# Introduction to Online Advertising

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## Online Advertising

Compared to print or television advertising, online advertising is relatively inexpensive; print and television cost more because they are more effective. With print, you hold the advertisement in your hand, and (imagine a dentist's waiting room) it is more durable, which means more people will see it. Television has the potential to reach large numbers of people *at the same time* which partly explains its unique power.

Advertising is known to work, but it is hard to track. An old advertising joke goes: "I know half of my advertising is wasted...I just don't know which half." The Nielsen TV rating system long relied on selected households to keep a written log, from which Nielsen extrapolated (or guessed, really) the size of viewing audiences. Huge executive decisions were based on the reliability of those handwritten logs. Online advertising, served by and viewed on computers, promises the accountability long desired by the advertising industry.

In short, it is cheap, and you can (presumably) track where it goes and who sees it -- from which we get *targeting*. Showing an ad to an undifferentiated passive audience, most of which is barely paying attention, wastes a large proportion of an advertising budget. Even minimal targeting (by location, for example) improves the effectiveness of an advertising **budget** by showing ads to people more likely to be receptive. Online advertising can target an audience in a way that neither print or television can.

Online advertising may not be as effective, but, because people are spending ever more time online, especially on mobile devices, advertisers are following them there.

## Advertising Vocabulary

The jargon-world of online advertising boils down to two terms: *impressions* and *clicks*. An impression means an ad hit a pair of human eyeballs. A single impression is fleeting, and it most likely does not reach the conscious brain -- that requires more exposure; classic advertising theory says it takes three impressions. With repetition, impressions build awareness. You can probably name a half-dozen companies from which you have never bought a product, nor have you set foot in their store, yet their advertising efforts have gained a foothold in your awareness.

A click means a person took conscious action to express interest. Imagine the pre-www advertiser promoting an amazing product but, outside of purchases, remaining almost completely blind to audience feedback. A click, seemingly insignificant, changes everything. To an advertiser, a click is pure gold, a flag on the moon.

Because it is rare, a click is expensive, and the ratio of clicks to impressions is of great interest to an advertiser. Having processed thousands of billions (I guess that means trillions) of impressions and clicks, I observed, over a few years, a general rate of 17 clicks per 10,000 impressions, or 0.17%. A higher “click-through-rate” (or CTR) is the constant goal of advertisers, where even a small percentage improvement means many more clicks.

This is where we can see the true motivation for targeting. If an advertiser can record which ads you have seen -- and especially any ads you have clicked -- the advertiser can, after a few exposures, include you in a market *segment*. Let’s say you happened to see a few ads for baby products because, indeed, you were shopping for diapers. If an advertiser can place you in a “new-parent” segment, it means showing you ads more in tune with your interests (strollers, toys), and not wasting ad dollars showing you things you are not interested in. A higher CTR is just a by-product; the real accomplishment here is a more efficient *spend* (yes, in advertising, ‘spend’ is a noun).

Of course the ultimate goal of a commercial advertiser is to get you to buy. When you go ahead and hit ‘buy’ after seeing an ad and clicking, it is called a *conversion*. Advertisers know better than to chase on-the-spot conversions; they understand that most purchases happen later, maybe in a store rather than online. They would love to find a clear link between advertisement and purchase, the better to tune their advertising, and in some cases (online) they can. But in general it is unrealistic to expect conversions to flow directly from ads, the ways of humans are more mysterious.

Exactly what a conversion <u>is</u> becomes less clear if we step away from merchant transactions. With nothing to buy, what is a conversion, and who cares? For a library, a much-desired conversion takes place when a user clicks an ad and, following a series of prompts, signs up for a library card. If a click signifies *interest*, a conversion signifies *commitment*.

# Campaigns and Cost

A *campaign* has long been the defining vessel of advertising. It is a themed effort of finite duration, often with specific performance goals. The theme may be visual, audio (music) or perhaps it features a catchy slogan. Because people tire of repeated exposure to themes, campaigns are designed to run for a specific period, 13 weeks was long a standard. A campaign goal is often expressed in terms of *reach* and *frequency*; that is, how many people were exposed to the campaign material (reach) and, on average, how many times (frequency). As mentioned above, a frequency of 3 is needed for an advertising message just to enter the conscious mind; but, as frequency goes above a certain threshold (12 or 15), the advertisement can undermine its own goal by causing annoyance. With print, TV, or radio, reach and frequency data were available only as estimates; with online advertising the values can be counted per-individual (or per-cookie, to be accurate). A simple online campaign might involve buying 1,000,000 impressions, targeting a geographic region, setting a maximum-impression limit of 50,000 per day, and letting the impressions drain out over 20 days (or longer if the daily maximum is not reached every day). Another strategy might be to send out impressions until half a million people (reach) have seen the campaign at least three times (frequency).

In ancient times, say ten years ago, an *advertising network* (a company that distributes ads to a collection of cooperating websites) would charge a fixed amount to send 1000 impressions across their network, or you could pay per-click. The cost for 1000 impressions (cost-per-*mille* or CPM) was a few cents (you would buy a few million) and the cost-per-click (CPC) might be 25 cents or maybe even a dollar. For advertisers interested primarily in promoting awareness of their brand, paying for impressions was the way to go, while an advertiser trying to measure interest in a particular product would focus on the clicks. The rates were negotiated by human beings, and they varied depending on the skill of the salesperson and the goals of the advertiser.

Around 2005 Google started a bidding system for ads, which other companies adopted over the next decade, and which today is dominant. In a bidding system, a very brief (let's say under 1/100th of a second) invisible online *auction* takes place to award an advertising opportunity to the highest bidder -- right before you see the ad. In *real-time-bidding* (RTB) the cost of placing an ad varies according to instantaneous demand.

# Advertising on Google

Google introduced AdWords in 2000 (they recently shortened the name to Google Ads). They use a bidding system, charging for clicks; impressions are free. Of course they are not really free, they are covered by the cost of a click.

A campaign, in Google Ads, is a collection of *keywords* (generalized to include phrases) we imagine a person might type into Google's search field. Any set of keywords can be thrown together to form a campaign, but it makes sense to group keywords thematically ('public library', 'local library', 'nearest library', …) because it allows the theme's performance to be evaluated.

We know that lots of people type 'library near me' into Google, so we include that keyword in our Library Branding campaign. When a person types in that search term, Google looks to see which advertisers are bidding on it;  we bid $2 for the opportunity.  If our bid wins the auction our ad (an impression) appears at the top of the search results Google shows the user.  Only when the user clicks the ad are we charged the bid price.

Well, yes, there is more to it.  Google, with an eye on protecting its own reputation, calculates a *quality score* for our campaign, favoring reputable, stable organizations with good-quality *landing-pages* (that is, where a user 'lands' after clicking on the ad).  A bid is multiplied by the quality score to determine an auction winner.

As mentioned above, the cost of winning varies with demand.  Some keyword-phrases are known to be more likely to lead to a sale.  "Slow cooker recipes" is less likely to lead to a sale than "slow cooker cookbook" which is more probable.  Other factors, like time of day, affect demand, which, with Google, is expressed as keyword *competition*.  "Slow cooker cookbook" has higher competition and will likely require a high bid to win an auction.

Drilling down a bit, a keyword-inquiry shows that 'slow cooker recipes' gets typed into Google about 150 times as often as 'slow cooker cookbook' with respective competition rates of 0.24 and 0.99 (out of 1.0).  So competition for  the cookbook keyword is super-high while competition for the recipe keyword is fairly low.  This illustrates a happy advantage for advertisers who are not trying primarily to sell a product, since the competition rates for 'information' keywords are decidedly lower, and, in instances like this one, the search volume can be many times higher.

An advertiser will see much higher click-through-rates with Google than the general CTR of 0.17% described above.  It is because, first, a person using Google is actively searching for something, unlike the passive recipient of an ad seen elsewhere; second, the ad is necessarily related to the search term the user typed in; finally, the ad appears at the top of an ordered list, where it is unavoidable.  For these reasons, average CTR is twenty times higher (about 3%) than in the general case, and some industries see even higher rates.

A click, by itself, can seem absurdly expensive.  Why, for goodness sake, would an advertiser pay a dollar, two dollars, five, or, for a high-competition keyword, twenty dollars for a click?  Because, first, that click represents a good number of impressions that also have an effect.  Second, it is cost-effective compared to other methods of creating publicity.  Last, consider the investment made in building and maintaining a website; it is many thousands of dollars.  What is the dollar value of bringing an interested person to explore that investment?  A two-dollar click is a bargain.

Advertising with Google, finally, will bring more internal scrutiny to your website.  A click on your ad brought a user to your site, now what?  The *landing-page experience* is critical, as it completes the advertising sequence.  Its most important requirement is not visual attraction, it is *relevance*; the landing page must contain, clearly presented, the thing that initially attracted the user's interest, and a streamlined way to get it.

# Summary

This paper presents the basic vocabulary of online advertising.  With this vocabulary you can understand much of the available literature, and the language seen on advertising platforms like Google and Facebook.

The best book on advertising is by Leo Bogart: Strategy in Advertising.  It is not a new book, but it is widely available online, or you might find it at your, um, public library.