Setting Smarter Search Bids

Inside Automated Bidding with AdWords

Google™

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The bidding challenge

Intelligent bid optimization is a keystone of any successful search campaign. The keyword bids you choose directly influence your campaign performance and how visible your ads are for the search queries most important to your business. Without regular, data-driven bidding oversight, you could find yourself spending too much on the wrong keywords while missing out on valuable conversions and revenue.

It can be challenging to scalably manage your bids to achieve the best results, especially if you have campaigns with a significant number of keywords and are trying to optimize across multiple dimensions like match type, device and location. Given the dynamic nature of search auctions, the "right" bid can often be a moving target as well. This is why marketers often choose automated bidding solutions to make frequent bid optimizations using comprehensive data models. These solutions can help marketers make better bidding decisions not only on their highest-volume head terms, but also on their low-volume terms to drive significant performance gains. Furthermore, advertisers can save hours per week when they transition from manual to automated bidding, and reclaim valuable time they can reinvest in other strategic optimizations.

The AdWords automated bidding solution

AdWords automated bidding is an enterprise-class solution that helps advertisers set precise bids for each and every auction, and helps drive higher conversion volume or revenue at a cost-efficiency that is comparable to or better than existing performance targets. It offers three core capabilities not available in any other tool:

1. True auction-time bidding
2. Adaptive learning at the query-level
3. Richer user signals and cross-signal analysis

Let's explore each of these in more detail.

1. True auction-time bidding

For conversion and revenue-based bid strategies, AdWords automated bidding offers true auction-time optimization that **sets bids for each individual auction, not just a few times a day**. This gives advertisers a more precise level of bid optimization and the ability to tailor bids to each user's unique search context. Rather than only adjusting bids based on aggregate performance across users, AdWords bidding algorithms also evaluate relevant contextual signals present at auction-time such as the time of day, the specific ad creative being shown, or the user's device, location, browser, and operating system.

Identifying the conversion opportunity of each and every auction helps to differentiate bids and optimize with a higher degree of precision. For example, a banking advertiser may identify that iOS users are more likely to open a checking account, or that smartphone users located in cities with higher branch coverage are more likely to visit a bank location. With auction-time bidding, AdWords can detect the presence of signals like these to more accurately predict conversion rate and set a more informed bid for every search query.

Today's bidding solutions offer varying levels of bidding frequency and precision

Marketers can choose from a variety of bidding methods to manage their keywords, so it's important to understand the incremental benefits of each solution:

- **Manual bidding**: Advertisers manually set keyword bids themselves, with the option to use performance filters (e.g. for keywords with a conversion rate higher than x%, increase bids by y%). Due to time constraints, advertisers may only optimize bids for a subset of their keywords during each round of optimization, such as top-performers or by keyword or product category.
- **Rules-based bidding**: Advertisers define performance criteria and a system automatically adjusts bids when keyword performance meets those criteria (e.g. when average position falls below x, increase bids y%).
- **Intra-day bidding**: Machine-learning algorithms train on historical and ongoing performance data to optimize keyword bids and bid adjustments a few times a day. This is often referred to as "real-time" bidding for search marketing, as some tools have the ability to register new conversion data as soon as it happens.

  > The DoubleClick Search management platform optimizes bids at least four times a day while refreshing its conversion models multiple times per hour. It allows advertisers to set up portfolio bid strategies that span multiple search engines and accounts. Learn More.

- **AdWords auction-time bidding**: AdWords automated bidding combines machine learning algorithms with bid optimization for each and every auction. This is the most precise, granular level you can use to set your bids. Comparatively, even when keyword bids and bid adjustments are modified a few times a day, they are still applied uniformly across every user. Ultimately, you can underbid for your strongest-performing auctions while overbidding for poorer-performing ones.

  > You can implement an AdWords automated bid strategy to get the benefits of auction-time bidding while still using a third-party search management solution for bulk edits and reporting across multiple accounts and search engines.

2. Adaptive learning at the query level

Machine learning algorithms rely on robust conversion data to build accurate bidding models that predict performance at different bid levels. While high-volume head terms often provide plenty of conversion rate data for modeling, accounts typically have some low-volume or new keywords with little performance history that must be taken into account. For these low-volume keywords, bidding solutions rely on models to set bids that are the best estimate of conversion rates at that time.

For example, bidding solutions may test different bid levels to build the conversion rate model for a specific keyword. However, this may result in poor performance while the keyword accrues data, which can be a lengthy process depending on search volume. Another common process for modeling conversion rate performance on low-volume keywords is to "borrow" data from the same keyword across match types or from higher-level ad group and campaign performance.

AdWords automated bidding expands upon this method and augments it by using query-level data across similar auctions. This gives the bidding algorithms significantly more data to make decisions with, and helps reduce performance fluctuations when keyword-level conversion data is scarce.

Why query-level learning improves your bidding

AdWords bidding models aren't limited and compartmentalized by where a keyword lives in your account structure. Instead, conversion data can be leveraged at the search query level across ad groups and campaigns. This is especially beneficial for optimizing bids on phrase and broad match keywords, where a wide variety of search queries may match to a single keyword. In these cases, having just one keyword-level bid won't optimize for conversion rate differences across queries.

Furthermore, let's say you add new keywords or move keywords to a different ad group. AdWords algorithms don't have to relearn performance from scratch. Because they learn at the query-level rather than the keyword-level, if a search query has already been matching to other parts of your campaigns and similar auctions, the algorithms simply apply what they've learned about it across your account to make smarter bidding decisions.

3. Richer contextual signals and cross-signal analysis

Every user search is different and bids for each query should reflect the unique contextual signals present at auction-time. Signals like time of day, presence on a remarketing list, or a user's device and location are key dimensions to consider when determining optimal bids. On top of evaluating these signals, AdWords automated bidding includes additional signals like a user's operating system, web browser, language settings, and many more to optimize for performance differences across platforms and users. This helps capture meaningful context for every search, allowing AdWords to more accurately predict the conversion likelihood of each auction and set the optimal bid. See a list of several of the important predictive signals AdWords automated bidding uses below.

Contextual signals	Description	Example
Device	System can optimize bids based on whether the query is coming from desktop, tablet or mobile	Advertiser: **Car dealership** *Bids take into account if a user searches for "car dealer locations" on a desktop computer at home or from a smartphone while on the go*
Location	System can optimize bids based on the specific location (down to the city level) the user is located in or searching for, even if location targeting is set at a higher level	Advertiser: **Bank** *Even if location targeting is set to New York state, bids take into account if a user searches for "new checking account" from different cities within the state (e.g. Manhattan vs. Long Island where there may be differing branch coverage)*
Weekday / time of day	System can optimize bids based on the user's local time of day and day of week in their time zone	Advertiser: **Coffee shop** *Bids take into account if a user searches at 7am before work vs. noon at lunchtime on Monday*
List based audiences (RLSA, Customer Match, similar audience)	System takes audience lists for search ads into account	Advertiser: **Online retailer** *Bids take into account if a user has browsed a product during a previous site visit, is part of the CRM base, or has a profile similar to existing customers. It also accounts for how recently the user was last seen*
Actual query	System can optimize bids based on the text of the query that triggered the ad, not just the keyword it matches to	Advertiser: **Shoe retailer** *Bids take into account if a user's query is "leather boots" or "boot repairs," even if both queries broad match to the keyword "boots"*
Ad creative	When you have multiple ad creatives eligible to serve for a given search query, system can optimize the bid based on which creative will be shown, including whether it drives to a mobile app	Advertiser: **Online travel company** *Bids take into account if ad shown is the "latest deals" creative or the "popular getaways" creative, or if it points to the mobile site or app, based on which variation has a higher likelihood of converting for the specific query*

Contextual signals	Description	Example
Interface language	System can optimize bids based on the particular user's language preference	Advertiser: **Spanish language learning site** *For the query, "learn a new language", bids take into account whether ad is shown to a user whose Google language setting is English or Spanish*
Browser	System can optimize bids based on the browser the query is coming from	Advertiser: **Software company** *Bids take into account if a user searches for "mac software" from Safari or Internet Explorer*
OS	System can optimize bids based on the user's operating system for that query	Advertiser: **Phone accessories seller** *Bids take into account if a user searches for "Nexus 6 phone case" from an Android or iOS device*
Search Network partner	System can optimize bids based on which search partner the ads appears on	Advertiser: **Consumer packaged goods brand** *Different bids placed if query is coming from more relevant searches on an eCommerce site vs. a news site*
Demographics (age and gender)	System can optimize bids using demographics for Search Ads (DFSA)	Advertiser: **Online retailer** *Bids take into account how likely a user is to convert based on age and gender*
Mobile app ratings and reviews	System can optimize bids based on app user ratings and number of reviews	Advertiser: **Gaming company** *Different bids placed based on the rating and number of reviews your apps has*

When signals work together

While implementing manual bid adjustments for individual signals like device and location is a great first step to setting more precise bids, AdWords automated bidding goes a step beyond traditional signal analysis. Search context is never defined by just one signal, and AdWords can recognize and adjust for meaningful interactions between combinations of signals that can impact conversion rates.

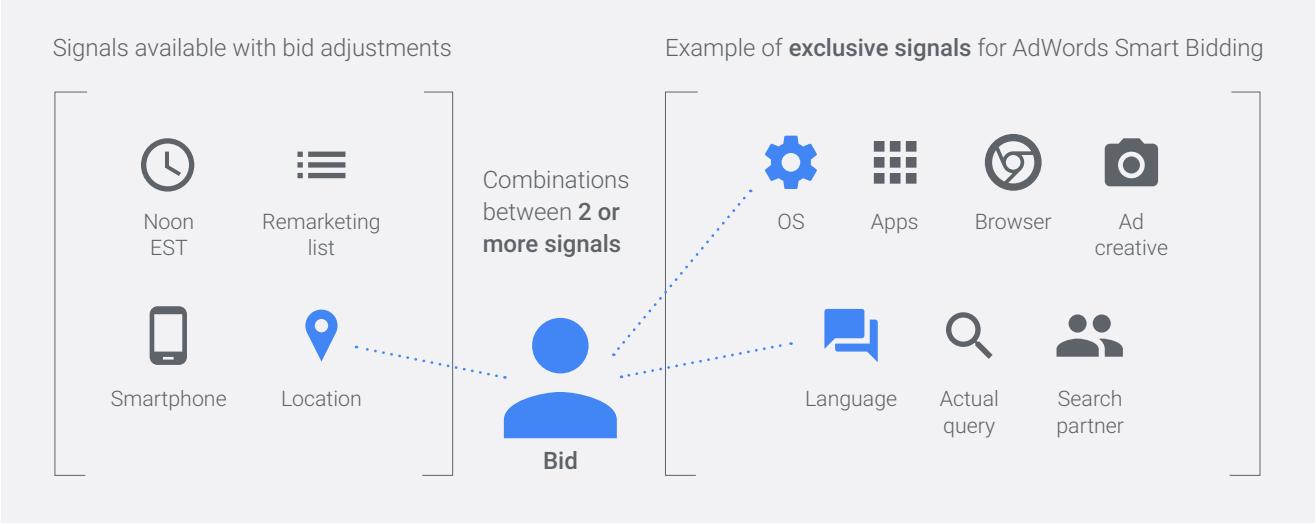
Evaluating signals individually vs. analyzing cross-signal effects

Individual bid adjustments for signals such as device, location, and time of day look at performance data in aggregate. For example, a bidding solution may evaluate how your mobile conversion rate across users compares to your overall computer and tablet conversion rate, and set a corresponding mobile bid adjustment.

Although this method of aggregating data and evaluating performance averages helps to avoid making bid adjustments with insufficient data, it can also overlook the nuanced conversion opportunity between individual auctions. For example, a mortgage lender might determine that on average, their mobile conversion rates are 20% lower than computer and tablet conversion rates, and set a mobile bid adjustment of -20%. However, this doesn't account for the times of day where their mobile conversion rates are strong, such as in the mornings, when people may be researching loan options on their phones during their early work commute.

Furthermore, when you begin to layer on additional bid adjustments (e.g. for location), calculating them individually and then multiplying them together doesn't account for the interacting effects of the signals together. It can even produce unreasonably high bids if you combine multiple, large bid increases with a base keyword bid that's already high.

AdWords evaluates how signals interact with each other to identify meaningful correlations that impact conversion rate across advertisers. By seeing which signal combinations are most predictive of conversion performance and adding these to the bidding models, it can calculate more holistic bids that account for how certain signals work together.



Portfolio bid strategies to help you meet your goals

AdWords offers multiple automated bidding strategies to help you reach performance objectives. Some like Target CPA or Target ROAS can be used as portfolios of campaigns.

Conversion and revenue-based bid strategies:

Performance goal	Bid strategy	When to use it
Conversions	Target cost-per-acquisition (CPA)	To get more conversions within a set target CPA.
	Maximize conversions	To get more conversions for your campaign within a set budget. You can apply Maximize conversions at the campaign level.
	Enhanced cost-per-click (eCPC)	To get more conversions at your current CPA. eCPC will also try to keep a keyword's average CPC below its max CPC.
Revenue/ Conversion value	Target return on ad spend (ROAS)	To get more revenue or conversion value within a set target ROAS.

The AdWords enhanced CPC (eCPC) bid strategy can work in conjunction with third-party automated bidding. However, it does not provide the full benefit of AdWords auction-time bidding as eCPC only works on a limited portion of your traffic, and tries to keep each keyword's average CPC below the max CPC set.

Awareness-based bid strategies:

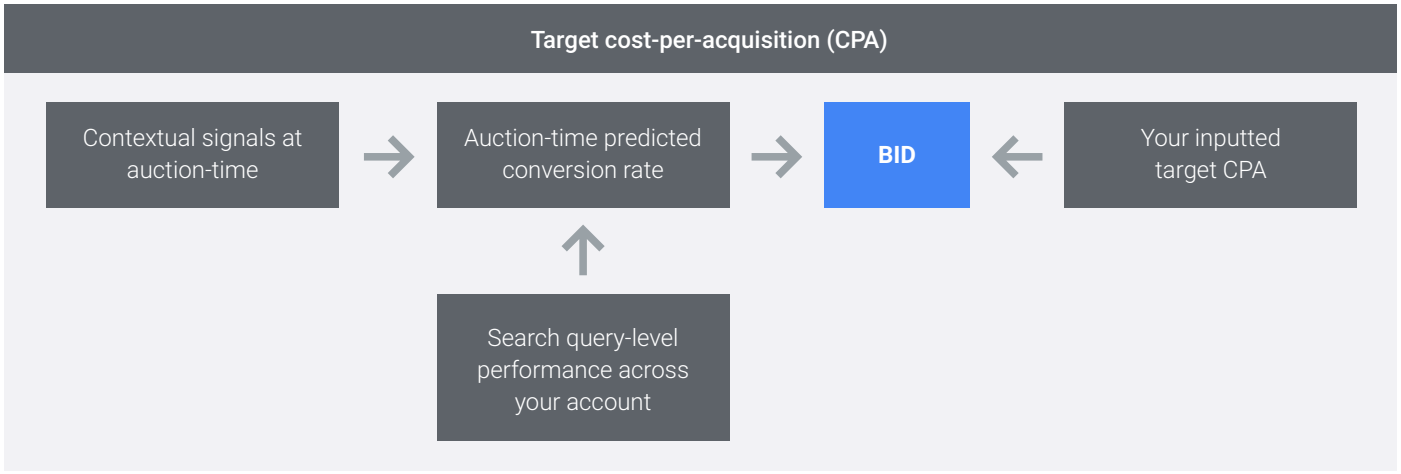
Performance goal	Bid strategy	When to use it
Visibility	Target search page location	To target the top of page or first page search results.
	Target outranking share	To outrank or show more frequently than another domain in search results.
Clicks	Maximize clicks	To get the most clicks from your budget.

Outranking share = the percentage of times your ad ranked higher in the auction than another participant's ad or showed when theirs did not, out of the total number of ad auctions you participated in.

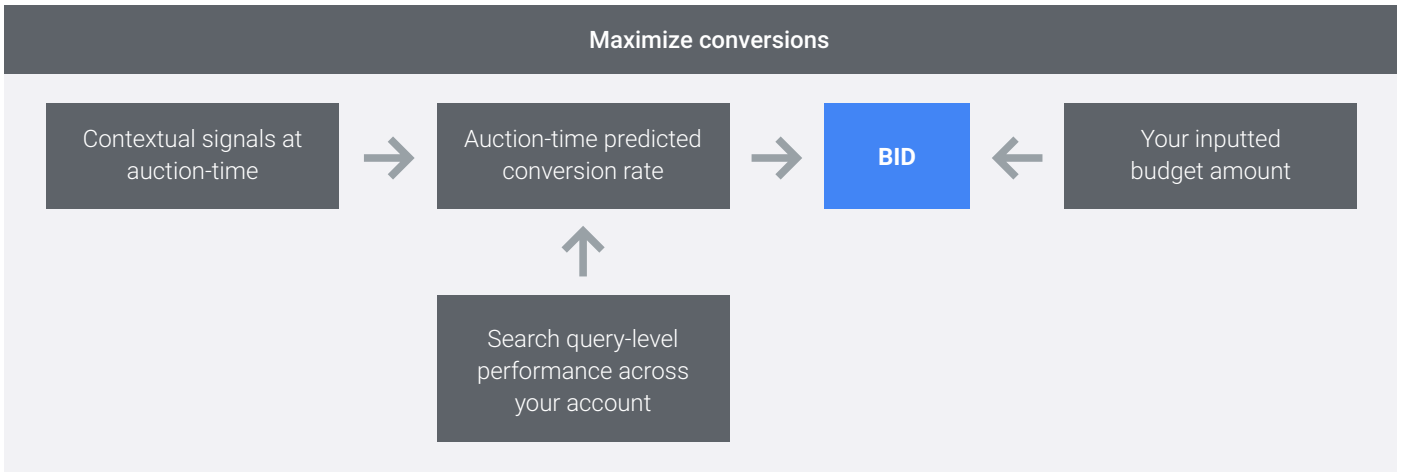
How AdWords calculates bids

AdWords Smart Bidding: conversion and revenue-based bid strategies

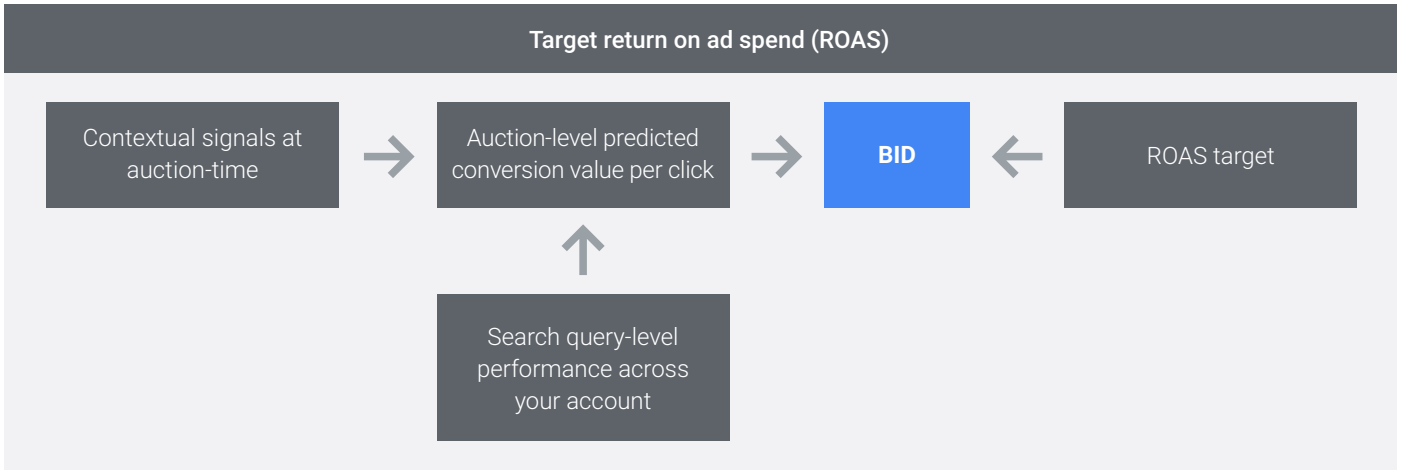
Smart Bidding uses Google's machine learning technology to optimize for conversions across every ad auction —also known as "auction-time bidding". Machine Learning also allows Smart Bidding to set millions of unique bids every second across campaigns. Target CPA, Target ROAS, Maximize Conversions, and Enhanced CPC are all Smart Bidding strategies.



The algorithms predict the conversion rate outcome for a click in each auction based on the specific contextual signals present. In addition to trying to maximize conversions, bids also account for the target CPA you've specified to ensure you're meeting your performance target. For example, if a bid strategy has recently been trending below your assigned target CPA, the algorithms may increase bids to capture more competitive conversions until we align with the target CPA.



The algorithms predict the conversion rate for a click in each auction based on the specific contextual signals present. For example, if you're a clothing retailer trying to quickly sell last season's styles, Maximize conversions will estimate how likely each click is to convert using signals like remarketing lists, time of day, browser and operating system. Maximize conversions would then set bids to spend your budget as efficiently as possible while maximizing conversions.



The key difference in bid calculations between Target CPA and Target ROAS is the use of revenue as the performance goal. The algorithm predicts the probable conversion value at auction time, as well as the probability of a conversion for a click in each auction based on the specific contextual signals present. In addition to trying to maximize value, bids also account for the target ROAS you've specified to ensure you're meeting your performance target. For example, if a bid strategy has recently been trending below your target ROAS, the algorithms may decrease bids until it reaches your target ROAS.

Enhanced Cost-per-click (eCPC)

eCPC takes the keyword-level bids and bid adjustments you've implemented into account to get you more conversions at your current CPA through auction-time bidding. For a given keyword, our algorithms will adjust the bid up or down based on that auction's predicted conversion rate compared to the average conversion rate across auctions. However, the full power of automated bidding is limited by only working on a portion of your traffic, while still trying to keep each keyword's average CPC below your max CPC.

Awareness-based bid strategies

- **Maximize clicks**: The same bid is applied across keywords in the bid strategy and is adjusted up or down to ensure you hit your campaign budgets while getting as many clicks as possible.

  If your goal is to maximize clicks and you value each click equally, our research has found that applying uniform bids across keywords, adjusted up or down based on budget utilization, can be as effective as tailoring unique bids for every keyword. Our Maximize clicks bid strategy leverages this finding to get you the most clicks for your budget and is especially effective in cases where individual keywords have sparse or highly variable click volume.

- **Target outranking share**: AdWords uses auction insights data from your account to model your outranking share against other advertisers participating in the same auctions with you. Your bids are then adjusted to meet the outranking share target you set.

- **Target search page location**: Your bids are adjusted up or down to meet the estimated top of page bid or estimated first page bid, depending on which you choose.

How our bidding algorithms learn

Setting a bid strategy up for success

Launching a bid strategy with a solid foundation of conversion data can help drive faster results by speeding up the initial "learning period" required for algorithms to build and customize performance models for your business. It typically takes 1-2 weeks for our algorithms to calibrate for a newly created bid strategy, although this largely depends on the amount of conversion data present.

Number of Conversions (in the past 30 days)	CPA Fluctuation	Initial Learning Period
30	Medium to High	Slow
60	Medium	Medium
100	Low	Fast
500	Very Low	Very Fast

Test changes and understand their impact before committing with drafts and experiments

It is now possible to seamlessly test Smart Bidding using drafts and experiments. You can use drafts to prepare multiple changes to a campaign. From there, you can either apply your draft's changes back to the original campaign or use your draft to create an experiment. Experiments help you measure your results to understand the impact of Smart Bidding before you apply it to a campaign.

Revenue-based bid strategies tend to see greater performance variance since conversion values/revenue fluctuate in addition to conversion rates. As a result, for a bid strategy like Target ROAS, we recommend a conversion threshold of at least **30 conversions in the past 30 days.**

Number of Conversions (in the past 30 days)	ROAS Fluctuation	Initial Learning Period
50	Medium to High	Slow
100	Medium	Medium
200	Low	Fast
500	Very Low	Very Fast

Bid strategy statuses provide insight into what's going on under the hood

AdWords bid strategy statuses give you deeper transparency into how your automated bid strategies are performing. For example, if a strategy is still in "Learning" status because you recently created it or changed the composition of its campaigns, ad groups or keywords, we will display the "estimated time left in learning" and "days since the last significant change". These indicate that the algorithms are still calibrating and how much longer you should wait before making any other changes or evaluating what baseline performance looks like.

Alternatively, if your bid strategy lacks conversion data, we'll flag this with the "Limited (not enough data)" status and show you the recommended conversion volume thresholds to help AdWords better optimize bids.

In instances where you have little to no conversion data available, AdWords automated bidding can still leverage query-level data from similar auctions outside your bid strategy to build more accurate initial conversion rate models and make more informed bidding decisions from the start. It then uses Bayesian learning to continuously update and improve these models as it accrues conversion rate data at more granular levels (e.g. for a search query mapped to specific versions of ad copy or landing pages).

Make every conversion count using cross-device data

Having sufficient conversion data is critical for successful automated bidding. This can be a challenge in today's mobile world, where over 90% of users move between different screens when completing a task[1]. This presents advertisers with the tough challenge of fully measuring consumer journeys that start with an ad click on one device, but end with a conversion on another. In fact, advertisers around the world have measured up to 16% more conversions after accounting for cross-device data[2].

AdWords helps advertisers bridge this measurement gap by not only capturing cross-device conversions, but also allowing you to take direct action on this data through automated bidding. This helps ensure that you're making informed bidding decisions with a more complete data set, and not undervaluing clicks on devices that may be driving more conversions than what traditional, tag-based measurement alone would show you.

[1] Industry Multi-Screen Study, Google/Ipsos, 2013

[2] Google AdWords Internal Data, 2015

You can also use AdWords Data-Driven Attribution (DDA) modeling to understand the actual contribution of each keyword across the conversion path. DDA is fully integrated with automated bidding in AdWords. If you use an automated bidding strategy to drive more conversions, your bids will use this data to help you meet your goal.

Adapting to your performance changes

As your business grows and you make adjustments to your campaigns, AdWords continues to update your bidding models to align with any corresponding shifts in performance. On average, it takes at least one conversion cycle to adjust to performance changes that may result from internal factors like adding new keywords, testing new ad copy or updating landing pages, or external factors like seasonality or competition.

We define a conversion cycle as the typical amount of time it takes for a click to result in a conversion. For example, if the majority of clicks yield conversions within seven days, we would expect the system to adjust to changes in conversion performance within approximately seven days.

"Days to Conversion" can be found in Attribution and Time Lag reports within your AdWords account to help you determine what your average conversion cycle is.

Adjusting performance targets in advance of short-term conversion changes

AdWords bidding algorithms work to prevent hyperactivity and sudden bid changes based on limited data to ensure that they optimize based on real performance trends rather than random fluctuations. At the same time, we recognize that advertisers often have known events that will impact conversion performance for a short period of time. For example, they may be planning a weekend sale, performing website maintenance or even running a TV spot during Black Friday.

To accommodate these brief, anticipated changes in performance, we recommend that advertisers adjust their bidding targets (target CPA or target ROAS) proportionately to the predicted increase or decrease in conversion rate or value. This way, they can adapt automated bidding to short-term changes without disrupting performance in the longer-term. For example, if the conversion rate suddenly jumps from 2% to 4% during the first hour of Black Friday, you should temporarily double the CPA target while the algorithm adjusts to the new trend. This only needs to be done if conversion rates have changed very rapidly. In most cases, Smart Bidding will automatically handle seasonal increase in traffic without requiring any input.

Adjusting for data recency and conversion delays

Our algorithms apply **adaptive historical weighting** to rely more heavily on recent data in bidding decisions while also accounting for the length of your conversion cycle. We recognize that recent performance is likely more predictive of future performance, but that recency calculations should weigh less heavily against clicks that aren't yet seeing conversions solely due to conversion delays. A conversion delay is defined as the latency period between an ad click and the eventual conversion.

For example, if you're an advertiser such as a car dealership or travel booking company with lengthier conversion cycles, your recent data may not be as useful because those ad clicks require a longer period of time to yield conversions. As a result, we'll weigh that recent data less heavily compared to advertisers with shorter conversion cycles such as a clothing retailer or food delivery service. This helps prevent overreactions to recent clicks that are experiencing conversion delays, which could lead to unnecessary bid reductions. We also automate this process so that advertisers don't have to manually calculate and frequently adjust for these conversion delays themselves.

Key takeaways

AdWords automated bidding helps marketers optimize bids at scale across various performance goals and leverage powerful machine learning capabilities unique to Google:

- **True auction-time bid optimization**: AdWords automated bidding optimizes bids for each and every auction, helping you set more precise bids tailored to each user's search context and meet your performance targets more effectively.
- **Query-level performance modeling**: AdWords leverages search query-level conversion data across your account to help solve for data scarcity that individual keywords may face. This allows the algorithms to bid more accurately on low-volume keywords or keywords that are still building performance history.
- **Evaluating a richer set of contextual signals**: In addition to evaluating key signals like device, location, and time of day, AdWords automated bidding accounts for others like browser, operating system, language, and many more. This improves the ability to understand the search context and conversion likelihood of each auction. It also analyzes how some signal combinations have a statistically significant impact on conversion rate, which individual bid adjustments cannot capture.
- **Bid strategies that align to your goals**: Choose from a variety of bid strategies to meet your conversion, revenue, or awareness objectives.
- **Intelligent algorithms that keep learning**: AdWords algorithms continuously update your bidding models to align with changes in performance and adapt to your business' specific conversion cycle to know how heavily to weight recent versus historical data.

Read our best practices guide to see how you can get the most out of AdWords automated bidding and visit our Help Center to learn more about each bid strategy. You can also see the display automated bidding guide for best practices and behind-the-scenes insight into how automated bidding works on the Google Display Network.

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