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THE CONVERSION ATTRIBUTION REVOLUTION:

Introducing Kenshoo SmartPath™

KENSHOO SMARTPATH™

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Introduction

Search engine marketing is a practice that's roughly a decade old and has grown at such a rapid pace that many concepts that were considered industry hallmarks only a few years ago have quietly become outdated and obsolete. When the major search engines first began to offer advertising, they did so with the idea that search engine marketing was a transactional experience and, thus, a click on an ad would deliver one of two results—a conversion or no conversion. Accordingly, the prevailing methodology for marketers became attributing online conversions to the last click upon which a customer interacts before a purchase.

As the industry evolved, advanced search marketing platforms have given further insight into how customers behave when interacting with online advertising. Today, we can track activity across multiple channels in a single reporting system and we can analyze customers based on sessions or life cycles rather than single interactions. These features have given marketers visibility into the entire purchase funnel and the marketing activities that impact each phase within it, rather than giving all credit for conversions to the last ad clicked.

The typical conversion funnel manifests itself in many different ways through traditional marketing, online marketing, and search engine marketing. The key is being able to understand the interplay and fluidity between each phase. As seamless as the experience is to the customer, so too must it be for the marketer who tracks activity and uses data to optimize the experience.

In this paper, we will examine the evolution of conversion attribution methodology over the years and recent innovations leading to the current revolution.

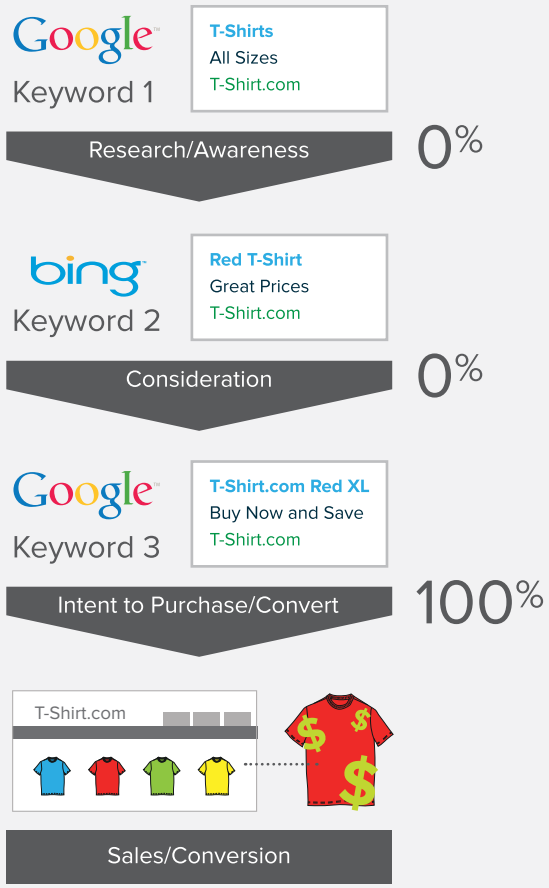
Evolution of Attribution Practices in Search and Digital Marketing

Disruptive technology has the ability to change the world as we know it. Occasionally, in the pursuit of innovation, developers move too fast and forget to apply lessons from the past. Search engines appeared on the Internet and changed the way we discovered information almost overnight. However, in the race to monetize search through keyword-targeted ads, the basic concept of the conversion funnel was bypassed only to be revived years later in the form of conversion attribution. Let's examine the evolution of the digital marketing consumer engagement models.

Single Point Credit

The first successful launch of biddable ads in search marketing was by GoTo.com (later Overture.com). In 1998, it pioneered the idea of allowing advertisers to bid on keywords in order to display their ads on search engine results pages. By the year 2000, Google had launched a similar service called AdWords, which quickly grew to dominate the search advertising market. Both services were focused on the idea of delivering relevant ads and assumed that each keyword was a transactional single event. Thus, they credited the conversions and revenues driven from search ads to the last click—a single point—based on the idea that there was no connection between multiple searches.

FIGURE 1: Sample Last Click Attribution Model



Source: © Kenshoo, Inc. 2013

Linear Distribution and Tracking Unification

By 2004, search marketing was no longer a nascent industry. A whole new segment spawned around technology solutions that allowed advertisers to more effectively reach multiple search engines through a single platform. These new technologies highlighted a major flaw of the single-point attribution system in that, when a person clicked on ads from two or more search engines, each engine would claim the conversion value causing instances of conversion duplication. The solution to this problem was the use of a single tracking system that unified data from all the search engines and online ad programs into a single location.

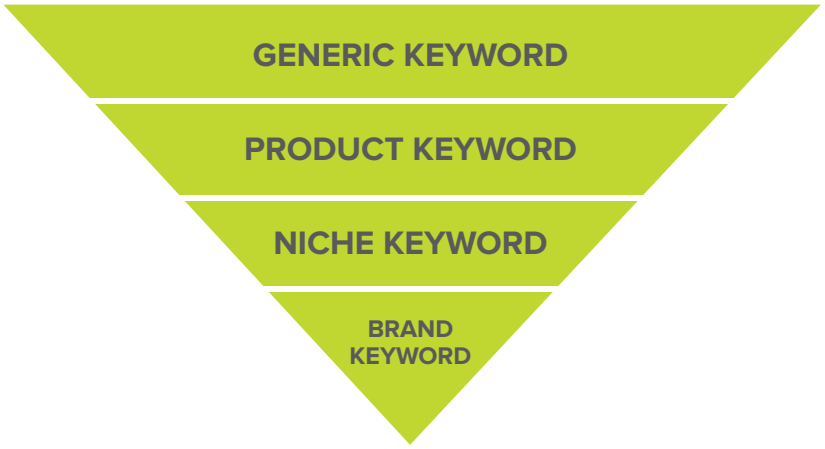
The unification of tracking systems allowed search marketers to better understand how people were engaging with ads. The idea of a "click path" began to emerge as marketers saw the progression of a single consumer from first click to purchase. The idea of a conversion funnel—a concept common in the offline marketing world—began to manifest itself through the data. A traditional funnel begins with awareness, when a potential customer becomes aware of an offering, and moves through consideration and intent before the actual purchase is made.

FIGURE 2: Traditional Marketing Funnel

Source: © Kenshoo, Inc. 2013

In search, unified tracking helped marketers recognize that different types of keywords functioned in different stages of the funnel. Generic keywords like “shoes” or “cell phone” indicated the initial phases of product research and a consumer’s willingness to be made aware of different offerings and brands available. As the consumer moved closer to purchase, search queries became more focused on specific products and niches. Finally, when the consumer was ready to buy, he/she would type in the brand name that surfaced as the best option during the earlier phases as a means to navigate directly to a website and complete the purchase.

FIGURE 3: Typical Keyword Search Marketing Funnel



Source: © Kenshoo, Inc. 2013

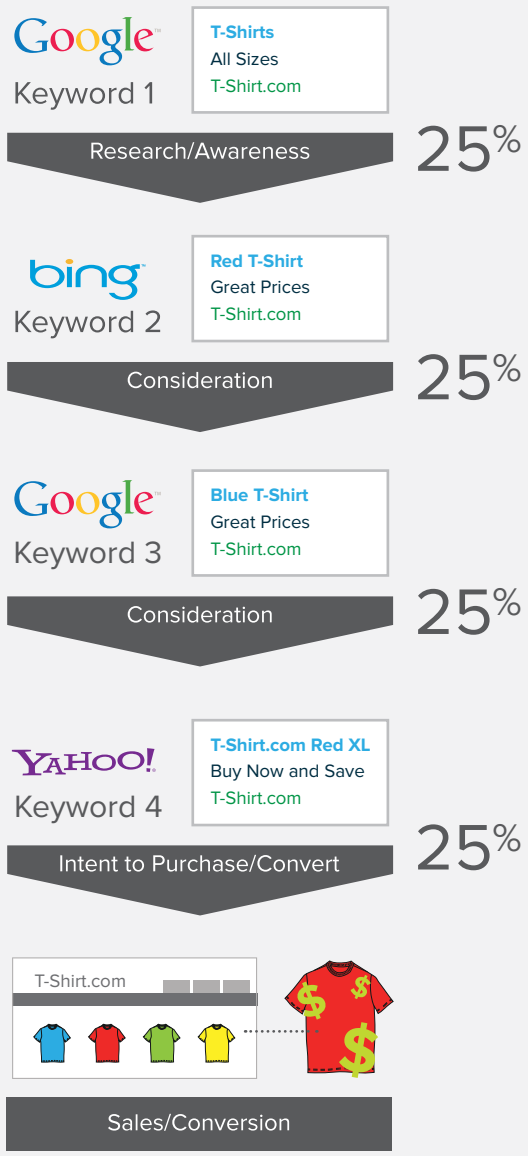
At first, search marketing technologies only delivered attribution for paid search ads but, later, as tracking grew more sophisticated, the funnel could be applied across multiple channels as well. In the multi-channel funnel, search is put in context with other online channels to capture the most realistic picture of a customer as they engage with ads and brands across several media.

FIGURE 4: Example Multi-channel Online Marketing Funnel

Source: © Kenshoo, Inc. 2013

In recognition that multiple ads and clicks impact conversion outcomes, additional linear models emerged such as those that distributed credit evenly to all clicks in a conversion path.

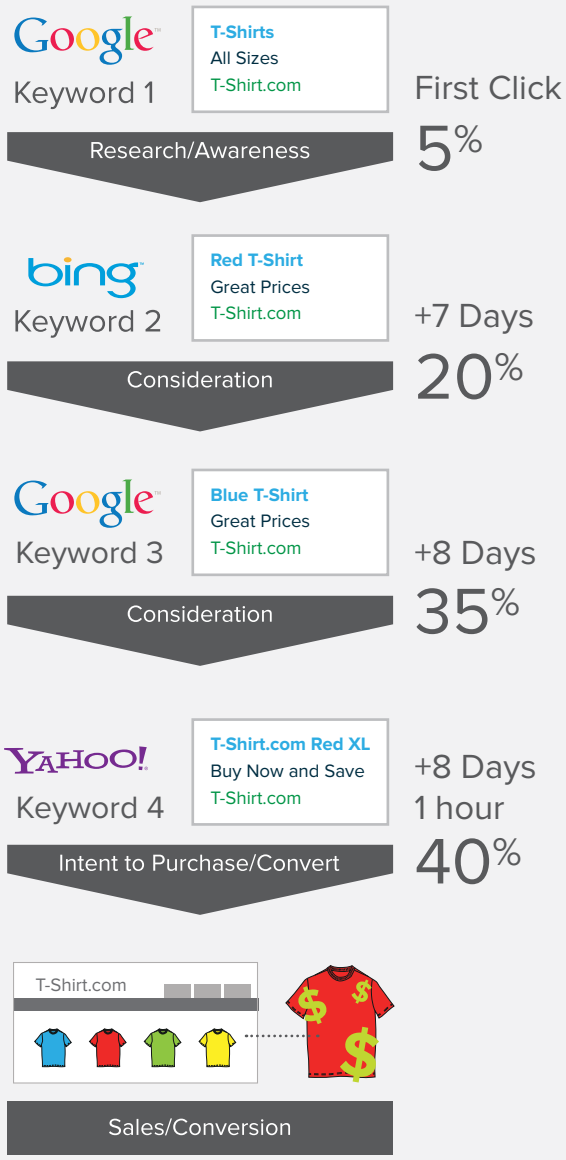
FIGURE 5: Sample Distribute Evenly Attribution



Source: © Kenshoo, Inc. 2013

Another model applied a decay ratio set based on the number of clicks with the most credit going to the last click and then scaling down proportionately to the first click as in the sample time-decay attribution graphic.

FIGURE 6: Sample Time-decay Attribution

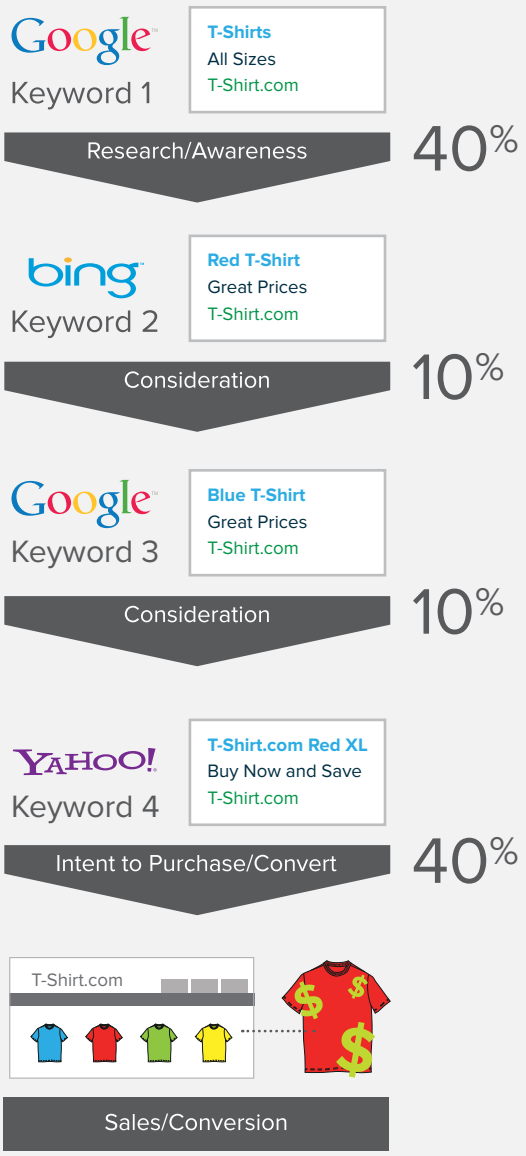


Source: © Kenshoo, Inc. 2013

Preference-oriented Distribution and Non-linear Attribution

By 2010, search marketing technology had evolved to support attribution models that catered to the specifications of individual verticals and business types. The first introduction of a non-linear model for the wider market was Kenshoo's U-shaped attribution model. This model uses an 80-20 rule to equally reward the first and last clicks in the path, while giving middle clicks in long paths-to-conversion less credit. This policy assumes that the search keyword that kicked off a converting path and the keyword that secured it should be highly valued, while giving less recognition to interim searches, as in the example conversion path with U-shaped attribution.

FIGURE 7: Sample U-shaped Attribution



Source: © Kenshoo, Inc. 2013

Breaking the Model with Machine Learning and Algorithmic Decisioning

From the first application of last-click attribution down to the more recent applications of non-linear models, all have shared a common trait: they are all merely models. Each instance of conversion attribution applies a macro-model to every click and conversion, reflecting a strategic decision made by a human being. In other words, a person would decide that all clicks and conversions would be subject to an evenly distributed model or a decay ratio model. In some cases, custom models were leveraged but they were based on static rules that were approved and applied by a person manually.

While different strategies proved to be more accurate or profitable than others, none looked at each individual path to find the best allocation of value, because to manually create a model per conversion is a near impossibility.

The challenge of achieving accurate attribution at scale led to the revolutionary leap in conversion attribution methodology and the end of macro models as the best source of truth. Machine-learning technology, mathematical modeling, and algorithmic decisioning can now be leveraged to look at all of the numerous factors that impact a conversion funnel to most accurately distribute value among each touchpoint.

This leads us to the question, “What are the most important factors in achieving conversion?”

To answer this question let’s take a simple example:

There are two customers who purchased the same pair of shoes following 3 clicks across multiple online channels. Let’s assume that the clicks happened at the same time of day over the same period for the conversion funnel.

1 3 clicks by a **new** customer resulting in the sale of a pair of Nike running shoes for $90

1st CLICK	2nd CLICK	3rd CLICK
facebook	Google	bing
Facebook click on ad featuring holiday sale on Brand X running shoes	Google click on keyword “Brand X deals”	Bing click on keyword “BrandX.com Nike Air Pegasus”

2 3 clicks by a **repeat** customer resulting in the sale of a pair of Nike running shoes for $90

1st CLICK	2nd CLICK	3rd CLICK
bing	facebook	Google
Bing click on keyword “Brand X deals”	Facebook click on ad featuring deals on Brand X running shoes	Google click on the keyword “BrandX.com Nike Air Pegasus”

Using the traditional model of “distribute evenly” would split the $90 conversion value among all 3 clicks so that their respective return on investment would reflect one-third the cost of the sale. While still an improvement over the antiquated last-click model, it falls short in several areas:

A. The model does not account for the causality and synergy of the clicks. In example 1, did the Facebook ad cause the “Brand X deals” keyword search? And, in example 2, did the Facebook ad serve as a reminder for closing the sale?

B. The model also does not account for the necessity of each ad click. In both examples, it’s very possible that the 3rd click is a navigational search query being used by the consumers to find the specific page on the retailer’s website. If that’s the case, the value of this click in the purchase funnel should be significantly less than the first two clicks.

C. The model does not account for fact that the customer in example 1 is a new customer while example 2 is a returning customer. For most companies, the value of landing new customers is higher than serving an existing customer.

All of these factors and decisions can be accounted for with machine-learning, mathematical modeling, and algorithmic decisioning by looking at each individual path while, at the same time, identifying trends from macro data such as keyword and channel synergy, customer loyalty and willingness to make another purchase.

Introducing Kenshoo SmartPath™ Attribution

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Kenshoo SmartPath, a new product from Kenshoo, is the first form of dynamic attribution that applies sophisticated mathematical modeling, combined with machine-learning and algorithmic decisioning to drive advanced digital marketing bid optimization. Additionally, Kenshoo SmartPath creates a unique value allocation specific to each conversion interaction in a given path to conversion.

This provides an understanding of the true impact of all interactions and delivers unprecedented accuracy in value-based digital media optimization. While other attribution products have focused on improved reporting with accurate attribution data, Kenshoo SmartPath was built from conception with the objective of optimization in mind. Kenshoo SmartPath directly feeds enhanced, accurate interaction values to Kenshoo bidding systems to seamlessly optimize media bidding as a turnkey solution.

In order to truly measure the contribution of an individual touchpoint to a customer's decision to convert, Kenshoo SmartPath considers a number of different factors when processing interaction data:

Position in Conversion Funnel

Advertisers have long understood that purchase decisions are not made in an instant but rather reflect a cognitive process based on various levels of awareness and interaction with a brand or product. The advertiser's goal is to make an impact on the customer at each stage in that process that causes them to move closer to a purchase decision. Looking back at the different conversion funnels described earlier, we can see that a keyword or ad's location at various points in the funnel can serve very different needs.

For instance, a display advertisement may have simply served to get a customer's attention or arouse their interest while the paid search ad that appeared when the customer searched for the brand site may have enabled the customer to take action and convert.

A key component of Kenshoo SmartPath's dynamic attribution process is the ability to measure the value of an interaction and weigh that value against other interactions based on the role of that interaction in the conversion funnel.

Causality and Synergy

Not every interaction leads directly to a conversion. But one interaction will sometimes lead to another which will eventually drive to a conversion. Kenshoo SmartPath detects whether there is a causal relationship between interactions or just a single interaction that is independent of others, in order to correctly assign credit to both indirect and direct players in each conversion path.

In addition to causality, Kenshoo SmartPath takes into account elements of synergy. A customer looking to buy a television may be influenced by the paid search that he/she engaged with while searching. He/she could also be influenced by seeing an ad on Facebook. But the combined influence of seeing the same brand appear in the paid search ads and on Facebook may be larger than the influence of each of those individual engagements. Kenshoo SmartPath detects these synergies and attributes credit appropriately when they occur.

Necessity

An important aspect of valuing a keyword in a conversion funnel is understanding its function or role. Generic and category terms typically indicate that a searcher is looking for information and would be more open to being exposed to a new brand or advertiser. However, when people search for brand names and URLs, it's generally a sign of pure navigation. It's important to ask, if the navigational keyword was not part of the conversion path, would the sale still have been made? Kenshoo SmartPath considers not only the positive contribution of interactions to a given conversion but also the chances that the consumer engagement, and therefore the conversion, would have occurred anyway whether or not a certain ad appeared.

Value of Loyalty

Traditional attribution models address paths consisting only of interactions with marketing followed by a subsequent conversion. This fails to account for previous conversions. Measuring customer loyalty adds an important variable to how we think about the true value of a conversion. Understanding whether or not a previous purchase impacts a customer's future purchases is a critical data point when assigning value to interactions in a conversion path.

Kenshoo SmartPath differentiates between conversions types and discerns the impact of a customer's previous experience with an advertiser on the likelihood of an additional conversion. Kenshoo SmartPath also propagates credit back to earlier conversions and the interactions that precipitated them.

Kenshoo SmartPath Case Study: Drs. Foster & Smith

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In 2012, Drs. Foster & Smith (DFS) applied Kenshoo's dynamic attribution methodology to its online advertising program. DFS marketing activity included many different channels such as pay-per-click (PPC) search, contextual display ad placements, e-mail, retargeting and comparison shopping engines (CSE).

Example Conversion Paths

Following are specific conversions showing the results of Kenshoo SmartPath as well as three traditional attribution models—Last-click, First-click and U-shaped—that show the differences in how credit is applied.

Path 1: Google Shopping and PPC Brand

In this case, Kenshoo SmartPath gives the Google Shopping click the majority of the credit and relatively little goes to the PPC Brand (navigational) clicks that occur thereafter.

Conversion Time	Interaction Time	Channel	Details	Last-only Weight	Distribute Evenly	U-shaped Weight	Dynamic Attribution Weight
30-May-12 16:12	30-May-12 15:59	Google PPC	Click / drs foster and smith	1	0.33	0.4	0.058
30-May-12 16:12	30-May-12 15:53	Google PPC	Click / drs foster and smith	0	0.33	0.2	0.058
30-May-12 16:12	30-May-12 15:27	Google Shopping	Click / lactated ringer's	0	0.33	0.4	0.884

Path 2: Bing PPC Non-brand and Brand

In this instance, Kenshoo SmartPath applies the majority of the credit to the non-brand PPC click that began the path. The PPC brand (navigational) clicks receive far less credit despite the fact that there are more of them. If a last-click, distribute-evenly or U-shaped model were to be used in this case, the value of the non-navigational click would be underestimated, leading to a flawed reinvestment strategy causing paths of this kind to dry up.

Conversion Time	Interaction Time	Channel	Details	Last-only Weight	Distribute Evenly	U-shaped Weight	Dynamic Attribution Weight
30-May-12 15:53	30-May-12 15:27	Bing PPC	Click / Drs Foster and Smith	1	0.25	0.4	0.039
30-May-12 15:53	30-May-12 15:27	Bing PPC	Click / Drs Foster and Smith	0	0.25	0.1	0.039
30-May-12 15:53	30-May-12 15:24	Bing PPC	Click / drfoster	0	0.25	0.1	0.039
30-May-12 15:53	29-May-12 16:13	Bing PPC	Click / animal supplies catalog	0	0.25	0.4	0.884

Path 3: Yahoo! PPC Brand and Non-brand with Previous Conversion

In this example, Kenshoo SmartPath allocates the majority of the credit to the previous conversion and the non-brand click that caused it. Between the two clicks that occurred after the previous conversion, the non-navigational clicks receive more credit. But the majority of the credit goes to the click that drove the previous conversion.

Conversion Time	Interaction Time	Channel	Details	Last-only Weight	Distribute Evenly	U-shaped Weight	Dynamic Attribution Weight
30-May-12 15:41	30-May-12 15:30	Yahoo! PPC	Click / smith and foster pet supplies	1	0.33	0.4	0.025
30-May-12 15:41	30-May-12 14:53	Yahoo! PPC	Click / novox	0	0.33	0.2	0.191
30-May-12 15:41	30-May-12 14:27	Prev. Conv.	Conversion	n/a	n/a	n/a	{0.785}
30-May-12 15:41	30-May-12 14:04	Yahoo! PPC	Click / pet medications	0	1	0.4	0.785

Path 4: CSEs and Google PPC

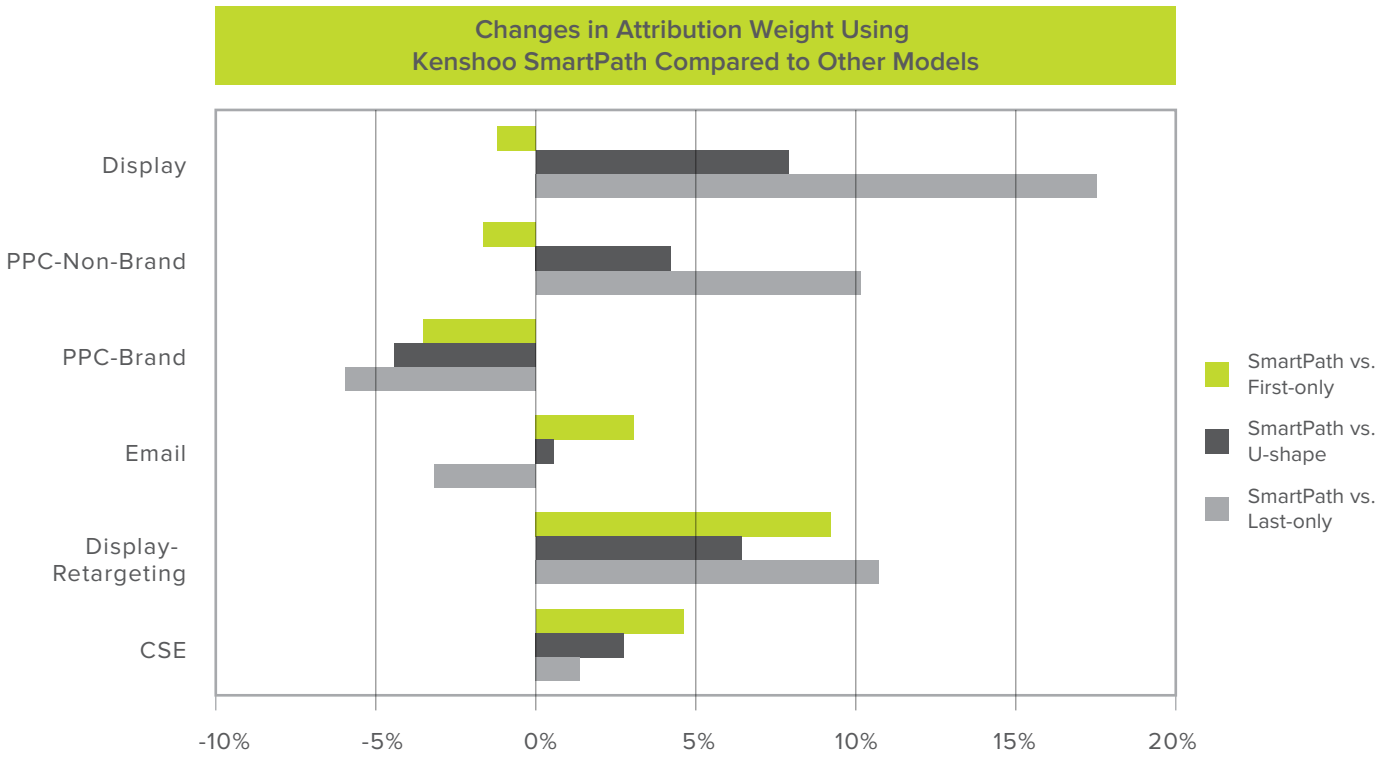
Here, Kenshoo SmartPath gives the two shopping comparison engines in the path roughly equal credit overall, even though one of them had 2 clicks. The algorithm determined from historical data that comparison shopping engine clicks in both the first and last position serve the same function when convincing a consumer to convert. Thus, the equal weighting for the PriceGrabber clicks.

Conversion Time	Interaction Time	Channel	Details	Last-only Weight	Distribute Evenly	U-shaped Weight	Dynamic Attribution Weight
30-May-12 13:01	30-May-12 11:33	PriceGrabber	Click	1	0.25	0.4	0.235
30-May-12 13:01	30-May-12 11:05	Google PPC	Click / drsfosterandsmith coupon	0	0.25	0.1	0.061
30-May-12 13:01	30-May-12 07:38	Shopzilla	Click	0	0.25	0.1	0.469
30-May-12 13:01	29-May-12 10:45	PriceGrabber	Click	0	0.25	0.4	0.235

Channel Comparison

This chart shows the difference in revenue allocation by channel for Kenshoo SmartPath vs. traditional models.

Compared to the last-click model, display benefited most from the move to Kenshoo SmartPath receiving an additional 17% in revenue. Additionally, PPC non-brand and retargeting benefit from an increase of slightly more than 10% each. Meanwhile, PPC brand loses about 6% in revenue after moving to Kenshoo SmartPath and e-mail loses roughly 3%.



Source: © Kenshoo, Inc. 2013

Impact on Reinvestment

The increased revenue for display and PPC non-brand had a direct impact on DFS' reinvestment strategy as Kenshoo SmartPath indicated that ROI from those channels was significantly higher than previously thought. For instance, with PPC non-brand revenue increasing 10%, DFS could increase cost-per-click by 10% through bid optimization and maintain the same overall ROI.

Kenshoo SmartPath Case Study: WhiteFence

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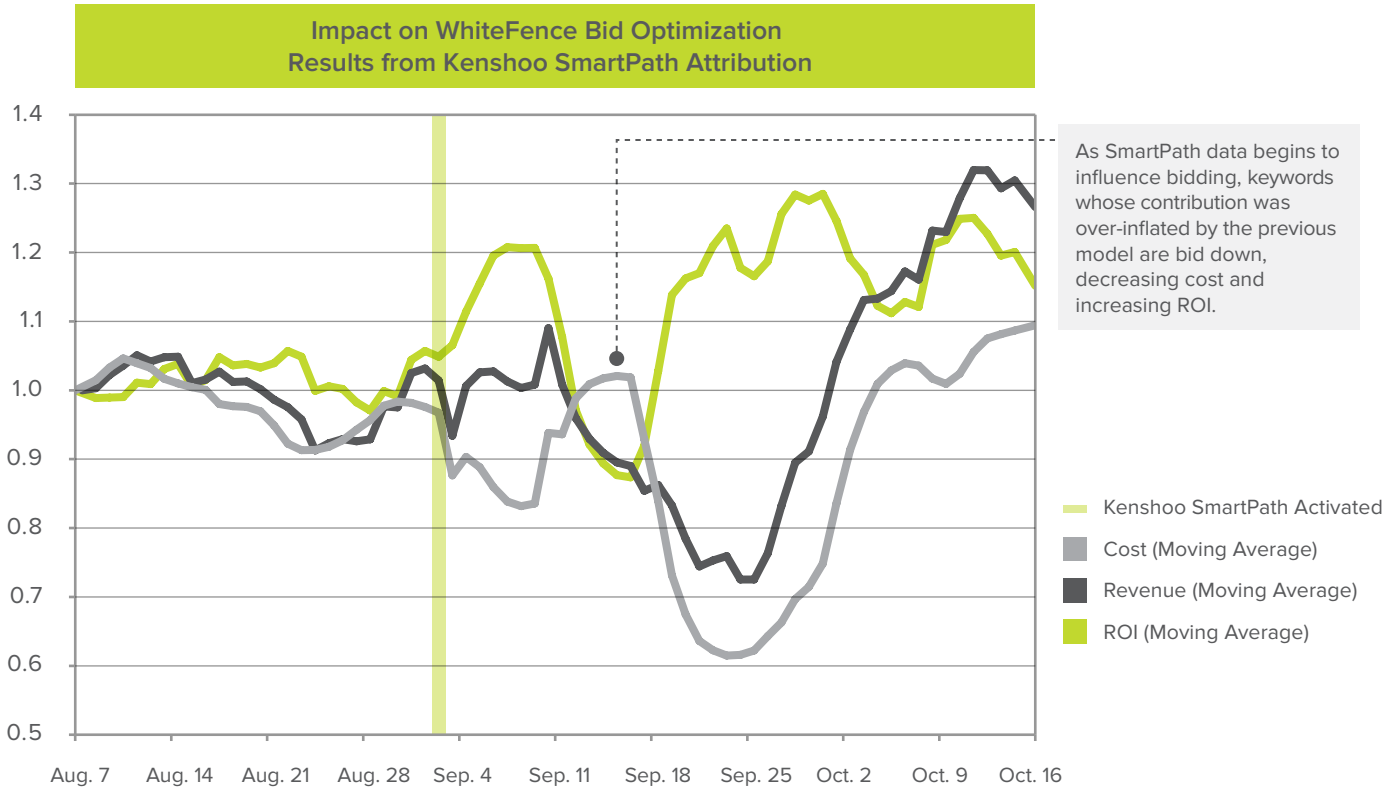
WhiteFence is the leading price comparison site in the United States for utilities and home services. Operating in a complex marketplace, WhiteFence must compete on paid search keywords used by direct competitors as well as utility suppliers so it's always looking for an edge when it comes to bid optimization. Further complicating matters that WhiteFence covers more than a dozen verticals with very different consumer behaviors. Different consumer behavior means vastly different conversion paths, and values of the interactions along the way for each path, making a single model difficult to employ. For example, people searching for phone and Internet service may have a longer conversion cycle and click on more ads during the process than those looking for a better rate on home electricity.

Rather than manually manage each vertical separately, WhiteFence adopted Kenshoo SmartPath to intelligently reallocate value to keywords per each unique conversion path. Kenshoo SmartPath automatically recognized behaviors unique to the different types of consumers and began to more accurately assign interaction values. While implementing Kenshoo SmartPath, WhiteFence leveraged the Kenshoo Portfolio Optimizer to automatically adjust bids at the keyword level.

As depicted in the graph below, Kenshoo SmartPath shifted conversion values to the keywords that truly brought the most value. As a result, Kenshoo Portfolio Optimizer adjusted bids on those more profitable keywords to deliver an overall revenue increase of 28% while increasing spend just 9%, for an ROI lift of 17%.



Source: © Kenshoo, Inc. 2013

Note: Volume metrics have been normalized based on the initial volume from the first day of data. Data points from subsequent days are based on a multiplier from the first day. For example, a revenue value of 1.28 means that volume is 28% greater than volume on initial day measured.

Summary

In a relatively short period of time, attribution methodology has evolved from identifying a single click that receives credit for conversions to tracking complex customer interactions through time. However, no single off-the-shelf attribution model works for every marketer, in every scenario. Each path to conversion is distinctive and original, built from various touchpoints throughout the funnel and, as such, a proper attribution model must be adaptive and account for these activities and assign value accordingly.

Kenshoo SmartPath is the first form of attribution that applies sophisticated mathematical modeling combined with machine-learning and algorithmic decisioning to drive optimized digital media bidding. By creating a unique value allocation for each interaction in any given conversion path, Kenshoo SmartPath provides an understanding of the true contribution of all interactions and delivers unprecedented accuracy in value-based digital media optimization.

To measure the contribution of each interaction to a customer conversion, Kenshoo SmartPath considers several different factors, including:

- Role in Conversion Funnel
- Causality and Synergy
- Engagement Necessity
- Value of Loyalty

As marketplace trends like social, mobile, and local push the boundaries of how brands and consumers engage, Kenshoo Smart-Path is well-positioned to track all points of interaction and determine optimal allocation of attribution weight. This puts the power back in the hands of marketers to make informed decisions around budget investment across channels.

The conversion attribution revolution is upon us. Visit Kenshoo.com/SmartPath to learn more.

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