Appropriate Attribution

Addressing the Dramatic Inaccuracies
Associated with Last-Based Campaign Attribution
in Digital Analytics

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Executive Summary

One of the best-kept secrets in online marketing is that most campaign attribution data is completely wrong and the models used to evaluate campaign performance are wholly inappropriate. The relative nascence of digital marketing practices, combined with conflicting measurement systems and poorly understood interaction between online marketing channels, likely means that hundreds of millions of dollars are wasted annually on marketing efforts that don't produce their intended results.

Companies are increasingly responding to this observation by re-examining their marketing measurement systems. Even the most cursory analysis yields a great deal of information about the "campaign attribution problem." Popularized recently by Microsoft with their "Engagement Mapping" efforts as well as analysis published by Forrester Research and others, it is clear that the most widely used online campaign attribution model is inherently flawed.

To correct these flaws and begin to improve both the accuracy of measurement and the general understanding of how marketing really works online, Web Analytics Demystified recommends a new approach to campaign analysis. Dubbed "Appropriate Attribution", the approach leverages widely available but infrequently used data to triangulate towards the true value of online marketing efforts.

Given that the majority of online advertisers have direct response goals, and that most marketers are still generally unsatisfied with the campaign measurement tools at their disposal, Web Analytics Demystified believes that Appropriate Attribution is the first step towards improving companies' collective understanding of their digital marketing efforts.

Eventually marketers will have access to robust warehouses of data detailing consumer interaction with online media and advertising, but the adage "you must walk before you can run" is as true in digital marketing as it is in life. Before business owners and marketers become fully equipped to benefit from complex marketing mix analyses of online and offline channels, they are well advised to address the campaign attribution problem to increase the return on their valuable dollars spent for online marketing efforts.

The Online Marketer's Dilemma: Inappropriate Attribution

With the Kelsey Group[1] estimating that online advertising will account for 21 percent of total global ad spending by 2012 — a projected $147 billion worldwide including $62 billion in the U.S. alone — it is no wonder that diverse organizations are starting to take a real interest in how marketing works online. While these numbers represent only a small fraction of total U.S. advertising expenditures, perhaps because the Internet is often considered to be "infinitely measurable," management seems to have a heightened expectation regarding tracking and analysis for digital campaigns.

In the measurement industry, managements' interest is both good news and bad news: the good news is that management cares, and when something can be shown to be effective there is often more money to invest; the bad news is that most online marketers have very poor visibility as to how their online campaigns actually create benefit for the organization.

The reason for this poor visibility? Inappropriate attribution models.

Inappropriate Attribution

Inappropriate attribution models frequently lead to incorrect conclusions about the efficacy of campaigns resulting in sub-optimal investment strategies. What's worse is that many companies involved in digital marketing today aren't even aware that they have a problem. Limitations inherent in many of the most popular campaign tracking applications and a complete lack of standards leads countless companies to over-invest in near-term conversion drivers.

This focus on "same session" and "last touch" conversion drivers results in millions of dollars of un-tapped opportunities associated with acquisition-related marketing efforts. Consider the hypothetical series of events associated with a typical multi-touch online campaign (shown in Figure 1) where the conversion event is associated with the fourth visit.

[1] http://www.kelseygroup.com/press/pr080225.asp

Visit 1 Click on Banner Ad	Visit 2 Click on Organic Search Result	Visit 3 Click on Paid Search Result	Visit 4 Direct Visit
0 Conversions	0 Conversions	0 Conversions	1 Conversion

Figure 1: Hypothetical campaign responses associated with a single visitor showing traffic drivers and conversion events.

While analytics would effectively track the response to all four types of traffic drivers in Figure 1 (click from banner ad, click from organic search, click from paid search, direct visit), by using a "same session" attribution model, conversion would be associated only with the direct visit to the web site. Using the "last touch" attribution model, the conversion would likely be associated with the most recent campaign, in this case the paid search click occurring in the third visit. Unfortunately both of these associations are misleading: based on the data presented in Figure 1, the conversion would not have happened if not for the three previous visits driven by a banner ad plus both organic and paid search efforts.

Depending on the type of campaigns you're running, the type of products or services you sell, and the price point you're selling at, the challenges associated with inappropriate attribution can become critical. Long sales cycles, reporting from multiple applications, internal data silos, and a built-up general distrust in the data all aggravate the problem. The result, at least in companies that have taken the time to look, is a widespread realization that appropriate attribution in online channels is much more difficult than most tracking applications make it appear.

Evidence of a Problem

Despite the fact that most companies running default implementations of tracking software are using last-based attribution, perhaps without realizing it, awareness of the need for better attribution models is growing:

- According to Matt Bailey of Hanover Direct, the catalog and ecommerce retailer behind The Company Store, Company Kids, and other well-known brands, roughly 60% of sales attributed to "last touch" had at least one other campaign response prior to the conversion;[2]

- eMarketer reported in December 2008 on the multi-touch effect, citing data from Microsoft and Atlas Solutions showing that search engine users who had been exposed to display advertising were 22% more likely to make a purchase than those not exposed to display ads;[3]

- Coremetrics (the sponsor of this white paper) has reported that their study of a leading online retailer found that less than half of buyers (48%) had responded to only one campaign and that all buyers had interacted with 3.9 campaigns on average. More importantly, the number of touches went up to 7.4 for high-value customers;[4]

- At a presentation given at The Wharton School in December 2008, comScore reported that display advertising's ability to generate clicks has fallen to an all-time low, that these same ads have a profound impact on visitation rates (46% lift over a four-week period), the likelihood to search for the advertiser's branded terms (lift of at least 38% over a four-week period), and the consumers' likelihood to buy the advertised brand online (average 27% lift) or offline (average 17% lift).[5]

Each of these empirical observations points to the fact that online advertising is dramatically more complicated than it looks on the surface. Andy Fisher, VP Analytics and National Lead at Razorfish who along with the research teams at The Atlas Institute and Microsoft has

[2] Author, personal communication
[3] http://www.emarketer.com/Articles/Print.aspx?id=1006794
[4] http://www.coremetrics.com/resources/white_papers.php
[5] How Online Marketing Works: Whither the Glick?, Gian M. Fulgoni and Marie Pauline Morn, comScore, prepared for Empirical Generalizations in Advertising Conference for Industry and Academia, December 4-5, 2008, The Wharton School

studied the problem of multi-touch campaign attribution in great depth, says "Digital behaves differently compared to other media. In the offline world different media strategies are essentially independent variables, the same is not true online. Our research clearly shows that both the consumption and impact of digital media is interrelated with other media. For example, the relationship between display and search changes depending on products, brands, time of day, season, company, geography, etc."

"Digital media behaves differently" is perhaps the understatement of the year given the fact that every company interviewed for this paper reported that even the most cursory examination of the last-touch attribution model yielded the same insight: last-touch and same-session attribution models alone fail to capture the breadth of information needed to accurately plan digital marketing initiatives. Especially in high-consideration situations— for example when a consumer is trying to choose between expensive products, complex financial services offerings, or more involved offerings like a family vacation or a child's choice for college—the multi-touch effect comes heavily into play, thereby increasing the need for more appropriate attribution models.

The Web Analytics Demystified Solution: Appropriate Attribution

Given the scope and magnitude of the problem, the unfortunate reality is that most companies are going to remain saddled with inappropriate attribution models for the foreseeable future. The barriers to developing a solution arise from technology, resource allocation, and process challenges. And while the easiest solution regarding attribution is to simply "do nothing" and accept the inherent flaws in the last-touch model, Web Analytics Demystified believes that true analytical competitors are loath to evaluate the information presented in this document and simply walk away.

As an alternative, Web Analytics Demystified proposes the "Appropriate Attribution" model for multi-touch campaign analysis. Appropriate Attribution is the middle ground between the status quo and a multi-million dollar investment in consulting resources and massive data warehouses. This new model is designed to help companies that have deployed a relatively wide set of technologies and are willing to allocate a reason-

able amount of resources to better determine where individual campaigns are best leveraged in the customer acquisition, persuasion, and conversion process.

Because campaign analysis in its current (and inappropriate) form is so widespread today, it is worthwhile to first explore the barriers to Appropriate Attribution.

Ignorance is Not Bliss: Barriers to Appropriate Attribution

According to Forrester Research, 52 percent of web site decision makers surveyed in 2008 agree that multi-campaign attribution would allow them to spend their digital marketing budget more effectively.[6] Yet only 31 percent of these same decision makers are actively using attribution today, despite the 86 percent of web analytics users who state that this capability would be beneficial. Given this gap between recognized benefit and current use, it is perhaps worthwhile to describe some of the current barriers to Appropriate Attribution.

Incomplete Attribution Options

The single most prevalent barrier to Appropriate Attribution today is technology. Hopefully it is obvious that to develop a robust view of attribution a robust underlying data structure is needed, one able to record and retain campaign touch events in their most granular form. Unfortunately not all web analytics solutions provide this level of granularity, at least not in their most widely deployed base offerings, thereby forcing users to typically choose between "last-touch" or "first-touch" strategies exclusively.

While having a choice is certainly better than no choice at all, Web Analytics Demystified believes that the path to Appropriate Attribution requires the ability to examine campaign activity using a three-touch view. Essentially, unless you have access to the complete history of visitor interaction and can efficiently mine that history, the minimum view of campaign activity should include "first-touch," "last-touch," and some equal measure of attribution across all responses (often called "even distribution" or "average distribution").

Based on information available to Web Analytics Demystified, Table 1 provides a summary of how the market leading web analytics solutions allow customers to visualize the three-touch view in their base offering.

Solution	First-Touch	Last-Touch	Equal Attribution
Coremetrics	Default	Default	Default
Google Analytics	Optional [2]	Default	N/A
Nedstat	N/A	Default	N/A
Omniture	Optional [1]	Default	Optional [1]
Web Trends	Optional [1]	Default	Optional [1]
Yahoo Web Analytics	Optional [1]	Default	N/A

Table 1: Summary of support for first-touch, last-touch, and equal attribution models in the base offerings from market-leading web analytics vendors. In this table "Default" indicates a default setting, available out of the box without changes to data collection or exclusion of other models; "Optional(1)" indicates that the option is available at no additional charge in the base offering but can only be viewed exclusively, e.g., not side-by-side with other models; "Optional(2)" indicates the customer needs to choose the option exclusively at the point of data collection; "N/A" indicates not available in the base offering.

Keep in mind that the summary of options outlined in Table 1 only explores the availability of attribution models in these popular applications. Other considerations not explored include the ability to develop custom attribution models, the ability to conduct both forward- and backward-looking analysis, and the ability to customize attribution windows (e.g., "seven-day backward looking first-touch" and "30-day forward looking last-touch" models.)

Intractable Data in Disparate Silos

Compounding issues of accuracy associated with the deployment of inappropriate technology is the presence of multiple, incongruous systems, each attempting to "take credit" for conversion events. Consider the campaign response path described in Figure 2:

In this case there are four different systems participating in the marketing funnel—a system to serve banner ads, a system sending email, an affiliate network, and a paid search platform. Regardless of how last-touch, first-touch, or even-distribution models would allocate attribution to the conversion in the fourth visit, each of the marketing systems will almost certainly take credit for the conversion.

Visit 1 Click on Banner Ad	Visit 2 Click on Link in Email	Visit 3 Click on Affiliate Network Ad	Visit 4 Click on Paid Search Result
0 Conversions	0 Conversions	0 Conversions	1 Conversion

Figure 2: Hypothetical campaign responses associated with a single visitor showing interaction with multiple marketing systems.

Advanced Attribution: Multiple Conversion Events

Sophisticated marketers are well aware that a long-term relationship in the online channel almost always includes multiple conversion events. Subscription sign-ups, document downloads, and the interaction with specific pages are often considered during the analysis process as "alternative conversion events," each having unique value.

While somewhat outside of the scope of Appropriate Attribution, these alternative conversion events should be considered in your analysis. Doing so provides additional granularity as you explore the relationship between different digital marketing efforts.

Because these systems are typically disparate and provided by different vendors, based on different cookies, and subject to different attribution rules, any attempt to reconcile campaign attribution across these multiple silos usually results in a excessive over-counting. Coremetrics, this paper's sponsor, examined consumer interactions across multiple marketing channels for HSN and detailed the likelihood that each of these technologies would over-count using inappropriate attribution models (Figure 3).[7]
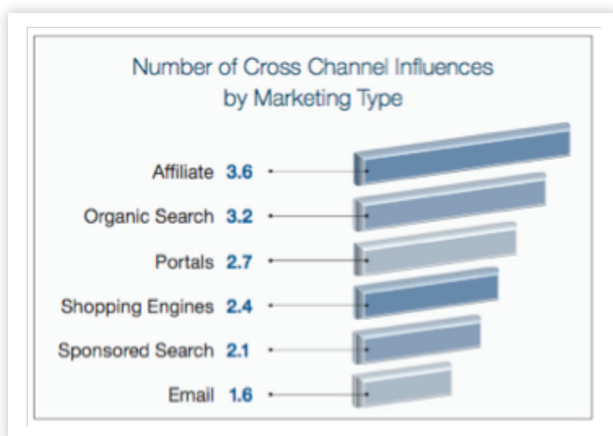

Figure 3: Data from Coremetrics "Measuring Online Marketing Effectiveness" showing cross-channel influence by marketing type.

The data in Figure 3 suggests that, if the Home Shopping Network had relied on inappropriate attribution modeling, their Affiliate networks would have taken credit for the same conversion as 3.6 other marketing channels on average. These data further highlight that more focused direct response vehicles such as paid search and email are not impervious to this effect.

Inappropriately Small Sample Sizes

One barrier that is often forgotten but is extremely important considering the relatively small number of transactions currently completed entirely online is sample size. Because one's ability to accurately determine the relationship between campaigns is a function of the amount of available data, some companies attempting to apply Appropriate Attribution will fail due to inappropriately small sample sizes.

In cases where sample size is an issue, Web Analytics Demystified recommends that Appropriate Attribution still be used but more as a "gut-check" than an absolute guide. In other words, you may not be able to calculate with the same level of precision as comScore, Microsoft, or Razorfish, but that should not prevent you from using the three-touch view to determine where a particular campaign or channel fits into your customer acquisition efforts.

Incomprehensibly Arbitrary Attribution Models

Within the larger conversation about campaign attribution there is a general trend towards developing attribution models. Unfortunately, today the development of any type of precise and universally applicable model is unlikely at best and more probably impossible. Josh Dreller, the Director of Media Technology and Analytics at Fuor Digital summarizes modeling efforts by cautioning "Keep in mind that there is no way to know if your model will always be correct" and "At times, you may be spot-on and at other times, you may be completely wrong."[8] Andy Fisher and the Razorfish team have been working on models using a combination of econometrics, panel-based media mix models, and regression analysis but Fisher himself readily admits, "Coming up with a good weighting system is hard!"

[7] http://www.coremetrics.com/resources/white_papers.php
[8] Search Marketing Standard, Winter 08/09, available from http://www.searchmarketing.com

It is likely that there is a "third generation" of digital measurement tools coming that will apply statistical models, marketing mix analysis, or other regression-based algorithms to the challenge of determining exactly which campaigns played a factor in driving outcomes in a multi-campaign model. However, based on the interviews conducted for this paper, the difficulty associated with manipulating campaign response data into an easily analyzed format, and the aforementioned concerns regarding sample size, at least for the time being, Web Analytics Demystified strongly recommends that companies avoid attribution modeling exercises in favor of leveraging the Appropriate Attribution approach described later in this document.

Inappropriate Staffing for Analytics in General

The sad reality is that even if a company has a substantial data set, a robust data gathering environment, and access to powerful statistical modeling tools, most organizations have not dedicated the resources necessary to support Appropriate Attribution, much less complicated attribution modeling. According to Forrester Research the number one challenge cited by web site decision makers is finding the necessary staff to perform attribution analysis.[9]

The lack of dedicated resources is not limited to campaign analysis efforts: unfortunately this problem is endemic in industry today and affects the use of web analytics tools universally. While the "good news" is that an increasing number of companies realize the necessity to dedicate qualified resources to digital analytics efforts, Web Analytics Demystified predicts that we are still three to five years away from the time a majority of companies doing business online will have the necessary staff to appreciate the full return on their investment in measurement and optimization.

Investment in the Status Quo

The most unfortunate finding from the research for this paper was that even in situations where appropriate technology is deployed and experienced resources are actively analyzing the data and making recommendations, more often than not politics still trumps data-driven insights. Because internal groups have long been compensated based on individual performance —usually pitting brand versus non-brand and forcing marketing channels to compete directly for budget—

the organization is loath to change marketing allocation for fear it will negatively affect individual compensation.

While Web Analytics Demystified certainly understands the challenges associated with "teaching an old dog new tricks," companies need to recognize that inappropriate attribution is conservatively leading to hundreds of millions of misspent dollars online. The companies that master Appropriate Attribution using the guidance provided in this document can create a competitive advantage in the marketplace, freeing up previously wasted marketing dollars to invest in strategies designed to drive revenue to the bottom line.

The Appropriate Attribution Solution: Getting Started

The reality of marketing in the digital world is that not all campaigns are created equal. Each of the many campaigns and channels available to today's online marketers have different core characteristics depending on a multitude of variables. The challenge to marketers is to classify campaigns and campaign channels and then use these data to optimize marketing revenue based on changing business goals.

Step 1: Generating the Three-Touch View

To achieve Appropriate Attribution, Web Analytics Demystified recommends leveraging what we call the "Three-Touch View"—the simplest view of campaign behavior available to digital marketers today short of the status quo. This view leverages the ability of many market leading web analytics applications to report on both "first-touch", "last-touch" and "even allocation" (also called "shared allocation".) All that is required is to generate a view of campaign activity, using whatever look-back window deemed most appropriate by your organization, showing the three allocation models side-by-side.

For example, Figure 4 shows campaign revenue by last-touch, first-touch, and even allocation for a handful of marketing channels. The application shown is particularly useful for Appropriate Attribution given the ability to present multiple allocation models side-by-side. With a little effort, the same result can be accomplished using a spreadsheet.

[9] A Framework for Multicampaign Attribution Measurement, Forrester Research, Inc., February 19, 2009
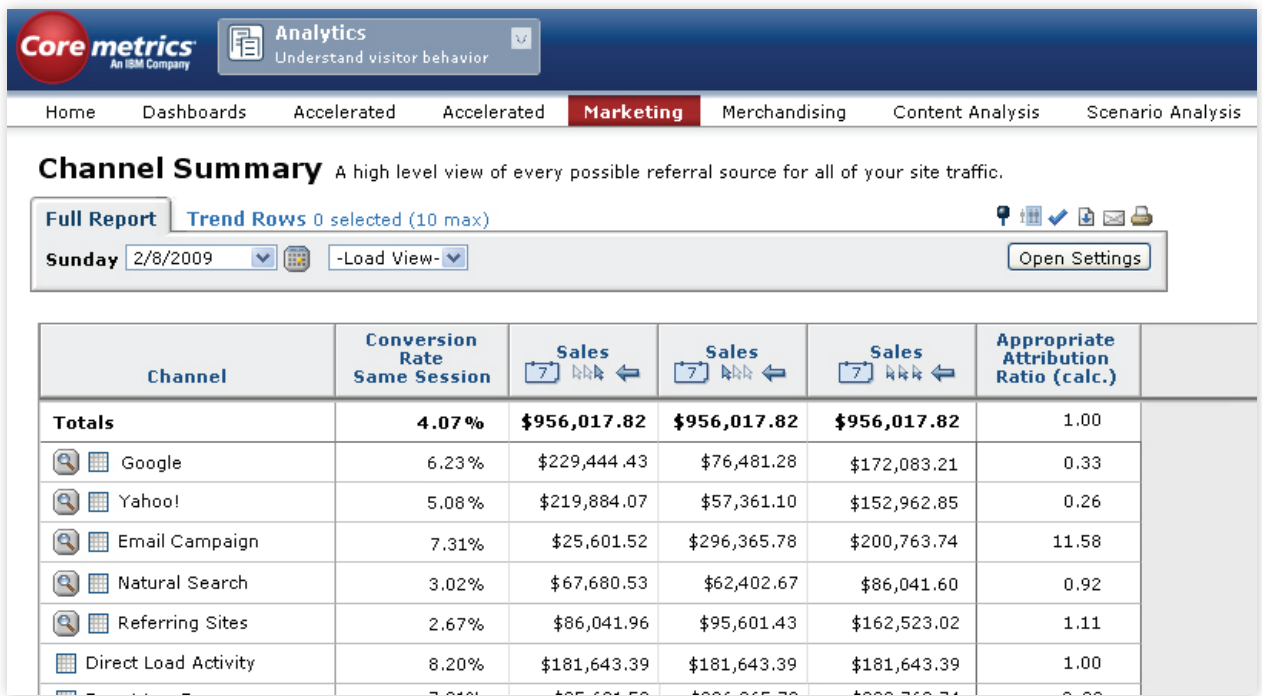
Figure 4: Revenue attribution by marketing channel report from Coremetrics, showing last-touch, first-touch, and equal attribution across a seven-day window.

The first thing to notice about Figure 4 is that different amounts of revenue are associated with each campaign channel depending on which allocation model is used. The insight here is that, depending on which allocation model is chosen, return on investment (ROI) and return on ad spend (ROAS) may change dramatically, leading to different (and potentially flawed) decisions about how to best optimize your marketing efforts.

Step 2: Classify Each Campaign: Acquisition, Persuasion, and Conversion

Once you've created the three-touch view of your digital marketing campaigns, the next step is to classify each of them. Web Analytics Demystified believes that all marketing efforts (digital or not) are fundamentally designed to help companies acquire potential customers, persuade them about the value of their products or services, and ultimately convert them into customers.

- Acquisition Campaigns are those campaigns that are most likely to bring new potential customers to your site but less likely to drive conversions, especially in high-consideration situations;

- Persuasion Campaigns are those campaigns that clearly have some impact on the conversion process but are neither the most likely source of prospect acquisition or customer conversion;

- Conversion Campaigns are those campaigns that are driving visitors directly into the conversion funnel.

Because Web Analytics Demystified has designed Appropriate Attribution to be relatively easy to apply, we propose that you can take your three-touch view of marketing channels, campaigns, or individual campaign elements and make one simple calculation to best classify each. Assuming that you are able to generate a three-touch view of your campaigns based on revenue, the calculation would simply be:

Appropriate Attribution Ratio =
Revenue from First-Touch / Revenue from Last-Touch

The mathematics are extraordinarily simple. And while there is a slightly more complicated equation that includes even allocation, most companies will benefit from using this simple model. The result will look similar to the data shown in the right-most column in Figure 4 (from Coremetrics) or Figure 5 (in Excel.)

Placement	Sales - 30 Days Backward Looking First Click	Sales - 30 Days Backward Looking Average	Sales - 30 Days Backward Looking Last Click	Appropriate Attribution Ratio
Trademark	£481,795.88	£502,296.31	£525,988.36	0.92
FashionBrands	£119,482.97	£108,827.73	£98,197.89	1.22
Fashion Brands	£44,307.87	£42,141.84	£39,124.59	1.13
Bags	£35,052.77	£31,784.85	£29,365.91	1.19
Beauty	£18,148.24	£16,655.34	£15,099.12	1.20
FashionGeneric	£7,370.07	£5,756.43	£4,578.08	1.61
Clearance	£7,802.92	£7,459.59	£6,965.64	1.12
Underwear	£12,675.50	£10,008.88	£8,444.58	1.50
Tactical	£3,389.25	£3,420.89	£2,631.57	1.29
Lingerie	£8,104.20	£7,716.99	£7,318.47	1.11
Fragrance	£2,694.05	£2,786.46	£2,867.58	0.94
BagsGenerics	£2,095.46	£1,627.14	£1,235.28	1.70
FurnitureBrands	£7,415.73	£3,239.87	£1,549.26	4.79
HomewaresGenerics	£1,127.11	£755.99	£463.19	2.43
Electrical	£1,296.23	£851.81	£512.89	2.53

Figure 5: Example of first-touch and last-touch campaign revenue data from Coremetrics with the Appropriate Attribution Ratio calculation applied (right-most column).

The result for each campaign is a single number, ranging between zero (0.00) and some positive value that depends on the campaign data used. Translation of this number to the acquisition/persuasion/conversion classification is also very simple:

- The closer to zero the result, the more likely the campaign is a conversion campaign (Figure 6);

- The more positive the result, the more likely the campaign is an acquisition campaign (Figure 7);

- Campaigns that are not strongly converting or strongly driving acquisition are persuasion campaigns (Figure 8).

Placement	Sales - 30 Days Backward Looking First Click	Sales - 30 Days Backward Looking Average	Sales - 30 Days Backward Looking Last Click	Appropriate Attribution Ratio
Trademark	£481,795.88	£502,296.31	£525,988.36	0.92
FashionBrands	£119,482.97	£108,827.73	£98,197.89	1.22
Fashion Brands	£44,307.87	£42,141.84	£39,124.59	1.13
Bags	£35,052.77	£31,784.85	£29,365.91	1.19
Beauty	£18,148.24	£16,655.34	£15,099.12	1.20
FashionGeneric	£7,370.07	£5,756.43	£4,578.08	1.61
Clearance	£7,802.92	£7,459.59	£6,965.64	1.12
Underwear	£12,675.50	£10,008.88	£8,444.58	1.50
Tactical	£3,389.25	£3,420.89	£2,631.57	1.29
Lingerie	£8,104.20	£7,716.99	£7,318.47	1.11
Fragrance	£2,694.05	£2,786.46	£2,867.58	0.94
BagsGenerics	£2,095.46	£1,627.14	£1,235.28	1.70
FurnitureBrands	£7,415.73	£3,239.87	£1,549.26	4.79
HomewaresGenerics	£1,127.11	£755.99	£463.19	2.43
Electrical	£1,296.23	£851.81	£512.89	2.53

Figure 6: Example data from Coremetrics showing "acquisition" campaigns.

As shown in Figure 6, acquisition campaign attribution is lopsided towards the "last-touch" (last-click) model. Conversely conversion campaigns (Figure 7) are lopsided towards the "first-touch" (first-click) model.

Placement	Sales - 30 Days Backward Looking First Click	Sales - 30 Days Backward Looking Average	Sales - 30 Days Backward Looking Last Click	Appropriate Attribution Ratio	Appropriate Attribution Campaign Type
Playsets	£133.50	£85.50	£28.50	4.68	ACQUISITION
Cars _Trucks_and_Planes	£88.70	£62.90	£50.00	1.77	ACQUISITION
Crockery	£32.01	£27.51	£23.01	1.39	ACQUISITION
Cars	£113.68	£96.83	£79.98	1.42	ACQUISITION
Boats	£28.50	£16.83	£11.00	2.59	ACQUISITION
Flying_Toys	£56.00	£38.50	£21.00	2.67	ACQUISITION
Girls_Collectables	£301.99	£272.16	£248.99	1.21	ACQUISITION
-	£771.24	£671.94	£617.32	1.25	ACQUISITION
Playsets	£284.42	£230.21	£182.00	1.56	ACQUISITION
Role-Play	£129.42	£91.67	£81.42	1.59	ACQUISITION
Puppets	£40.00	£32.00	£24.00	1.67	ACQUISITION
-	£376.48	£344.98	£313.48	1.20	ACQUISITION
lego	£376.48	£344.98	£313.48	1.20	ACQUISITION

Figure 7: Example data from Coremetrics showing "conversion" campaigns.

Persuasion campaigns are an interesting case in the Appropriate Attribution model given that they are really neither primarily driving acquisition nor conversion. To identify "persuasion" campaigns, Web Analytics Demystified recommends use of the 25th and 75th percentiles as cutoff points, thereby conservatively assigning all values between the 25th and 75th percentile to the "persuasion" campaign category.

While the calculation of these cutoff ranges is easy in Microsoft Excel, Web Analytics Demystified recommends spot-checking the results against the three-touch view to ensure, for example, that "even" attribution values are close to the first- and last-touch values for persuasion campaigns (Figure 8.)

Placement	Sales - 30 Days Backward Looking First Click	Sales - 30 Days Backward Looking Average	Sales - 30 Days Backward Looking Last Click	Appropriate Attribution Ratio	Appropriate Attribution Campaign Type
Playsets	£133.50	£85.50	£28.50	4.68	ACQUISITION
Cars _Trucks_and_Planes	£88.70	£62.90	£50.00	1.77	ACQUISITION
Crockery	£32.01	£27.51	£23.01	1.39	ACQUISITION
Cars	£113.68	£96.83	£79.98	1.42	ACQUISITION
Boats	£28.50	£16.83	£11.00	2.59	ACQUISITION
Flying_Toys	£56.00	£38.50	£21.00	2.67	ACQUISITION
Girls_Collectables	£301.99	£272.16	£248.99	1.21	ACQUISITION
-	£771.24	£671.94	£617.32	1.25	ACQUISITION
Playsets	£284.42	£230.21	£182.00	1.56	ACQUISITION
Role-Play	£129.42	£91.67	£81.42	1.59	ACQUISITION
Puppets	£40.00	£32.00	£24.00	1.67	ACQUISITION
-	£376.48	£344.98	£313.48	1.20	ACQUISITION
lego	£376.48	£344.98	£313.48	1.20	ACQUISITION

Figure 8: Example data from Coremetrics showing "persuasion" campaigns. Note the relatively high amount of revenue associated with the "even" (average) attribution model that, in some cases, is greater than either the "first" or "last" attribution models.

Advanced Attribution: Multiple Conversion Events

Sophisticated marketers know that revenue generated is only half of their consideration when evaluating the efficiency of online campaigns and that eventually they need to incorporate costs into the equation. If you have access to cost data by campaign, channel, or placement you can incorporate this into the Appropriate Attribution equation and start grouping your campaigns by net contribution and marginal contribution. For example:

Appropriate Attribution RatioNET = (Revenue from First-Touch – Campaign Marketing Cost) / (Revenue from Last-Touch – Campaign Marketing Cost)

or

Appropriate Attribution RatioMARGIN = (Revenue from First-Touch – Campaign COGS) / (Revenue from Last-Touch – Campaign COGS)

Compared to the base Appropriate Attribution equation, these modifications will yield dramatically different results when campaign cost or costs of goods sold (COGS) are particularly high.

Assuming your web analytics application allows you to generate the three-touch view of your campaigns and export that data to a spreadsheet, the assignment of campaign data at the channel, effort, or individual campaign levels to their appropriate classification becomes trivial. In comparison to the previous figures, Figure 9 shows how Appropriate Attribution can be applied to a high-level view of online marketing channels.

Channel	Revenue - 14 Days First-Click	Revenue - 14 Days Last-Click	Appropriate Attribution Ratio	Appropriate Attribution Campaign Type
Totals	$9,842,732.66	$9,338,452.11	1.05	PERSUASION
Paid Search	$3,057,513.17	$2,913,730.58	1.05	PERSUASION
Email	$2,007,355.30	$1,758,411.33	1.14	CONVERSION
Comparison Shopping Engines	$589,443.11	$570,587.62	1.03	PERSUASION
Affiliates	$437,208.11	$451,482.16	0.97	ACQUISITION
Display Advertising	$81,236.67	$80,657.91	1.01	PERSUASION
Vendors	$200,750.44	$202,793.95	0.99	ACQUISITION
Ad Agency	$1,861.22	$1,328.00	1.40	CONVERSION
Paid Inclusion	$7,441.04	$6,835.91	1.09	PERSUASION
Gift registry emails	$7,992.87	$6,657.35	1.20	CONVERSION
Corporate support links	$3,754.85	$4,433.87	0.85	ACQUISITION
Natural Search Activity	$2,802,821.57	$2,732,618.12	1.03	PERSUASION
Referring Sites Activity	$624,498.07	$588,866.44	1.06	PERSUASION
		75% PERCENTILE	1.09	CONVERSION
		25th PERCENTILE	1.01	ACQUISITION

Figure 9: Example data from Coremetrics showing Appropriate Attribution Ratios and Appropriate Attribution Campaign Types for a variety of marketing channels. The small amount of variation observed at this level is to be expected, especially when channel efforts are composed of a high number of individual campaigns.

Step 3: Re-Allocate Marketing Dollars Based on New Classifications

Once you've classified your campaigns as better suited for acquisition, persuasion, and conversion, the next step is to reallocate marketing spend based on what you've learned. Unfortunately, this is where Appropriate Allocation often becomes political. By being diligent and presenting a data-centric view of the changes you propose, vested interests will hopefully be willing to listen to alternatives and explore their potential.

For example, say that your Appropriate Allocation analysis highlights that generic search terms are your strongest acquisition drivers. Generic pay-per-click terms, depending on your industry, have a tendency to be costly and thus these terms may be passed over for less costly branded terms. Based on your analysis, you may choose to increase your spending on generic terms, paying special attention to the amount of revenue driven based on the first-touch view.

Alternatively, last-touch analysis may indicate that affiliate marketing efforts are poor contributors to online sales, perhaps even unprofitable. Using Appropriate Attribution you may realize that affiliates are primarily acquisition and persuasion drivers and, when viewed in the context of first-touch or even allocation models, far more profitable than previously realized. Given that in a down economy marketers are constantly seeking to minimize costs, this realization could prevent the company from making a costly mistake by eliminating affiliate marketing efforts.

Similarly, marketers are constantly asked to balance investment in near-term conversion activities with longer-term engagement drivers. Without clear visibility into the true nature of each of your marketing campaigns and their contribution to the long-term acquisition pipeline, you may find yourself focusing too heavily on conversion drivers at the expense of acquisition and persuasion. The worst-case scenario in this situation is the eventual decline in conversion, despite continued investment in conversion drivers, because the top of the funnel has dried up.

Or, perhaps a business partner is aggressively trying to renegotiate terms based on their assessment that they are sending a significant number of opportunities. Based on your Appropriate Attribution analysis, however, you may realize that their site acts primarily as a persuasion driver and is less likely to contribute directly to new customer acquisition or conversion. Using this information you could pushback on the partner, hedging your bets that new persuasion drivers can be found if necessary.

Finally, if you have long sales cycles, last-touch allocation may simply be hiding the most significant drivers of your online sales. Appropriate Attribution and the use of first-touch and even allocation may highlight that an entirely different set of campaigns or keywords is ultimately responsible for driving online sales. In some cases this most basic use of Appropriate Attribution is completely changing the way companies think about their marketing efforts, usually with very significant positive effects. According to Matt Bailey from Hanover Direct, "First-click attribution gives me visibility into nearly 40 percent more keyword-driven sales than the last-click model alone. As a counterpoint to Lord Leverhume's famous observation, this kind of insight goes a long way towards explaining which 50 percent is working for me, and that is allowing us to continue to profit by our online marketing efforts in an increasingly difficult economy."

The Future of Campaign Attribution

While Appropriate Attribution is designed to be simple, more sophisticated companies may want to expand the underlying data set to mine for additional opportunities. For the most part, online marketers today are relying on a limited set of campaign data while primarily focusing on marketing efforts that have led directly to a site visit. While this use is certainly appropriate given the limitations imposed by most measurement systems, the comScore and eMarketer data presented earlier in this paper clarify that indirect interaction plays a vital role in driving conversion as well.

Indirect interactions with companies, products, and brands occur in a variety of channels, including:

- Banner/display advertising impressions
- Video-based advertising, syndicated across the Internet via YouTube, etc.
- Widgets and other applications embedded in social networks and sites
- Micro-sites leveraging other tracking solutions
- Mobile platforms via SMS messages and phone-specific applications

Some leading marketers are developing systems that allow for integration of these multiple sources of data. Josh Dreller in his Search Marketing Standard article "Tracking Sales Triggers with Conversion Attribution" does an excellent job outlining how this combination of on-site, off-site, direct response, and view-related ("view thru") data works. An example of how a mixed data set might look is shown in Figure 10.

Unfortunately, at least for the time being, full integration of these multiple types of data is limited to those companies who either have substantial budgets to spend with agency partners like Razorfish, Digitas, and Fuor Digital or internal resources able to develop internal data warehouses that can be subsequently mined using traditional marketing intelligence tools. Perhaps this situation will change in the future and web analytics vendors such as Coremetrics and their worthy competitors will support the true integration of on-site and off-site data in a single repository capable of supporting Appropriate Attribution (Figure 11.)

Event	Date	Media	Interaction	Conversion?
1	12/01/08	Display unit on ESPN.com (728x90)	View	No
2	12/05/08	Display unit on CBS.com (300x250)	View	*Email Sign-Up*
3	12/12/08	Google Search for "NBA team jersey Cavaliers"	Click	No
4	12/14/08	Display unit in direct email ("Cavaliers Team Jerseys")	View	*Viewed Pricing*
5	12/17/08	Google Search for "LeBron James Jersey"	Click	No
6	12/21/08	Direct load of site	Click	**PURCHASE**

Figure 10: Example of mixed on-site, off-site, and direct response data might manifest in a system capable of supporting Appropriate Attribution across multiple advertising and marketing channels.
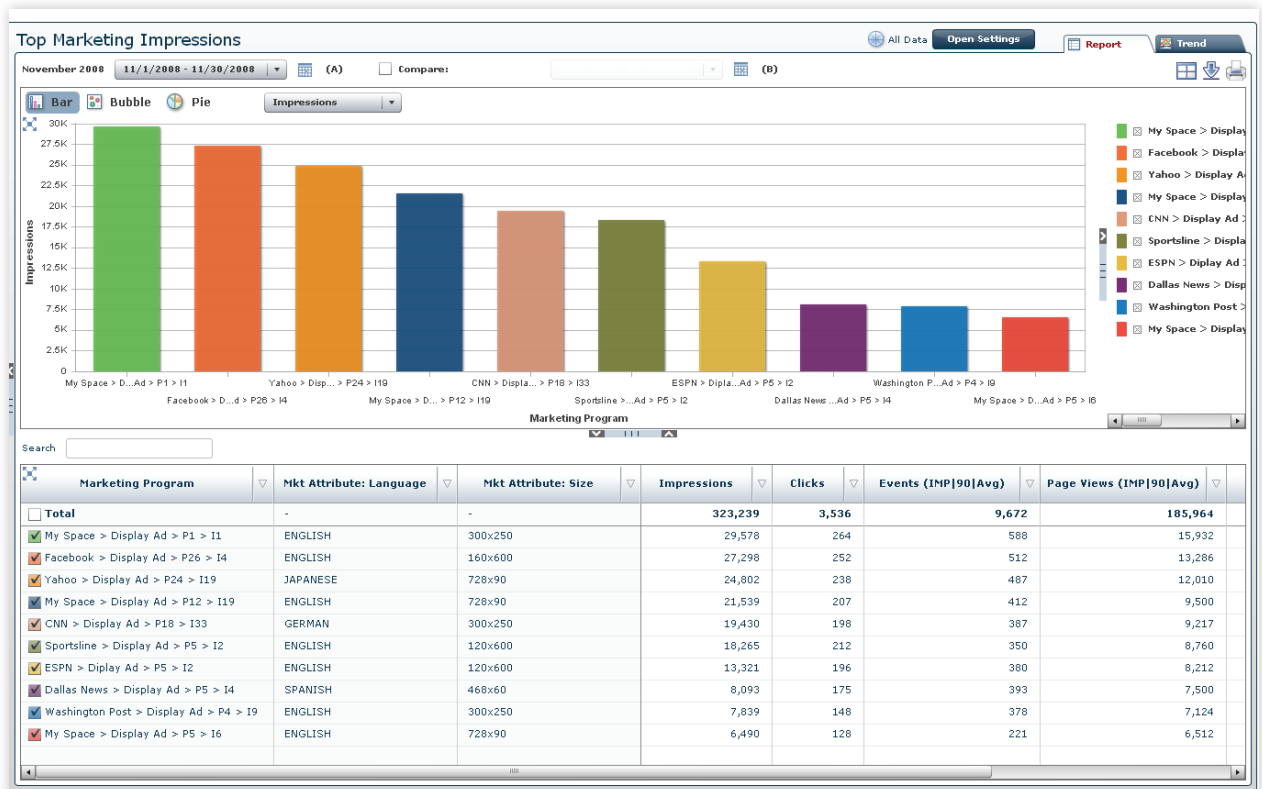
Figure 11: Campaign impression data reported in Coremetrics Explore. The addition of this type of data to the traditional web analytics data set allows marketers to better understand relationships between view-based and click-based advertising.

Given a significantly robust set of data containing information about all digital marketing initiatives and online sales, it is certainly reasonable to assume that sophisticated marketers would begin doing marketing mix modeling for the online channel. This type of econometric modeling would give marketers far greater insight into the nature of interaction between advertising units, channels, and strategies in the online world and likely lead to far more efficient use of resources in the ongoing effort to drive sales via the Internet.

Even without complex econometrics and multivariate regression analysis, the presence of a single repository for all marketing data would likely provide far better insight into dependencies between marketing efforts than is currently available. Imagine having a data set available that could rank participation of individual campaign units contributing to highest revenue or high margin sales online, or being able to create a visualization showing the most common marketing channels prospects progress through while researching and buying high-consideration items.

Until such a system is available and shown to be both accurate and useful, Web Analytics Demystified recommends that companies continue to focus their efforts on Appropriate Attribution. By better leveraging the technology at your disposal and creating the three-touch view of campaign response, you are able to make better decisions regarding marketing allocation. And by optimizing allocation based on evolving business needs you are able to incrementally and systematically improve your marketing return on investment. Ultimately, by improving your marketing ROI, you are more likely to get the organization to pay attention to your ongoing efforts to attribute marketing dollars more appropriately.

About the Author

Eric T. Peterson, CEO and Principal Consultant at Web Analytics Demystified, has worked in web analytics since the late 1990's in a variety of roles including practitioner, consultant, and analyst for several market-leading companies. He is the author of three best-selling books on the subject, Web Analytics Demystified, Web Site Measurement Hacks, and The Big Book of Key Performance Indicators, as well as one of the most popular web analytics bloggers at www.webanalyticsdemystified.com.

Mr. Peterson has committed much of his life to the betterment of the web analytics community, so much so that Jim Sterne, President and co-founder of the Web Analytics Association says "Eric's leadership in the industry is unparalleled, his devotion to the community is legendary, and his years of experience translate immediately into strategic and tactical competitive advantage for everybody who works with him."

About Web Analytics Demystified

Web Analytics Demystified, founded in 2007 by internationally known author and former Jupiter Research Analyst, Eric T. Peterson, provides objective strategic guidance to companies striving to realize the full potential of their investment in web analytics. By bridging the gap between measurement technology and business strategy, Web Analytics Demystified has provided guidance to hundreds of companies around the world, including many of the best known retailers, financial services institutions and media properties on the Internet.

For more information on Eric T. Peterson and Web Analytics Demystified, please visit www.webanalyticsdemystified.com.

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Coremetrics®, an IBM Company, a leading provider of web analytics and marketing optimization solutions, helps businesses relentlessly optimize their marketing programs to make the best offer, every time, anywhere, automatically. More than 2,100 online brands globally use Coremetrics Software as a Service (SaaS) to optimize their online marketing. Coremetrics integrated marketing optimization solutions include real-time personalized recommendations, email targeting, display ad targeting across leading ad networks, and search engine bid management. The company's solutions are delivered on the only online analytics platform designed to anticipate the needs of every customer, automate marketing decisions in real time, and syndicate information across all customer channels.

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