive (if outsourced) & time consuming; Not quick process and/or results

Paid Search (PPC)

Can directly influence ranking (based on bid)

Control over message

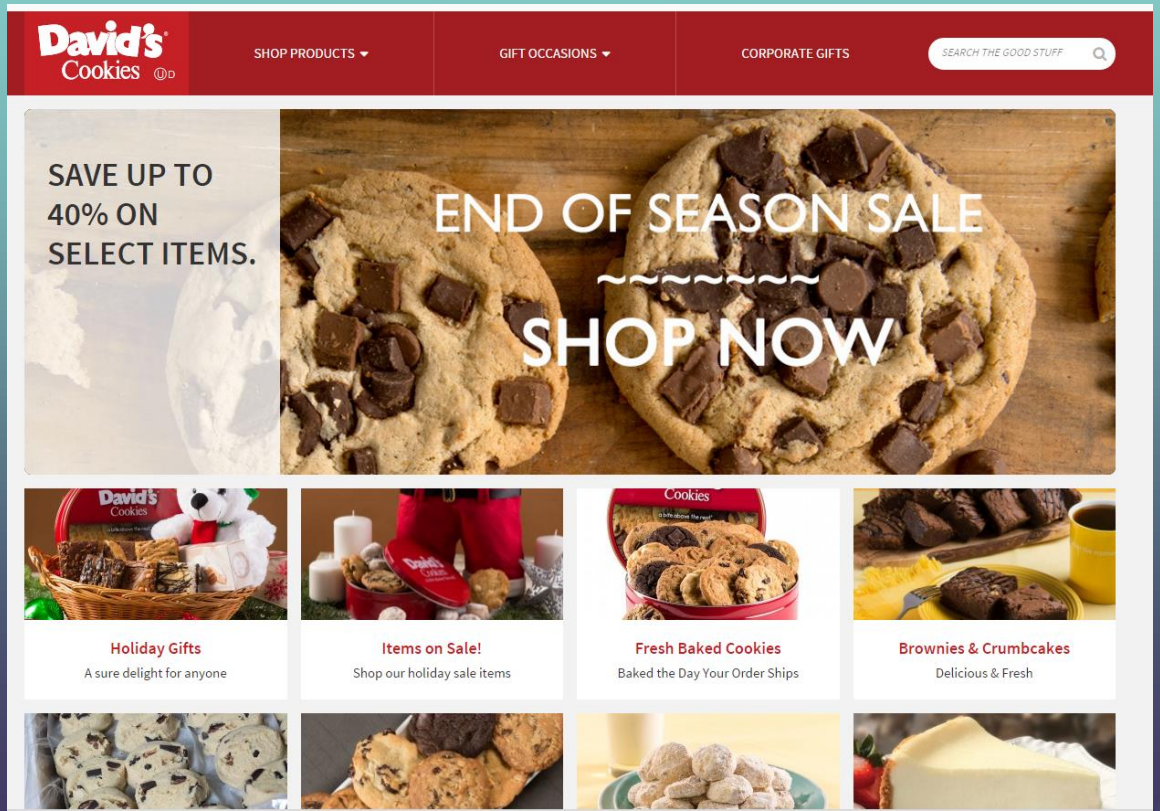
- Can be more product focused / benefit driven, frequent update

Compensates for inconsistencies in SEO, ensuring consistent placement

High paid rankings have a positive effect on the brand (and vice-versa)

Budgeting opportunity
Immediate results

Example Advertiser



office gift baskets

All | Shopping | Images | News | Maps | More | Settings | Tools

About 284,000,000 results (0.93 seconds)

Corporate Gifting Made Easy | Crowd-Pleasing Desserts
Ad www.davidscookies.com/ (800) 500-2800
Custom Logo Stickers & Cards. Choose A **Gift** & Customization Options. We'll Do the Rest. In a Rush? Provide A Recipient List & We'll Handle Shipping. Arrives in 2 Days or Less.

Cookie of the Month Club
Large Variety of Fresh, Homemade Cookies Delivered to You Monthly.

Cookie Gift Baskets
Unique Collection of Our Delicious Cookies Starting at Only $39.35!

Olive & Cocoa | Office Gift Baskets | Custom Logo Branding
Ad www.oliveandcocoa.com/ (800) 538-5404
Our **Gifts** Are Gracefully Packaged Inside Handcrafted Wood Boxes.

Godiva® Corporate Gift Baskets | Chocolates For Self Or Gift
Ad www.godiva.com/Chocolate_Gifts (800) 946-3482
Godiva Corporate **Gift Baskets** Are The Best **Gift** Option For Any **Office**. Order Today! Godiva...

Williams Sonoma® Gift Baskets | Free Shipping On Orders $49+
Ad www.williams-sonoma.com/Gift-Baskets
Shop Premium **Gift Baskets** For All Occasions. Exclusively at Williams Sonoma®.

How did we end up in position #1?

How much did we pay for this?

Are we paying more than the ad in slot #2?

Paid search ads are sold by auction

Google runs an auction for every search on real time.

Advertisers only pay when a user clicks (not for display ads!)
Paid search auctions are based on a "Generalized Second Price" auction.

Because you pay the next highest, or the second highest bid - get it?

Second-Price Auction

Suppose that we have three bidders for the keyword “office gift basket”, A, B and C.

A bids $4, B bids $5, C bids $3.

B wins the auction because her bid is the highest ($5>$4 and $3).

However, B only pays Google $4 (the second highest bid, $5 is the first highest, $4 is the second highest, $3 is the third highest bid).

Why not First-Price Auctions?

In first prize auction, people pay the prize they bid.

Advertiser	Bid	Position	CPC
D	$1.00	1	$1.00
B	$0.75	2	$0.75
A	$0.50	3	$0.50
C	$0.40	4	$0.40

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A	$0.50	3	$0.50
C	$0.40	4	$0.40

In this example, D wins the bid and pays $1 (CPC means “cost per click”).

Advertiser games the system.

Will D have incentives to decrease bid? How about bidding $0.76?

Second Price Auction

Winner pays CPC = next highest bid

Advertiser	Bid	Position	CPC
D	$1.00	1	$0.75
B	$0.75	2	$0.50
A	$0.50	3	$0.40
C	$0.40	4	$0

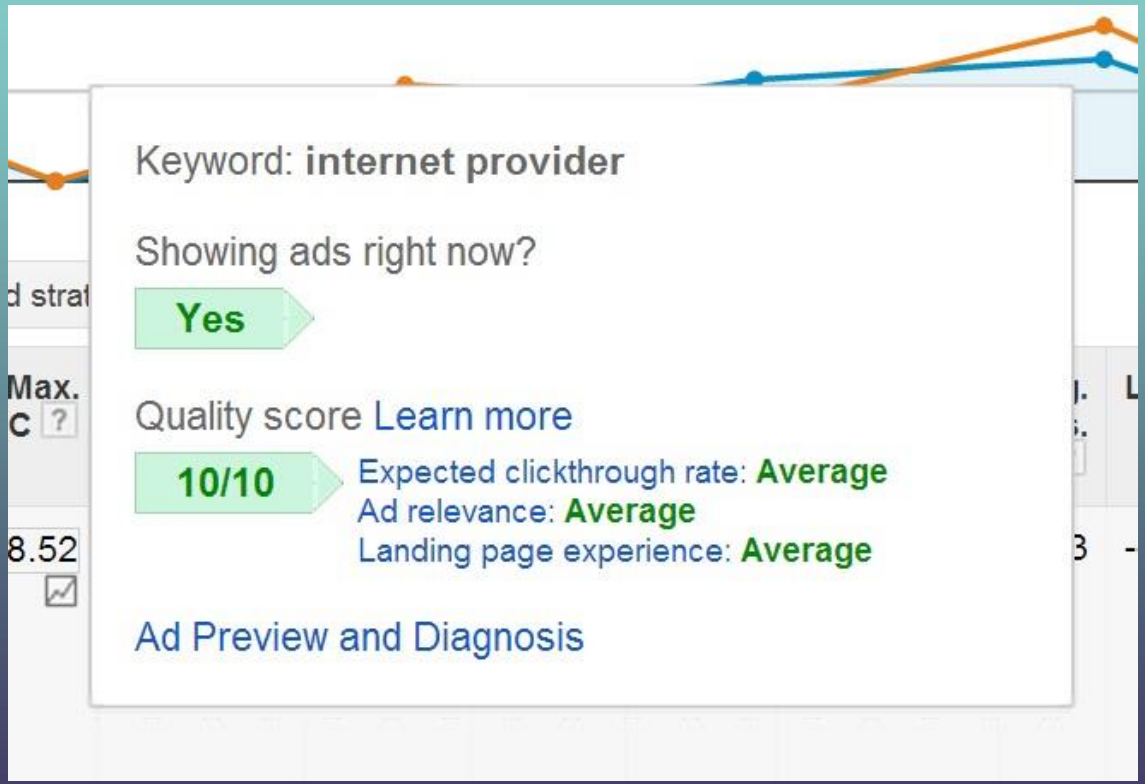
In this example, D already pays $0.75, and she has no incentive to decrease her bid. If she decreases the bid to any number greater than $0.75, she still pays $0.75. If she bids <0.75, she will lose the auction.

Quality Matters!

Quality score affects eligibility to compete in auction, likelihood of winning auction, and the actual amount paid per click. Three main dimensions to improve Quality Score:

- Click-through rate
  - Identify keywords with low Quality Score, and may be worthwhile pausing or deleting them
  - Low scores bring down the overall ad group quality
- Ad Relevancy
  - Make keyword matches more restrictive
  - Build negative keyword list to filter irrelevant search queries
- Landing page
  - Why does Google care about the landing page quality?

Quality Matters!



Generalized second-price auction with quality score

Currently used by Google and Bing

Position determined by ad rank = bids x quality score

CPC = the next guy's ad rank / own quality score + a bid increment

Advertiser	Bid	Quality Score	Ad Rank	Position	Actual CPC
A	$0.50	10	5.0	1	4.5/10 +.01 = $.46
B	$0.75	6	4.5	2	3.2/6 +.01 = $.54
C	$0.40	8	3.2	3	2.0/8 +.01 = $.26
D	$1.00	2	2.0	4	0/2 + .01= $.01

Why Auctions?

Why a “generalized second price (GSP) auction weighted by quality”?

- Auctions are efficient in that they extract more revenue from higher value words
  - They allow price discrimination without the auctioneer (Google) needing to determine willingness to pay

- Auctions are scalable, across words and time
  - If a word suddenly becomes valuable, the auction can pick that up

Exercise

Example: You won the AdWords auction. Your keyword (e.g., organic pet food) has a max CPC bid of $0.75 and a Quality Score of 9. The advertiser in second place has an Ad Rank of 6.3. Suppose an expert has offered to improve your website so that your Quality Score goes up to 10. Suppose the number of clicks will be 1,000. How much are you willing to pay the expert?

Exercise

Example: You won the AdWords auction. Your keyword (e.g., organic pet food) has a max CPC bid of $0.75 and a Quality Score of 9. The advertiser in second place has an Ad Rank of 6.3. Suppose an expert has offered to improve your website so that your Quality Score goes up to 10. Suppose the number of clicks will be 1,000. How much are you willing to pay the expert?

Initial CPC: 6.3/9 + 0.01 = 0.71

Improved CPC: 6.3/10 + 0.01 = 0.64

So, you save 0.71 – 0.64 = 0.07 on each click. Because you have 1,000 clicks, you will save $70. Therefore, you are willing to pay the expert up to $70.

Summary

Search engine runs an auction for every search.

Advertisers only pay when a user clicks (pay-per-click).

Paid search auctions are based on a “Generalized Second-Price” auction, because you pay the next highest bid

Many refinements such as “quality score”.

How do advertisers buy paid Ads?

Creating a PPC campaign in Google Ads

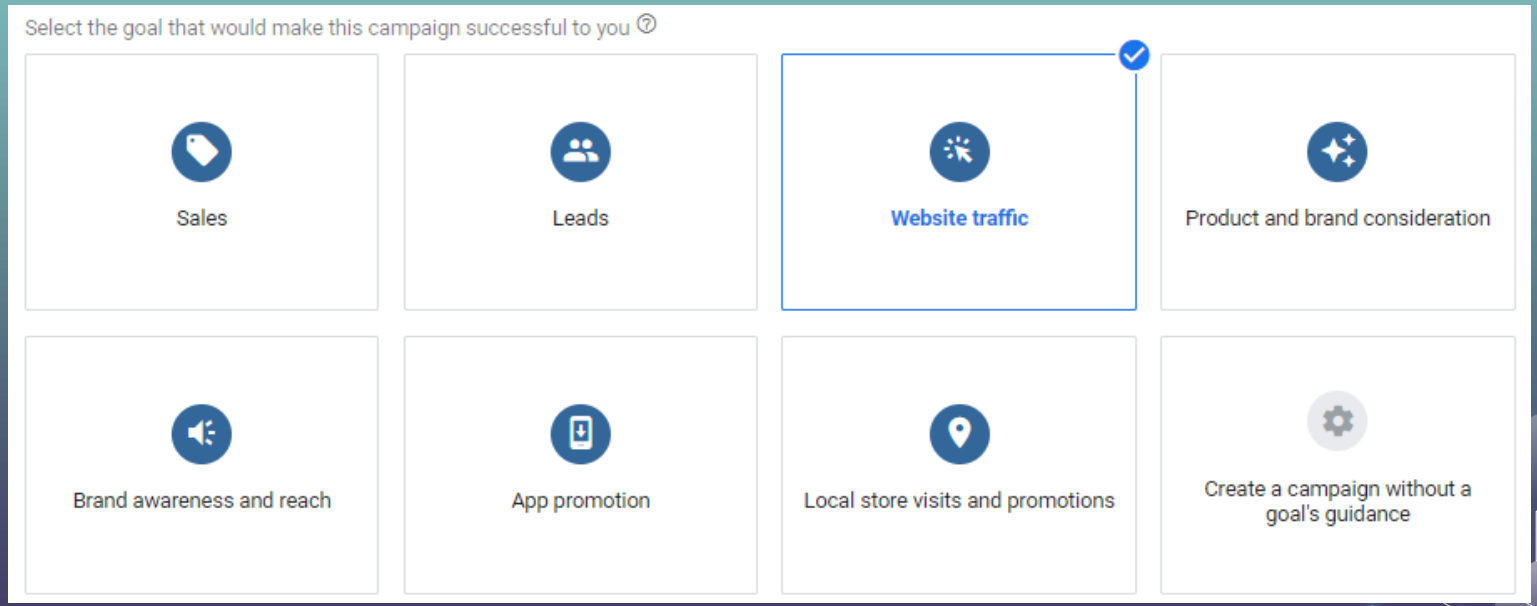
Google Ads in Action

Go to https://ads.google.com/

Log in with your own Google Account.

Select your goal

Remember to select the “expert mode”.



Campaign Type

Select a campaign type

Search

Reach customers interested in your product or service with text ads

Display

Run different kinds of ads across the web

Shopping

Promote your products with Shopping ads

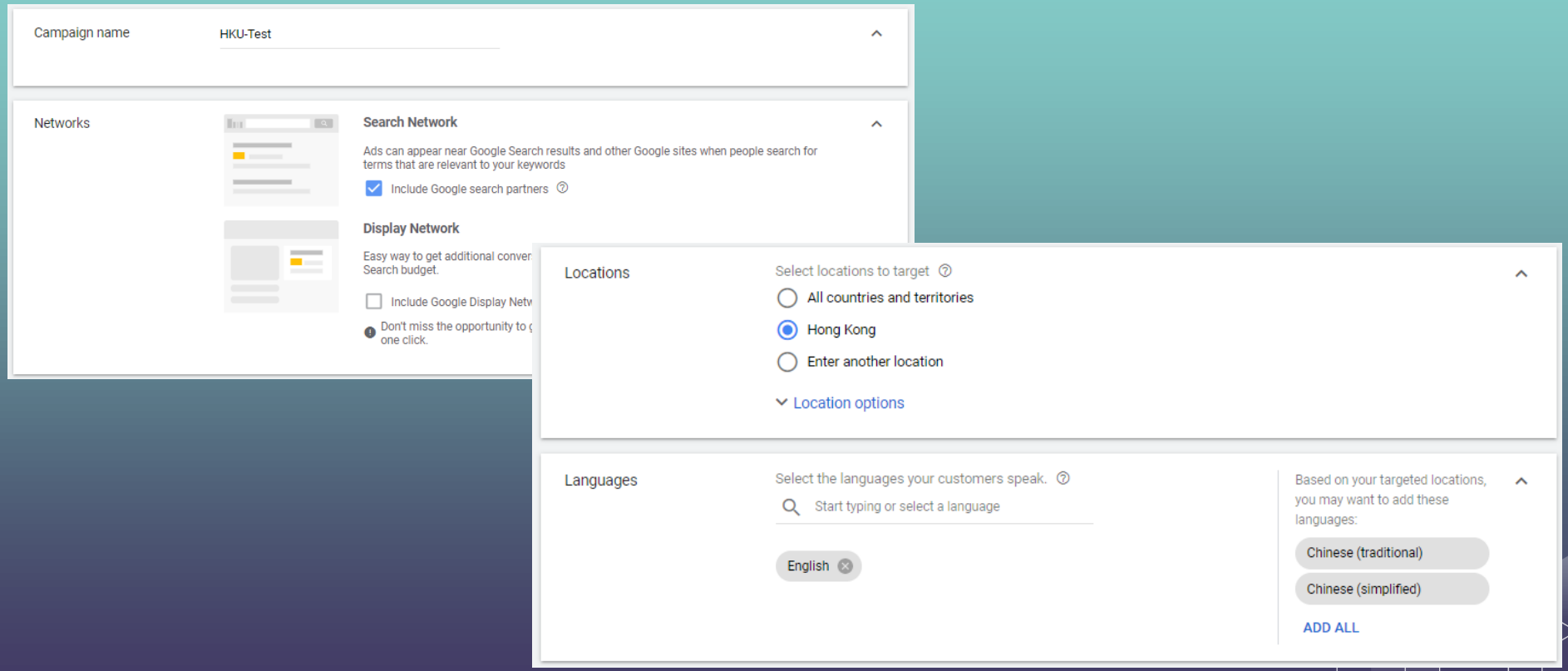
Video

Reach and engage viewers on YouTube and across the web

Discovery

Run ads on YouTube, Gmail, Discover, and more

Settings


Campaign name
HKU-Test
Networks
Search Network
Ads can appear near Google Search results and other Google sites when people search for terms that are relevant to your keywords
Include Google search partners
Display Network
Include Google Display Netw
Locations
Select locations to target
All countries and territories
Hong Kong
Enter another location
Location options
Languages
Select the languages your customers speak.
Start typing or select a language
English
Based on your targeted locations, you may want to add these languages:
Chinese (traditional)
Chinese (simplified)
ADD ALL

Bidding

Budget

Enter the average you want to spend each day

Hong Kong Dollar (HKD HK$)

HK$ 1,000.00

For the month, you won't pay more than your daily budget times the average number of days in a month. Some days you might spend less than your daily budget, and on others you might spend up to twice as much. Learn more

Bidding

What do you want to focus on?

Clicks

Recommended for your campaign

Set a maximum cost per click bid limit

Maximum CPC bid limit

HK$ 10.00

Choose Bid Strategy Based on Your Goals

Focus on conversions

- Target cost per action (CPA)
- Target return on ad spend (ROAS)
- Maximize Conversions
- Maximize Conversion Value
- Enhanced cost per click (ECPC)

The Ultimate Guide

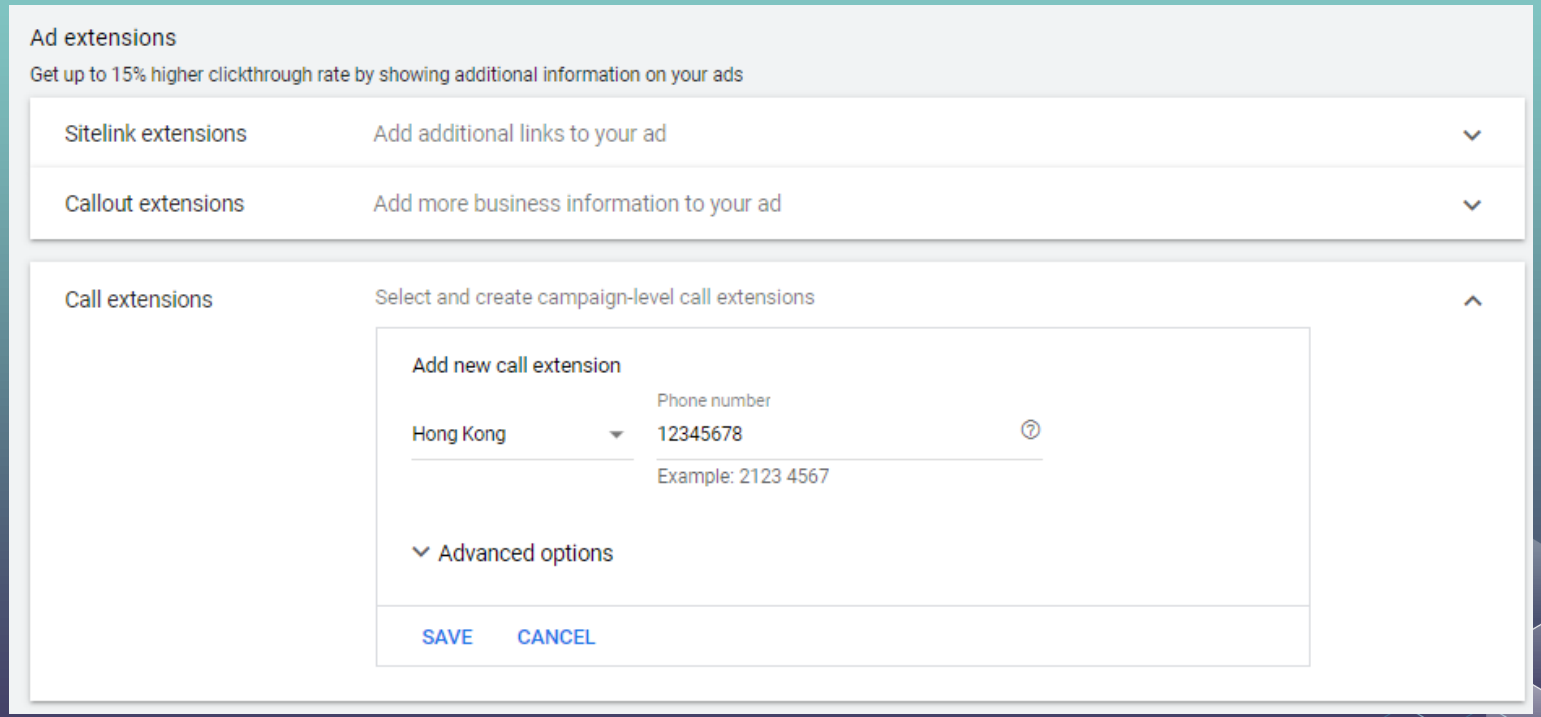
Focus on clicks

- Maximize Clicks
- Manual CPC bidding

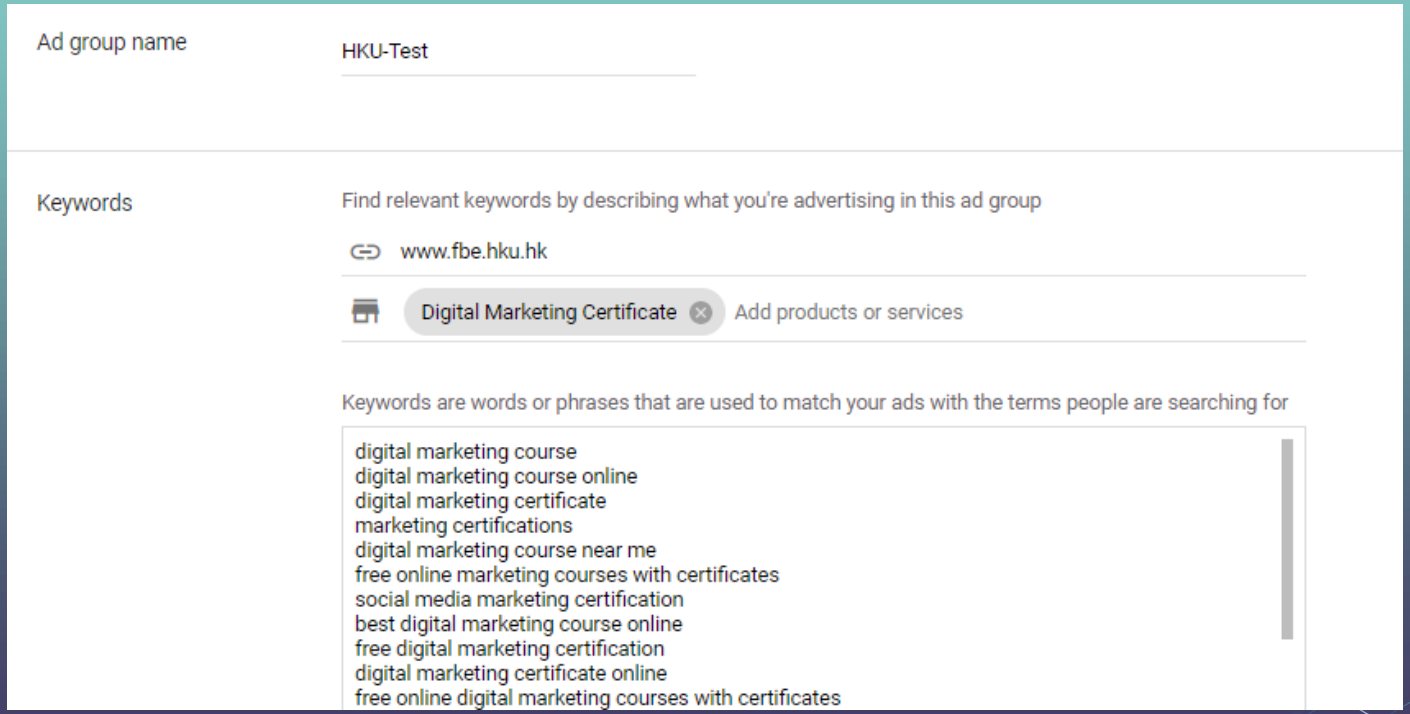
Focus on impressions

- Target Search Page Location
- Target Outranking Share (display above your competitor's ad)

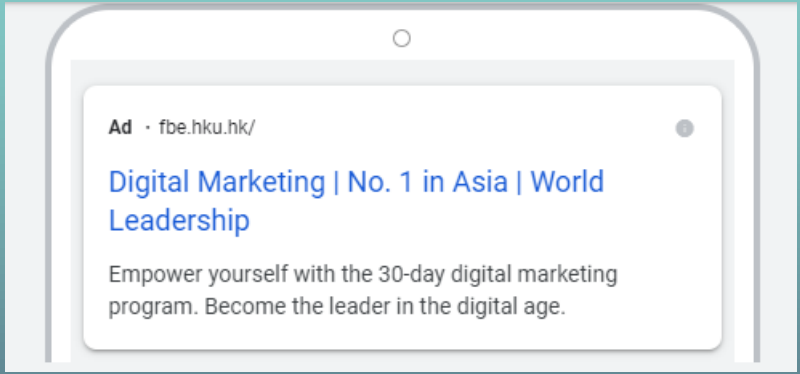
Extensions


Ad extensions
Get up to 15% higher clickthrough rate by showing additional information on your ads
Sitelink extensions
Add additional links to your ad
Callout extensions
Add more business information to your ad
Call extensions
Select and create campaign-level call extensions
Add new call extension
Phone number
Hong Kong
12345678
Example: 2123 4567
Advanced options
SAVE
CANCEL

Create Ad Group



Your Ad is here!



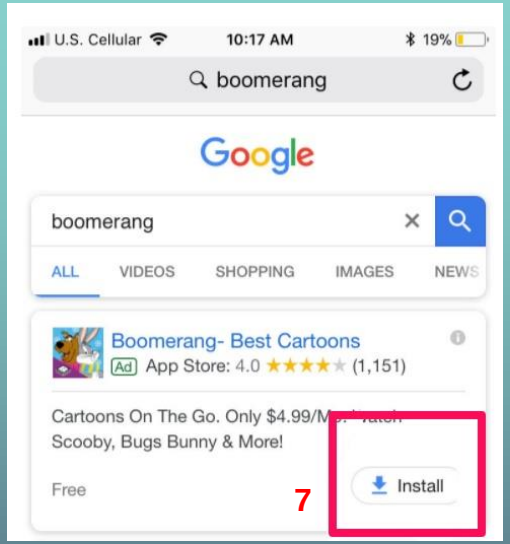
Ad · fbe.hku.hk/

No. 1 in Asia | Digital Marketing | HKU Business School

Empower yourself with the 30-day digital marketing program. Become the leader in the digital age.

Ad: Best Practices

- Highlight what makes you unique
- Include prices, promotions, and exclusives
- Empower customers to take actions
- Include at least one of your keywords
- Match your ad to your landing page
- Appeal to customers on mobile
- Also, enable ad extensions
  - No extra cost, just charged as usual for clicks



1. Social extensions
2. Merchant reviews
3. Sitelink extensions
4. Price extensions
5. Call extensions
6. Location extensions
7. App extensions

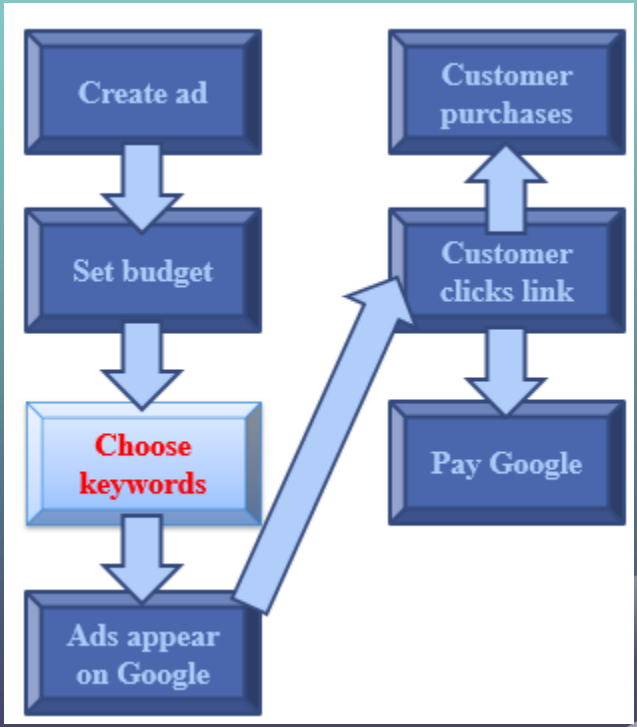
Keywords

Basics of paid search

Choose campaign, ad groups, and ads/keywords

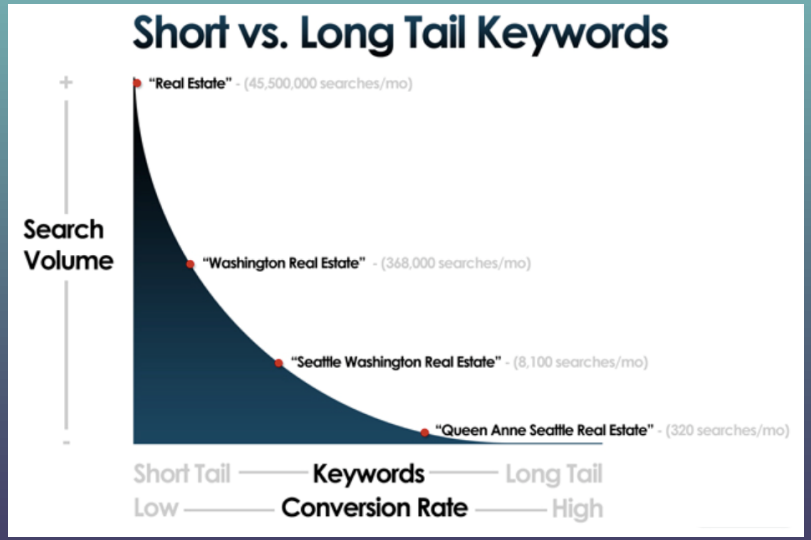
Your ad will appear when those keywords are searched.

Avoid duplicate (and non-duplicate competing) keywords across different campaigns and ad groups.

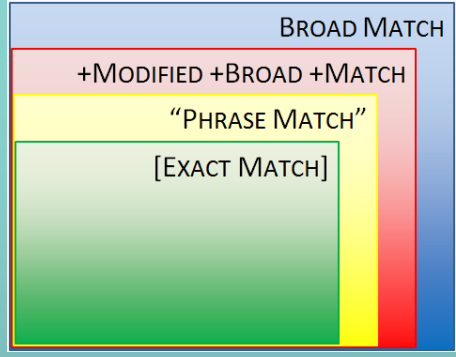


Long Tail of Keywords

Most Search Queries Are Unique: you have to bid on lots of keywords



Five Types of Keyword Matches



Match type	Special symbol	Example keyword	Ads may show on searches that	Example searches
Broad match	none	women's hats	include misspellings, synonyms, related searches, and other relevant variations	*buy ladies hats*
Broad match modifier	+keyword	+women's +hats	contain the modified term (or close variations, but not synonyms), in any order	*hats for women*
Phrase match	"keyword"	"women's hats"	are a phrase, and close variations of that phrase	*buy women's hats*
Exact match	[keyword]	[women's hats]	are an exact term and close variations of that exact term	*women's hats*
Negative match	-keyword	-women	are searches without the term	*baseball hats*

Broad Match

Default match type.

Display ads if searcher's query matches the keyword exactly, on variations like singular and plural, stemming, misspellings, as well as related words.

For example, custom made shoes can trigger ads on search queries like:

custom made shoes
shoes custom-made
castom made shoes

Broad Match Modifier

Restricts Google's expanded match capabilities

Select some or all of the words in the keyword you'd like to restrict by adding a plus symbol (+) before each selected word

For example, the keyword +University +Hong Kong +jobs can trigger ads on search queries like:

University of Hong Kong jobs
University of HK job
Hong Kong University jobs
HKU jobs

Phrase Match

Can apply to single-word or multi-word keyword by enclosing it in quotes
For example, keyword “silk curtain” could trigger ads on search queries like:

- silk curtain
- silk curtains
- silky curtain
- want to buy silk curtains
- buy silky curtains for stage

But, keyword “silk curtain” would not trigger ads on search queries like:

- silk for curtain
- curtain silk
- silk kitchen curtain
- silk shade

Exact Match

Most restrictive option
Can be applied to single word or phrase by enclosing it in square brackets
For example, keyword [broadway plays] can trigger ads on search queries like:

broadway play
braodway play
braodway plays

But keyword [broadway plays] would not trigger ads on search queries like:

broadway plays today
nyc plays
play broadway

Negative Keywords

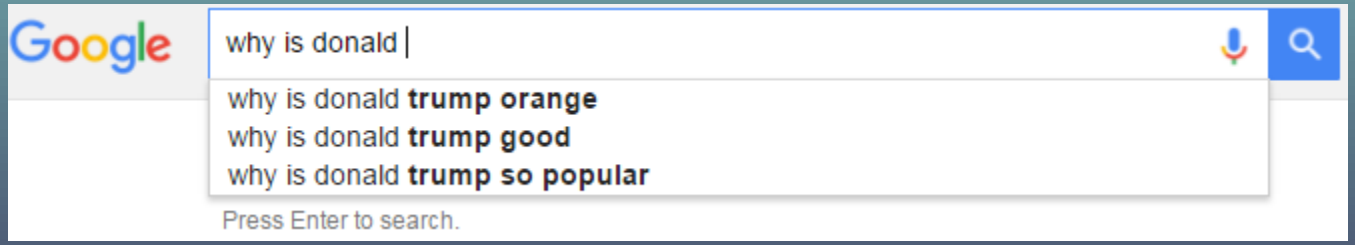
A negative keyword is a single word or a phrase prefaced by a single minus symbol.

For example, there are two places called Washington: Washington DC and the Washington State. You can use – DC to filter queries on Washington DC.

Keyword
Match Types

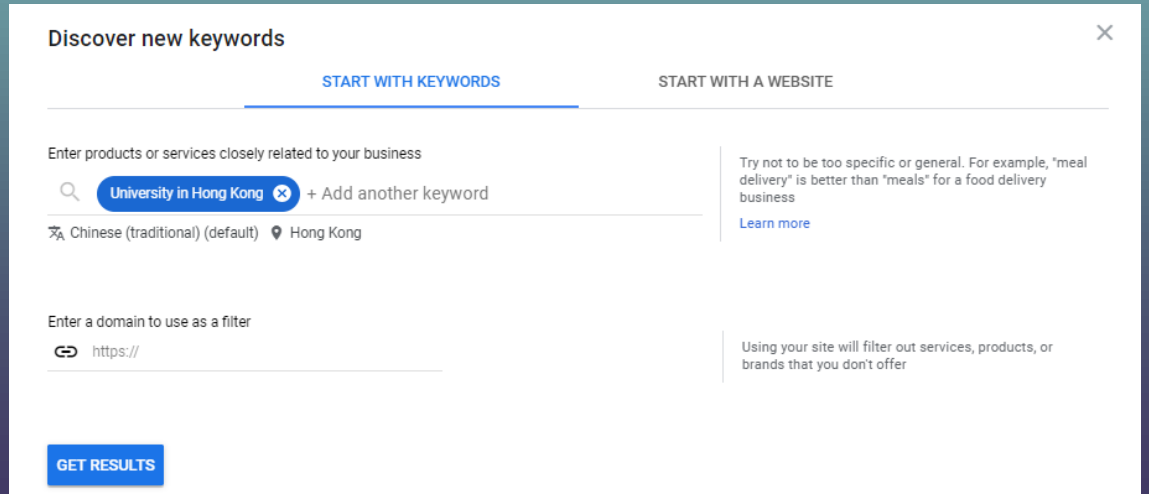
Developing Your Keyword List

Key is to figure out how potential customers are searching for your product
Play with Google's auto-complete feature



Developing Your Keyword List

Key is to figure out how potential customers are searching for your product
Play with Google's auto-complete feature
Google's Keyword planner tool



Developing Your Keyword List

Key is to figure out how potential customers are searching for your product

Play with G

Google's K

Analyzing

Tools: dSpy.com

Top Keywords

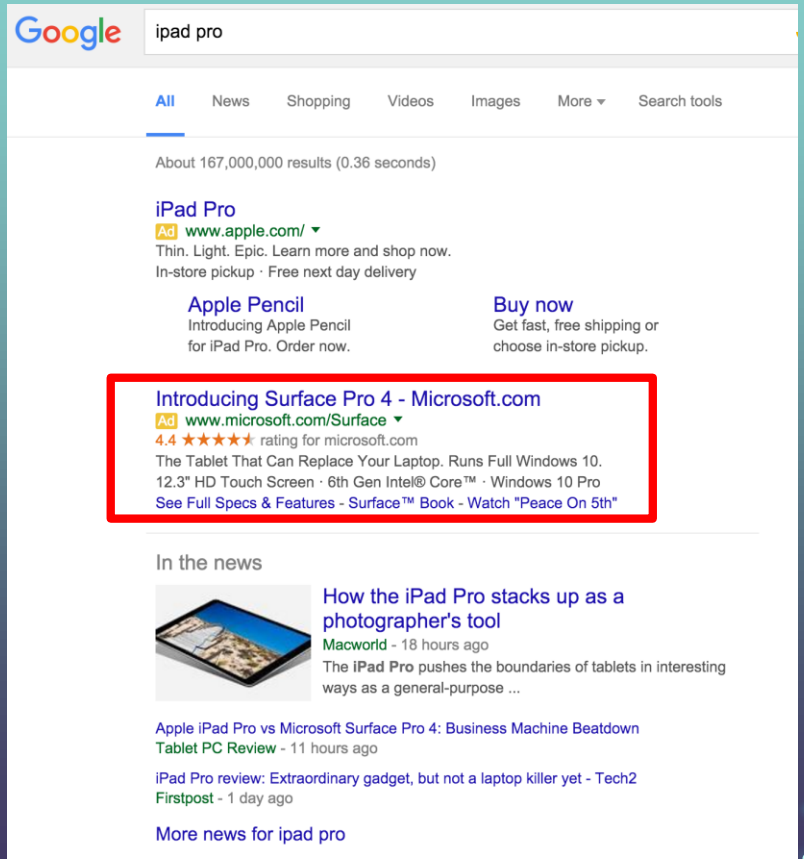
Rank	Term	SEO Clicks Per Month
54	finance major reddit	0
40	hk business	0.05
36	execed	0.56
29	www.bm	0.56
9	hong kong university of science and technology	31.1

VIEW ALL ORGANIC KEYWORDS >

Analysis of https://www.bm.ust.hk/

Buy Your Competitor's Keywords

Smaller share brands tend to poach the larger share brands



Targeting Options other than Keywords

Language
Locations: Country, City, or Zip code
Device & browser
Timing: using Ad Schedule & Bid Adjustment

Example

You run a dog-sled touring business in Alaska, and you have an existing ad group max CPC bid of $1.00. You've scheduled your ad to show on Tuesdays between 8 and 11 a.m. You decide to set a bid adjustment of +10% on Tuesdays between 8 and 10 a.m. So, your maximum bid for that time period would be $1.00 x (+10%) = $1.10.

Because many of the customers that love your dog-sled tours live in Anchorage, you decide to set an additional +20% adjustment for Anchorage. Your maximum resulting bid for a search that occurs on Tuesdays at 9:30 a.m. for a customer in Anchorage will be $1.32. Here's how it works:

Starting bid: $1.00
Tuesdays, 8 to 10 a.m. adjustment: $1.00 x (+10%) = $1.10
Anchorage adjustment: $1.10 x (+20%) = $1.32
Maximum bid for Tuesdays, 8 to 10 a.m., in Anchorage: $1.32

Takeaways

Understand the buying process of paid search ads

Different types of keyword match
Broad, broad modifier, phrase, exact, negative

Keyword tools are commonly used to gain competitive insights

Measurability

"I know half my advertising is wasted,
I just don't know which half"
--- John Wanamaker

How do we measure the effectiveness of online ads?

How do we measure the effects of online ads?

Impressions
- Frequency & Reach

Clicks
- Click-through rate

Ad Engagement
- Mouse-over, Interaction
- FB: Like, Share
- Twitter: RT, Favorite

Conversions
- Sign-ups, Downloads, Place in cart, Purchase

Impression

Impression: A user loads 1 ad on a website
Frequency: Number of ads per person
Reach: Number of people who see at least one ad

Clicks

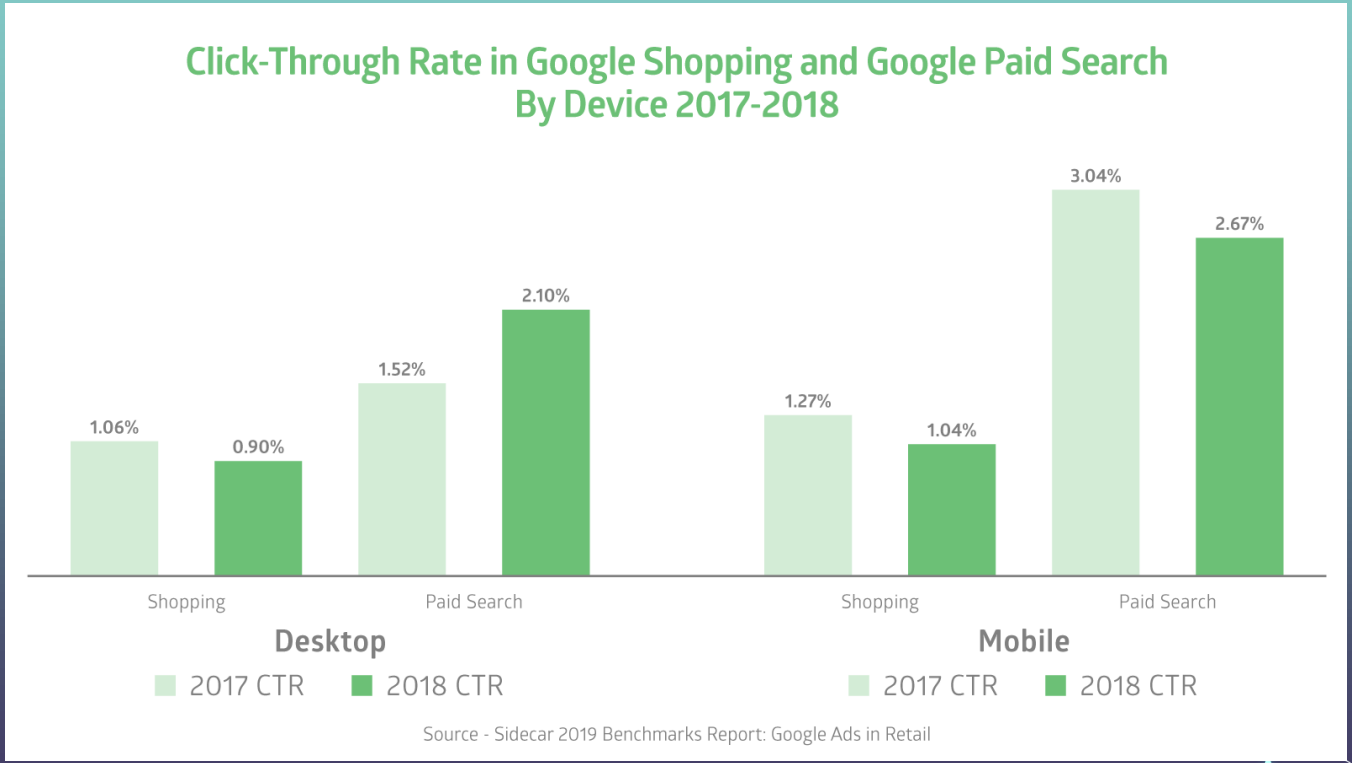
Instantaneous feedback on individual ads – revolutionary!

- Clicks can be used as a measure of intent to buy.
- Click-Through Rate (CTR) = the number of times a link was clicked divided by the number of times it was seen. CTR=*Clicks/Impressions*

Correlation between CTR & ad effectiveness (AdFX) is debatable

- E.g. Does a higher CTR on mobile mean higher mobile AdFX?
- Ads are smaller, but fill more of the screen
- Up to 50% of clicks on mobile banner ads are accidental (GoldSpot Media)

Clicks


Click-Through Rate in Google Shopping and Google Paid Search
By Device 2017-2018
1.06%
0.90%
1.52%
2.10%
1.27%
1.04%
3.04%
2.67%
Shopping
Paid Search
Shopping
Paid Search
Desktop
Mobile
2017 CTR
2018 CTR
2017 CTR
2018 CTR
Source - Sidecar 2019 Benchmarks Report: Google Ads in Retail

Sometimes clicks are unreliable. . . Firms might even engage in click fraud

Engagement

Engagement: A catch-all for user interactions with the ad beyond clicking including mouse-over, interacting with interactive ads, rollover, start or skip video

Social engagement/conversion include

FB: Like, Share

Twitter: RT, Favorite

Intentional measure showing whether consumer likes ad more than just clicks

Engagement

Conversions

Conversions: A catch-all for user interactions with advertiser including sign-ups (newsletter, membership, etc.), downloads, shopping on-site, placing items in cart, purchasing.

Conversion Rate (CR) = the number of conversions divided by the number of times the ad was clicked. $CR = Conversions/Clicks$

Probability of Purchase = CTR x CR, here purchase is broadly defined.

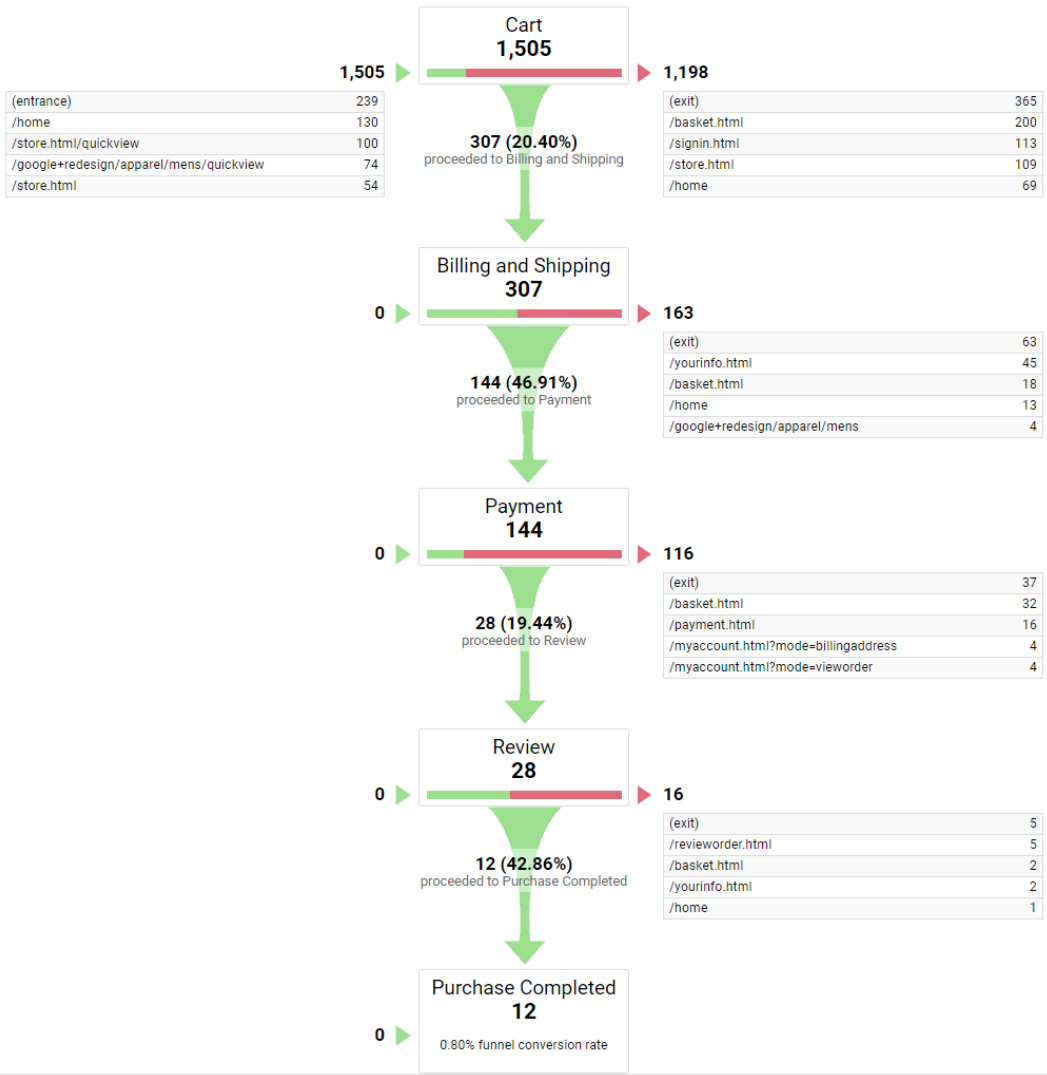
Conversions: Pros and Cons

(+) Some direct response advertisers only need conversion info (like app makers & downloads)

(+) For brand advertisers (like Coca-Cola), conversions (& engagement) are often all they can measure!

(−) Conversion rates are typically very low
Decisions require much more impression data

- Conversions
  - Goals
    - Overview
    - Goal URLs
    - Reverse Goal Path
    - Funnel Visualization
    - Goal Flow
    - Smart Goals



Some Metrics

Impression = number of instances ad is seen by user
Cost-per-Click (CPC) = cost paid to search engines
Click-Through Rate (CTR) = efficiency of generating clicks from delivered impression
Conversion Rate (CR) = efficiency of generating sales from click
Probability of Purchase = CTR x CR
Revenue = Prob. of purchase x Profit margin per purchase x Impressions
Cost = #Clicks x CPC, where # Clicks = Impression x CTR
Net Revenue = Revenue – Cost
Return on Investment (ROI) = Net Revenue / Cost

Reminder

In next lecture we will be working on the data project.

Please bring your laptop with you (with R/Tableau installed).