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Understanding Digital Analytics Data Enrichment

Introduction

Your digital data has never been more important. As experiences become increasingly digital, delivered across a myriad of channels, leaders must ensure data is appropriately fueling decisions and personalized interactions at scale. Unfortunately, many organizations are failing to utilize an entire category of data: digital experience metadata. As a result, decision-making lacks the context needed to ensure campaigns and content drive results with optimal efficiency.

Leading brands are pursuing systematic data enrichment to standardize and incorporate metadata across the enterprise, leading to more effective campaigns, better content, and better customer experiences. Data enrichment is the process of expounding on the natively captured data elements in digital analytics tools. Data enrichment allows organizations to supplement the data they are collecting via tagging with additional campaign, customer, or experience details. Furthermore, systematic data enrichment allows teams to avoid manual data transformation and data quality tasks through automation.

This document details the steps these top brands are taking to implement data enrichment at scale. Specifically, this document addresses how data enrichment can standardize and connect campaign, customer, and product metadata into uniform views that result in richer analytics, greater personalization, and improved ROI.

Why Digital Analytics Data Enrichment?

Before we dive into the details of what data enrichment is and how you can implement it, let's take a step back and consider why you should care about data enrichment in the first place. Most organizations have websites or mobile apps that are natively capturing many data points from users and customers. So why are additional metadata elements required to improve ROI? Here are three ways you can use data enrichment to your advantage.

1. Data Aggregation

The first advantage of data enrichment is the powerful ability to aggregate individual data values and learn new insights from these groupings. If you have ever looked at a data table in Microsoft Excel, you can understand how difficult it is to infer meaningful insights from random rows of data. However, if you apply a pivot table to the data, you can group the rows into higher-level buckets, which then help you see the bigger picture. For example, imagine that you have a spreadsheet of data showing sales by city. When you look at 5,000 rows of data, it is impossible to see how cities, states, or regions are performing. However, if you pivot the data by city or state, you can start to see which areas are performing well. The simple act of aggregating data into higher-level buckets leads to meaningful insights that can help point your business in the right direction and tell you where you should invest for the best return.

The same principle is true for digital analytics. Most digital analytics tools are good at capturing massive amounts of data, but finding 'nuggets of gold' in the data is complicated. For example, let's imagine that you have several million external campaign tracking codes. With detailed tracking code data, you can see which individual campaign elements are doing well. Despite this, it's still difficult to see which high-level campaigns or marketing channels as a whole are over or underperforming. Once you apply metadata to each of your campaign tracking codes, you have visibility into elements like which channels are working or even how effective certain messaging is across multiple types of campaigns. Using metadata, you can slice and dice your campaigns in many different ways and then drill down into specific tracking codes as needed. The ability to dissect campaigns helps you identify where to best

use your precious marketing dollars and where you can save money by defunding poor campaigns, campaign messages, and individual campaign elements.

2. Personalization

In the past decade, there has been a growing trend in digital around the concept of personalization. The thesis around personalization is that website and mobile app visitors want and expect to have personalized experiences. Although many individuals are not happy about the substantial amount of data collection, the majority are willing to exchange their data in return for custom brand interactions. For example, if you manage a news site and the visitor only ever clicks on the news related to sports, they might expect that over time, the main page of the site would learn about their interests and begin pushing relevant content earlier in the session. Similarly, if you manage a retail site that sells products to men and women, a female visitor might expect that the home page would soon recognize her gender and promote female items more than male items. In many ways, sites like Amazon and Netflix have spoiled consumers by being so adept at personalization, and now they expect the same from you!

Data enrichment is one of the best ways to implement personalization on your website or mobile app. If you have known customers who log-in to your website, you likely have a unique identifier for each customer in your digital analytics tool (preferably not including PII to adhere to privacy regulations). Unfortunately, personalization at an individual level is very difficult. You may have millions of customers, and most organizations don't have Amazon-like resources to do 1:1 personalization. However, if your organization has a CRM system or customer data warehouse, you likely have valuable customer metadata that you can leverage for personalization. By adding this customer metadata to your digital analytics implementation, you'll have the information to:

- View how customer journeys differ by customer segment and make changes to improve conversion for key segments
- Show differentiated offers to each customer segment to help boost conversion
- Proactively push customer support tools like online chat for valuable segments encountering poor experiences
- Promote different products or services based upon past purchase behavior

These are just a few examples of how metadata can be used to drive personalization and how this personalization can lead to ROI. It is easy to see the synergistic effects of having a combination of customer and digital analytics data to drive personalization.

3. Automation

The average analyst can spend up to 80% of their time on manual data processes, including data cleaning and manipulation. These tasks represent a significant strain on analytics teams' resources. Manual metadata management is a part of this challenge for organizations.

Moving metadata from advertising partners or internal warehouses into digital analytics tools is a significant task. Manual transfer is often not realistic, especially when the number of native data values requiring metadata can be in the millions. Even if organizations recognize the apparent benefits of using metadata to aggregate data and personalize visitor experiences, they often don't fully leverage metadata because it is laborious and time-consuming. Those who endeavor to manually integrate metadata often waste countless hours of high-paid resources validating and uploading metadata.

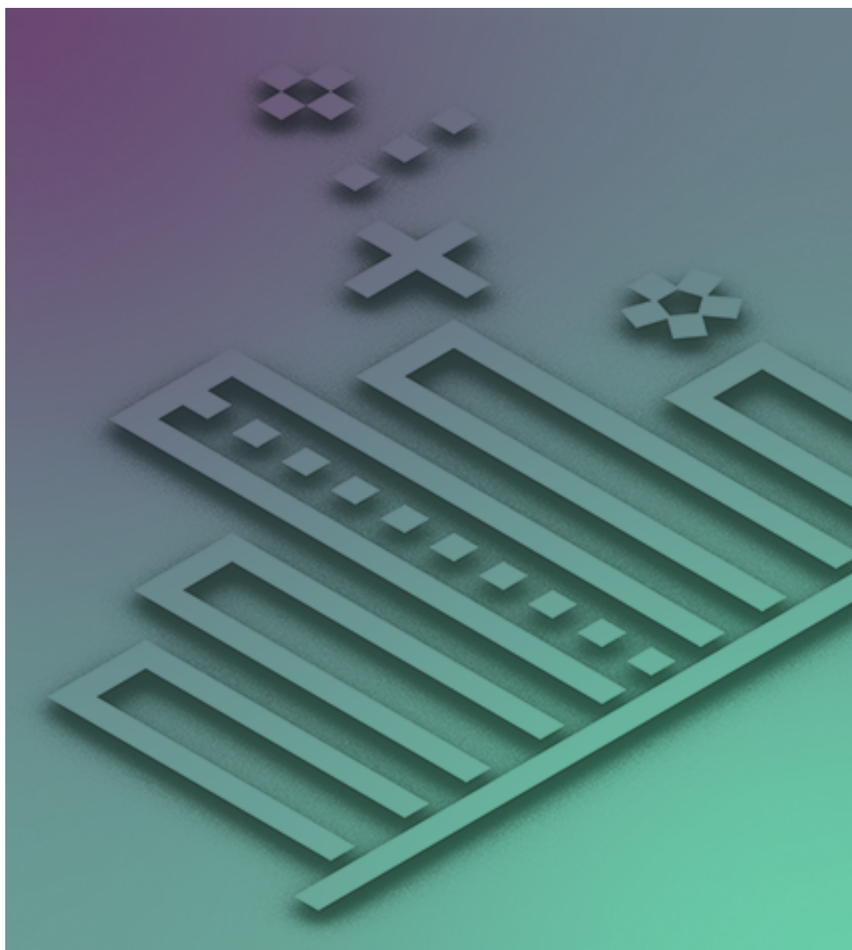
To address this issue, many organizations have turned to third-party platforms (e.g., Claravine) to help facil-

itate the transfer of accurate, verified metadata between systems. Digital experience data management platforms that use newer API technology and pre-built tool-to-tool integrations make the validation and transfer of metadata significantly easier.

From a data validation standpoint, many immature organizations rely on spreadsheets to enter and manually upload metadata between systems. Unfortunately, spreadsheets don't do a great job of validating metadata. This means that there's no reliable way to ensure that uploaded values are correct and consistent with past uploads. It's also impractical to share spreadsheets amongst different teams within the organization without creating data conflicts. Conversely, digital experience data management platforms provide built-in data validation capabilities and allow multiple users to work with all metadata in one shared place, with workflow.

When it comes to transferring metadata between systems, the manual approach involves downloading data from one system, cleaning it up in a spreadsheet, and then uploading it into your digital analytics tool. These uploads are typically done via the browser for small amounts of data and via FTP for sizeable data sets. The downloading and uploading process can be very time-consuming and is often prone to error. More advanced organizations have realized that moving data between systems is much simpler using APIs and that using a third-party intermediary can be helpful. Digital experience data management tools have pre-built integrations with leading advertisers like Google and Facebook and marketing tools like Adobe and Google Analytics. Digital analysts are in high demand and not inexpensive resources, so the more time they spend on 'grunt work' related to metadata, the less time they have for actual analysis. That is why investing in metadata automation improves your data quality, increases your usage of metadata, and saves you money in the long run.

Aggregation, personalization, and automation are the main ways that organizations generate ROI from data enrichment and digital experience data management platforms. In the next section, we dive deeper into what data enrichment looks like and begin looking at examples of how you can leverage it.

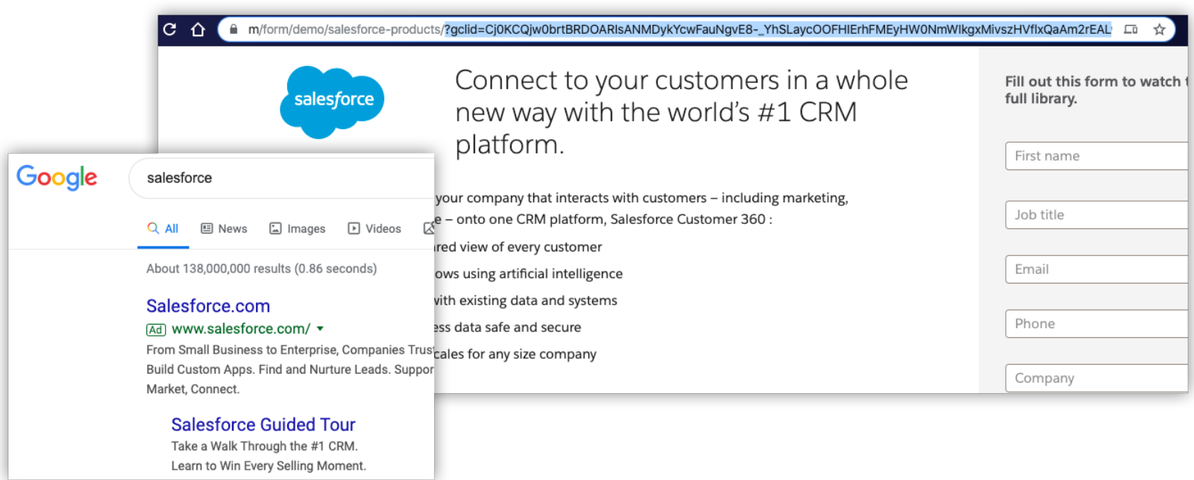


How to Enrich Digital Analytics Data

It's helpful to understand how organizations capture traditional data elements in digital analytics tools before exploring the use of data enrichment. Typically, websites or mobile apps use digital analytics tools to collect data via JavaScript tagging. The desired data elements get passed to a data layer, through a tag management system, and ultimately arrive in variables within digital analytics tools. For example, if an organization is paying money to a search engine for a specific keyword, a campaign tracking code might be passed to the URL via a query string when visitors click on that keyword, like this:

In this case, the highlighted string value passes into the digital analytics tool as the external campaign tracking code. But this tracking code doesn't tell the organization much about the external campaign. What keyword was it? Which search engine drove it? Was it part of a more extensive campaign that included other keywords or additional display advertisements? These and other related questions may need to be answered to effectively judge the performance of marketing campaigns.

Unfortunately, capturing all of these additional data points natively via tagging



at the time a user clicks is problematic for several reasons:

First, it may not be practical to know the answers to all of these campaign-related questions at the time the campaign launches. There may be cases in which you need to start a campaign to begin generating business before you can document all aspects of the campaign. In this case, it may be better to launch and then determine the final logistics of the campaign afterward.

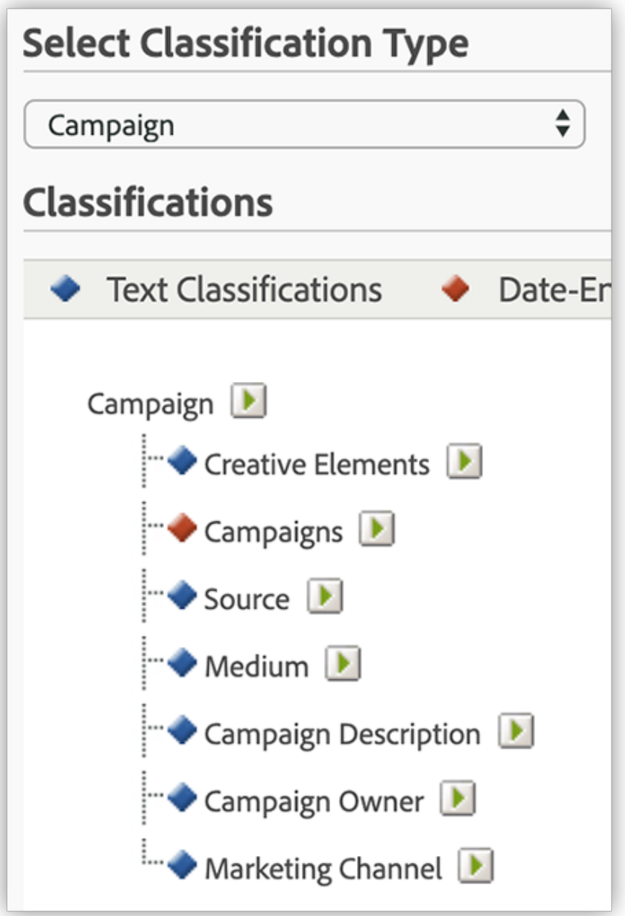
Second, if all of the campaign details were stored natively in the digital analytics tool along with the tracking code, they would both use distinct variables in the tool. Unfortunately, most digital analytics tools have finite limits on how many data points can be collected natively. For example, if a digital analytics tool has a limit of 100 data dimensions, using 10 of these for external campaign tracking would require using 10 percent for just one type of analysis, which may not be feasible.

Third, it may be the case that the data surrounding the campaign tracking code might shift or change over time. For example, when the campaign launches, the keyword might be part of Marketing Campaign A. After several weeks, that same keyword might classify better under Marketing Campaign B. Once data is collected natively into digital analytics variables, in most cases, it's impossible to alter it. Therefore, if a dimension is used to capture the campaign at the time of the click, it limits the ability to make changes retroactively.

For all of these reasons, collecting data points natively through tagging is often not the ideal way to store digital analytics data. Organizations want to be able to collect as much data as possible without wasting their allocated dimensions. They also want to have the ability to augment data with additional attributes in a way that offers the flexibility to change data retroactively as needed. The demand for additional data given the limitations is why most digital analytics tools provide a way to enrich data by adding metadata. By establishing a relationship between natively collected data via tagging and metadata added later, digital analytics tools can provide the best of both worlds.

Data Enrichment Example: Campaign Tracking Codes

To illustrate the value of data enrichment, let's dive deeper into the previous marketing campaign tracking code scenario and view the real-world benefits. Using the previous campaign tracking code example, let's imagine that an organization adds the following metadata attributes to the campaign tracking code:



Each of these attributes can be used to enrich marketing campaign tracking codes with additional data. Often, these metadata attributes are used to aggregate rows of data in digital analytics tools like the way a pivot table functions in spreadsheet tools. For example, let's assume that an organization has the following metadata for campaign tracking codes:

CAMPAIGN Text	CAMPAIGN DESCRIPTION Text	CREATIVE ELEMENTS Text	SOURCE Text	MEDIUM Text
DSP_1A5ADF9	Fall Sale	Leaves and Backpacks Image	Criteo	Display
DSP_8347Q	Fall Sale	Chai Tea Image	AdRoll	Display
PS_234FWS	Fall Sale	Leaves and Backpacks Image	Google	Paid Search
PS_75442DF	Fall Sale	Chai Tea Image	Bing	Paid Search

Here you can see that several campaign tracking codes are associated with the Marketing Channel "Display" and others with "Paid Search." The designation means that if a user selects the Marketing Channel dimension, they see an aggregation of all campaign tracking codes grouped by Marketing Channel. A sample report might look like this:

Marketing Channel Page: 1 /1 Rows: 50 1-13 of 13	Visits 2,239,096 Oct 1 – Oct 31 out of 2,239,096	
1. Natural Search	715,092	31.9%
2. Direct	689,999	30.8%
3. Display	592,445	26.5%
4. Paid Search	156,419	7.0%
5. Referring Domains	64,153	2.9%
6. Session Refresh	47,832	2.1%
7. Organic Social	13,673	0.6%
8. Owned Social	3,141	0.1%
9. Email	3,105	0.1%
10. Other Campaigns	3,101	0.1%

This usage of metadata allows the organization to realize the following benefits:

- Add additional data points to their digital analytics implementation.
- Minimize the number of native variables used since all of the metadata attributes added above are simply extensions of one native variable (e.g., tracking code).
- Make changes to any of the metadata attributes.
- Retroactively apply changes when used in the digital analytics tool. For example, if you see misclassified tracking codes, the metadata can be updated and retroactively applied the next time someone runs a digital analytics report.

Using Metadata Reports

Once metadata has been added to a digital analytics implementation, how is it leveraged? One way digital analysts use metadata is as a dimension in analytics reports. Metadata attributes are treated the same as native data elements (captured via JavaScript). Therefore, digital analysts can create tables of data using any metadata attribute just as they would other dimensions. For example, if external campaign tracking codes are used to create a Marketing Channel metadata attribute, then metrics such as Application Starts, Application Completes and Application Completion Rate can be viewed by Marketing Channel as shown here:

Marketing Channel Page: 1 /1 Rows: 50 1-13 of 13	Application Start (e20) 71,302 out of 71,302 Oct 1 – Oct 31	Application Complete (e22) 24,986 out of 24,986 Oct 1 – Oct 31	Application Completion Rate 35.04% out of 35.04% Oct 1 – Oct 31
1. Natural Search	34,896 48.9%	10,965 43.9%	31.42%
2. Paid Search	14,277 20.0%	4,294 17.2%	30.08%
3. Direct	11,722 16.4%	5,085 20.4%	43.38%
4. Session Refresh	4,757 6.7%	1,383 5.5%	29.07%
5. Referring Domains	3,122 4.4%	918 3.7%	29.40%

This report groups metrics by the Marketing Channel, using the underlying campaign tracking codes. Now, all metrics associated with Paid Search tracking codes will aggregate in the Paid Search row, all metrics associated with Paid Search tracking codes will aggregate in the Natural Search row, and so on.

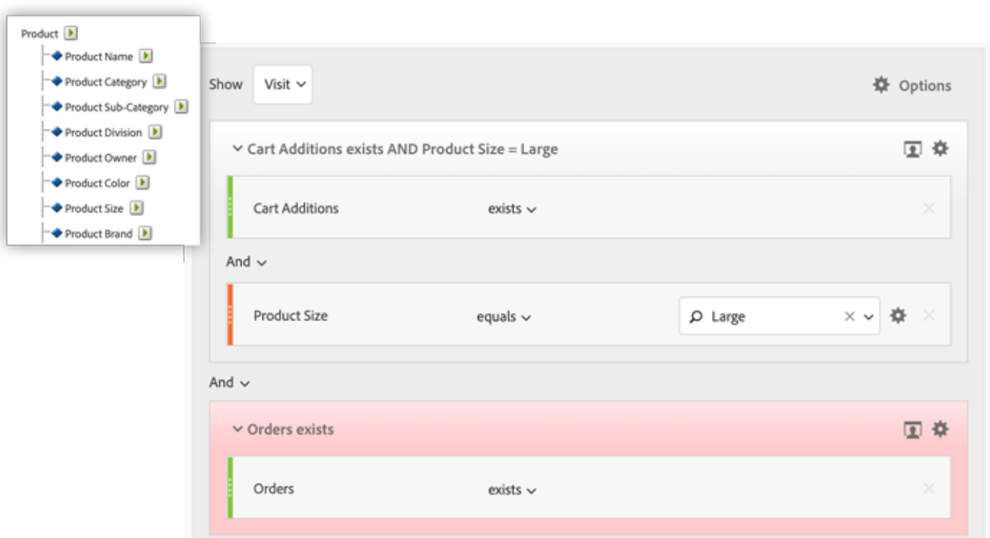
Metadata dimensions can also be used to break down dimensions. For example, you might have a scenario in which you wish to see Products broken down by Marketing Channel. Even though the Product dimension is native (captured via JavaScript), it can be broken down by Marketing Channel, which is a metadata attribute of the campaign tracking code.

As you can see, metadata attributes are treated the same as other dimensions and can be used to run reports or product report breakdowns.

Segmentation

You can use metadata in powerful ways through digital analytics segmentation. All digital analytics tools offer the ability to filter or segment data into more discrete populations to improve analysis capabilities. For example, digital analytics tools allow you to view data for first-time visitors, visits from California, or visits where multiple onsite searches took place. These segments usually are unlimited and can use any data point within the analytics implementation. Analysts can segment based upon counts of metrics occurring or cases in which dimensions contain specific values. Therefore, since metadata attributes are treated equally to dimensions, they can be used to create digital analytics segments.

This ability to segment means that any metadata attribute added to your implementation can be used to narrow down the digital analytics data viewed by digital analysts. For example, if you have a Product dimension in your implementation and one of its metadata attributes is Size, you can build a segment to view how often visitors add products to the shopping cart where size equals large vs. small to the shopping cart, but do not purchase:



Therefore, if you have 200 natively captured data elements and add another 50 metadata attributes, you can increase your segmentation capabilities by 25 percent!

Importing Metadata

While it's great to see the benefits of leveraging data enrichment, the next common question involves the actual importation of metadata. How hard or easy is it for organizations to send the metadata to their digital analytics tool? While the process of importing metadata differs based upon which digital analytics tool is used by the organization, in most cases, there are the following options: Manually import metadata via a spreadsheet. This method works when there are relatively few data points requiring metadata since this method can be arduous and time-consuming

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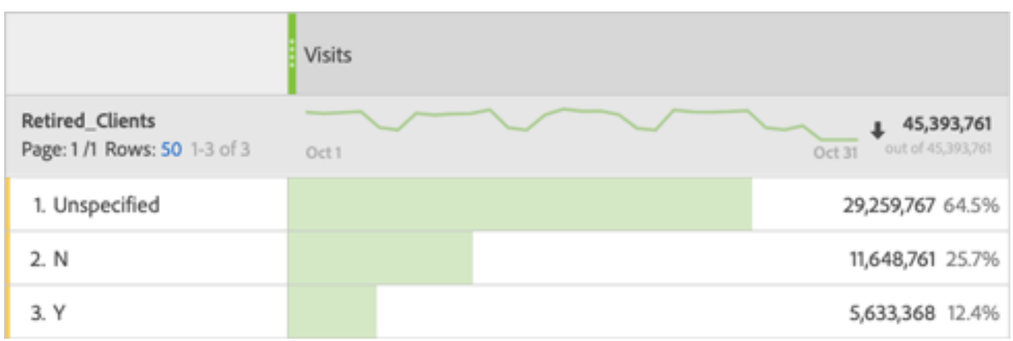
2. Manually use an FTP server to conduct bulk uploads of metadata

3. Leverage any automated metadata tools provided by digital analytics vendors (e.g., Adobe SAINT Classification RuleBuilder Regex)

4. Use of an API to send metadata to the digital analytics tool either manually or via a 3rd party data platform (e.g., Claravine)

At first, many organizations import metadata manually but soon realize that automation is preferable due to the time required to keep metadata consistently updated. It is not uncommon for organizations to have 20 to 30 data points requiring data enrichment. On average, each of these data points might have three to five metadata attributes. That is a lot of data to keep organized! Unfortunately, it is often the case that metadata is not kept up to date. Incomplete metadata is a well-known issue in digital analytics implementations and can result in reports like this:



As you can imagine, when end-users see a report like this that has a large amount of Unspecified data, it can foster a perception that no digital analytics data should be trusted. Once you lose the faith of your analytics users, it's often difficult to win them back. Not many people want to put their reputation on the line by advocating website changes based upon data they don't trust. For this reason, the use of third-party data enrichment platforms has skyrocketed in recent years since these tools provide a more natural way to add and upload metadata to digital analytics tools. In addition to having an easy to use front-end interface for metadata entry,

data enrichment tools also use the latest in API technology to send metadata directly to digital analytics tools.

Validating metadata

Another important aspect of data enrichment is metadata validation. If you are going to spend time importing metadata to data points natively stored in your digital analytics tool, you want to make sure that the native values are the best they can be. If those values are incorrect, it can lead to problems importing associated metadata later on. For example, in the previous tracking code scenario, it would be best if each campaign tracking code followed a predetermined naming convention. The use of a naming convention makes it easier to ensure that the metadata added later is correct. For example, if an organization decided to use the UTM standard for campaign tracking codes, it might use a naming convention of:

[SOURCE]:[MEDIUM]:[CAMPAIGN DESCRIPTION]:[CAMPAIGN OWNER]

This convention may produce reports that look like this:

	Visits		Blog Post Views [e3]	
Tracking Code Page: 1 /4 > Rows: 50 1-50 of 169	Oct 26 – Oct 28	6,645 out of 228,331	Oct 26 – Oct 28	7,689 out of 243,099
1. linkedin-post:social:blog-index:adam	294	4.4%	622	8.1%
2. adobe-enthusiasts:social:traing-workspace-1:adam	546	8.2%	614	8.0%
3. linkedin-post:social:data-studio-funnels:michele	279	4.2%	312	4.1%
4. linkedin-post:social:traing-workspace-1:adam	258	3.9%	290	3.8%
5. linkedin-post:social:duv-workspace:adam	232	3.5%	263	3.4%
6. adobe-enthusiasts:social:real-time-camp:adam	225	3.4%	262	3.4%

Doing this requires rigidity on the part of the metadata such that campaign tracking codes provided to advertisers adhere to the naming convention. Unfortunately, this is easier said than done since organizations traditionally use spreadsheets to create and store metadata. These spreadsheets don't offer advanced validation capabilities and are difficult to share amongst different stakeholders at the organization. Therefore, it is becoming commonplace to use third-party platforms to validate the actual values that pass into your digital analytics tool variables. These tools offer real-time data validation and allow you to configure rules that ensure that data values match your pre-determined naming convention:

	* LINK Link	LINK STATUS Link	* SOURCE List	* MEDIUM Text	* CAMPAIGN Text	TERM Text
1	https://www.claravine.com/	2/2 checks passed	yahoobing	cpc	fallsale	sweaters
2	https://www.claravine.com/	2/2 checks passed	bing	cpc	fallsale	hats
3	https://www.claravine.com/	2/2 checks passed	bing	cpc	fall&wintersale	gloves
4	https://www.fakewebsite.com/	0/2 checks passed	bing	cpc	fallsale	vests

Retroactive vs. Non-Retroactive (Dynamic) Data Enrichment

Another important facet of digital data enrichment is the difference between retroactive and non-retroactive (dynamic) metadata. This concept can be tricky to understand, but it is vitally important if you want your digital analytics metadata to be accurate.
Retroactive metadata is data that you want to change retroactively if you ever replace metadata with new metadata. For example, if you have several campaign tracking codes that you misclassified, you might want to re-upload new, correct metadata and have it replace the old. If you are using a retroactive metadata attribute, then the new values will replace the old ones, and the next time you run reports, it will appear like the old metadata never existed. This type

of metadata is useful if you want the flexibility to change metadata over time. Another example might be a product catalog where a metadata attribute is Product Category. If your organization decides to move products from Product Category A to Product Category B, you can update the Product A metadata, and all reports will look like the updated products were always categorized as Product Category B.

Another good use case for retroactive metadata is when metadata is static. For example, if you have a Customer ID variable in your digital analytics tool, and you want to have the birth year for each customer as a metadata attribute, retroactive metadata is ideal. Since each Customer ID has only one birth year value, you can upload this as metadata and not have to worry about it again in the future. If you accidentally upload the incorrect year, you can re-upload the correct value, and it is applied retroactively to all reports. This method also saves you from wasting a native data element that you could use for something more impactful.

However, there are many situations in which you need non-retroactive (dynamic) metadata. These are cases in which you want to have a metadata attribute based upon a native data point, but the metadata values can change over time. In the case of dynamic metadata, you want to see the metadata attribute value at the time of the website or mobile app visit. You also want to know that past data is not impacted retroactively if the metadata changes later. To illustrate, let's use the example of Customer ID dimensions. Imagine that many website visitors log in and have a unique Customer ID value stored in a digital analytics dimension. Next, let's imagine that the business wants to view the website or mobile app activity by the age of the customer. In this case, they want to see the customer age at the time they used the website/app and not have this data changed or impacted by a customer's future birthday. If you were to use retroactive metadata for this, someone who was fifty-five at the time of the website visit could still be using the website when they are sixty years old and updating their metadata to a value of sixty would incorrectly make historical data look like the customer was always sixty years old.

Non-retroactive (dynamic) metadata is used to solve this problem. Usually, you provide a metadata table that has the native (key) values and the latest, most valuable metadata. Then, when visitors engage with the website or mobile app, a data table lookup occurs that uses the key-value and dynamically inserts the correlated metadata natively into a secondary dimension. This process ensures that the most recent metadata value is used and stored correctly in the digital analytics tool for historical purposes. In the preceding Customer ID example, it would work as follows:

1. Customer logs into website and Customer ID is identified

2. Customer ID serves as the key value, and a lookup grabs the dynamic metadata from the lookup table (Here, the Customer ID is used to find the table column that contains the latest and regularly updated Age value for that Customer ID)

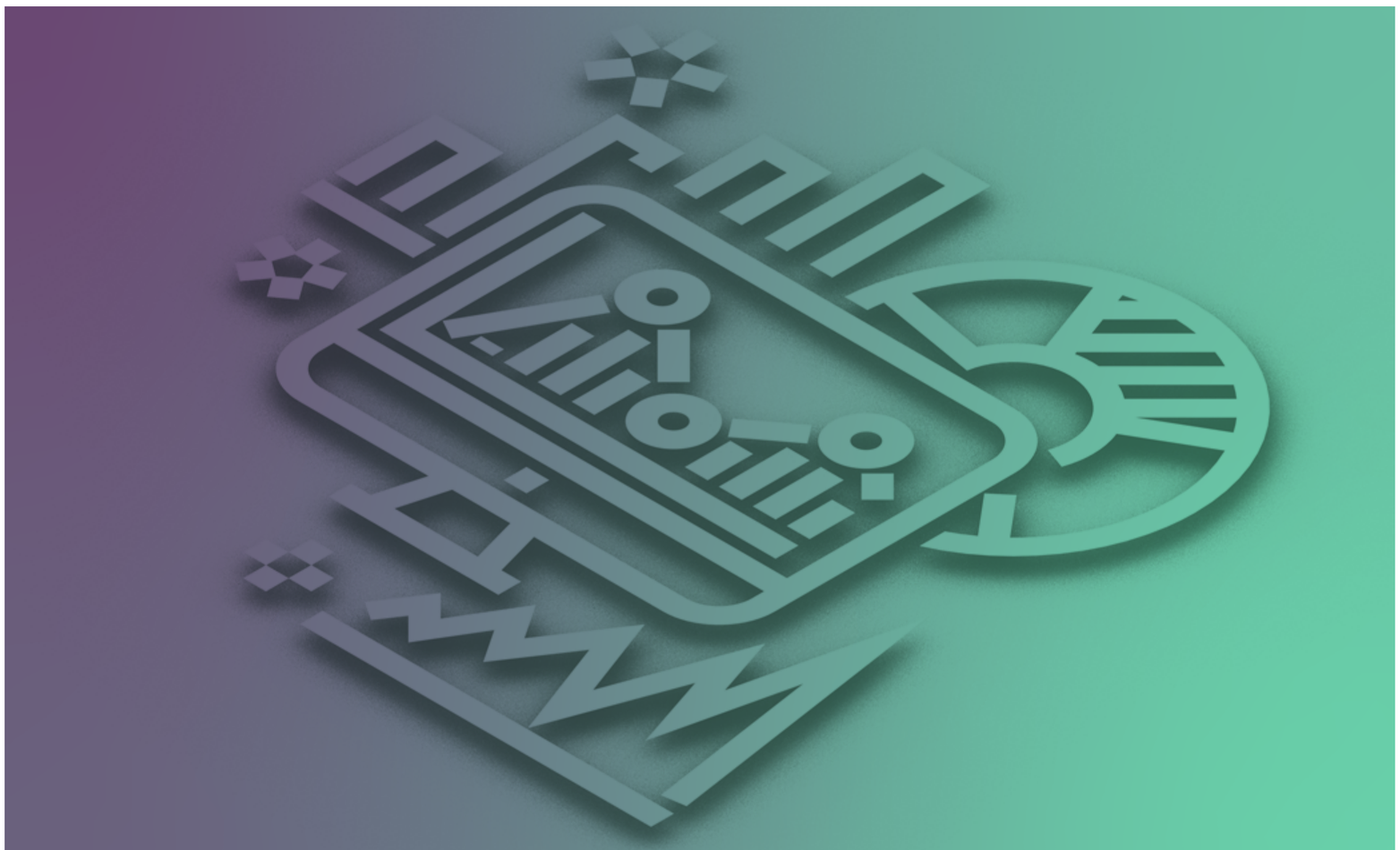
3. The dynamic metadata, Age, is inserted into a dimension within the digital analytics tool.

4. The new dimension serves as a new unchangeable native value, thus, the current age at the time of the visit is locked in

Different digital analytics tools accomplish dynamic metadata in different ways, but the general process is the same. All require that you keep the metadata lookup table updated at all times to ensure that you can insert the most updated metadata back into the digital analytics tool. Most organizations automate the updating of

the lookup table by hourly or daily extracts from internal data warehouses.

In this section, we have covered how organizations use data enrichment, seen some of its benefits, and described how metadata is imported and validated. In the next section, we dive deeper into the common uses of data enrichment in the digital analytics space.



Popular Data Enrichment Use Cases

External Campaigns

Adding metadata to external marketing campaign tracking codes is by far the most common use case for data enrichment. Since most digital analytics tools have an external campaign component, many digital analysts learn about metadata via marketing campaign tracking codes.

As described previously, it is typical for an organization to assign campaign tracking codes to paid search keywords, display advertisements, social media campaigns, and email campaigns. These tracking codes often have various metadata attributes that are used to slice and dice campaign results. Typical marketing campaign code metadata attributes include:

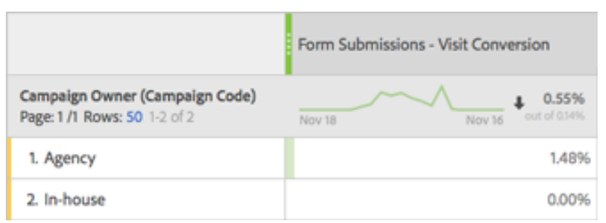
- Marketing Channel
- Campaign Name
- Campaign Owner
- Campaign Type/Objective
- Campaign Objective

For more information on best practices and how to determine which classifications to use, please see the following resources:

- Keys to a Best-in-Class Adobe Analytics Classification Process Webinar from the DAA Webinar Series

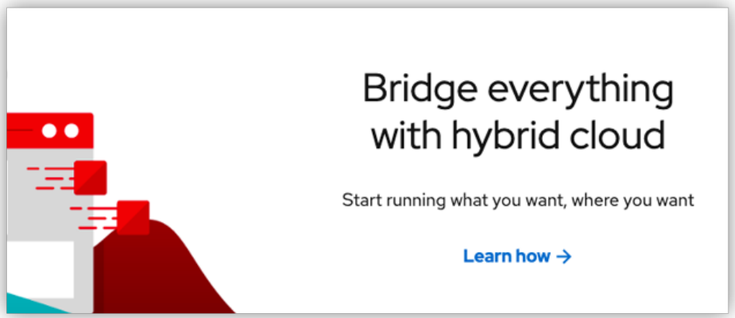
- The Digital Experience Data Management Guide on the Claravine Resource Guide

Once uploaded, it is possible to use any of the metadata attributes to view how visitors are finding your digital properties and which campaigns are converting better than others:

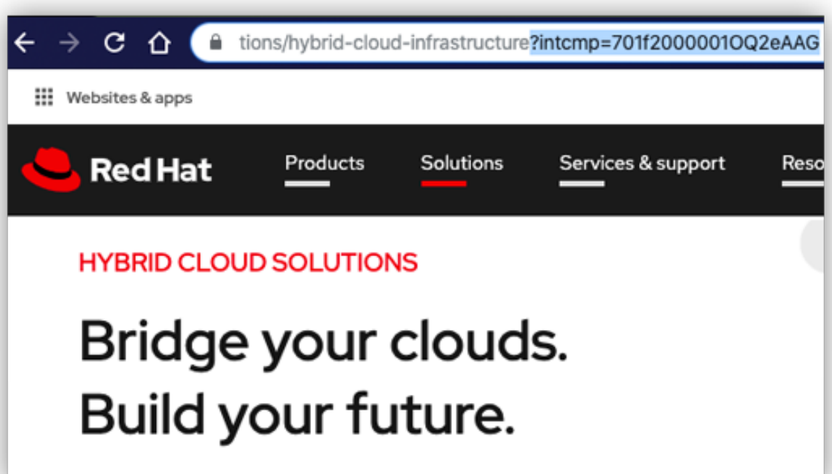


Internal Campaigns

Many websites feature campaigns. Sometimes referred to as internal or onsite campaigns, they typically involve showing banners or links on key website pages to drive visitors to specific products, product categories, or landing pages.



These internal campaigns can and should be tracked similarly to external campaigns by assigning unique tracking codes to each internal campaign element. When users click internal campaign codes, the unique code is passed to a native digital analytics dimension, generally via a query strig parameter:



You can now view internal campaign codes in the native dimension:

Internal Campaign	Orders	Revenue	Revenue / Order
	10,356	$10,611,187	$1,024.64
1. Unspecified	6,784 65.5%	$6,453,470 60.8%	$951.28 92.8%
2. int_102	268 2.6%	$248,979 2.3%	$929.03 90.7%
3. int_101	256 2.5%	$255,684 2.4%	$998.76 97.5%
4. int_103	234 2.3%	$225,109 2.1%	$962.01 93.9%
5. int_100	232 2.2%	$239,366 2.3%	$1,031.75 100.7%
6. int_106	216 2.1%	$214,288 2.0%	$992.07 96.8%
7. int_109	151 1.5%	$171,186 1.6%	$1,133.68 110.6%
8. int_108	142 1.4%	$180,600 1.7%	$1,271.83 124.1%
9. int_107	115 1.1%	$121,661 1.1%	$1,057.92 103.2%

These internal campaign codes can then have metadata attributes applied similarly to external tracking codes. Some common internal campaign code metadata attributes include:

- Internal Campaign Name
- Internal Campaign Type
- Internal Campaign Owner
- Internal Campaign Location
- Internal Campaign Reason (e.g., Sales, Marketing, A/B Test, etc.)

All of these internal campaign attributes can then be used in digital analytics reports to view how each drives KPI's and conversion:

	Orders	Revenue	Revenue / Order
Internal Campaign Type Page: 1 /11 > Rows: 5 1-5 of 52	109,560 Oct 1 Sep 30 out of 109,560	$10,611,187 Oct 1 out of $10,611,187	$96.85 Oct 1 Sep 30 out of $96.85
1. No Internal Campaign	71,762 65.5%	$6,451,602 60.8%	$89.90 92.8%
2. Home Page Hero	12,271 11.2%	$1,165,108 11.0%	$94.95 98.0%
3. Landing Page Next Step	10,353 9.4%	$1,050,508 9.9%	$101.47 104.8%
4. Cross-Sell Campaign	7,067 6.5%	$795,839 7.5%	$112.61 116.3%
5. Permanent Banner	4,163 3.8%	$742,783 7.0%	$178.42 184.2%

Products & SKUs

Most businesses have products. Even those that don't sell products directly on the website or app usually have them. These products are typically captured in a Product dimension in digital analytics tools. Once a website visitor finds a product they are interested in, they might select a size or color of the product, which prompts the generation of a product SKU. SKU's are derivations of the product and helpful to track as a separate dimension to view the relative popularity of product versions.

Since both Products and SKUs are tracked natively in dimensions, they can be enriched with metadata if needed. Many organizations have extensive data about their products and SKUs. Common Product attributes include:

- Product Name
- Product Division
- Product Category
- Product Owner

Product SKUs might have the following attributes:

- Product SKU Name
- Product SKU Division
- Product SKU Category
- Product SKU Color
- Product SKU Size
- Product SKU Gender
- Product SKU Owner

By adding these Product and SKU metadata attributes, digital analysts have more data points with which to create reports, breakdown reports, and create segments. This data allows organizations to see which types of products are performing better than others. Armed with this information, product owners can try to improve ROI, such as promoting specific products, modifying product cross-sells, and adding category-specific promotions.

Customer ID

Customer ID is probably the most interesting digital analytics data point for which organizations can use metadata. Unfortunately, this application is usually underuti-

lized. Data about customers is critical. The more you know about your customers, the more you can do things like content personalization, offer re-targeting and product cross-sell. All of these techniques can help you maximize your revenue on existing clients, and in most cases, that is easier than finding new clients.

So why is Customer ID not leveraged as much as it should be? Mainly because digital analysts don't take the time to identify all of the valuable customer metadata that exists in their internal data warehouses or CRM systems. Most digital analysts are comfortable in their digital marketing silos and forget that there are other databases at their organizations. In many cases, the marketing team and the customer (CRM) teams rarely interact. This oversight is a shame since many organizations have abundant customer data sets that include such things as:

- Original Customer Acquisition Date
- Total Customer Lifetime Value
- Last Product Purchased
- Customer Demographics (Age, Gender, # of Kids, etc.)

To understand how a data point like Customer ID can leverage metadata, let's look at an example use case. First, the Customer ID is passed natively to a digital analytics dimension. Then Customer ID metadata attributes are added. In this case, we begin by uploading the original customer Acquisition Date and the Last Product purchased as metadata:

	* CUSTOMER ID Text	* ACQUISITION DATE Date	* LAST PRODUCT Text
1	1233592385	11-23-2019	Product A
2	3453542398	01-22-2020	Product Q
3	2395823958	11-21-2019	Product X
4	2348298482	12-26-2019	Product Y

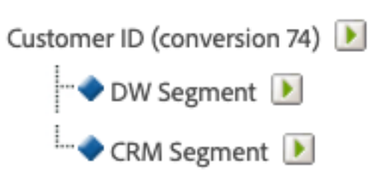
Once we do this, digital analysts can use either of these metadata attributes in reports. For example, they might want to look at customers who last purchased Product X and break that down by their original acquisition date (grouped by

	Orders	Revenue
Last Product Purchased Page: 1 /11 > Rows: 5 1-5 of 53	Oct 1 Sep 30 **10,000** out of 2,000	Oct 1 Sep 30 **$7,500** out of $1,500
1. Product X	2,000 100.0%	$1,500 100.0%
Original Acquisition Month-Year Page: 1 /21 > Rows: 5 1-5 of 102	Oct 1 Sep 30 **2,000** out of 2,000	Oct 1 Sep 30 **$1,500** out of $1,500
1. June 2018	1,000 50.0%	$675 45.0%
2. July 2019	200 10.0%	$225 15.0%
3. August 2019	100 5.0%	$75 5.0%

Another reason that organizations do not utilize customer metadata is that many customer data points are dynamic. Attributes like age, # of kids, and marital status can change over time. In this scenario, you have to add metadata in a way that is non-retroactive (dynamic), and this is a more complicated method of data enrichment. As described earlier, dynamic data enrichment requires the use of a lookup table and the provisioning of additional native dimensions. Regardless, having rich customer data that is accurate at the time of the website or mobile app visit is well worth it in the long run.

In addition to leveraging additional customer metadata points in digital analytics tools, digital analysts can also add customer segments to their digital analytics implementations. Many organizations spend large amounts of time and money to place customers into complex segments. Algorithms often drive these segments based on significant customer events. Segments may even include digital data that is fed out of analytics tools and merged with offline data. While these customer segments exist, they are often not looped back into digital analytics tools. The omission of this step is unfortunate since it would allow digital analysts to take advantage of the advanced customer segmentation that has taken place within the organization.

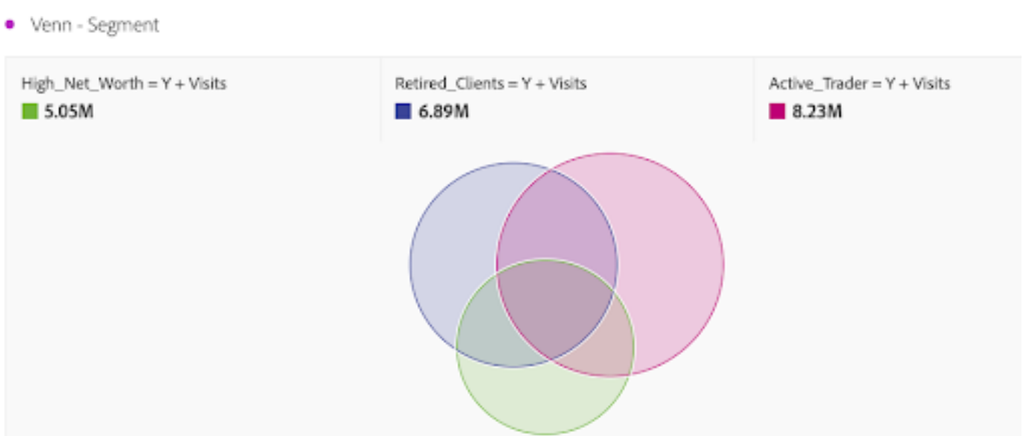
To incorporate customer segments into digital analytics tools, all that you need to do is add a customer segment metadata attribute to your implementation. Once you add the attribute, you can add the segment description or name as metadata:



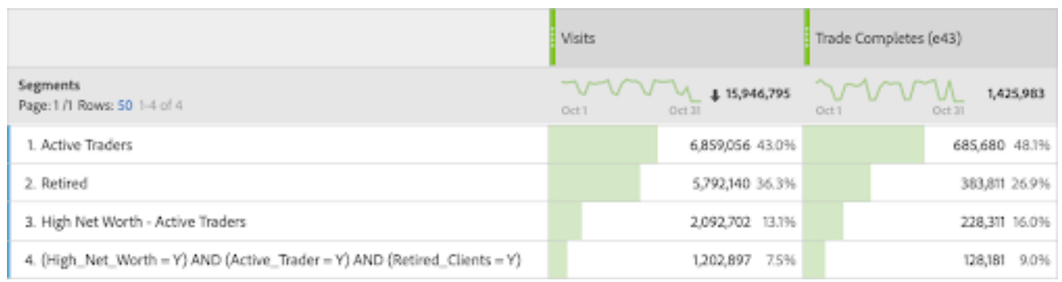
Then you can upload the desired Customer ID and segment metadata:

	* CUSTOMER ID (CONVERSION 74) Text	* DW SEGMENT Text	* CRM SEGMENT Text
1	32482948290	Gold Customer	High_Net_Worth
2	23498234982	Silver Customer	Active Traders
3	23958239829	Bronze Customer	Retired
4	23482390482	Gold Customer	High_Net_Worth

You can also look for overlaps or intersections of customers using these new customer attributes:

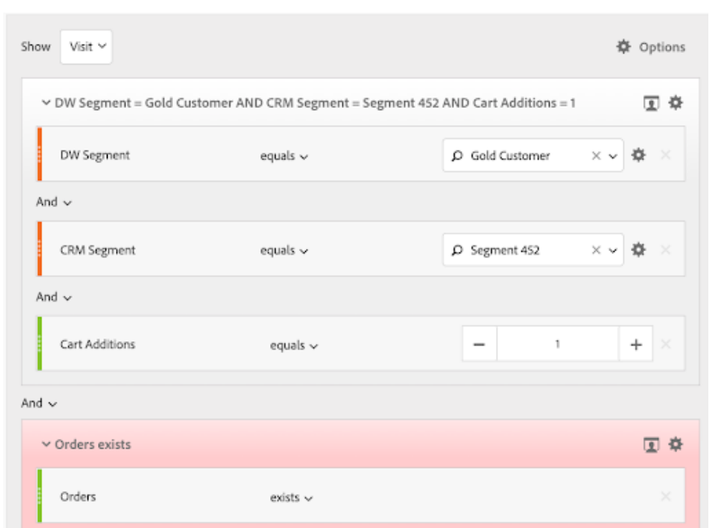


After the metadata is uploaded, you can use segment names in any analytics report:



Segments Page: 1 /1 Rows: 50 1-4 of 4	Visits 15,946,795 Oct 1 – Oct 31	Trade Completes (e43) 1,425,983 Oct 1 – Oct 31
1. Active Traders	6,859,056 43.0%	685,680 48.1%
2. Retired	5,792,140 36.3%	383,811 26.9%
3. High Net Worth - Active Traders	2,092,702 13.1%	228,311 16.0%
4. (High_Net_Worth = Y) AND (Active_Trader = Y) AND (Retired_Clients = Y)	1,202,897 7.5%	128,181 9.0%

These external customer segments can also be added to digital analytics segments so you can mix offline and online segments:



In addition to analytics reports, you can use customer metadata and segments to personalize the website or mobile app experiences. If you have Adobe Target or another testing and personalization platform, you can push customer segments to the testing platform and show different content to different segments of visitors. For loyal customers, you can push cross-sell or up-sell items or loyalty discounts. For new customers, you can push introductory offers. For customers who have had bad experiences or not purchased in a while, you can personalize with win-back campaigns. The amount of personalization opportunities that exist by turning customer metadata into discrete segments is virtually endless.

As you can see, there are many advantages to adding customer metadata to your digital analytics implementation. Having more customer dimensions and segments to use when doing digital analysis can lead to an exponential amount of analytics opportunities, including advanced segmentation, more in-depth customer analysis, and personalization.

Conclusion

Systematic data enrichment is increasingly becoming a source of competitive advantage for leading analytics organizations and their brands. As digital experiences become more critical and spread across a myriad of channels, leaders that can ensure richer, more standardized metadata can power marketing decisions and experiences with greater context and insight. Approaching data enrichment through automated processes is vital, and allows teams to achieve these outcomes while eliminating the time traditionally spent on manual data manipulation and QA.

About Claravine

Claravine is the leader in Digital Experience Data Management™, with over 3,500 brands globally using our software to enable effective campaign and content tracking. Claravine allows marketing and analytics teams to consistently govern, validate, and manage your data, providing the accuracy and richness needed to deliver the experiences that best drive conversion across each digital touchpoint. For more information, please contact info@claravine.com or call 385-955-0037

About Adam Greco

Adam Greco is a leader in the digital analytics space and has been helping organizations with digital analytics for over twenty years. Adam was one of the early employees at Omniture (now Adobe) and is the author of the book on Adobe's analytics product. Adam has managed digital analytics at CME and Salesforce.com and has provided consulting around digital analytics for several leading firms. Adam is an advisor to Claravine.