

- » Understanding why you're analyzing data
- » Identifying where your data comes from
- » Configuring and analyzing data in Adobe

Chapter 1

Why Adobe Analytics?

In this chapter, you begin your journey into analytics powered by Adobe. In the remainder of this book, we dive deeply into specific features of Adobe Analytics, enabling you to perform in minutes analyses that would take days with other tools. But here at the beginning, it's important to be able to identify *why* you're analyzing data as well as how the data is populated and configured.

Adobe Analytics has been a premier web, mobile, and customer-focused analysis tool for well over a decade. If you're new to Adobe Analytics or reading this book to beef up your ability to wield this powerful set of tools, experience with similar tools, such as Google Analytics, Webtrends, or Microsoft Excel, is valuable. But whether you're reading this with substantial background in data analytics or the concept is new to you — or anywhere in between — we first pull the lens back to understand the history of web data so you can better understand the role it plays today.

In this chapter, we give you a chance to expand your horizons in terms of how you think about why you're analyzing data using Adobe in the first place. Next, we answer that age-old question: "Where does my data come from?" That is, we dig into how data gets pushed onto the Adobe platform. Finally, we present an overview of what's involved in sifting and squeezing valuable insights out of all the data you have access to in Adobe Analytics. So, buckle up your seat belts and let's begin!

Understanding Why You're Using Adobe Analytics

People have been attempting to analyze data generated by interactions with the World Wide Web since Tim Berners-Lee invented it. Yes, that process has become exponentially more developed and complex, but we're pretty sure one of the first questions asked after the first website went live was: "So, is anyone going to it?"

If we fast-forward a few decades, you'll be hard-pressed to walk through an international airport today without seeing ads for cloud technology, data security, and digital transformation. The business of data analysis has exploded, and there is no sign of it slowing down. According to a 2018 Forbes study, "Over the last two years alone, 90 percent of the data in the world was generated" (www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/-7ceaab1460ba). That equates to 2.5 quintillion (18 zeros) bytes of data captured every day. And most of it is coming from the web, mobile phones, and the Internet of Things (IoT), meaning the universe of devices that connect to the Internet, each other, or both, ranging from wearable devices to refrigerators.

Now that you have a feel for this ever-expanding amount of data, it's time to think about what to do with it. You might remember a time when you couldn't go into a meeting without hearing the words "big data." The thinking was, "Let's collect all the data we can and figure out what to do with it later." However, as made clear by the consistent decline in searches of that term on Google Trends (<https://trends.google.com/trends/explore?date=all&geo=US&q=big%20data>), a new sheriff is in town. And that new sheriff is driven by analysis. Collecting data is a start, but analysis is required to derive meaningful insights, form hypotheses, and take action.

Avoiding HiPPO!

Data analysis is what helps people avoid HiPPO. Zoo animals? Have Eric and David gone crazy in the first chapter? No, we're talking about *highest paid person's opinion*. The HiPPO acronym has come to describe the phenomenon of people in any grouping in an organization deferring to the opinion of the person highest in that group (generally the highest paid), resulting in unscientific and often harmful analysis and conclusions not supported by data. Table 1-1 provides a scenario of how this plays out.

TABLE 1-1

Business Decisions Not Based on Data

Employee	Comment
HiPPO	We need to sell more widgets!
Marketer	A lot of our new customers tell us they like our new TV ad.
HiPPO	I don't like the jingle; it gets stuck in my head.
Marketer	I really think we should try expanding it to more markets.
HiPPO	Here's the budget for additional ads in the local newspaper.
Marketer	[Sheds a tear while heading back to desk to look for a new gig]

Don't let your organization's decision-making process be driven by HiPPO. Imagine how much better that conversation could have gone if it was based on actual data, as shown in Table 1-2.

TABLE 1-2

Business Decisions Based on Data

Employee	Comment
CEO	We need to sell more widgets!
Marketer	A lot of our new customers tell us they like our new TV ad.
CEO	That jingle really gets stuck in my head; how can we learn whether it's positively affecting sales?
Marketer	Let's run some online preroll video tests (short audio or video ads that run before a user's selected audio or video) and judge the ad's effectiveness.
CEO	Sounds great. Can you use segmentation to make sure the results are not skewed by the fact that I've viewed the video a thousand times? (Segmentation is a marketer's ability to filter analysis or action to a specific set of users based on behavior, demographics, or other factors. Chapter 2 dives into segments.)
Marketer	Of course. We'll test, learn, and even save some money!

See how much better that went? It's all due to the decision-making process based on analyzing data that has been segmented (filtered) to avoid distorting the results. HiPPO shouldn't drive decisions when data can provide context and insight.

Now that we've used a hyperbolic (but revealing) example to illustrate why data needs to be the basis for decision-making in marketing, it's time to think about how else we can use data. We've seen data used to help make decisions on brand

logos, campaign headlines, button colors, navigational menu hierarchy, internal and external search optimization, article titles, product bundle options, checkout steps, page layout, and more! And we've seen data used to measure not just sales but the effectiveness of customer support tools, educational resources, and branding campaigns. In essence, data analysis can inform the quality of any part of a website, mobile app, digital screen, desktop application, or even voice skill.

Knowing when you need Adobe Analytics

We hope you agree that data analysis needs to be ingrained in your everyday work life, but you may be asking yourself, “How do I know when it's time to use Adobe Analytics?” The Adobe Analytics sales team has been trying to answer this question since the product was first sold as SuperStats by the Omniture team in 1996. Before that, most web masters (remember that term?) like us were using basic server-log analysis tools just to figure out if anyone was even visiting the site!

Analyzing the effectiveness of websites has become even more complicated as the analytics industry has matured. In 2005, Google purchased Urchin — an early pioneer in the business of analyzing web traffic — and quickly made it available for free. Today, that product is known as Google Analytics, and it paves the way for tens of millions of people to take their first steps into the world of web analytics. Adobe purchased Omniture in 2009 to kick-start a slew of acquisitions that became the Adobe vision for an integrated enterprise marketing cloud, now called Adobe Experience Cloud.

Adobe has succeeded with this vision of an enterprise marketing cloud vision in large part because of the success of Adobe Analytics. It is the foundation that sits as the data hub in Adobe Experience Cloud. Adobe Analytics has been successful for plenty more reasons than this. Forrester, a market research firm that tests and compares developments in technology, reported that Adobe was the clear leader in its current offering. Forrester writes that Adobe “has concentrated on making the UI more intuitive and building on capabilities that allow the exploration of data breakdowns, relationships, and comparisons.”

Knowing the difference between reporting and analysis

When it comes to data, we believe it's important to distinguish *reporting* from *analysis*. These terms are often used interchangeably outside the analytics industry but certainly not within it.

Reporting is a process used to organize data into static summaries. When you think of a report, do the words *interactive* and *flexible* come to mind? Or does the word *report* take you back to school, where you were asked to provide a summary of a book you just read? *Analysis* is the process of exploring data to derive meaningful insights and optimization opportunities. A report will often force its end users to ask questions; an analysis answers questions. A report will tell you that something is happening, such as the following:

“Page views are increasing month over month by 3.5%. We have added 500 new keywords to our paid search campaign.”

An analysis provides the context that explains why something is happening and what can be done, for example:

“Page views have increased significantly this month due to new paid search keywords added to our campaign, but bounce rate has skyrocketed and conversion rate has dropped across the nation. Attached is a list of keywords that are driving the majority of this unqualified traffic and that should be removed from the campaign.”

See the difference? The analysis does more than simply describe what happened. The analyst performing this analysis dug further into the data by answering questions about the who, where, when, and why. That, my fellow analyst, is where you come in.

Adobe Analytics may have some of the most advanced data science features powered by one of the most innovative web analytics engines available for the enterprise, but it takes an inquisitive analyst to apply these features to their dataset to derive insights. Good analysts know so much more than just the data at their fingertips and the tool providing it to them. Good analysts are curious and creative, and they sweat the details. To become one of the best analysts, you must have conversations with teams you’ve never spoken to before and join meetings you didn’t know existed. And we hope you’ll prove, once and for all, that HiPPO is useless without data to back it up.

Identifying Where Adobe Analytics Data Comes From

You may not know this, but Adobe Analytics users analyze much more than data from their websites. Adobe also captures data on behalf of their customers in mobile apps, tablet apps, and more. Plus, Adobe has built significant flexibility

into their product to handle a more digitally connected consumer world that seamlessly switches from voice assistant to phone to laptop.

Perceptions of the nature of data analysis were defined in the realm of popular culture by the Jonah Hill character in the movie adaptation of the book *Moneyball*. In that true story, a small-market baseball team (the Oakland A's) managed to dramatically outperform teams with much larger payrolls by innovatively identifying and acting to acquire underpriced players based on statistical measures of a player's effectiveness beyond and in many ways going against traditional metrics, such as batting averages, home runs per season, and RBIs (runs batted in).

Since that movie came out, new and ever more complex challenges in collecting data have emerged. For example, users of online devices have been conditioned to quickly navigate from one place to another, requiring more nuanced and detailed metrics to accurately track user activity. And users are increasingly conscious of privacy considerations and making more informed decisions about how they want to manage the relationship between the convenience provided by having their activity tracked versus maintaining confidentiality in their online activity.

On the other side of the coin, vastly more sources of user data exist than just a few years ago. Today, Adobe has a number of mechanisms to import data from digitally disconnected sources such as call centers, customer relationship management (CRM) systems, and in-store commerce engines.



REMEMBER

Before diving into the details of how data is collected, we want to emphasize that capturing data and pumping it into Adobe Analytics is *not* normally the domain of *data analysts*. Your job as an analyst is to, well, *analyze* the data captured from user activity. But the following basic overview of *how* data is collected is important to analysts for two reasons. One, it's good to know where data comes from when you want to assess its validity; and two, having a basic grasp of the process of mining and sending data into Adobe Analytics allows you to have more productive interactions with the folks who set up the tools that extract data. At the end of this chapter, we discuss how to forge this relationship.

Capturing data from websites

Let's start with the most common Adobe Analytics data source: websites. Web data was originally analyzed based on server logs. Server-log data is automatically generated by servers that host websites and provide a count and timestamp of every request and download of every file on the site. Unfortunately, the data is highly unreliable because server logs don't have the capability to distinguish bots from humans.



Bots are automated computers that scan websites. These bots are often friendly and used to rank websites for search engines or product aggregator websites. Some bots, however, are unfriendly and used for competitive intel or worse.

Because server logs can't tell a human from a bot, the industry quickly migrated to tags, which are now the industry standard. Generally, *tags* are JavaScript-based lines of code that append an invisible image to every page and action on your website. These images act as a beacon to analytics tools, where several things happen in just a few milliseconds:

1. JavaScript code runs to identify browser and device information as well as the timestamp of the page view.
2. More JavaScript code runs to look for the existence of a *cookie*, which is a piece of text saved on a browser. Cookies can be accessed only by the domains that set them and often have an expiration date.
3. If it exists, a visitor ID is extracted from the cookie to identify the user across visits and pages. If a visitor ID doesn't exist, a unique ID is created and set in a new cookie. These IDs are unique for each visitor but are not connected to a user's personal data, thus providing a measure of privacy for users.
4. More JavaScript is used to capture information about the page: the URL, the referrer, and a slew of custom dimensions that identify the action and behavior of the visitor.

After all that JavaScript logic runs, the image beacon is generated to send data into the collection and processing engine in Adobe's analytics.

Intimidating isn't it? Well, that's how web developers felt. When we first started working in web analytics, our toughest job was teaching developers how to write and test all this JavaScript to ensure that our tags fired accurately. Teaching developers to develop — not a fun job.

Lucky for us, an even smarter developer came up with an idea to move all that JavaScript into a single UI (user interface). Web developers only had to add one or two lines of code to every page of the site, and the marketer could then manage their tags in this new platform named a *tag management system*, or *TMS*. It wasn't long before the tag management industry exploded, leading to dozens of vendors, and then acquisitions, mergers, and technology pivots.

The good news is that the tag management system industry has become commoditized and is available for free from Adobe in the form of Dynamic Tag Manager (DTM) and Adobe Launch. You may already be familiar with Google's TMS, Google Tag Manager, or one of the independent TMS players such as Tealium, Ensighten,

or Signal. Chances are your company is already using one of these technologies to deploy marketing tags on your website. All of them can deploy Adobe Analytics, although Adobe's recommendation for best practice is to use Adobe Launch.

Capturing data from mobile devices

If standard websites delivered to a laptop are the natural place to start with our data collection discussion, moving to a smaller mobile screen is the logical next step.

You may already know that at this stage of the evolution of web design, mobile websites are fully functioning web pages, not afterthought appendages to laptop, desktop, or large monitor sites. These smaller-scale websites are created by using an approach to web development called *responsive design*, in which the code used to create website content is the same regardless of the size of the web visitor's screen and browser. Your company is most likely already leveraging responsive design.

When responsive design is applied, the same tags that fire on the desktop site should work on mobile- and tablet-optimized websites because they're essentially the same thing, which is good news in the tag management world. However, the world of responsive-design-based mobile apps is completely different than that of native apps.

Mining data from native apps

Native apps present particular challenges for data collection. These mobile and tablet applications are programmed in a different way than responsive websites. In general, *native apps* don't run in browsers, don't use HTML, and can't run JavaScript. In fact, applications built for iOS are built in a different programming language (Objective C) than Android apps (Java). We mention these technical programming languages for one important reason: A tag management system is not going to work on your mobile and tablet applications.

Some tag management system vendors have hacked the capability to incorporate JavaScript into apps, but the result has limited capabilities and is far from a best practice. The most complete, accurate, and scalable way to deploy Adobe tools is to use the Adobe mobile software development kit (SDK). The Adobe mobile SDK is built to work as a data collection system, like a tag management system, but uses the app's native programming language (Objective C for iOS or Java for Android).

The Adobe SDK is important because it has deeper access into the code that runs the app and therefore can be used for more than just data collection. In addition to sending data to Adobe Analytics, the Adobe SDK is required to do the following:

- » Capture geographic location data based on GPS.
- » Utilize geofences based on that GPS data for analysis or action.
- » Send push notifications to users.
- » Update content in the app via in-app messaging, personalization, and testing.



TIP

Access to these capabilities may be limited to the SKU, or version, that your company has purchased from Adobe. Work with your Adobe Account Manager to understand which of these capabilities is included with your contract.

Data from IoT and beyond

Now that we've discussed data collection standards for the two biggest use cases (web and mobile), it's time to branch out to a more generic set of the Internet of Things (IoT). Everyone who asks questions about data needs to be thinking about digital kiosks, smart watches, connected cars, interactive screens, and whatever other new devices our tech overlords have announced since this sentence was written.

Vendors such as Adobe find it difficult to stay on top of every new device because building SDKs takes time, money, research, engineers, code, quality assurance, and more. But don't worry: Devices that don't have native-built SDKs can still send data to Adobe Analytics.

The best practice for sending data from one of these devices is through an *application programming interface (API)*. In short, this means the developers of the IoT application can write their own code to create a connection to your Adobe Analytics account and then send data to it. APIs have become the default way in which data is sent from any device connected to the Internet either full time or part time. Adobe has some recommendations to share too, especially for some of their big bets when it comes to these new devices, such as voice and connected car. At the time of this writing, SDKs are not available for voice-activated devices or connected car applications. However, Adobe does have best practices for data customizations, variable settings, and code options for both of these technologies.



REMEMBER

Enterprise software — software licensed to institutions — is updated regularly, and Adobe releases best practices for tracking data associated with new digital mediums such as voice and the connected car.

You've now explored all types of data generated by devices that have part-time or full-time access to the web: computers, phones, tablets, and IoT.

People's digital experiences and interactions on those devices are captured by some combination of TMS, SDK, and API. According to marketers and analysts, that list is missing something: data that isn't based on behavior. Perhaps the best example of nonbehavioral data comes from your customer relationship management (CRM) tool. *CRM tools* are used to organize, categorize, and manage your prospects and customers. Other examples of nonbehavioral data that marketers and analysts would be interested in include the following:

- » Call center
- » Offline or in-store purchases
- » Returns or cancellations
- » Product cost of goods sold
- » Ad campaign
- » Customer satisfaction

Adobe Analytics can import any of these data types along with plenty of others. In general, this data is imported into Adobe Analytics via either File Transfer Protocol (FTP) or API. In Chapter 16, we describe some of the options for connecting data into Adobe Analytics.

Configuring and Analyzing Data

Can you imagine a chef who didn't know the source of the food she cooked? The chances of getting that coveted Michelin star would be significantly worse. The same concept applies to becoming a rock star analyst.

That's why we dug as deeply as we did into where data comes from. As an analyst, you'll be working with that data, and you need to know its source. And you need to be able to communicate in a meaningful and productive way with the team that harvests that data.

Preparing to slice and dice data

With so many options for collecting and customizing Adobe Analytics data, an analyst needs to understand the details of how data is collected in his or her organization. The more you know about the intricacies of your implementation, the

faster you'll be able to slice and dice your data and think creatively to solve problems. In fact, that creative thinking is some of the most fun you'll have as an analyst. One particularly creative portion of the Adobe Analytics process is tied to the decisions associated with your data configuration and implementation.

It's possible that your Adobe Analytics version has upwards of 1,500 possible custom variables and therefore a virtually unlimited number of ways to collect data. The decision-making associated with how to populate those variables needs to be a combination of left and right brain. That is to say, you should start with specific data you need to track, and then trip out a bit on other variables that might shed light on the effectiveness of your website, app, or other digital interactions.

Optimizing your raw data

Throughout this chapter, we point to the importance of a dynamic relationship between analysts and the folks who set up the scripts and other tools used to collect data from websites, apps, and other digital engagement with users. Let's dig into *how* that interaction works.

If you've recently had or are planning a site or app re-platform, this is the perfect time to integrate data collection into the process. If it's been awhile, it's time to dust off your documentation, commonly referred to as a solution design reference (SDR), and immerse yourself into the details. Think of your SDR as a data dictionary that your company uses to keep all of the data in your Adobe Analytics instance organized and accessible.



REMEMBER

First, it's important to know *who* in your organization is responsible for data collection. At least one person is responsible for the data collection strategy at your company, and you should find that person, introduce yourself, and begin to forge a relationship. It's hard to think of a peer at your company who will influence your life as an analyst more than the person making decisions about how data flows into Adobe Analytics.

Being a data collection detective

We'd like to provide you with a few tips to help you find this magical implementation master at your company. Many companies outsource analytics tagging projects because it's a specialized skill and outsourcing keeps the implementation specification and deployment processes out of the hands of developers who have much bigger fish to fry.

If your company is working with an agency, they are most likely driving your implementation decisions or can at least point you to the person who is. If you

weren't successful finding an agency that helps with your analytics deployment, it probably makes sense to think about the digital channels that Adobe Analytics is deployed on and the team responsible for adding code to them. For example, if Adobe Analytics is collecting data from your website, you'll want to check and see whether you have a tag management system.



TIP

One of the best free ways to discover marketing technologies on your website is Ghostery, a browser plug-in. After you install it, you'll be able to see a list of all marketing and advertising technologies deployed on any page you visit on the web. It's a great way to discover what, if any, tag management system is in use on your website. Ghostery can be used to block tracking and marketing, but it can also be used as a tool for surveying and understanding how tracking and marketing work, as shown in Figure 1-1.

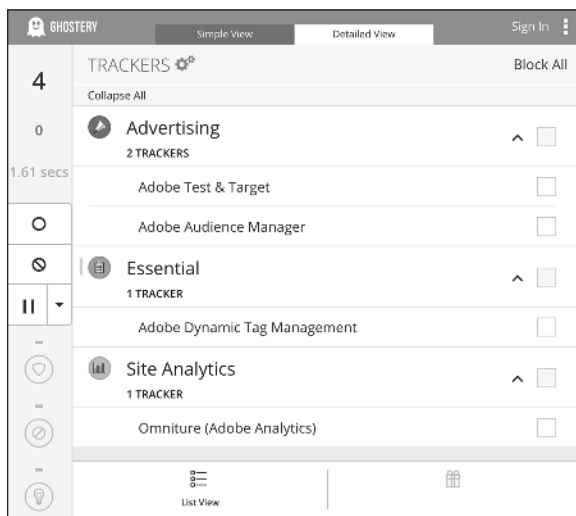


FIGURE 1-1: Using Ghostery to identify tracking technologies associated with the Adobe.com site.

As you identify and learn about tracking associated with any site (including your own!), the next step is to find the owner of that technology. A tag management system is generally owned by one of three groups: marketing, IT, or analytics/business intelligence. Start asking people on those teams about your tag management system and you're bound to come up with the name of your next new friend.



TIP

If you don't have a tag management system, your tags are almost definitely managed by IT or your engineering/development organization, so start there. Marketing technology teams are another great place to look if your company has such a team. If you're instead trying to track down the implementation associated with your mobile, tablet, or IoT apps, your path is less clear. The same team that manages your website tagging is the right place to start, but some companies out-source their mobile applications to developers who specialize in apps.

Situating Adobe Analytics in the Universe of Data Analysis

Now that we've identified and begun to explore key elements in how Adobe Analytics works, why it works, and how it fits into successfully accomplishing an organization's goals and mission, let's address the elephant in the room: What's the relationship between Adobe Analytics and Google Analytics?

We've had countless customers and friends in the industry ask us which analytics solution we like best. Instead of answering that question, we provide an answer to a more objective one: What are the strengths and limitations of each analytics solution?

This focus has helped prospective buyers of an analytics solution quickly map features and integrations to their requirements. And by comparing and contrasting the two, you will understand why your organization made the call to implement Adobe Analytics. Or, if you are part of the team making that call, this section will help you evaluate the relative strengths and limitations of different data analytics options.

Surveying how Adobe Analytics stacks up

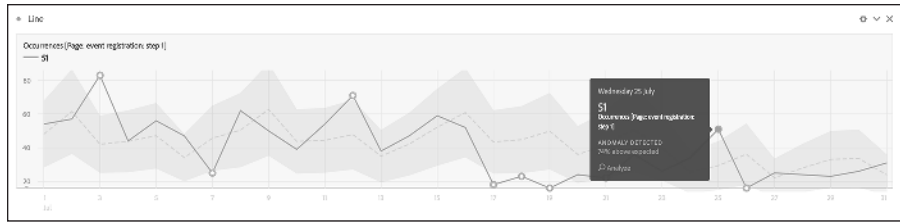
We start this comparison by focusing on Adobe Analytics because that's the topic of this book. Adobe's analytics solution is often thought of as the Ferrari in the industry — impressively powerful but costly. That analogy has some truth to it. But let's break down some of the features unique to Adobe Analytics.

Peeking at Analysis Workspace

In terms of power, nary an analytics solution can top the Adobe capabilities that you'll be walking through in this book. The first key differentiator for Adobe is *Analysis Workspace*, the default engine in Adobe Analytics for analysis, visualization, curation, and sharing. Built with both the marketer and the analyst in mind, Analysis Workspace provides unlimited breakdowns, on-the-fly segmentation and calculated metrics, a slew of data visualization capabilities, and four key built-in, data-science-powered features. To take just one example, Adobe Analytics employs Anomaly Detection algorithms to identify anomalies such as hard-to-find drops in average order value, spikes in orders with low revenue, statistically significant increases in trial registrations, and drops in landing page views.

We describe how Adobe Analytics marshals data science in Chapter 16. For now, you can get a sense of what we're talking about by looking at Figure 1-2, which shows Analysis Workspace.

FIGURE 1-2:
Using Analysis
Workspace in
Adobe Analytics
to identify
anomalies.



Adobe has recently added to Analysis Workspace a much-needed component for attribution that allows almost all metrics to have one of ten attribution models that you can apply to almost any dimension in the platform. You explore the significance of accurate attribution in Chapter 12, but in short, marketing attribution helps you understand how your customers and clients are interacting with your online presence and what they want in a way that makes possible highly focused and accurate marketing or service decisions. Attribution IQ in Analysis Workspace, for example, lets you add many new types of attribution models to freeform tables, visualizations, and calculated metrics. Attribution IQ is shown in Figure 1-3.

FIGURE 1-3:
Using the
Attribution IQ
panel in Analysis
Workspace.

As of this writing, algorithmic and data-driven models require an upgrade to Adobe's Data Workbench solution at significant cost.

Visualizing flow and fallout

Two huge differentiators for Adobe are tied to their customer journey visualizations: flow and fallout. Other vendors seem to fail to get the flexibility and ease of use right for these types of analyses, In addition, Adobe is primed to release

Customer Journey Analytics, a feature focused on stitching visits and devices across devices based on logins or Adobe’s Device Co-op. (For an exploration of flow and fallout, see Chapter 14. For an explanation of Adobe’s Device Co-op, see Chapter 16.) Figure 1-4 illustrates visualizing flow in Adobe Analytics.

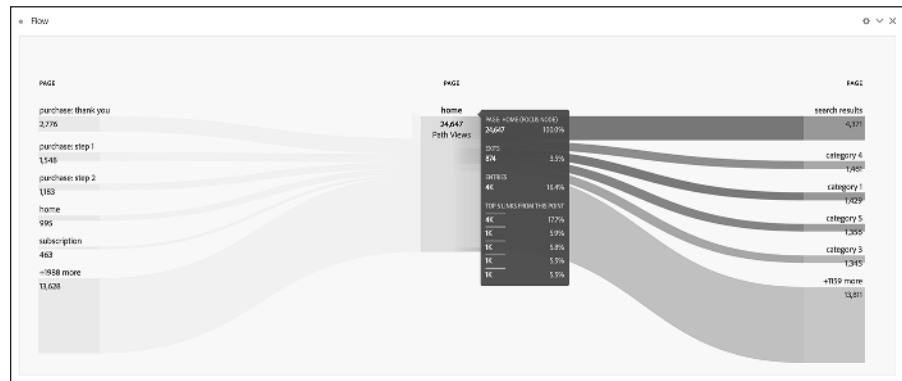


FIGURE 1-4:
Visualizing flow in
Adobe Analytics.

Adobe also has built-in data connectors with dozens of partners that allow for relatively seamless and often bidirectional integrations of datasets across email, search engine optimization (SEO), commerce, advertising platforms, and more. If these pre-built integrations aren’t good enough, Adobe recommends a custom integration via a number of options including the recently released Adobe Experience Platform.

The other big selling point of Adobe’s integrations comes from deep within their own Experience Cloud — integrations with other Adobe solutions. Adobe was the first (and, as of this writing, only) company to have a bidirectional integration with an Analytics and Data Management Platform (DMP). DMPs are used for merging data from multiple datasets, building audiences from that merged data, and activating those audiences in advertising platforms. Don’t worry. If that topic is too advanced, you should just know that marketers can define segments in Analytics that are then enriched by additional data sources in Audience Manager (Adobe’s DMP), and then share those segments back into Analytics for further analysis. Adobe also has quality integrations with Target (testing and personalization), Campaign (1:1 marketing campaign management), Experience Manager (content and asset management), and Ad Cloud (advertising bid optimization). For more information on how Adobe uses data across products, review Chapter 16.

PAY-FOR-WHAT-YOU-NEED MODEL

Like a Ferrari, the biggest complaints about Adobe are often tied to price. Adobe has put serious thought towards this problem by offering a set of SKUs at multiple price points based on the features and functionality that your company can access. Some advanced features, such as Contribution Analysis (see Chapter 15 for details), are limited in the lower-cost tiers.

Identifying the limitations of Adobe's solution

Adobe's biggest missing feature may be a big one for you: integration with Google Ads. Adobe does have several ways of integrating with advertising data from their biggest analytics competitor, but none are as seamless or as complete as Google's.

In addition, some people complain that Adobe's solution is too difficult to use, but we think this opinion is based on the Omniture interface (the program Adobe acquired that evolved into Adobe Analytics), which was, frankly, daunting. Analytics Workspace has removed these limitations and created unique ways to empower new users. And we're confident that this book will put those tools well within your reach!

Understanding how Google Analytics fits into the picture

If you've never used Adobe Analytics but have used an analytics solution, odds are that you've used Google Analytics. Let's take a step back and look at how Google Analytics fits into the world of analytics.

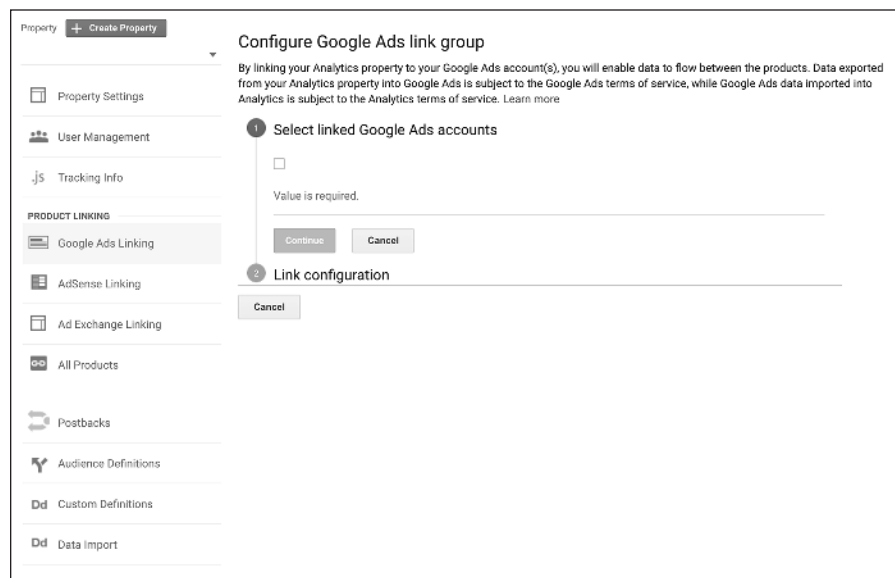
First, it's important to note the difference between Google's free tool, Google Analytics, and the enterprise (and not free) level, Google Analytics 360.

Distinguishing between Google Analytics and Google Analytics 360

Google has cornered the free analytics solution market, doing the entire industry a service by helping to drive a huge wave of businesspeople to start asking questions about their data. The free version of Google Analytics is a valuable and accessible tool for generating *reports* on who is coming to a website and how they are interacting with that site. It is not an enterprise-level tool for data *analysis*. (See "Knowing the Difference between Reporting and Analysis" in this chapter.)

Our focus here is on Google Analytics 360. Google released this for-pay solution several years ago. A significant differentiator and advantage of Google Analytics is its native integration with Google Ads. If advertising is your analytics *raison d'être*, you're probably spending more of your budget and time in Google's ad tools than any other tool and therefore will find Google's ad integrations valuable. Figure 1-5 shows the process of configuring Google Analytics with a Google Ads account.

FIGURE 1-5:
Connecting
Google Analytics
with a Google Ads
account.



Google imports data from Google Ads (formerly DoubleClick for Advertisers), the Google search console, display and video ads, and paid search ads for Google Analytics 360 customers. In addition, segments created in Google Analytics can be enabled for remarketing campaigns via Google Ads. However, note that these remarketing lists are not retroactively updated, so users in your segment prior to the segment being shared to Google Ads are not included in the remarketing list. Only users who become a part of your segment *after* it is shared as a remarketing audience are available for remarketing.

Calculated metrics in Google Analytics and Google Analytics 360 are limited to the four basic arithmetic operators (add, subtract, multiply, divide) and can be used only in custom reports and created only by administrators. Some calculations are pre-built into reports, but they are often simple divisors of other metrics already in the report. Analysts often need more complex operators and functions, such as distinct/unique counts, means, medians, percentiles, and logical operators (if, then, and, or, greater than, and less than). The interface for creating a calculated metric in Google Analytics is shown in Figure 1-6.

FIGURE 1-6:
Creating a
calculated metric
in Google
Analytics.

The screenshot shows the 'Add Calculated Metric' dialog in Google Analytics. On the left is a sidebar with navigation links: View Settings, User Management, Goals, Content Grouping, Filters, Channel Settings, Ecommerce Settings, and Calculated Metrics BETA (which is highlighted). Below these is a section for 'PERSONAL TOOLS & ASSETS' with a link to Segments. The main area of the dialog contains the following fields and options:

- Name:** A text input field containing 'Pageviews Per Session'.
- External Name:** A text input field containing 'PageviewsPerSession'. Below this field is a small text block: 'The external name is used to uniquely identify the calculated metric when querying via API. External names may contain alphanumeric and underscore characters only. Special characters, symbols, and spaces are not allowed.'
- Formatting Type:** A dropdown menu with 'Float' selected.
- Formula:** A text input field containing '{{Pageviews}} / {{Sessions}}'. Above this field is a small text block: 'Start typing and you'll see a list of predefined metrics which you can use to create a formula. Accepted operators include plus ("+"), minus ("-"), divided by ("/"), multiplied by ("*"). Using the minus operator as a negative is unsupported (i.e. A-B is supported, but -B+A is not). Formulas are limited to 1024 characters.'

At the bottom right of the dialog are two buttons: 'Create' and 'Cancel'.

Integrating with Google Cloud Platform

Another distinguishing feature of Google's tool is integration with Google Cloud Platform (GCP). Advanced analysts and data scientists who are comfortable in SQL (Structured Query Language, a language for accessing and manipulating databases) will be able to run queries thanks to the integration of Google data into BigQuery, Google's fast-moving SQL-based platform for complex analyses of multiple datasets filled with huge data.

The caveat or downside here is that accessing this data requires a high level of fluency with SQL to generate the kinds of reports that you can generate without SQL in Adobe Analytics.

Surveying Google's Advanced Analysis interface

Google's recently released interface for Analytics 360 is called Advanced Analysis. It includes a few key features not previously available in standard Google Analytics. For example, Advanced Analysis increases a user's ability to break down a report, such as breaking down the marketing channel report by landing page. Google's Advanced Analysis allows for ten breakdowns in a report, whereas the old interface allows for a maximum of five.

Segment Overlap is the second report in Advanced Analysis. This report provides analysts with a Venn diagram of segments that show the percentage of users who share a segment. Finally, Google has expanded custom funnel capabilities in Advanced Analysis. Google Analytics 360 customers love the ability to create custom funnels on the fly, whereas non-360 customers have to create the funnel before data flows into it. In Advanced Analysis, Google has expanded these custom funnels to max out at 10 funnel steps, doubling the maximum in Google Analytics.

When compared to Adobe's Analysis Workspace, Google's Advanced Analysis tool is far less robust, but we're excited to see what Google cooks up in future releases.

Evaluating plusses and minuses

As noted, Google gets high marks for their integration with other Google platforms. However, Google Analytics has only one significant non-Google integration, with Salesforce, so all other data sources require a custom setup via API.

Google Analytics evolved from, and retains significant evolutionary holdovers and limitations based on, its origin as a much simpler tool for reporting, as opposed to a full-fledged analytics tool. The limitations associated with calculated metric capabilities, dimensional breakdowns, and custom funnels may be debilitating to analysts who are unable or uninterested in using SQL.

The most significant shortcoming may be that Google Analytics, even the premium Analytics 360 solution, uses data sampling in its reports, so some reports may not show a complete view of visitor behavior. Similar to election polling, Google Analytics reports show data associated with a percentage of the full set of data (20 percent, for example) and then multiply that number by the total number of site visitors (by five, in this example).

Of course Google's real sampling algorithm is more complicated than this (visit <https://support.google.com/analytics/answer/2637192?hl=en> for details) but the end result is important: Data may provide you with different answers depending on how it is sliced. In Analytics 360, sampling minimums are increased in many reports.

In short, the free version of Google Analytics plays a valuable role in opening the door to data analysis for a wide range of small-scale developers, including individual website designers who create their sites with WordPress, Wix, or other tools. It allows them to generate basic reports and perform a limited array of essentially predefined analyses.

The less widely known and implemented Google Analytics 360, with the Advanced Analysis interface, adds a few features that overlap in some ways with those in Adobe Analytics. Limitations include the need for SQL programming to get the most from the collected data and, significantly, data accuracy issues. Google Analytics has the advantage of providing the most direct path to data analysis with a focus on advertising and publishing.

Noting other analytics options

We've compared and contrasted the dominant options for professional-level data analytics. Here we briefly acknowledge some of the other players in the field. These analytics products are often more niche oriented, focusing on event-based tracking, real-time stats for publishers, mobile application frameworks, or data built for product managers.

Each of these vendors, including MixPanel, Heap, Amplitude, and Localytics, provides more focused but fewer features than Google Analytics 360 or Adobe Analytics. None have aimed to compete with the more complete cloud offerings in Google Marketing Platform or Adobe Experience Cloud.

Building a Positive Relationship with Your Data Team

We've surveyed a wide range of issues related to collecting and analyzing data in this chapter. But before we move on, it's important to talk about how humans fit into this process!

It can be valuable to formulate a plan before reaching out to your future analytics partner(s). It's always a good idea to learn about the history of an implementation before criticizing it. Websites, including the installation of tags, often contain years of history tied to acquisitions, mergers, and bolted-on technologies, which often turn an analytics solution into a multi-headed monster that hasn't been given the requisite love to keep data clean and actionable.

Our point is to be aware of office culture, personalities, and politics when digging into the depths of your data. Don't start your new potential friendship with the question "How did our data get so bad in the first place?"



TIP

A better approach is available. Think about the overview we've provided on where data comes from and how data is mined from user activity. Also listen to and learn from people who know the history and constraints of the resources at hand. Then work *with* your data team to find ways to maximize the value of what gets collected and poured into the mix from which you'll be extracting analysis, which will in turn be used to drive results.

In Chapter 2, we build on this overview of how Adobe Analytics works, survey and break down the building blocks of reporting and analysis, explore the report suite, and dig into the all-important challenge of accurately defining and measuring success events.