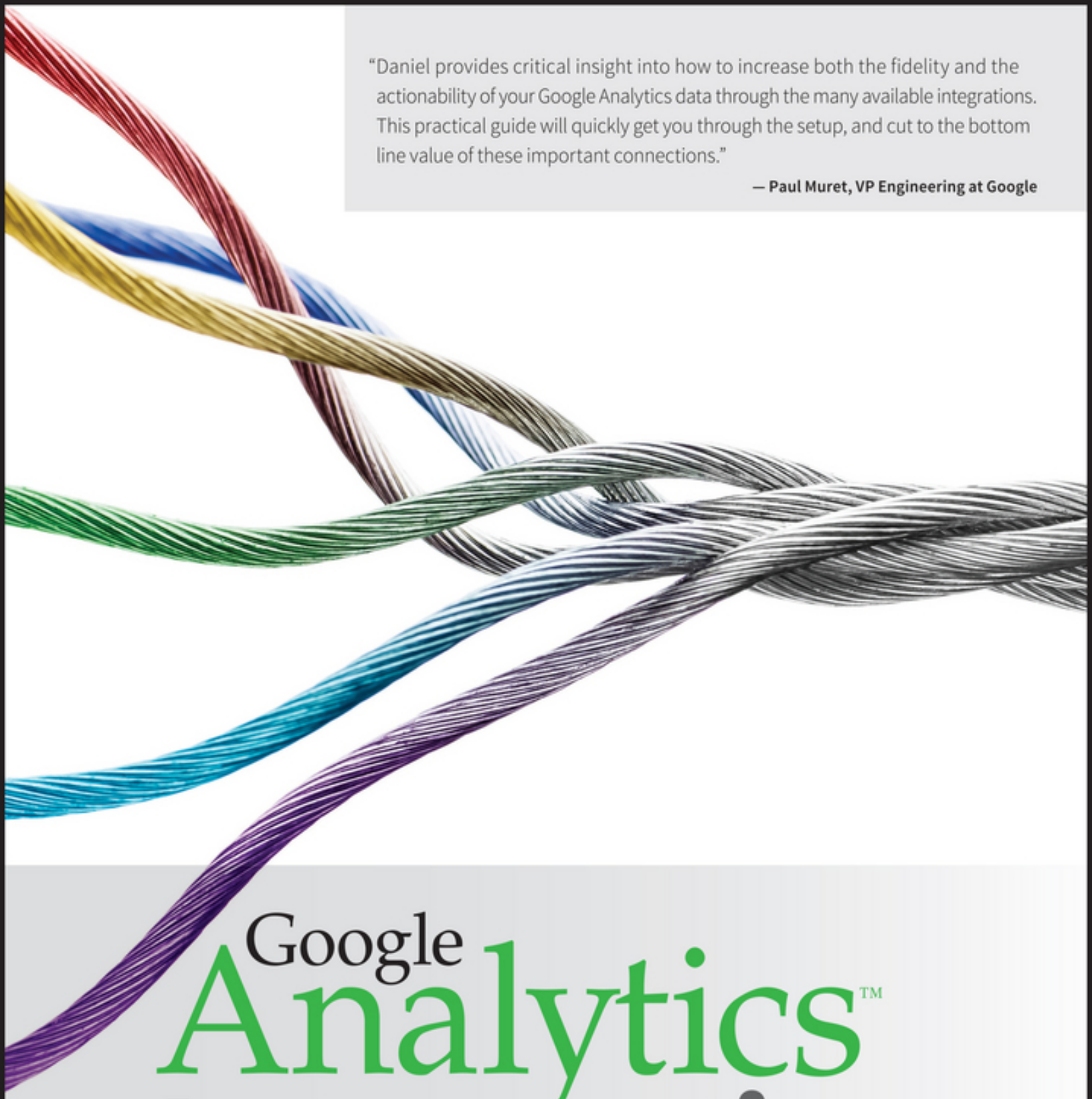
"Daniel provides critical insight into how to increase both the fidelity and the actionability of your Google Analytics data through the many available integrations. This practical guide will quickly get you through the setup, and cut to the bottom line value of these important connections."

— Paul Muret, VP Engineering at Google



Google Analytics™ Integrations

DANIEL WAISBERG

WILEY

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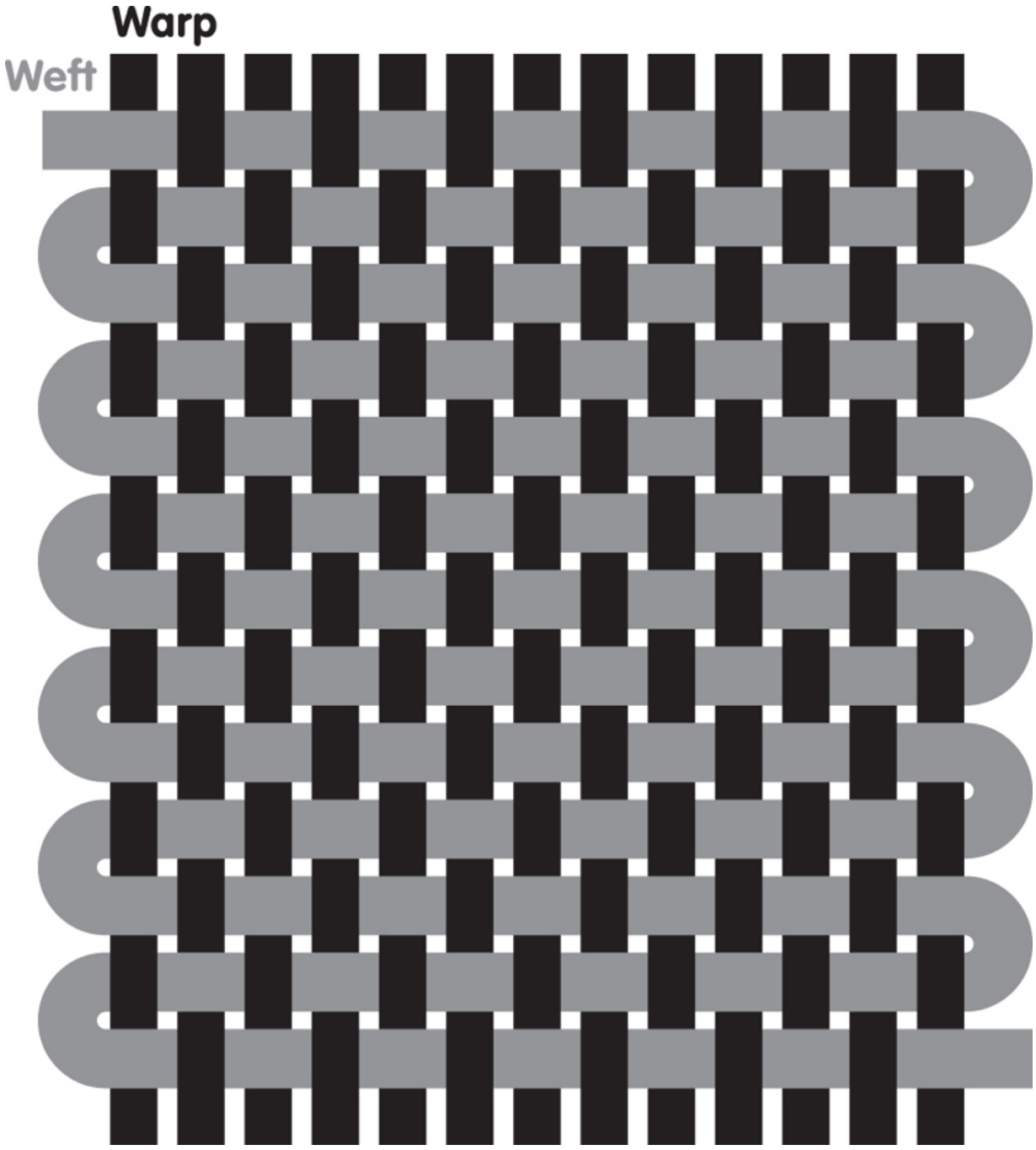

Illustration by Daniel Bronfen

Introduction

Thousands of years ago, our ancestors understood the power of weaving flax fibers in a way that would turn long, disparate threads into cohesive pieces of cloth that could be used to warm and protect them. The process has changed along the years; we now have large and complex machines to do the work for us. The main principle is still very similar: A series of parallel threads (warps) is interwoven by another thread (weft) and pressed together.

This book similarly shows that Google Analytics can work very effectively as the weft that interweaves all your data sources, bringing them together as a whole in a cohesive data platform. Very often, you find data all over a company, but data sources run separate from one another, parallel as the warps in a loom, and integrating them may seem like an impossible endeavor. But it shouldn't be like that; all your data should be as tightly integrated as pieces of cloth.

The word *integration* comes from the Latin word *integratus*, past participle of *integrare*, which means to "make whole." In that sense, we can define *integration* as the process of bringing together parts or elements and combining them into a whole. When it comes to the world of data, integration means combining all the data you have about one entity (a user, a campaign, a product, and so on) in a single place.

Using Google Analytics, you can integrate data from other Google products to be viewed alongside its reports; you can also integrate other sources of data through custom integrations (provided that you have a *key* to join them together). This means that instead of having to analyze data using several different tools, you have the power to

centralize all relevant information into Google Analytics to make data analysis easier and quicker. Analyzing data generated by different products in one central place will also result in more meaningful and actionable analyses.

Many professionals are still analyzing only a single part of their users' interactions with their digital properties. They can't see all the factors (and data) that affect their business, online and offline. This happens mainly because data is scattered over multiple tracking tools, making it hard for professionals to integrate all sources of information in one place. As you will learn in this book, Google Analytics is an extremely good candidate for creating an analytics platform that will centralize the most essential pieces of information for anyone working online.

In summary, this book is a hands-on guide focusing on one very important thing, which I personally believe to be critical for success: integrating all your data into Google Analytics so that you can have a full picture of your marketing efforts and your users' behavior. This quote from a research paper by Econsultancy is clear and to the point (see http://goo.gl/VFFHKD):

> *"Integrating additional data into your web analytics provides a more complete vision of the entire marketing funnel. Your capability instantly expands from counting site traffic into a broader system that measures your effectiveness in advertising, sales online and offline, product usage, support, and retention."*

Who Needs Google Analytics?

To put it simply: every business on the Web! While this might sound like an exaggeration, very few professionals would disagree with the claim that Web Analytics is essential to succeed in the digital world. Google Analytics

is a robust and comprehensive solution, which can be implemented to answer the needs of small bloggers, larger-scale websites, and mobile apps.

While large enterprises typically employ analysts and experienced online marketers, small businesses usually have Google Analytics implemented by a Jack-of-all-trades. So even though this book includes technical terms, I have attempted to explain the subject in a clear and down-to-earth manner, with screenshots that support the written explanations. Hopefully, both experts and occasional Google Analytics users can learn from the tips and tricks presented here.

Who Should Read This Book?

One of the important advantages of Google Analytics over other analytics solutions is the large and active user community on the Web, from forums to blogs to social networks. There is a vast amount of information on how to use and troubleshoot the tool. The aforementioned comes in addition to the official Google channels: Help Centers, Developer Documentation, Analytics Academy, and social channels. (See the links in the sidebar at the end of this section).

With that in mind, you might be asking yourself, "*Why do I need this book?*" That's a great question; thanks for asking!

Basically, this book centralizes everything you need to know about integrating data into Google Analytics, with detailed explanations and screenshots to guide you through this journey. In addition, the book is full of tips and tricks I've learned from many years of hands-on experience (I had a website running Google Analytics a month after it was launched in 2005!). So while some of the information will

be available online, you will learn quite a few new tricks from this book!

Please note that while I provide links throughout this book to the Google Analytics Help Center and Developer Documentation, those links are largely here to help readers with specialized needs. Indeed, one of the advantages of using this book as a guide is that you don't have to go through all the details that aren't relevant to your particular situation. Instead, you'll be directed to the specific resources you need at the moment in the process you need them.

Check Out These Resources to Get the Most Out of This Book

Google Analytics is a robust platform that can be used by people just starting their Analytics journey as well as by the most advanced Analytics geeks. But there are a few concepts and resources that are extremely important to understand before you start. Luckily, there is plenty of educational material to get you up and running. Here is a short list you might want to check before, after, or during the time you spend with this book.

- **Analytics Academy**: This is certainly the best resource to learn Google Analytics available in the Milky Way. (I haven't gone beyond that!) It contains many courses, from basic to advanced and from technical to business oriented. Check out http://goo.gl/k9ejPt.
- **Accounts, Users, Properties, and Views**: Every Google Analytics Account can be divided into *properties*, which can be divided into *views. Users* can have different access levels based on this hierarchy. It is important to understand how your account is structured; check out http://goo.gl/A3lPhv.
- **Universal Analytics**: Throughout the book you will encounter examples using the Universal Analytics code only (`analytics.js`). If you are not acquainted with this term or if you are still considering the upgrade, make sure to read http://goo.gl/X9jJ0A.
- **Dimensions and Metrics**: In this book, you learn about dozens of metrics and dimensions, including how to organize them into reports and how to use

them to analyze data. Make sure you understand their meaning; check out http://goo.gl/ldEv74.

- **The Interface Map**: This is a great visual summary of the Google Analytics interface. It will help you understand the names and locations of the capabilities offered by the tool; see http://goo.gl/PXjFe1.

How This Book Is Organized

During the writing process, this book's table of contents went through various iterations, mainly because there are many different ways to view the relationships between Google Analytics and other data sources. One hard decision I made was to include only the standard integrations that bring data *into* Google Analytics.

The reason behind this choice is that this book is intended to help any business use Google Analytics as a centralized data analysis platform. *But please don't get me wrong!* Integrations that are used to export data out of Google Analytics are also absolutely amazing, and they can be used to create powerful and customized solutions to businesses. They are just not in the scope of this book.

Since integrations are not that useful if the underlying data is inaccurate, I decided to start with an introductory chapter about implementation best practices. This chapter provides the most important information you need to know when implementing Google Analytics.

Following the chapter on implementation best practices, the book is structured in two main parts. Part I, “Official Integrations,” discusses the Google Analytics official integrations—AdWords, AdSense, Google Play, iTunes, Webmaster Tools, and YouTube. Part II, “Custom Integrations,” discusses ways to bring custom data into Google Analytics, mostly using the Data Import feature and the Measurement Protocol.

How to Contact the Author

In this book, I provide practical advice on integrating Google products and external data into Google Analytics, with detailed information and screenshots. As you probably

know very well if you are reading this, the Google Analytics team is constantly improving the tool and adding new functionality to it, which means you might not see exactly what I saw when writing the book. If that is the case, feel free to send me a note through the contact form at http://danielwaisberg.com/connect.

Chapter 1
Implementation Best Practices

> *On two occasions I have been asked, "Pray, Mr. Babbage, if you put into the machine wrong figures, will the right answers come out?" I am not able rightly to apprehend the kind of confusion of ideas that could provoke such a question.*
>
> *—Charles Babbage, Passages from the Life of a Philosopher*

Charles Babbage's quote is a succinct explanation of the term GIGO (garbage in, garbage out), which, in decision sciences, is commonly used to describe situations where inaccurate data is fed into a model, resulting in the production of equally inaccurate results. The same is true in this book's context: You must make sure you are collecting accurate data before you start using it.

In order to use Google Analytics as a decision-making tool, companies cannot afford to rely on partial, inaccurate, or otherwise misaligned data. Google Analytics must be set up properly to meet the measurement needs and business objectives of companies.

In this chapter you will learn some of the most important steps in order to have clean, organized, and accurate data. The chapter is divided in five sections, each representing a step when it comes to implementing Google Analytics in a website or app successfully:

1. **Understanding the web analytics process:** Before you implement Google Analytics, it is important to understand how the data will be used and how the collection and analysis of data relate to other business areas. This will help you decide on the data needs of

your company and which metrics will be used to measure success.

2. **Implementing and customizing codes:** Once your data needs and success metrics are defined, you should start looking for the necessary Google Analytics customizations to implement on your website or app.
3. **Setting up the Google Analytics interface:** Following the code implementation, you will need to set up the Google Analytics interface to make sure it processes your data in the way you want.
4. **Tagging inbound traffic:** In order to accurately measure all your website or app traffic, especially marketing campaigns, you will need to tag inbound links with custom URL parameters called UTMs.
5. **Managing the implementation:** To ensure that your implementation is always tidy, you should always keep track of changes on your Google Analytics account.

Please note that this chapter does not intend to provide a comprehensive description of Google Analytics implementation methods and capabilities; rather, it focuses on the most important aspects required to build an accurate and organized data collection.

Planning Your Implementation

The objective of web analytics is to improve the experience of online customers while helping a company to achieve its results; it is not a technology to produce reports and spill data. Web analytics is a virtuous cycle that should never start with data collection; collecting data is a means to an end.

The diagram in Figure 1.1 shows a process you can use to implement web analytics in your company. It is not *the* process; it is *a* process. Each company should find the process that works best for it, but this is a simple process that might work for you.

1. Start with a clear definition of business goals.
2. Build a set of key performance indicators (KPIs) to track goal achievement.
3. Collect accurate and complete data.
4. Analyze data to extract insights.
5. Test alternatives based on assumptions learned from data analysis.
6. Implement insights based on either data analysis or website testing.

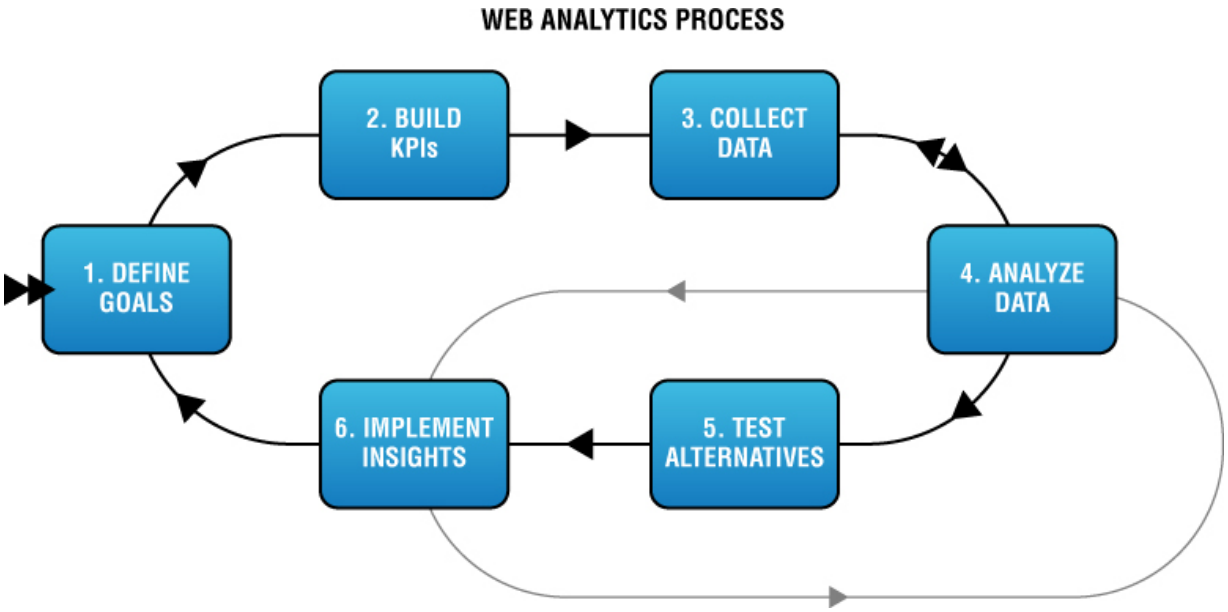

Figure 1.1 The web analytics process

This book focuses on steps three and four of the process in Figure 1.1: collecting and analyzing data. However, it is important to take a step back, before we dive into the bits

and bytes of data, to remember that data should not live in a silo; it should be strongly linked to business and customer needs. Below you will learn a little about each of the steps shown in Figure 1.1. Following this section you will dive deeper into the technical aspects of Google Analytics implementation best practices.

1. Define Business Goals

This is the first step when it comes to understanding and optimizing a website or app: You must understand your business goals in order to improve it. The answer to the following question is critical in defining your goals: Why does your website or app exist?

Each website or app will have its own unique objectives. For some, the objective will be to increase pages viewed in order to sell more advertising (increase engagement); for others, the objective will be to decrease pages viewed because they want their visitors to find answers (increase satisfaction). For some, the objective will be to increase ecommerce transactions (increase revenue), and for others the objective will be to sell only if the product fits the needs of the customer (decrease products returns).

As you can see in the web analytics process proposed in Figure 1.1, the objectives are absolutely necessary in order to start the process. Only after they are defined can you proceed to build the KPIs. It is also very important to constantly revisit the goals in the light of website analyses and optimization to fine-tune them.

2. Build Key Performance Indicators

In order to measure goal achievement, you will need to create KPIs to understand whether the website results are going up or down. A KPI must be like a good work of art: It wakes you up. Sometimes it makes you happy and

sometimes it makes you sad, but it should never leave you untouched, because if that is the case, you are not using the right KPIs.

And good works of art are rare. You have just a few truly touching works of art per museum, and not every work of art touches the same people. The same applies to KPIs. There are just a few truly good KPIs per company, and each person (or hierarchy level) will be interested in different KPIs—the ones that relate to their day-to-day activities. Upper-management will be touched by the overall achievement of the website's goals; mid-management will be touched by campaign and site optimization results; and analysts will be touched by every single metric in the world!

Good KPIs should contain three attributes:

- **Simple:** People in several departments with different backgrounds make decisions in companies. If KPIs are complex and hard to understand, it is unlikely that decision makers across the company will use them.
- **Relevant:** Each company has its unique objectives; therefore, it should also have its own set of KPIs to measure improvement.
- **Timely:** Even excellent KPIs are useless if it takes a month to get information when your industry changes every week.

By following the definition of the business objectives and the metrics that will be used to measure them, you will be in a much better condition to collect the data that will be needed.

3. Collect Data

When any company starts to collect website or app data, two questions should be asked:

- **Is my data accurate?** If your data is not accurate, it is like building an empire in the sand; your foundations can be shaken too easily.
- **Am I collecting all the data that I need?** If data is not collected, you will not be able to understand customer behavior properly.

You will learn more about Google Analytics data collection techniques in the following sections, so I will keep this step succinct.

4. Analyze Data

Data analysis is a rich field, which goes from simple filtering, sorting, and grouping to advanced statistical analysis. In this book you will learn about ways to analyze data using several Google Analytics reports and features, but the following are some general ideas that can help you go from data to insights:

- **Segment or die:** Segmentation is an essential technique when it comes to analyzing customer behavior. By segmenting your customers into meaningful segments, you will be able to optimize their experiences more easily and effectively.
- **Look at trends, not data points:** It is critical to look at your metrics over time to understand if the website results are improving or not.
- **Explore your data with visualization techniques:** You can chose from an endless pool of graphs and tools to visualize numbers. Exploring data with charts will

uncover patterns and trends that are hard to find by crunching numbers.

It's important to note that data analysis can lead to three different outcomes (as shown in Figure 1.1):

- To discover an insight for implementation, such as a bug or a page that does not convert for an obvious reason.
- To develop a hypothesis regarding a low converting customer touch point that will lead to a split test.
- To come to an understanding of a data collection failure: Important data can be either missing or inaccurate.

5. Test Alternatives

There is an African proverb that says, “No one tests the depth of a river with both feet.” In the same spirit, it is very unwise to change your website without first trying with the tip of your toes. When you test, you lower the risk of a loss in revenue due to a poor new design, and you bring science to the decision-making process in the organization.

But the most interesting outcome of experimenting is not the final result; it is the learning experience about your customers—a chance to understand what they like and dislike, which ultimately will lead to more or fewer conversions.

The web analyst must try endlessly and learn to be wrong quickly, learn to test everything and understand that the customer should choose, not the designer or the website manager. Experimenting and testing empowers an idea democracy, meaning that ideas can be created by anyone in the organization, and the customers (the market) will choose the best one; the winner is scientifically clear.

Following are a few tips when it comes to website testing:

- **Testing is not limited to landing pages:** It should be implemented across the website, wherever visitors are abandoning it and wherever the website is leaving money on the table.
- **Try your tools (and your skills) with a small experiment:** Sometimes it is wise to start small and then grow. Once you are familiar with your tools, try a test in an important page but for a small (or less profitable) segment. Then head for the jackpot!
- **Measure multiple goals:** While you improve macro conversions, you might be decreasing registrations or newsletter signups, which might have a negative impact in the long run.
- **Test for different segments:** Segments such as country and operating systems can have completely different behaviors, so the tests should also be segmented in order to understand those differences.

Google Analytics offers an A/B testing feature called Content Experiments; learn more about it at http://goo.gl/HTGX2d.

6. Implement Insights

No insight implementation is a synonym of no web analytics. If you go through all the preceding steps but cannot actually implement the results on your website, it is as if you did nothing. Following are some tips that can help you overcome implementation bottlenecks:

- **Get C-level support:** This will be essential if you come to a point where organizational priorities must be set and resources allocated.
- **Start small:** As mentioned previously, starting small helps to set expectations; people understand the tools

and what is required from them.

- **Be friendly:** Being a nice person is always helpful; that's the way human nature works.

Implementing and Customizing Your Code

If you are implementing Google Analytics for the first time, you will see a wizard that will guide you to retrieving the appropriate tracking code to use, right after creating an account. The first choice: what would you like to track, a website or a mobile app? If you choose a website, you will get a JavaScript code to implement on it; if you choose an app, you will get links to download either the Android or iOS SDKs.

If you miss the previous step or would like to find your tracking info at a later stage, you can find this page by logging into Google Analytics and clicking on Admin on the top of any page. This will lead you to the Administration panel where you can find an item named Tracking Info.

While implementing the default code on your website or app will provide you with important information about customer behavior, other code customizations might be required to accommodate your business needs. In the next section, I describe the customizations that I believe to be the most important; for a comprehensive and detailed description of all customizations available, visit http://goo.gl/t1Td5T.

Implementing Google Analytics Through Google Tag Manager

If you are an experienced analyst/developer/marketer, you are probably asking yourself, “When is he going to start talking about Google Tag Manager?” A great question! In this chapter I focus my attention on the Google Analytics methods that should be used when enhancing your implementation, regardless of how you choose to actually implement them.

As you might already be aware, Google Tag Manager is a powerful and scalable way to organize your Google Analytics (and other tools) implementations. It will make updates easier and cleaner, and it will transform you into a hero. Here are a few resources you should consider when implementing Google Analytics through Google Tag Manager:

- The official Google Tag Manager Help Center: http://goo.gl/1uXK90
- The official Google Tag Manager Developer documents: http://goo.gl/CPTYH6
- Google Tag Manager Step-By-Step Guide (Web): http://goo.gl/lBiX6t
- Guide to Google Tag Manager for Mobile Apps: http://goo.gl/ib3LL7

Cross Domain Tracking

If you would like to measure multiple websites that are linked together within a single Google Analytics property, it is important to adjust the code with Cross Domain Tracking

(tracking behavior across subdomains does not require additional configuration). Failing to take into account multiple domains when implementing Google Analytics can significantly decrease data accuracy. Common cases are ecommerce carts, which are sometimes hosted on different domains; if the tracking code is not set up correctly in such instances, you might see a large number of direct or self-referral sessions ending on a transaction.

In order to understand Cross Domain Tracking thoroughly and grab the necessary codes for implementation, I recommend reading through both the Developer documentation at http://goo.gl/5JvxJ1 and the Help Center at http://goo.gl/TJ0Wfp.

Enhanced Ecommerce

If your website or app offers merchandise or another type of ecommerce transaction, it is critical to implement the Google Analytics Enhanced Ecommerce functionality so that you can understand your customer journey better. This feature will enable you to have a deeper understanding of shopping behavior, campaign ROI, customer lifetime value, and other important information.

For a business and technical overview of the Enhanced Ecommerce feature, read http://goo.gl/th9Roy.

Custom Dimensions

Creating audience segments is one of the most important techniques when trying to understand and optimize customer behavior; it allows you to make your website or app more relevant to different groups of users. Google Analytics provides a powerful segmentation capability by default, using a multitude of metric and dimension combinations.