

The Importance of Integrating Inventory into Retail Paid Search

While managing paid search programs for Amazon.com in 2006, Adlucent discovered that integrating paid search with a retailer's product inventory leads to dramatic improvements in efficiency and revenue growth. In particular, doing just one straightforward thing—pausing keywords for products that have gone out of stock, and then re-starting them when the product is back in stock—could **boost campaign efficiency by as much as 30 percent**.

It's All About the Conversion Rate

Adlucent was the first agency to offer inventory-triggered pause/start functionality in our Deep Search™ software platform. We implemented this in response to one critical observation: conversion rates approach zero when a customer discovers that the product they're looking for is out of stock. After all, on the Internet, finding another site from which to buy the same product is always just a few clicks away. Any campaign that drives prospective buyers to a page that won't convert is a potential waste of ad spend.

Moreover, there's an opportunity cost. Ad budget could have instead been allocated to driving immediate sales of in-stock products. In addition, running ads for out-of-stock items provides a poor customer experience that erodes brand value and might prevent return visits.

What's Wrong with Automated Bid Management Systems

Most bid management systems respond to out-of-stock inventory conditions in precisely the wrong way: by progressively decreasing CPCs. CPC is calculated as:

$$\text{CPC} = \frac{(\text{AOV} \times \text{CVR})}{\text{ROAS}}$$

Return on ad spend (ROAS) is typically a fixed value specified by the retailer, while average order value (AOV) and conversion rate (CVR) are based on historic performance.

When a product goes out of stock, CVR drops dramatically—usually approaching zero. And when CVR approaches zero in this equation, the CPC approaches zero. But most bid management systems don't drop the CPC to zero right away. Instead, they look at a rolling window of historic data to determine an average CVR. So, as the CVR plummets, the rolling average slowly decays and so does the CPC. And as the CPC drops, the position, click-through rate, and eventually the keywords all fall off the radar.

The Effect of Long Shipping Times

In addition to inventory status, Adlucent has found that shipping times can have a significant impact on conversion rates (CVRs), as well. From a customer's point of view, if a product will not ship for 10 days, it might as well be out-of-stock—as long as there's another retailer who can ship it faster. Deep Search measures the decline in CVR with extended shipping delays and pauses keywords when the delay will cause a drop in CVR. These rules are unique to each retailer. Deep Search then re-allocates the investment elsewhere.

You might be thinking that even if an ad for an out-of-stock product drives a customer to a retailer's site, the customer might still peruse the site and purchase something else. Maybe. But the point is that the conversion rate will be dramatically worse if the item they originally wanted is not in stock. And retailers shouldn't

bid on keywords with a low conversion rate just to drive traffic to their site. Instead, they should drive people to the site who are likely to make a purchase. Advertising budget should be allocated to the keywords that are most likely to drive profitable revenue, and the mix of keywords to support that can change at any time based on the dynamic nature of inventory.

There's a secondary problem with most bid management systems. When an item is again in stock, these systems don't quickly bring the CPC back up to its original, "correct" level. Rather, in response to rising CVRs, the systems will progressively "bid up" the CPC based on moving window averages. Over time, the CPC should again reach its correct level—but this will only last until the product again falls out of stock, and the cycle repeats. Furthermore, the pool of historic data from which future CPCs are calculated is now clouded by the effects of these cyclic variations in inventory. The fluctuations of CVR based on inventory alone cause dramatic instability in a bid management system.

A Better Approach

The smart solution is true inventory integration. Through a feed or through an API, Adlucent obtains inventory data from retailers several times per day, and pauses or re-starts all keywords related to products with a new inventory status. In an out-of-stock condition, the portion of ad spend that is now freed up is dynamically re-allocated to well-performing campaigns for products that are in stock. Total spending doesn't change, but efficiency is maintained and revenue is grown dramatically as advertising dollars are allocated to the best-performing keywords.

In addition to using inventory data to manage paid search campaigns more effectively, Adlucent provides valuable business intelligence back to its clients. For example, Adlucent can tell a retailer which high-demand products are frequently out of stock or are on the verge of going out of stock. This helps retailers determine where there is an opportunity to

better match supply and demand. Adlucent can also help retailers identify their most profitable products by factoring in the cost of goods sold (COGS) and advertising expense. This financial modeling can be used to quantify the financial impact of not keeping the highest-margin products in stock.

The Future of Inventory Integration

Adlucent is working on a difficult problem: how to predict CVR for a product with multiple attributes (such as size and color) when only a subset of those product combinations are out of stock. A particular shoe, for instance, comes in multiple sizes and colors, and the same keywords might drive buyers to the same product page. But what if only the popular size 10, brown shoe combination is out of stock? Deep Search would respond by using predictive search algorithms to model the temporal drop in conversion rate and apply this until the particular size/color combination is back in stock.

Adlucent: The Right Choice

Inventory status is one of the most important and yet most overlooked factors in the success of retail paid search campaigns. Automatically pausing campaigns for out-of-stock items has proven to be a highly effective way to use ad spend efficiently and to retain customers. Only Adlucent offers this capability, along with the ability to provide strategic information about inventory to its retailer clients.