



# 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:

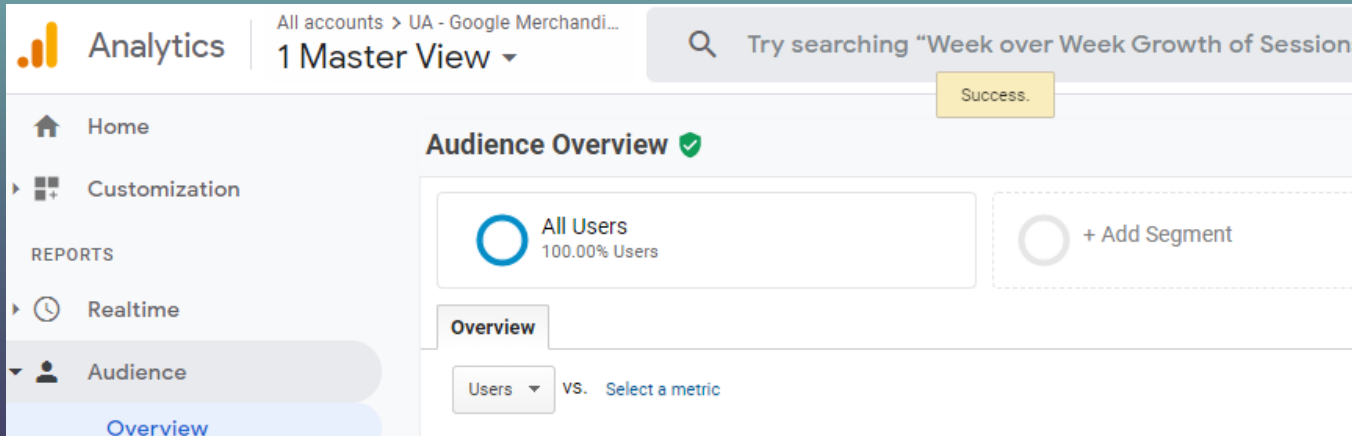


We are using the store as an example for Google Analytics.

# Google Analytics in Action

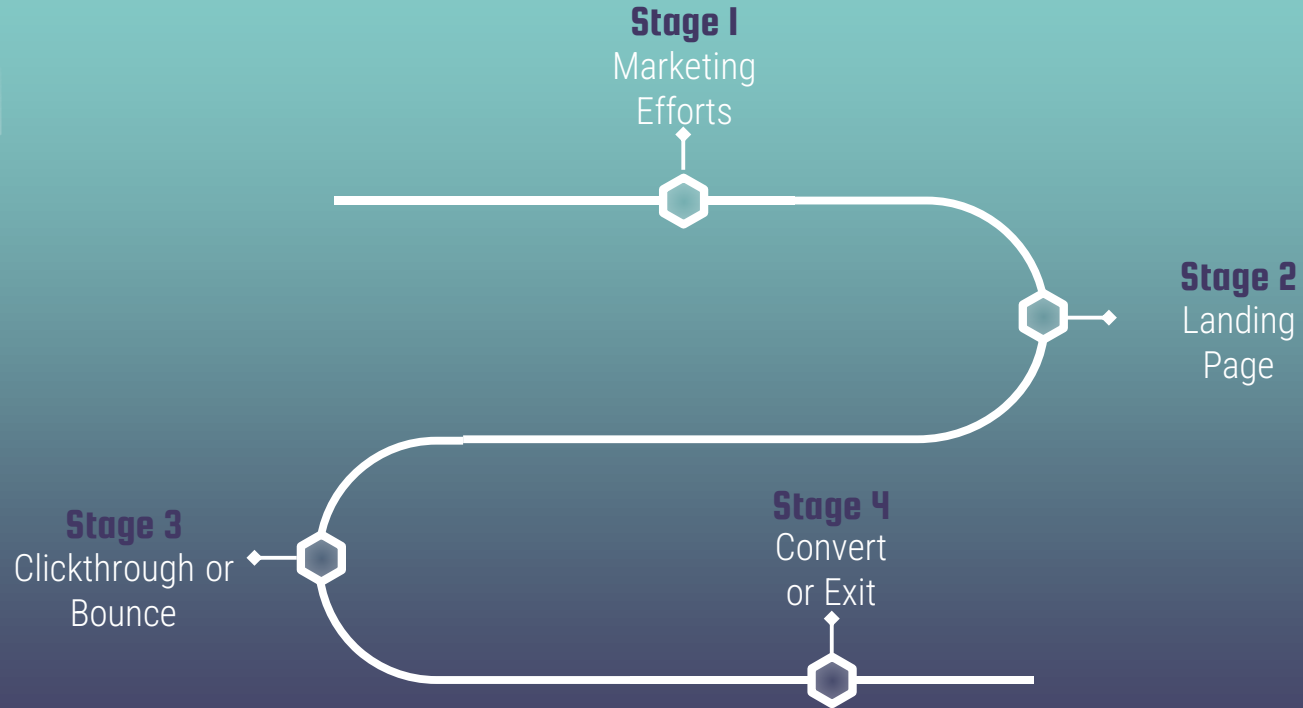
Go to <https://support.google.com/analytics/answer/6367342?hl=en>

Sign Up for a GA account & Add Demo



The screenshot displays the Google Analytics interface. At the top, the 'Analytics' logo is on the left, followed by 'All accounts > UA - Google Merchandi...' and '1 Master View'. A search bar contains the text 'Try searching "Week over Week Growth of Sessions"'. A yellow 'Success.' notification box is visible. The left sidebar shows navigation options: Home, Customization, REPORTS, Realtime, and Audience (highlighted). The main content area is titled 'Audience Overview' with a green checkmark. It features a card for 'All Users' with a blue circle icon and the text '100.00% Users'. To the right is a dashed box labeled '+ Add Segment'. Below this is an 'Overview' section with a dropdown menu set to 'Users' and the text 'vs. Select a metric'.

# 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



**What is CTR?**

2%

400-744-7444

The image shows a woman with long brown hair speaking in front of a chalkboard. On the left side of the chalkboard, the text "What is CTR?" is written in large, bold, white letters with a black outline. Below this text is a graphic of a laptop with "2%" displayed on its screen. In the top right corner of the chalkboard, there is a logo for "400-744-7444" featuring a stylized white arrow pointing upwards and to the right. In the bottom right corner of the chalkboard, there is a graphic of two overlapping triangles, one blue and one green. The background of the chalkboard is dark and textured.



# 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?**



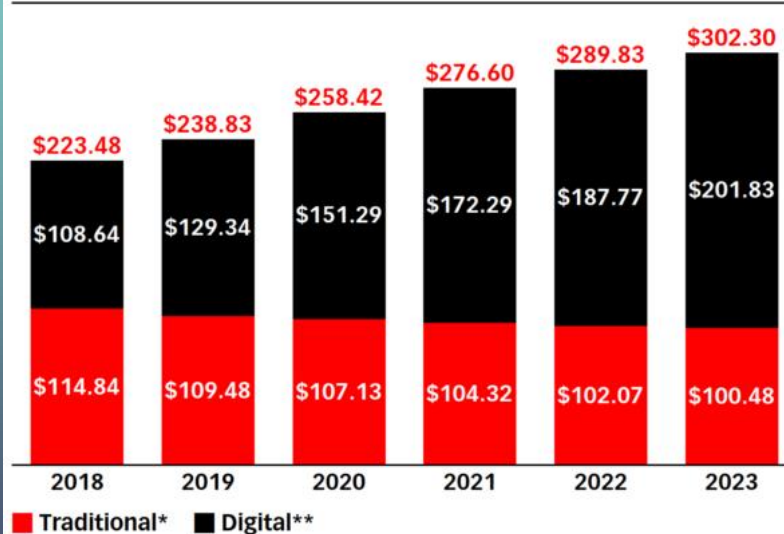


# Online Advertising

# The Growth of Online Ad

## Total Media Ad Spending in the US, Traditional vs. Digital, 2018-2023

billions



Note: \*includes directories, magazines, newspapers, out-of-home, radio and TV; \*\*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; includes SMS, MMS and P2P messaging-based advertising

Source: eMarketer, February 2019

# Paid Search is about 40% of Online AD



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

billions

	2019	2020	2021	2022	2023
<b>Display</b>	<b>\$70.06</b>	<b>\$81.38</b>	<b>\$92.53</b>	<b>\$100.71</b>	<b>\$107.91</b>
—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
<b>Search</b>	<b>\$53.73</b>	<b>\$63.90</b>	<b>\$73.31</b>	<b>\$80.43</b>	<b>\$87.15</b>
<b>Lead generation</b>	<b>\$2.59</b>	<b>\$2.84</b>	<b>\$3.05</b>	<b>\$3.15</b>	<b>\$3.24</b>
<b>Classifieds and directories</b>	<b>\$2.19</b>	<b>\$2.34</b>	<b>\$2.49</b>	<b>\$2.53</b>	<b>\$2.56</b>
<b>Email</b>	<b>\$0.49</b>	<b>\$0.55</b>	<b>\$0.61</b>	<b>\$0.65</b>	<b>\$0.68</b>
<b>Mobile messaging</b>	<b>\$0.28</b>	<b>\$0.28</b>	<b>\$0.29</b>	<b>\$0.29</b>	<b>\$0.29</b>
<b>Total</b>	<b>\$129.34</b>	<b>\$151.29</b>	<b>\$172.29</b>	<b>\$187.77</b>	<b>\$201.83</b>

*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*





# **Paid Search Advertising**



mba in hk



[All](#) [Images](#) [News](#) [Maps](#) [Videos](#) [More](#) [Settings](#) [Tools](#)

About 12,400,000 results (0.68 seconds)

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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

**David's Cookies** @D

SHOP PRODUCTS ▾

GIFT OCCASIONS ▾

CORPORATE GIFTS

SEARCH THE GOOD STUFF 🔍

SAVE UP TO 40% ON SELECT ITEMS.

END OF SEASON SALE

SHOP NOW

**Holiday Gifts**  
A sure delight for anyone

**Items on Sale!**  
Shop our holiday sale items

**Fresh Baked Cookies**  
Baked the Day Your Order Ships

**Brownies & Crumbcakes**  
Delicious & Fresh

The screenshot displays the David's Cookies website interface. At the top is a dark red navigation bar with the brand logo, menu items for 'SHOP PRODUCTS', 'GIFT OCCASIONS', and 'CORPORATE GIFTS', and a search bar. Below the navigation is a large promotional banner for an 'END OF SEASON SALE' featuring two large chocolate chip cookies. The banner includes the text 'SAVE UP TO 40% ON SELECT ITEMS.' and a 'SHOP NOW' call to action. Underneath the banner is a grid of four product category tiles, each with an image and a brief description: 'Holiday Gifts' (a basket of cookies with a teddy bear), 'Items on Sale!' (cookies in a red tin with holiday decorations), 'Fresh Baked Cookies' (cookies in a red tin), and 'Brownies & Crumbcakes' (brownies and crumbcakes on a plate).



office gift baskets



All Shopping Images News Maps More Settings Tools

About 284,000,000 results (0.93 seconds)

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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



# Why not First-Price Auctions?

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B	\$0.75	2	\$0.75
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  $CPC = \text{next highest bid}$

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!

Keyword: **internet provider**

Showing ads right now?  
**Yes**

Quality score [Learn more](#)  
**10/10** Expected clickthrough rate: **Average**  
Ad relevance: **Average**  
Landing page experience: **Average**

Ad Preview and Diagnosis

The screenshot shows a Google Ads interface with a line chart at the top. A tooltip window is open, displaying the following information: Keyword: internet provider; Showing ads right now? Yes; Quality score 10/10 with a 'Learn more' link; Expected clickthrough rate: Average; Ad relevance: Average; Landing page experience: Average. The background shows a line chart with an orange line and a blue line, and a table with columns for 'Max. C', '8.52', and '3'.

# Generalized second-price auction with quality score

Currently used by Google and Bing

Position determined by **ad rank = bids × 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	$4.5/10 + .01 = \$0.46$
B	\$0.75	6	4.5	2	$3.2/6 + .01 = \$0.54$
C	\$0.40	8	3.2	3	$2.0/8 + .01 = \$0.26$
D	\$1.00	2	2.0	4	$0/2 + .01 = \$0.01$

# 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**”.

Select the goal that would make this campaign successful to you ⓘ

 Sales	 Leads	 Website traffic	 Product and brand consideration
 Brand awareness and reach	 App promotion	 Local store visits and promotions	 Create a campaign without a goal's guidance

# 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** ⌵

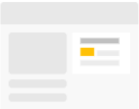
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Networks

 **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**

Easy way to get additional conversions within your Search budget.

Include Google Display Network ads

! Don't miss the opportunity to get additional conversions with one click.

**Locations** ⌵

Select locations to target ?

All countries and territories

Hong Kong

Enter another location

∨ Location options

**Languages**

Select the languages your customers speak. ?

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

Hong Kong



Phone number

12345678




Example: 2123 4567

Advanced options

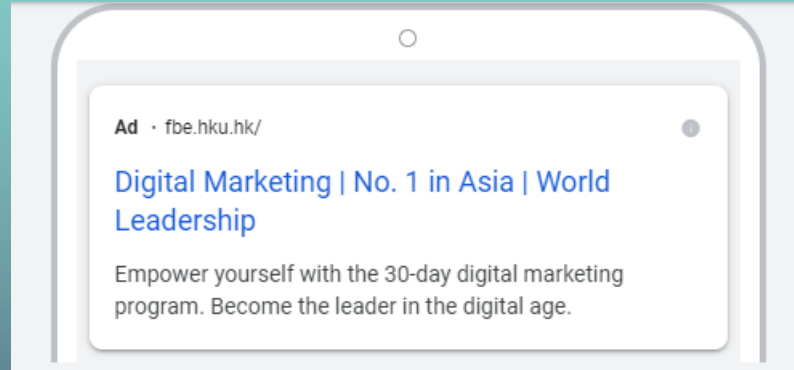
SAVE

CANCEL

# Create Ad Group

Ad group name	<input type="text" value="HKU-Test"/>
Keywords	<p>Find relevant keywords by describing what you're advertising in this ad group</p> <p><a href="http://www.fbe.hku.hk">www.fbe.hku.hk</a></p> <p> Digital Marketing Certificate <span>×</span> Add products or services</p> <p>Keywords are words or phrases that are used to match your ads with the terms people are searching for</p> <div><p>digital marketing course digital marketing course online digital marketing certificate marketing certifications digital marketing course near me free online marketing courses with certificates social media marketing certification best digital marketing course online free digital marketing certification digital marketing certificate online free online digital marketing courses with certificates</p></div>

# Your Ad is here!



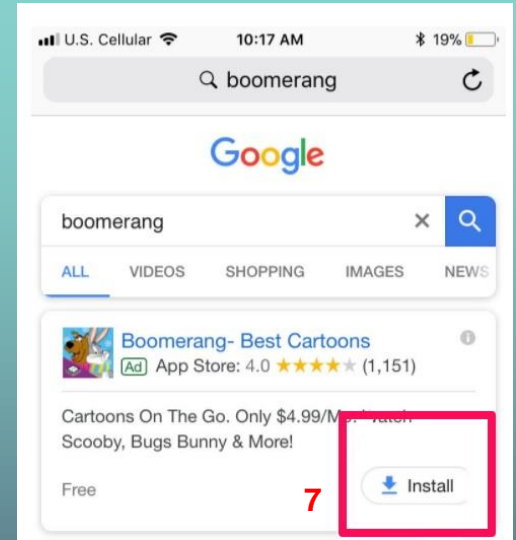
**Ad** · fbe.hku.hk/ ▾

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# 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



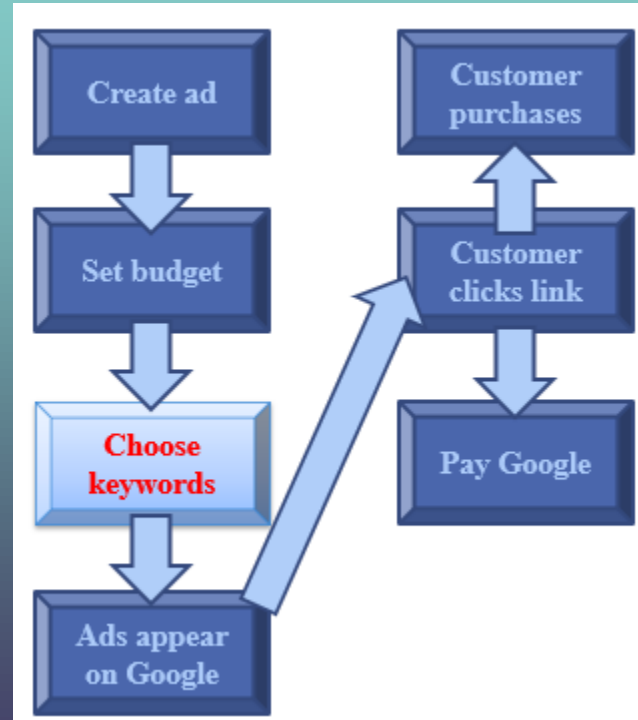
**Keywords**

# Basics of paid search

Choose campaign, ad groups, and ads/keywords

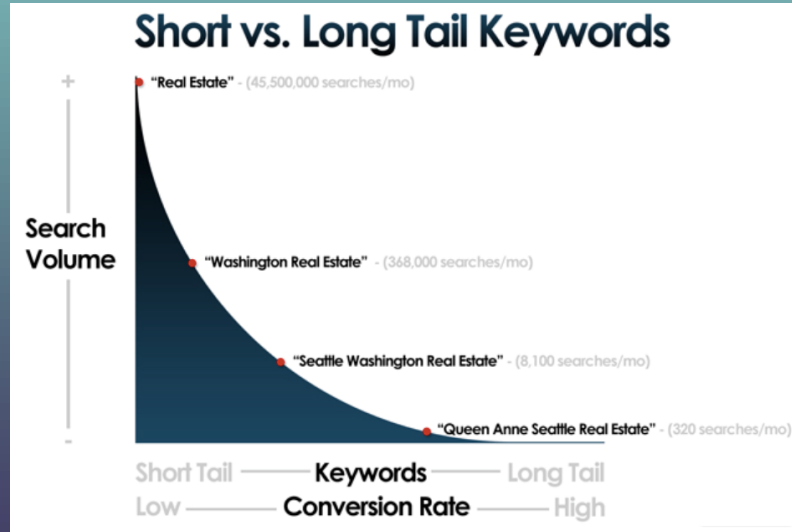
Your ad will appear when those keywords are searched.

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

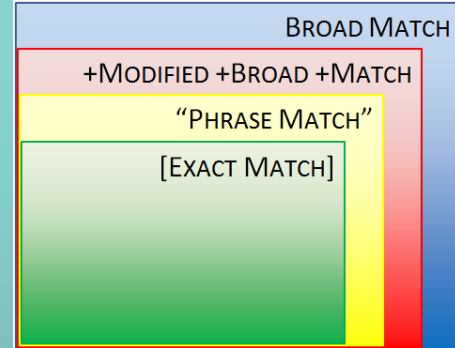


# Long Tail of Keywords

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
<b>Broad match</b>	none	women's hats	include misspellings, synonyms, related searches, and other relevant variations	<i>buy ladies hats</i>
<b>Broad match modifier</b>	+keyword	+women's +hats	contain the modified term (or close variations, but not synonyms), in any order	<i>hats for women</i>
<b>Phrase match</b>	"keyword"	"women's hats"	are a phrase, and close variations of that phrase	<i>buy women's hats</i>
<b>Exact match</b>	[keyword]	[women's hats]	are an exact term and close variations of that exact term	<i>women's hats</i>
<b>Negative match</b>	-keyword	-women	are searches without the term	<i>baseball hats</i>





# 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.



LOVES DATA

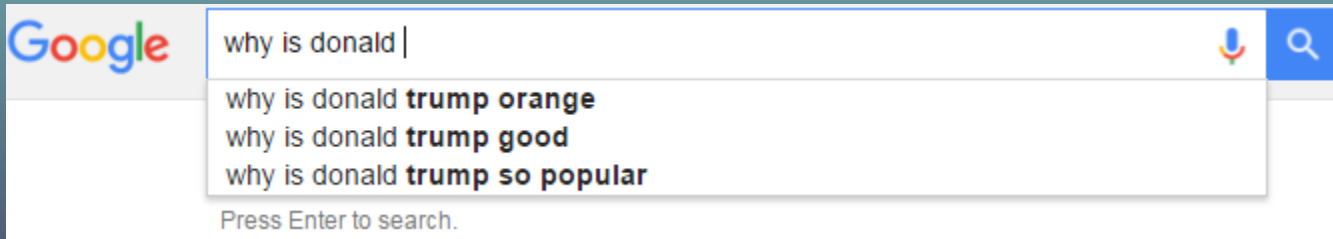


Keyword

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

### Discover new keywords ✕

[START WITH KEYWORDS](#) [START WITH A WEBSITE](#)

Enter products or services closely related to your business

✕ + Add another keyword

Chinese (traditional) (default)  Hong Kong

Enter a domain to use as a filter

[GET RESULTS](#)

Try not to be too specific or general. For example, "meal delivery" is better than "meals" for a food delivery business  
[Learn more](#)

Using your site will filter out services, products, or brands that you don't offer



# Developing Your Keyword List

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

Play with C

Google's K

Analyzing

Tools:

## Top Keywords

Rank	Term	SEO Clicks Per Month
54	<a href="#">finance major reddit</a>	0
40	<a href="#">hk business</a>	0.05
36	<a href="#">execed</a>	0.56
29	<a href="#">www.bm</a>	0.56
9	<a href="#">hong kong university of science and technology</a>	31.1

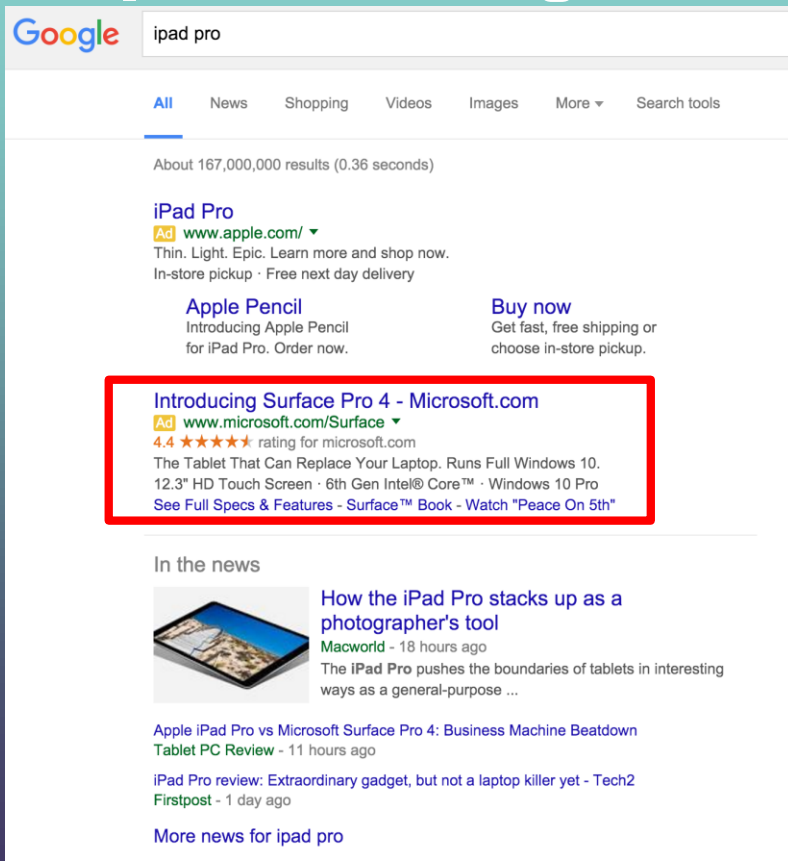
[VIEW ALL ORGANIC KEYWORDS >](#)

idSpy.com

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

# Buy Your Competitor's Keywords

Smaller share brands tend to poach the larger share brands



The image shows a Google search results page for the keyword "ipad pro". At the top, the Google logo is on the left, and the search term "ipad pro" is in the search bar. Below the search bar are navigation tabs for "All", "News", "Shopping", "Videos", "Images", "More", and "Search tools". The search results indicate "About 167,000,000 results (0.36 seconds)".

The first result is an advertisement for the iPad Pro from Apple. It includes the text "iPad Pro", "Ad www.apple.com/", "Thin. Light. Epic. Learn more and shop now.", and "In-store pickup · Free next day delivery". There are two buttons: "Apple Pencil" (with subtext "Introducing Apple Pencil for iPad Pro. Order now.") and "Buy now" (with subtext "Get fast, free shipping or choose in-store pickup.").

The second result is an advertisement for the Microsoft Surface Pro 4, which is highlighted with a red rectangular box. It includes the text "Introducing Surface Pro 4 - Microsoft.com", "Ad www.microsoft.com/Surface", a "4.4 ★★★★★" rating, and a list of features: "The Tablet That Can Replace Your Laptop. Runs Full Windows 10. 12.3" HD Touch Screen · 6th Gen Intel® Core™ · Windows 10 Pro". It also includes a link: "See Full Specs & Features - Surface™ Book - Watch 'Peace On 5th'".

Below the ads is a section titled "In the news" with a sub-image of the iPad Pro and a news article snippet: "How the iPad Pro stacks up as a photographer's tool" from Macworld, dated 18 hours ago. The snippet text reads: "The iPad Pro pushes the boundaries of tablets in interesting ways as a general-purpose ...".

At the bottom, there are more news items: "Apple iPad Pro vs Microsoft Surface Pro 4: Business Machine Beatdown Tablet PC Review" (11 hours ago) and "iPad Pro review: Extraordinary gadget, but not a laptop killer yet - Tech2Firstpost" (1 day ago). A link for "More news for ipad pro" is also present.

# 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  $\$1.00 \times (+10\%) = \$1.10$ .

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:**  $\$1.00 \times (+10\%) = \$1.10$

**Anchorage adjustment:**  $\$1.10 \times (+20\%) = \$1.32$

**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

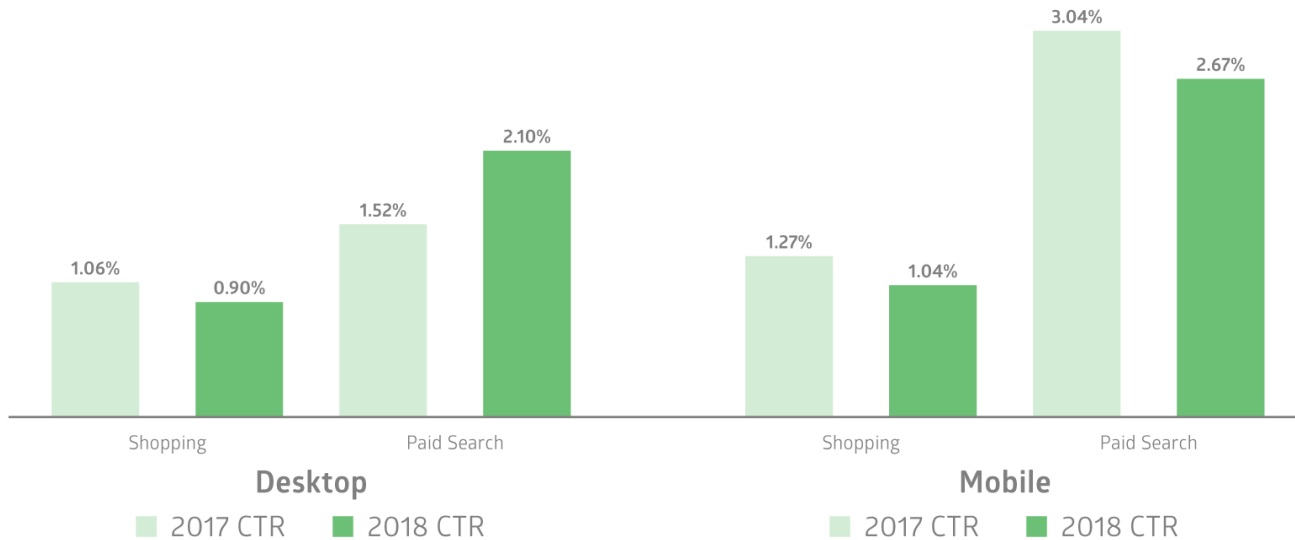
E.g. Does a higher CTR on mobile mean higher mobile AdFX?

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



Source - Sidocar 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.  $CR = \text{Conversions} / \text{Clicks}$

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** =  $\text{CTR} \times \text{CR}$

**Revenue** = Prob. of purchase  $\times$  Profit margin per purchase  $\times$  Impressions

**Cost** =  $\# \text{Clicks} \times \text{CPC}$ , where  $\# \text{Clicks} = \text{Impression} \times \text{CTR}$

**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).

