

# THE BEGINNER'S GUIDE TO WEB ANALYTICS

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## Introduction

The Beginner's Guide to Understanding Web Analytics is a best practices manual for beginner to intermediate level marketers. Whether the marketing professional is working in the corporate world or for a non-profit organization, the guide will walk them through the basics of what web analytics means, define terms and provide context for the metrics used in measuring web data. Divided into four main sections, *Define*, *Utilize*, *Measure* and *Strategize*, this guide helps to explain not only what each metric means but how it can best be used to further the goals and objectives for the user's business or organization.

As a young business professional, I was tasked with managing my company's web analytics. Having only a tenuous grasp of what that entailed, countless Google searches led me to a piecemeal understanding of the data set before me. While Google Analytics has comprehensive training programs for their platform, I was starting from zero knowledge, and felt that any article or webpage I could find assumed a base knowledge I was lacking.

The goal is to provide a comprehensive starting place for marketing professionals, small business owners, or non-profit organizations who want to make the most out of their efforts but do not know where to start. The objective for this guide is not to teach a specific platform but to give a well-rounded knowledge of the subject matter so that the user can make their own informed decisions moving forward.

The ultimate target is to publish this material to provide a guideline for marketing professionals, small business owners, and non-profit organizations to navigate their marketing presence through learning the basics of web analytics.

## Background

As stated above, this guide is divided into distinct sections. The first major section is defining analytics. This starts with a basic introduction to the concept of web analytics, a brief history to understand where web analytics began, and an exhaustive list of definitions with real-world examples for context. To prepare for the compilation and writing of this guide, I researched many facets of the Web analytics industry to understand the development from humble beginnings to the multi-billion-dollar industry it is today.

The first step to understanding Web analytics is understanding what it does and what it means. Web analytics is the technology and method for the collection, measurement, analysis and reporting of web sites and web applications usage data (Zheng & Peltserverger, 2015). Web analytics has been growing ever since the development of the Internet. It has developed from a simple function of HTTP (Hypertext Transfer Protocol) traffic logging to a more comprehensive suite of usage data tracking, (Velasquez, 2013; Maté et. al., 2016) analysis and reporting (Duncan, 2010; Marek, 2011; Poulos, Korfiatis & Papavlassopoulos, 2020). Today, web analytics is used in many industries for different purposes, including traffic monitoring (Plaza, 2009), e-commerce optimization (Carmona et. al., 2011), marketing/advertising (Hyman, 2011), web development, information architecture (Wiggins, 2007) etc.

Every time someone visits your web site, interacts with your social media pages, or clicks on your ad, that information is recorded. It is measurable, and by measuring that information, it can be studied, learned from, and converted into actionable insights. Web analytics refers to a tool that collects clickstream data regarding the source of website traffic (e.g., e-mail, search engines, display ads, social links), navigation paths, and the behavior of visitors during their website visits and that presents the data in a meaningful format (Järvinen & Karjaluo, 2015).

Collecting that information into a meaningful format gives you the ability to compile and report the information in a way that will provide actionable insights to your business or organization.

As Web analytics has seemingly surged to popularity as a buzzword in recent years, it has been easy to dismiss as a fad for many who do not understand it. Following the trend of “you have to have a web site, you have to have social media..., etc.,” Web analytics seems like the next new item on a never-ending list of new tools a business or organization must acquire to stay updated. However, quantifying web traffic is a fundamental way to measure and, ultimately, understand all those other tools you spend precious time and budget on acquiring (Zheng, Chyi, & Kaufhold, 2012).

To understand what your marketing efforts are doing for your company or organization, you first must understand what you want out of these efforts. Young and Aitken write in *Profitable Marketing Communications* that: “Metrics drive the entire marketing process, and what it is trying to achieve, whether it’s acquiring new customers or retaining existing ones. They ability to judge the success of a particular marketing activity in fulfilling a specific business objective is vital if the objective is ever going to be achieved” (Young & Aitken, 2007).

As the media marketplace fragments and gets more complicated, it is all too easy to jump on to the latest fads and create a social network page, application or augmented reality solution without really asking the key questions – ‘Why?’, ‘What for?’, ‘For whom?’, ‘How does this fit with everything else we are doing?’ and, crucially, ‘How will we judge and measure success?’ With so many channels and different areas now, it is more important than ever that objectives and goals are clearly defined and clearly measurable. The data compiled through web analytics platforms does not benefit you by simply existing. You must first understand what your goals are and then you will learn how to measure them.

## **A Brief History of Web Analytics**

The Web has significantly shortened the distance between a business and its customers. That distance is now defined by a single click. These clicks drive the economic models that support our Web search engines and provide the economic fuel for an increasing number of businesses (Jansen, 2009). The click is at the heart of an economic model that is changing the nature of commerce with the near instantaneous, real-time recording of customer decisions to buy or not to buy (or some other conversion other than purchase) (Jansen, 2009).

A brief history of web analytics helps to highlight the building blocks of our present-day web analytics solutions. In December 1990, Sir Tim Berners-Lee created the Internet (Dennis, 2020). Earlier in 1990, Tim had written the three fundamental technologies that remain the foundation of today's web: HTML (HyperText Markup Language), URI (Uniform Resource Identifier – also commonly called a URL), and HTTP (HyperText Transfer Protocol). On Christmas Day, he successfully implemented the first dialogue of HTML code, creating the Internet as we experience it today (Dennis, 2020).

Three years later, the development of logfiles marked the next major step in World Wide Web (WWW) innovation. A log file is a file that keeps a registry of events, processes, messages and communication (Burton & Walther, 2001). Each time a certain HTML element is requested by a visitor, it is called a “hit” and is recorded into a log file. A hit may include text on a web page, an image, sound or a video file. The development of log file analysis paved the path that led to the beginning of commercial web analytics (Burton & Walther, 2001).

In 1995, Stephen Turner created Analog, the first log file analysis program to be completely free of charge. Until this time, web analytics could only be understood by tech teams,

but Analog made the reports generated through log files more comprehensible to online business owners, with clear documentation and visual graphs (Turner, 2001).

In 1997, JavaScript tagging became the new method of data collection to accurately report on diverse web traffic and trends. This is still the most widespread method of data collection today (Harband & Smith, 2020).

In 2004, Web analytics had become more established as an essential tool for web optimization, reporting massive amounts of data. The Web Analytics Association (WAA), now known as the Digital Analytics Association, was born (History, 2019).

In 2005, Google bought out Urchin and launched Google Analytics. Urchin was a web statistics analysis program that was developed by Urchin Software Corporation. Urchin analyzed web server log file content and displayed the traffic information on that web site based upon the log data. After Urchin Software Corp was acquired by Google, Google Analytics was formed and quickly became the most widely used web analytics service on the market (Bazeley, 2005).

In 2012, Google launched Universal Analytics, meaning that users could be tracked across multiple devices and platforms through user IDs (Mishra, 2012). Beyond that, offline behavior began to be monitored, and customer data became richer with the addition of demographic and other information. Google Analytics for mobile apps was also launched, supplying app analytics via software development kits for Android and iOS (Google Analytics, 2014). The world of web analytics grew to include the now standard mobile analytics.

In 2016, Google Analytics incorporated machine learning into its app analytics, giving marketers smarter insights on the go. This enabled a streamlined mobile Google Analytics experience, showing more relevant metrics, with real-time monitoring. This was a turning point in the analytics industry (Berral-García, 2016).

As Web analytics has continued to progress, Web and app design are heavily influenced by analytics (Wiggins, 2007). Now, as the development of UX and UI is done hand in hand with derived insights from web analytics, this bond becomes ever stronger (Hay, 2017). The future is about optimizing this relationship as well as optimizing the insights accrued, in order to deliver maximum satisfaction to both customer and enterprise (Beasley, 2013).

### **Analytics across industries**

Communications professionals have been studying the Internet and web design since its conception almost three decades ago. Countless articles have been written extending studies of Web communication and public relations across industries. One constant theme has been the inability or unwillingness of organizations to use their web sites to their fullest potential (Web Analytics, 2011). In spite of the potential of the Internet where the population would be provided with information, video and audio content, opportunities to influence policy, and generally have more say, organizations have not lived up to the promise. The Internet has remained largely an asymmetrical (sender–receiver) medium (Web Analytics, 2011).

For many years, one probable reason for the inability of professionals to embrace web technologies to their fullest potential has been because of the time and skill involved in creating a compelling web site (Web Analytics, 2011). Effective web design requires an understanding of a number of skills: HTML, CSS, JavaScript, a solid knowledge of design principles, access to and knowledge of software applications, copywriting skills, Internet marketing skills, and more (Inkbot Design 2019). However, with the influx of web site-building platforms like SquareSpace, Wix, WordPress, NetworkSolutions, HostGator, and many, many more, building a template-based, professional web site has become easier than ever. These user-friendly platforms take out



much of the technical work of web design and allow those who are decidedly not web designers or developers to achieve an affordable, professional outcome.

A second reason for the inability of professionals to embrace web technologies to their fullest potential has been the difficulty in knowing whether an organization's web site was actually doing what the communication professionals who created it wanted. Knowing how web visitors are interacting with web sites give site designers the ability to target key publics with relevant messages, and lead web site traffic toward key organizational content and messages (Web Analytics, 2011). The role of digital marketing in a firm's marketing strategy has been expanding across industries, and in addition to cost effectiveness and changes in customer behavior, investments in digital marketing are motivated by its results being more easily measured compared with those of traditional marketing (Järvinen & Karjaluo, 2015). As customers are increasingly interacting with companies through digital channels, marketers have realized the need to track these interactions and to measure their performance (Chaffey & Patron, 2012). For this purpose, firms must adopt Web analytics.

David Beer, Professor of Sociology at the University of York, UK, published a study on the power of data analytics (Beer, 2017), explicating the power of data in modern society. He argues the real power is located in what the data are used to reveal – giving a unique primacy to those who are in a position to engineer those revelations (Beer, 2017). The data themselves come to life and begin to have consequences when they are analyzed and when those analyses are integrated into social, governmental and organizational structures (Beer, 2017).

With the diffusion of web-building platforms making acquiring a web site easier than ever, it follows suit that it is time to demystify Web analytics for this same audience. Google Analytics is a major player in the Web analytics game and has made a very user-friendly service

for folks to collect, measure, and analyze their web site data. Many other services exist like Clicky, Mint Analytics, Church Analytics, and again, many, many more. However, Google Analytics is often a good, safe place to start for the beginner. Regardless of the choice of platform, at the core of Web analytics, you will be measuring the same information no matter what service you choose to use.

## Outline

### Define

- This section is intended to explain exactly what “Analytics” means. Starting with big picture, overall terminology and gradually getting narrower.

### Utilize

- The goal for this section is to outline how to get started with analytics. It will discuss different realms starting with basic web analytics in GA and progressing through email campaigns, social scheduling and monitoring, and finally cover Google Ads.

### Measure

- How to set targets; translating data to actionable, meaningful conclusions; implement testing
- Cover different perspectives, how multi-faceted measurement can be
- Beware vanity metrics

### Strategize

- Define tactics and techniques that are useful
- Look at case studies as examples
- What is meaningful and worth pursuing? What doesn't work? What can be implemented in the future?

## Content

### Section 1: *Define*

This section serves as a glossary for terms related to Web analytics. The primary source material for these definitions is the Web Analytics Association reference list, but several other sources have been used to give additional context. All sources are noted below.

**Analytics** – Analytics is the systematic computational analysis of data or statistics. It is used for the discovery, interpretation, and communication of meaningful patterns in data. It also entails applying data patterns towards effective decision making (Analytics, 2020).

**Web Analytics** – Web analytics is the measurement, collection, analysis and reporting of web data for purposes of understanding and optimizing web usage (Usability.gov).

**Goals** – in both the general sense of the word and in the specific web analytics sense, the term ‘Goals’ has a similar definition. A goal is an outcome you want to achieve. You can set ‘goals’ on your analytics platform to tell you when you are achieving a desired outcome. Your site’s major goals should essentially outline why you have a web site (Usability.gov).

**Objectives** – Objectives help outline what it takes to achieve your goals (Usability.gov).

**Key Performance Indicators (KPIs)** – A key performance indicator is a metric that helps you understand how you are doing against your objectives (Usability.gov).

**Targets** – Targets are numerical values you have pre-determined as indicators success or failure (Usability.gov).

**Insights** – An insight is the value obtained through the use of analytics. The insights gained through analytics are incredible powerful and can be used to grow your business while identifying areas of opportunity.

**Search Engine Optimization (SEO)** – Search Engine Optimization is the process of growing the quality and quantity of web site traffic by increasing the visibility of a web site or a web page to users of a web search engine (Search Engine Optimization, 2020).

*Metrics (All of the following definitions were provided through the Google Help feature of Google Analytics.)*

**Page Views** – The number of times a page was viewed (Google Analytics, 2020).

**Session** – A session consists of a series of pageviews that a single user makes during a period of activity. The session ends after the user either closes the browser, clears cookies, or is inactive for 30 minutes (Google Analytics, 2020).

Settings for timeout length are customizable, but base level – a session is whenever a user visits your site.

**User** – A user is a person who views and interacts with your web site. Users are defined by a unique ID – this ID is usually stored in a cookie. Whenever the tracking code is executed, it looks for cookies on the browser set by the current domain. If they can't be found, new cookies with a new ID are set (Google Analytics, 2020).

Google Analytics emphasizes sessions over users because of the inherent inaccuracies of trying to track individual users. For example, a user who deletes their cookies, uses multiple browsers, or shares their computer will be inaccurately represented in the reports (Google Analytics, 2020).

**Unique Visitors** – The number of inferred individual people (filtered for spiders/robots) within a designated reporting timeframe. Each individual is counted once (Google Analytics, 2020).

**Click-thru Rate** – The number of click-thrus for a specific link divided by the number of times that link was viewed (Google Analytics, 2020).

**Event** – Any recorded action that has a specific date and time assigned to it by either the browser or server (Google Analytics, 2020).

**Conversion** – A visitor completing a target action; the method of segmenting behavior as visitors interact with a Web property (Google Analytics, 2020).

**Bounce** – A visit with one pageview. It doesn't matter how long the visitor was on the page or how they left. Technically, it's a visit with only one interaction (Google Analytics, 2020).

**Time on Page** – Time on page is measured by subtracting the time a visitor hit a page from the time they hit the next page. (e.g. If they hit Page 1 at 12:00 and hit Page 2 at 12:03, time on Page 1 is three minutes.) This means that the time on page for the last page in a visit is always zero because Google Analytics doesn't track pages being closed (Google Analytics, 2020).

**New Visitor** – A visitor who did not have Google Analytics cookies when they hit the first page in this visit. If a visitor deletes their cookies and comes back to the site, the visitor will be counted as a new visitor (Google Analytics, 2020).

**Returning Visitor** – A visitor with existing Google Analytics cookies from a previous visit (Google Analytics, 2020).

**Pages/Visit** – Pageviews divided by visits. This metric shows the average number of pages viewed per visit (Google Analytics, 2020).

**Return on Investment (ROI)** – ROI is the measurement of how much profit you've made from your ads compared to how much you've spent on those ads. To calculate ROI, take the revenue that resulted from your ads, subtract your overall costs, then divide by your overall costs:  $ROI = (\text{Revenue} - \text{Cost of goods sold}) / \text{Cost of goods sold}$  (Google Analytics, 2020).

**Direct Traffic** – Ideally, this is the traffic that came to a site via bookmarks or by directly typing in the URL. In reality, it is the traffic for which the code couldn't determine a source. Depending

on the site and the browser, some links may not show a referrer and instead would be categorized as direct. Using campaign variables will get around this misrepresentation every time (Google Analytics, 2020).

**Referring Sites** – This is traffic for which (1) a referrer was identified, (2) the referrer is not a search engine and (3) there are no campaign variables. The referring URL (a.k.a. the page that contains the link to your web site) is also stored for referrals (Google Analytics, 2020).

**Search Engine Traffic** – Google Analytics automatically categorizes traffic as coming from a search engine if the referring URL is from its list of known search engines and there is a search term identified in that URL. Both organic and paid search engine traffic is put into this group (Google Analytics, 2020).

## **Section 2: *Utilize***

The goal for this section is to outline how to get started with analytics. It will discuss different realms, starting with basic web analytics and progressing through email campaigns and social media marketing.

### **Defining Audience and Customer Journeys: A Bird's Eye View**

The first objective when looking at your web site should be to understand your audience. Who are you trying to reach with your information? Do you want customers, potential business partners, or specific types of individuals who can benefit from your product or service? Understanding your audience will help you ensure you are reaching your audience.

If you are a higher education web site looking for prospective college students, you do not want to be reaching 55-65-year old people with your message. You want to reach high school sophomores and juniors and potentially their parents as well. You can learn about who your users

are through visitor analysis and begin to understand why they may have come to your web site through traffic analysis (Google Analytics, 2020). Web analytics allow you to delve into how many times users visit your web site, and how many days have passed since their last visit. You can find out how much time users spend on your web site and how many pages they view, where they are located, and what sort of device they use to access your web site (Beasley, 2013).

The key to ensuring your users are getting the best possible experience is to outline the customer journey. A customer journey map is a visual illustration of the customer's experience with a business (Agius, 2019). Journey maps can cover the macro-level journey (e.g. from initial awareness and engagement along the way to a long-term relationship) or zoom in on one or more micro-level journeys, such as the steps to make an online purchase. Journey maps typically capture the emotions at each step of the customer's journey. These can include what your customer is thinking and feeling, as well as an evaluation of the experience at each stage (Agius, 2019).

Understanding the desired customer journey is only the first step. Utilizing real data analytics, you can measure the journeys your customers are actually taking on your web site through content analysis. Content analysis gives insight into how people interact with the pages on your web site. This will highlight flaws in the design or information layout of your web site if they exist. Do you have a page that is getting zero interaction, or a very high bounce rate? Maybe that page has a misleading title. Looking at your real time data analytics will help to show you feedback loops or misleading information that could be removed from your site. Excising these pages or links can help to streamline the customer experience (Beasley, 2013).

## Setting goals and outlining objectives

Frank Davidson, Strategic Resources VP at ZenithOptimedia in Boston, argues that the value of any marketing effort is essentially a function of three elements:

1. The change in the number of people with an interest in the company's products;
2. The change in the amount of money these people would ultimately spend with the company if they were to make a purchase;
3. The change in the likelihood of these people purchasing (or similar, e.g. subscribing, contracting with, etc) (Burcher, 2012).

He notes that, "Ideally, these factors need to be accounted for over time – for example, a brand campaign doesn't necessarily increase immediate sales, but over time sales should increase as the awareness and affinity to the company increase."

Davidson believes that it is possible to rewrite these points in the form of measurement-oriented questions:

1. 'Did this or will this marketing effort increase the number of people aware of the company's products, and, if so, by how many?'
2. 'Did this or will this marketing effort make people want to buy more from the company, e.g. cross-sell, up-sell, if they were to buy?'
3. 'Did this or will this media effort increase the likelihood that a person will ultimately buy?' (Burcher, 2012).

These three questions create a framework for evaluation, and everything should refer back to them, but, even if we can answer these questions satisfactorily, success or failure can be judged only if clear objectives and goals have been established at the outset. (Burcher, 2012) A vital part of this process is to identify and select organization specific KPIs with respect to the



major marketing objectives and to differentiate them from other secondary metrics (Järvinen & Karjaluoto 2015).

### **Analytics: Where to begin**

Once you have set clear objectives, you will begin to look at the actual data. For traditional web-usage reporting, you can't get much easier than Google Analytics (Gotter, 2019). It offers everything you might need from a web analytics tool, it's free (providing you have less than 5 million events per month or if you run an AdWords campaign) and in most cases, it provides the best solution for Usage and Traffic Source Reports (Gotter, 2019).

There are several other services available through a variety of companies, but for the sake of ease, this guide will use the example of Google Analytics as the go-to service. Hopefully, after learning the basics, you can make an informed decision if Google Analytics is right for you and your organization.

First and foremost, analyze data in context—you can only interpret numbers in contrast to historical data on the same web site, and trends and proportions are more important than absolute values (Beasley, 2013). A good first step is to set a baseline. If you are implementing Google Analytics on your web site for the first time, you will need some time to discover what your web site traffic looks like. For example, does your traditional 9-to-5 business web site traffic dip on the weekends? Is there a spike on particular days, is traffic slower at the beginning of the month or at the end? Google Analytics has an easy tool to set a timeframe for the data you want to see. You can narrow it to one day or look at several months' worth of data compared year-over-year (Google Analytics, 2020).

Google Analytics has a lot of options—a lot of ways to look at your data. You don't have to know and use every option from day one. Instead, you can start by answering a specific

question and branch out from there. This is where the definitions from earlier come into play. To start with the basic metrics, look to your Audience metrics. In Google Analytics, this is under the Audience > Overview page (Google Analytics, 2020). This will give you a dashboard of the basic audience metrics including Users, New Users, Session, New v. Returning Users, Average Session Duration, Page Views, and Pages per Session, among other things. If you have email campaigns or social media accounts, pay special attention to the days an email went out or to when you post on social media. Check for spikes or lulls in traffic in this context.

The next major report you can look at is the Acquisition report. Under the Acquisition > Overview tab, you will see the main sources of your traffic (Google Analytics, 2020). You can drilldown into each channel and see where the traffic is coming from within the source. Social traffic can be tracked to each platform and referral traffic can be viewed by referring site.

Familiarize yourself with your web site's data by tracking it on a fairly regular basis. In the next section, we will discuss in-depth measurement and goal tracking, but having a generalized knowledge of what to expect from your web site will help strengthen your analysis as you dive deeper into the data (Gotter, 2019).

### **Digital Marketing Analytics**

Diving deeper into your marketing efforts, digital marketing analytics provides a good, solid look into the direct relationships between your marketing channels (Järvinen & Karjaluoto, 2015). There are many paid services that will create a marketing ecosystem of your distinct marketing channels and house them together for ideal comparison. If you have established marketing channels (an active email marketing campaign, strong social media pages, active Google Ads, company/organization blog) then considering one of these services may be right for you.

Short of paying for an additional service, there are some great ways to compare your marketing channels yourself. Most any service that you use to send marketing emails will include some analytics for those campaigns. Your social media pages (if set to “business” rather than “personal”) include insights including reach, engagement, etc., and similar to the email campaigns, most sites that host your blog will include some data which can be used for tracking.

Most importantly, it is important for you as the marketer to keep track of what efforts you are exerting and when (Mishra, 2012). Time your social media posts to highlight your new blog or make your social sharing icons prominent in your next email. Using basic reports in Google Analytics, you can view how many users found your web site through your social pages, or you can use the insights on your social pages to see how many people engaged with your new content. Look for cause and effect between channels (Mishra, 2012). Keeping a detailed log of your marketing efforts (blog posts, social posts, new web content, emails, etc.) will help you work smarter, not harder with your marketing going forward.

### **Section 3: *Measure***

This section will discuss setting data-driven goals to measure success. Tips are provided for setting up goals and how to choose actionable, measurable, and understandable goals that will benefit the growth of the website and digital marketing efforts. Discussion will also discuss how to choose KPI’s to watch for each goal. A section of engagement will pull from several literary sources to give context and depth to the concepts of engagement and reach.

#### **Engagement**

In measuring web site data, a distinction must be drawn between attention (or engagement) and exposure (or reach). *Attention*, defined as “a focused mental engagement on a

particular item of information” (Davenport & Beck, 2002), differs from *exposure*, which refers to the viewing of media content, whether intended or unintended (Zheng et al., 2012).

Precisely because the Internet is a virtually infinite source for information, it offers users nearly infinite selectivity in choosing what to consume or to avoid (Zheng et al., 2012). The traditional criteria in the world of audience measurement and advertising have relied on exposure. Yet, the Internet revolution has transformed how audiences consume media, as well as how media industries perceive and define their audiences (Napoli, 2011).

Advances in media production, distribution, and consumption technologies since the birth of the Internet in the early 1990’s, and especially since the dawn of the 21<sup>st</sup> century, have played a major role in the fragmentation of the media industry, as well as the evolution of the media audience from a predominantly passive, mass audience to an active niche audience with more autonomy, power, and control of media choices. (Napoli, 2011).

#### **Section 4: *Strategize***

This section will define tactics and techniques that are useful when using data to drive decision making. The content will tackle questions like “What is meaningful and worth pursuing?” Success could be return on investment, profitability, effectiveness, reliability, utility, or competitive advantage. It is important to note that the characteristics that define success for one Web site do not necessarily define success for another (Phippen, Sheppard, & Furnell, 2004).

Looking at case study examples (Kent, Carr, Husted, & Pop, 2011) will serve as a means of showing how to interpret analytics, answering questions like: “What works? What doesn’t work? What can be implemented in the future?”

## Deliverable

The Beginner's Guide to Understanding Web Analytics is a best practices manual for beginner to intermediate level marketers. Whether the marketing professional is working in the corporate world or for a non-profit organization, the guide walks them through the basics of what web analytics means, defines terms and provides context for the metrics used in measuring web data. Featuring a simple design palette, the guide is intended to focus on the content and provide information in an aesthetically pleasing way.

Divided into four main sections, *Define*, *Utilize*, *Measure* and *Strategize*, this guide helps to explain not only what each metric means but how it can best be used to further the goals and objectives for the user's business or organization.

The *Define* section includes a glossary with important terms and gives context for how those terms overlap and impact one another. Starting with the most basic definition of "analytics" and then diving deeper into the benefits of web analytics for marketing purposes, the *Define* section works to help the reader understand the purpose and the methods of using web analytics for a web site.

The *Utilize* section focuses on crafting a digital marketing ecosystem with web analytics firmly rooted at the core. Walking through web sites, email marketing, and social media marketing, the *Utilize* section provides the framework for a functional strategic communications strategy. The focus falls on setting goals and outlining objectives through data.

*Measure* focuses on the practicalities of looking at web analytics data and comparing metrics and key performance indicators. Discussions of the multi-faceted nature of data run concurrently with practical tips for measuring and beginning to understand data.

The *Strategize* section returns to the “big picture” view of the guide and provide lessons and tips for effective strategic communication through the use of web analytics.

This instructional document is intended as a guideline for readers to navigate their marketing presence through learning the basics of web analytics. The published material is both printed and available online. The hardcopy manual was printed and bound preceding the thesis defense. The online companion guide is currently hosted through Adobe, [available here](#).

## References

- Agius, A. (2019). How to Create an Effective Customer Journey Map [Examples + Template]. Retrieved from <https://blog.hubspot.com/service/customer-journey-map>
- Analytics. (2020). In *Oxford English Dictionary*. Retrieved from <https://www.lexico.com/en/definition/analytics>
- Bazeley, M. (2005). Google buying web analytics company. Retrieved August 05, 2020, from [http://www.siliconbeat.com/entries/2005/03/28/google\\_buying\\_web\\_analytics\\_company.html](http://www.siliconbeat.com/entries/2005/03/28/google_buying_web_analytics_company.html)
- Beasley, M. (2013). Practical web analytics for user experience: How analytics can help you understand your users. Elsevier Inc. <https://doi.org/10.1016/C2012-0-01162-3>
- Berral-García, J.L. (2016). A quick view on current techniques and machine learning algorithms for big data analytics. *18th International Conference on Transparent Optical Networks (ICTON)*, Trento, pp. 1-4, doi: 10.1109/ICTON.2016.7550517.
- Burcher, N. (2012). *Paid, owned, earned: Maximizing marketing returns in a socially connected world* (pp. 226-244). London: Kogan Page.
- Burton, M.C., Walther, J.B. (2001), The Value of Web Log Data in Use-Based Design and Testing. *Journal of Computer-Mediated Communication*, 6: 0-0. doi:10.1111/j.1083-6101.2001.tb00121.x
- Carmona, C. J., Ramírez-Gallego, S., Torres, F., Bernal, E., del Jesus, M. J., & García, S. (2012). Web usage mining to improve the design of an e-commerce website: OrOliveSur.com. *Expert Systems with Applications*, 39(12), 11243–11249. <https://doi-org.libproxy.lib.unc.edu/10.1016/j.eswa.2012.03.046>
- Chaffey, D., & Patron, M. (2012). From web analytics to digital marketing optimization: Increasing the commercial value of digital analytics. *Journal of Direct Data Digital Marketing Practice* 14, 30–45 <https://doi.org/10.1057/dddmp.2012.20>
- Davenport, T. H., & Beck, J. C. (2002). The attention economy. Boston, MA: *Harvard Business Press*.
- Dennis, M. A. (2020). Tim Berners-Lee. Encyclopedia Britannica. <https://www.britannica.com/biography/Tim-Berners-Lee>
- Duncan, S. (2010). Using web analytics to measure the impact of earned online media on business outcomes: A methodological approach. *Institute for Public Relations*. [https://instituteforpr.org/wp-content/uploads/Seth\\_Duncan\\_Web\\_Analytics.pdf](https://instituteforpr.org/wp-content/uploads/Seth_Duncan_Web_Analytics.pdf)
- Google Analytics. (2020). Glossary - Analytics Help. Retrieved August 4, 2020, from <https://support.google.com/analytics/topic/6083659?hl=en>

- Google Analytics Mobile App Implementation Guide. (2014). Retrieved August 05, 2020, from <https://developers.google.com/analytics/solutions/mobile-implementation-guide>
- Gotter, A. (2019). 5 Ways to Get More Out of your Google Analytics Data. Retrieved from <https://www.disruptiveadvertising.com/analytics/get-more-from-google-analytics/>
- Harband, J., & Smith, K. (Eds.). (2020). ECMAScript 2020 Language Specification. Retrieved August 05, 2020, from <https://tc39.es/ecma262/2020/>
- Hay, L. (2017). Researching UX: Analytics: Understanding Is the Heart of Great UX. Sitepoint.
- History of Web Analytics. (2019, September 11). Retrieved August 05, 2020, from <https://www.leadforensics.com/web-analytics/history/>
- Hyman, P. (2011). Web Analytics: What's Worth Paying For? *CRM Magazine*, 15(5), 30–33.
- Inkbot Design (2019). 14 Skills You Need To Build A Strong Web Design Career. *Medium*. <https://medium.com/@inkbotdesign/14-skills-you-need-to-build-a-strong-web-design-career-394545ee91e4>
- Jansen, B. J. (2009). Understanding user-web interactions via web analytics. Morgan & Claypool Publishers. <https://doi-org.libproxy.lib.unc.edu/10.2200/S00191ED1V01Y200904ICR006>
- Järvinen, J., and Karjaluo, H. (2015). The use of web analytics for digital marketing performance measurement. *Industrial Marketing Management*, 50, 117-127. <https://doi.org/10.1016/j.indmarman.2015.04.009>
- Kent, M., Carr, B., Husted, R., and Pop, R. (2011). Learning web analytics: A tool for strategic communication. *Public Relations Review* (37) 5: 536-43. <https://doi.org/10.1016/j.pubrev.2011.09.011>
- Marek, K. (2011). Chapter 4: Reporting and Analysis. *Library Technology Reports*, 47(5), 26–32.
- Maté, A., Elisa De Gregorio, José Cámara, Juan Trujillo, and Mora, Sergio Luján. (2016). “The Improvement of Analytics in Massive Open Online Courses by Applying Data Mining Techniques.” *Expert Systems* 33 (4): 374–82. doi:10.1111/exsy.12119.
- Mishra, M. (2012, October 29). Re-imagining Google Analytics to support the versatile usage patterns of today's users. Retrieved August 05, 2020, from <https://analytics.googleblog.com/2012/10/universal-analytics.html>
- Napoli, P. M. (2011). Audience evolution: New technologies and the transformation of media audiences. Columbia University Press.
- Phippen, A., Sheppard, L. and Furnell, S. (2004), "A practical evaluation of Web



- analytics", *Internet Research*, Vol. 14 No. 4, pp. 284-293. <https://doi-org.libproxy.lib.unc.edu/10.1108/10662240410555306>
- Plaza, Beatriz. 2009. "Monitoring Web Traffic Source Effectiveness with Google Analytics." *Aslib Proceedings* 61 (5): 474–82. doi:10.1108/00012530910989625.
- Poulos, M., Korfiatis, N., & Papavlassopoulos, S. (2020). Assessing stationarity in web analytics: A study of bounce rates. *Expert Systems*, 37(3), 1–13. <https://doi-org.libproxy.lib.unc.edu/10.1111/exsy.12502>
- Search Engine Optimization. (2020). In *Oxford English Dictionary*. Retrieved from <https://www.lexico.com/en/definition/search-engine-optimization>
- Turner, S. (2001). Dr Stephen Turner. Retrieved August 05, 2020, from <https://web.archive.org/web/20011201175645/http://www.statslab.cam.ac.uk/~sret1/home.html>
- Usability.gov. Web Analytics Basics. (2013, October 08). Retrieved from <https://www.usability.gov/what-and-why/web-analytics.html>
- Velásquez, J. D. (2013). Combining eye-tracking technologies with web usage mining for identifying Website Keyobjects. *Engineering Applications of Artificial Intelligence*, 26(5/6), 1469–1478. <https://doi-org.libproxy.lib.unc.edu/10.1016/j.engappai.2013.01.003>
- Web Analytics as a Tool for Strategic Communication. (2011). *Conference Papers – International Communication Association*, 1–37.
- Wiggins, A. (2007). Data-Driven Design: Using Web Analytics to Validate Heuristics. *Bulletin of the American Society for Information Science & Technology*, 33(5), 20–24.
- Young, A., & Aitken, L. (2007). Profitable Marketing Communications: a guide to marketing return on investment. Kogan Page Publishers.
- Zheng, N., Chyi, H., & Kaufhold, K. (2012). Capturing "Human Bandwidth": A Multidimensional Model for Measuring Attention on Web Sites. *JMM: The International Journal on Media Management*, 14(2), 157–179. <https://doi-org.libproxy.lib.unc.edu/10.1080/14241277.2011.619153>
- Zheng, J. & Peltserverger, S. (2015). Web Analytics Overview. *Encyclopedia of Information Science and Technology*, [https://www.researchgate.net/publication/272815693\\_Web\\_Analytics\\_Overview](https://www.researchgate.net/publication/272815693_Web_Analytics_Overview)

A Thesis Presented to the Faculty of the  
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Master of Arts in Digital Communication

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# **The Beginner's Guide to Web Analytics**

# Introduction

**Web analytics is the technology and method for the collection, measurement, analysis and reporting of websites and Web applications usage data (Zheng & Peltsverger, 2015). Web analytics has been growing ever since the development of the Internet. It has grown from a simple function of HTTP (Hypertext Transfer Protocol) traffic logging to a more comprehensive suite of usage data tracking, analysis, and reporting.**

As Web analytics has seemingly surged to popularity as a buzzword in recent years, it has been easy to dismiss as a fad for many who do not understand it. Following the trend of “you have to have a website, you have to have social media...” Web analytics seems like the next new item on a never-ending list of new tools a business or organization must acquire to stay updated. However, quantifying Web traffic is a fundamental way to measure and understand all those other tools you spend precious time and budget on acquiring.

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## What it does and what it means

Web analytics is the technology and method for the collection, measurement, analysis and reporting of websites and Web applications usage data. Every time someone visits your website, interacts with your social media pages, or clicks on your ad, that information is recorded. It is measurable. Web Analytics collects that information and gives you the ability to compile and report that information in a way that will provide actionable insights to your business or organization.



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# A Brief History

A brief history of Web analytics helps to highlight the building blocks of our present-day Web analytics solutions.

The Web has significantly shortened the distance between a business and its customers. That distance is now defined by a single click. These clicks drive the economic models that support our Web search engines and provide the economic fuel for an increasing number of businesses (Jansen, 2009). The click is at the heart of an economic model that is changing the nature of commerce with the near instantaneous, real-time recording of customer decisions to buy or not to buy (or some other conversion other than purchase) (Jansen, 2009).

- 1990

**Sir Tim Berners-Lee creates the Internet**

Earlier in 1990, Tim had written the three fundamental technologies that remain the foundation of today’s Web: HTML (HyperText Markup Language), URI (Uniform Resource Identifier – also commonly called a URL), and HTTP (HyperText Transfer Protocol). On Christmas Day, he successfully implemented the first dialogue of HTML code, creating the Internet as we experience it today (Dennis, 2020).
- 1993

**The development of logfiles**

A log file is a file that keeps a registry of events, processes, messages and communication (Burton & Walther, 2001). Each time a certain HTML element is requested by a visitor, it is called a “hit” and is recorded into a log file. A hit may include text on a Web page, an image, sound or a video file. The development of log file analysis paved the path that led to the beginning of commercial Web analytics (Burton & Walther, 2001).
- 1995

**Stephen Turner creates Analog**

In 1995, Stephen Turner created Analog, the first log file analysis program to be completely free of charge. Until this time, Web analytics could only be understood by tech teams, but Analog made the reports generated through log files more comprehensible to online business owners, with clear documentation and visual graphs (Turner, 2001).

# A Brief History

- 1997

**JavaScript tagging**

JavaScript tagging became the new method of data collection to accurately report on diverse Web traffic and trends. This is still the most widespread method of data collection today .
- 2004

**The Web Analytics Association (WAA) was born**

Web analytics had become more established as an essential tool for Web optimization, reporting massive amounts of data. The Web Analytics Association (WAA), now known as the Digital Analytics Association, was born (History, 2019).
- 2005

**Google Analytics launches**

Google bought out Urchin and launched Google Analytics. Urchin was a Web statistics analysis program that was developed by Urchin Software Corporation. Urchin analyzed Web server log file content and displayed the traffic information on that website based upon the log data. After Urchin Software Corp was acquired by Google, Google Analytics was formed and quickly became the most widely used Web analytics service on the market (Bazeley, 2005).
- 2012

**Google launches Universal Analytics**

In 2012, Google launched Universal Analytics, meaning that users could be tracked across multiple devices and platforms through user IDs (Mishra, 2012). Google Analytics for mobile apps was also launched, supplying app analytics via software development kits for Android and iOS (Google Analytics, 2014). The world of Web analytics grew to include the now standard mobile analytics.
- 2016

**Google Analytics incorporates machine learning**

Google Analytics incorporated machine learning into its app analytics, giving marketers smarter insights on the go. This enabled a streamlined mobile Google Analytics experience, showing more relevant metrics, with real-time monitoring. This was a turning point in the analytics industry (Berral-García, 2016).
- 2020

As Web analytics has continued to progress, **Web and app design are heavily influenced by analytics** (Wiggins, 2007). Now, as the development of UX and UI is done hand in hand with derived insights from Web analytics, this bond becomes ever stronger (Hay, 2017). The future is about optimizing this relationship as well as optimizing the insights accrued, in order to deliver maximum satisfaction to both customer and enterprise (Beasley, 2013).

# Analytics across industries

**Communications professionals have been studying the Internet and Web design since its conception almost three decades ago.**

Countless articles have been written extending studies of Web communication and public relations across industries. One constant theme has been the inability or unwillingness of organizations to use their websites to their fullest potential (Web Analytics, 2011). In spite of the potential of the Internet where the population would be provided with information, video and audio content, opportunities to influence policy, and generally have more say, organizations have not lived up to the promise. The Internet has remained largely an asymmetrical (sender-receiver) medium (Web Analytics, 2011).

**For many years, one probable reason for the inability of professionals to embrace Web technologies to their fullest potential has been because of the time and skill involved in creating a compelling website .**

Effective Web design requires an understanding of a number of skills: HTML, CSS, JavaScript, a solid knowledge of design principles, access to and knowledge of software applications, copywriting skills, Internet marketing skills, and more (Inkbot Design 2019). However, with the influx of website-building platforms like SquareSpace, Wix, WordPress, NetworkSolutions, and many more, building a template-based, professional website has become easier than ever. These user-friendly platforms take out much of the technical work of Web design and allow those who are decidedly not Web designers or developers to achieve an affordable, professional outcome.

**A second reason for the inability of professionals to embrace Web technologies to their fullest potential has been the difficulty in knowing whether an organization's website was actually doing what the communication professionals who created it wanted.**

Knowing how Web visitors are interacting with websites give site designers the ability to target key publics with relevant messages, and lead website traffic toward key organizational content and messages (Web Analytics, 2011). The role of digital marketing in a firm's marketing strategy has been expanding across industries, and in addition to cost effectiveness and changes in customer behavior, investments in digital marketing are motivated by its results being more easily measured compared with those of traditional marketing (Järvinen & Karjaluoto, 2015). As customers are increasingly interacting with companies through digital channels, marketers have realized the need to track these interactions and to measure their performance (Chaffey & Patron, 2012). For this purpose, firms must adopt Web analytics.

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**David Beer, Professor of Sociology at the University of York, UK, published a study on the power of data analytics explicating the power of data in modern society.**

He argues the real power is located in what the data are used to reveal – giving a unique primacy to those who are in a position to engineer those revelations (Beer, 2017). The data themselves come to life and begin to have consequences when they are analyzed and when those analyses are integrated into social, governmental and organizational structures (Beer, 2017).

**With the diffusion of web-building platforms making acquiring a website easier than ever, it follows suit that it is time to demystify Web analytics for this same audience.**

Google Analytics is a major player in the Web analytics game and has made a very user-friendly service for folks to collect, measure, and analyze their website data. Many other services exist like Clicky, Mint Analytics, Church Analytics, and again, many, many more. However, Google Analytics is often a good, safe place to start for the beginner. Regardless of the choice of platform, at the core of Web analytics, you will be measuring the same information no matter what service you choose to use.

**So maybe you know all of this already. Maybe you understand that you need to know these things or you just want to know these things. But you don't know where to start.**

Understanding the basics of Web Analytics is a process of learning some jargon, learning how to navigate a service that will track and report your information, and then eventually, learning how to utilize and measure that information in a way that will help you strategize and benefit. It may seem like a big, scary world at first glance, but start by dipping your toes in and you'll see how intuitive and user-friendly it can be.

# Define

## /Let's start with some basic definitions

**Analytics** – Analytics is the systematic computational analysis of data or statistics. It is used for the discovery, interpretation, and communication of meaningful patterns in data. It also entails applying data patterns towards effective decision making (Analytics, 2020).

**Web Analytics** – Web analytics is the measurement, collection, analysis and reporting of Web data for purposes of understanding and optimizing Web usage (Usability.gov).

**Goals** – in both the general sense of the word and in the specific Web analytics sense, the term ‘Goals’ has a similar definition. A goal is an outcome you want to achieve. You can set ‘goals’ on your analytics platform to tell you when you are achieving a desired outcome. Your site's major goals should essentially outline why you have a website (Usability.gov).

**Objectives** – Objectives help outline what it takes to achieve your goals (Usability.gov).

**Key Performance Indicators (KPIs)** – A key performance indicator is a metric that helps you understand how you are doing against your objectives (Usability.gov).

**Targets** – Targets are numerical values you have pre-determined as indicators success or failure (Usability.gov).

**Insights** – An insight is the value obtained through the use of analytics. The insights gained through analytics are incredible powerful and can be used to grow your business while identifying areas of opportunity.

**Search Engine Optimization (SEO)** – Search Engine Optimization is the process of growing the quality and quantity of website traffic by increasing the visibility of a website or a Web page to users of a Web search engine (Search Engine Optimization, 2020).

## /Definition Framework Overview

There are three types of Web analytics metrics – counts, ratios, and KPIs:

- **Count** — the most basic unit of measure; a single number, not a ratio. (Burby & Brown, 2007).
- **Ratio** — typically, a count divided by a count, although a ratio can use either a count or a ratio in the numerator or denominator. Usually, it is not a whole number. Because it's a ratio, “per” is typically in the name, such as “Page Views per Visit.” A ratio's definition defines the ratio itself, as well as any underlying metrics. (Burby & Brown, 2007).
- **KPI (Key Performance Indicator)** — while a KPI can be either a count or a ratio, it is frequently a ratio. While basic counts and ratios can be used by all Website types, a KPI is infused with business strategy — hence the term, “Key” — and therefore the set of appropriate KPIs typically differs between site and process types. (Usability.gov).

**Dimension** - A general source of data that can be used to define various types of segments or counts and represents a fundamental dimension of visitor behavior or site dynamics. Some examples are event and referrer. They can be interpreted the same as counts above, but typically they must be further qualified or segmented to be of actual interest. Therefore these define a more general class of metrics and represent a dimension of data that can be associated with each individual visitor. (WAA, 2017).

**Metrics are measured across the dimensions.**

**A metric can apply to three different universes:**

- **Aggregate** — Total site traffic for a defined period of time. (Burby & Brown, 2007).
- **Segmented** — A subset of the site traffic for a defined period of time, filtered in some way to gain greater analytical insight: e.g., by campaign (e-mail, banner, PPC, affiliate), by visitor type (new vs. returning, repeat buyers, high value), by referrer. (Burby & Brown, 2007).
- **Individual** — Activity of a single Web visitor for a defined period of time. (Burby & Brown, 2007).



# /Building Block Terms

**Page** – A page is an analyst definable unit of content. (Usability.gov).

**Page Views** – The number of times a page was viewed (Google Analytics, 2020).

**Session** – A session consists of a series of pageviews that a single user makes during a period of activity. The session ends after the user either closes the browser, clears cookies, or is inactive for 30 minutes (Google Analytics, 2020).

Settings for timeout length are customizable, but base level – a session is whenever a user visits your site.

**User** – A user is a person who views and interacts with your website. Users are defined by a unique ID – this ID is usually stored in a cookie. Whenever the tracking code is executed, it looks for cookies on the browser set by the current domain. If they can't be found, new cookies with a new ID are set (Google Analytics, 2020). Google Analytics emphasizes sessions over users because of the inherent inaccuracies of trying to track individual users. For example, a user who deletes their cookies, uses multiple browsers, or shares their computer will be inaccurately represented in the reports (Google Analytics, 2020).

**Unique Visitors** – The number of inferred individual people (filtered for spiders/robots) within a designated reporting timeframe. Each individual is counted once (Google Analytics, 2020).

**New Visitor** – The number of Unique Visitors with activity including a first-ever Visit to a site during a reporting period. This is measured by the user not having any Google Analytics cookies when they hit the first page in this visit. If a visitor deletes their cookies and comes back to the site, the visitor will be counted as a new visitor (Google Analytics, 2020).

**Repeat Visitor** – The number of Unique Visitors with activity consisting of two or more Visits to a site during a reporting period.

**Return Visitor** – The number of Unique Visitors with activity consisting of a Visit to a site during a reporting period and where the Unique Visitor also Visited the site prior to the reporting period.

# /Visit Characterization

**Landing Page** – A page intended to identify the beginning of the user experience resulting from a defined marketing effort. (Google Analytics, 2020).

**Visit Duration** – The length of time in a session. Calculation is typically the timestamp of the last activity in the session minus the timestamp of the first activity of the session. (Google Analytics, 2020).

**Referring Sites** – This is traffic for which (1) a referrer was identified, (2) the referrer is not a search engine and (3) there are no campaign variables. The referring URL (a.k.a. the page that contains the link to your website) is also stored for referrals (Google Analytics, 2020).

**Internal Referrer** – The internal referrer is a page URL that is internal to the website or a web-property within the website as defined by the user. (Google Analytics, 2020).

**External Referrer** – The external referrer is a page URL where the traffic is external or outside of the website or a web-property defined by the user. (Google Analytics, 2020).

**Search Engine Traffic** – Google Analytics automatically categorizes traffic as coming from a search engine if the referring URL is from its list of known search engines and there is a search term identified in that URL. Both organic and paid search engine traffic is put into this group (Google Analytics, 2020).

**Direct Traffic** – Ideally, this is the traffic that came to a site via bookmarks or by directly typing in the URL. In reality, it is the traffic for which the code couldn't determine a source. Depending on the site and the browser, some links may not show a referrer and instead would be categorized as direct. Using campaign variables will get around this misrepresentation every time (Google Analytics, 2020).

**Click-through** – Number of times a link was clicked by a visitor.

**Click-through Rate/Ratio** – The number of click-throughs for a specific link divided by the number of times that link was viewed.

**Pages/Visit** – Pageviews divided by visits. This metric shows the average number of pages viewed per visit (Google Analytics, 2020).

# /Content Characterization

**Page Exit Ratio** – Number of exits from a page divided by total number of page views of that page. (Google Analytics, 2020).

**Bounce** – A visit with one pageview. It doesn't matter how long the visitor was on the page or how they left. Technically, it's a visit with only one interaction (Google Analytics, 2020).

**Bounce Rate** – Single page view visits divided by entry pages. (Google Analytics, 2020).

# /Conversion Metrics

**Event** – Any recorded action that has a specific date and time assigned to it by either the browser or server (Google Analytics, 2020).

**Conversion** – A visitor completing a target action (Google Analytics, 2020).

**Return on Investment (ROI)** – ROI is the measurement of how much profit you've made from your ads compared to how much you've spent on those ads. To calculate ROI, take the revenue that resulted from your ads, subtract your overall costs, then divide by your overall costs:  $ROI = (Revenue - Cost\ of\ goods\ sold) / Cost\ of\ goods\ sold$  (Google Analytics, 2020).

# Utilize



photo by Campaign Creators on Unsplash

The goal for this section is to outline how to get started with analytics. We will discuss different realms, starting with basic Web analytics and progressing through email campaigns and social media marketing.

If this is your first foray into the wonderful world of Web analytics, we will start from the very beginning to prepare you for this new journey.

For traditional web-usage reporting, you can't get much easier than **Google Analytics** (Gotter, 2019). It offers everything you might need from a Web analytics tool, it's free, and in most cases, it provides the best solution for Usage and Traffic Source Reports (Gotter, 2019).

There are several other services available through a variety of companies, but for the sake of ease, this guide will use the example of Google Analytics as the go-to service. Hopefully, after learning the basics, you can make an informed decision if Google Analytics is right for you and your organization.



Do you already have **Google Analytics** set up for your website? If yes, you can skip ahead to the next page. If no, continue reading.

## /Setting Up Google Analytics

- 1

**Create or sign in to your Analytics account:**

  - Go to [google.com/analytics](https://google.com/analytics)
    - To create an account, click Start for free.
    - To sign in to your account, Click Sign in to Analytics.
- 2

**Set up a property in your Analytics account.** A property represents your website or app, and is the collection point in Analytics for the data from your site or app.
- 3

**Set up a reporting view in your property.** Views let you create filtered perspectives of your data; for example, all data except from your company's internal IP addresses, or all data associated with a specific sales region.
- 4

**Add the tracking code to your website** so you can collect data in your Analytics property. Google has step-by-step instructions including video tutorials to aid in this process.



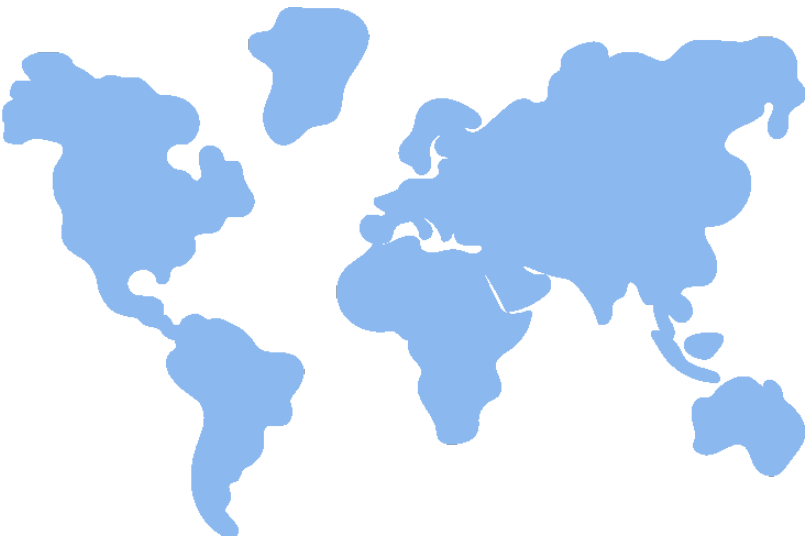
### Google Tag Manager

One of the difficulties of maintaining tracking code and adding new tags to a website is relying on a developer to change the code.

Tag Management Systems empower marketers to be able to add new tags without requiring code changes onsite. Google Tag Manager is one of these systems: a freely available application provided by Google.

We strongly suggest considering adding Google Tag Manager to your Web analytics arsenal, it will benefit you and give additional flexibility to your tracking not available through Google Analytics alone.

## /Defining Audience and Customer Journeys: A Bird's Eye View



The first objective when looking at your website should be to understand your audience. Who are you trying to reach with your information? Do you want customers, potential business partners, or specific types of individuals who can benefit from your product or service? Understanding your audience will help you ensure you are reaching your audience.

## Let's Imagine...

You are a marketing professional with a higher education institution. Your boss has tasked you with creating this year's main campaign for reaching prospective undergraduate students.

The key demographics of your target audience will be focused on age and location. You want to primarily reach high school sophomores and juniors and potentially their parents as well. Users between the ages of 25-45 years old and 55+ year old's will not be a part of your target audience.

Your preferred age range will be  $\leq 17$  year olds (and perhaps 45-55 year olds); no preference on gender; with location primarily focused on individuals in the same state as your institution.

# Traffic Analysis

You can learn about who your users are through visitor analysis and begin to understand why they may have come to your website through traffic analysis (Google Analytics, 2020). Web analytics allow you to delve into how many times users visit your website, and how many days have passed since their last visit. You can find out how much time users spend on your website and how many pages they view, where they are located, and what sort of device they use to access your website (Beasley, 2013).

The key to ensuring your users are getting the best possible experience is to outline the customer journey. A customer journey map is a visual illustration of the customer’s experience with a business (Agius, 2019). Journey maps can cover the macro-level journey (e.g. from initial awareness and engagement along the way to a long-term relationship) or zoom in on one or more micro-level journeys, such as the steps to make an online purchase. Journey maps typically capture the emotions at each step of the customer’s journey. These can include what your customer is thinking and feeling, as well as an evaluation of the experience at each stage (Agius, 2019).



Understanding the desired customer journey is only the first step. Utilizing real data analytics, you can measure the journeys your customers are actually taking on your website through content analysis. Content analysis gives insight into how people interact with the pages on your website. This will highlight flaws in the design or information layout of your website if they exist. Do you have a page that is getting zero interaction, or a very high bounce rate? Maybe that page has a misleading title. Looking at your real time data analytics will help to show you feedback loops or misleading information that could be removed from your site. Excising these pages or links can help to streamline the customer experience (Beasley, 2013).

# /Setting Goals and Outlining Objectives

In his book, **Paid, Owned, Earned: Maximixzing Marketing Returns in a Socially Connected World**, Nick Burcher relays a lesson from Frank Davidson, Strategic Resources VP at ZenithOptimedia in Boston, argues that the value of any marketing effort is essentially a function of three elements:

- 1 The change in the number of people with an interest in the company’s products;
- 2 The change in the amount of money these people would ultimately spend with the company if they were to make a purchase;
- 3 The change in the likelihood of these people purchasing (or similar, e.g. subscribing, contracting with, etc)

He notes that, “Ideally, these factors need to be accounted for over time – for example, a brand campaign doesn’t necessarily increase immediate sales, but over time sales should increase as the awareness and affinity to the company increase.” (Burcher, 2012).

Davidson believes that it is possible to rewrite these points in the form of measurement-oriented questions:

- 1 ‘Did this or will this marketing effort increase the number of people aware of the company’s products, and, if so, by how many?’
- 2 ‘Did this or will this marketing effort make people want to buy more from the company, e.g. cross-sell, up-sell, if they were to buy?’
- 3 ‘Did this or will this media effort increase the likelihood that a person will ultimately buy?’

These three questions create a framework for evaluation, and everything should refer back to them, but, even if we can answer these questions satisfactorily, success or failure can be judged only if clear objectives and goals have been established at the outset (Burcher, 2012). A vital part of this process is to identify and select organization specific KPIs with respect to the major marketing objectives and to differentiate them from other secondary metrics (Järvinen & Karjaluoto 2015).

The first step to creating meaningful analytics goals is to **identify the core objectives of your business**. Start by creating a list of your organization’s desired outcomes.

What are some of the business objectives you might list in this exercise?

- Increase stakeholder value
- Better leverage social media
- Increase revenue from online sales
- Grow our online community
- Grow business from repeat customers

**Business objectives are often qualitative**, like “Better leverage social media”. **Measurable goals are quantifiable**, like “Increase the Twitter retweets and Facebook likes for our content”. That’s quantifiable because we can measure the number of retweets and likes each month and report if it is increasing or decreasing.

**To create analytics goals, we must first break down qualitative business objectives into measurable goals.** To do that, look over each business objective and, if necessary, rephrase it using terms that are quantifiable. Once you have a list of measurable goals, review it and think about which of the items on the list can be measured using Web analytics. For example, “Increase revenue from online sales” is a good candidate for translating into an analytics goal. On the other hand, “Increase stakeholder value” is not a great candidate. We cannot measure shareholder value with Web analytics. In this situation, we can break down this goal by listing some drivers of “stakeholder value” that can be measured using Web analytics.

- a. Increase revenue per online customer.
- b. Reduce the cost of acquiring new online customers.
- c. Increase growth of weekly online subscription signups.

Once you have broken down the objectives into measureable goals, you should produce a final list. In our case, the list looks like this:

1. Increase revenue per online customer.
2. Reduce the cost of acquiring new online customers.
3. Increase growth of weekly online subscription signups.
4. Grow the number of weekly users interacting with our blog content (online community).
5. Increase revenue from online sales.
6. Increase revenue (grow business) coming from repeat customers.
7. Increase traffic (better leverage) from social media.

# /Tips for making SMART goals

To make sure your goals are SMART, each one should be:

- S Specific**  
Use specific wording
- M Measurable**  
Ensure your goals can be measured using Web analytics
- A Achievable**  
Aim for realistically attainable goals
- R Relevant**  
Pick relevant goals that relate to your business
- T Time-bound**  
Make goals time-bound by including timeframe and deadline information

**SMART IS AN ACRONYM THAT YOU CAN USE TO GUIDE YOUR GOAL SETTING.**

ITS CRITERIA ARE COMMONLY ATTRIBUTED TO PETER DRUCKER’S MANAGEMENT BY OBJECTIVES CONCEPT.

THE FIRST KNOWN USE OF THE TERM OCCURS IN THE NOVEMBER 1981 ISSUE OF MANAGEMENT REVIEW BY GEORGE T. DORAN.



# /Setting a Baseline

As you prepare to dive into your data, **it is important to understand that you should always analyze data in context**—you can only interpret numbers in contrast to historical data on the same website, and trends and proportions are more important than absolute values. (Beasley, 2013).

So, if this is the first day of the rest of your Web analytics tracking life, a good first step is to set a baseline. If you are implementing Google Analytics on your website for the first time, you will need some time to discover what your website traffic looks like.

For example, does your traditional 9-to-5 business website traffic dip on the weekends? Is there a spike on particular days, is traffic slower at the beginning of the month or at the end?

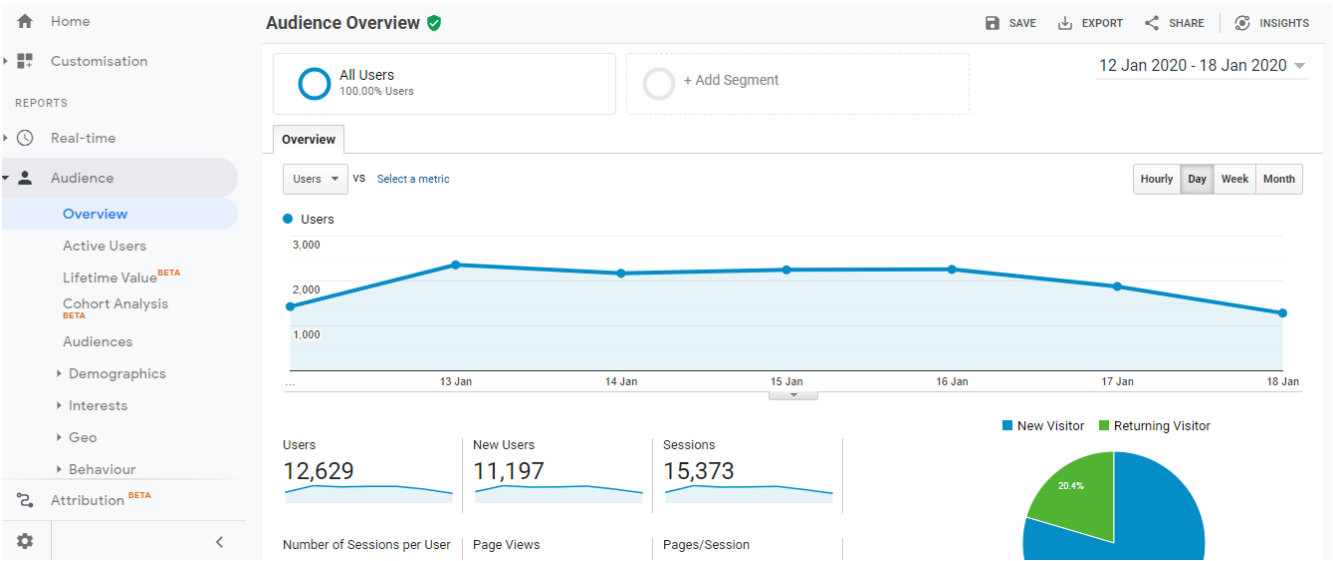
Google Analytics has an easy tool to set a timeframe for the data you want to see. You can narrow it to one day or look at several months’ worth of data compared year-over-year (Google Analytics, 2020).

It will take some time to set your baseline, but it is very important to have a basic understanding of your traffic and data before you begin making changes or drawing conclusions.



photo by William Iven on Unsplash

# /Audience Dashboard



**Google Analytics has a lot of options—a lot of ways to look at your data.** You don’t have to know and use every option from day one. Instead, you can start by answering a specific question and branch out from there. This is where the definitions from earlier come into play.

To start with the basic metrics, look to your Audience metrics. In Google Analytics, this is under the Audience > Overview page (Google Analytics, 2020). This will give you a dashboard of the basic audience metrics including Users, New Users, Session, New v. Returning Users, Average Session Duration, Page Views, and Pages per Session, among other things.

**Google Analytics also allows you to define audiences to view users more specifically.** An audience might be simply current users or you might need a more detailed definition that identifies users who viewed the detail page for Product A, and then within 3 sessions or 7 days returned to purchase the product, for example.

Once you define an audience, you can apply the audience to your Analytics reports to explore their behavior in response to your marketing. You can use the audience as a secondary dimension in reports, and as a dimension in segments, custom reports, and custom funnels. **Analytics Help provides detailed tutorials and guides for defining audiences.**

# /Acquisition Dashboard

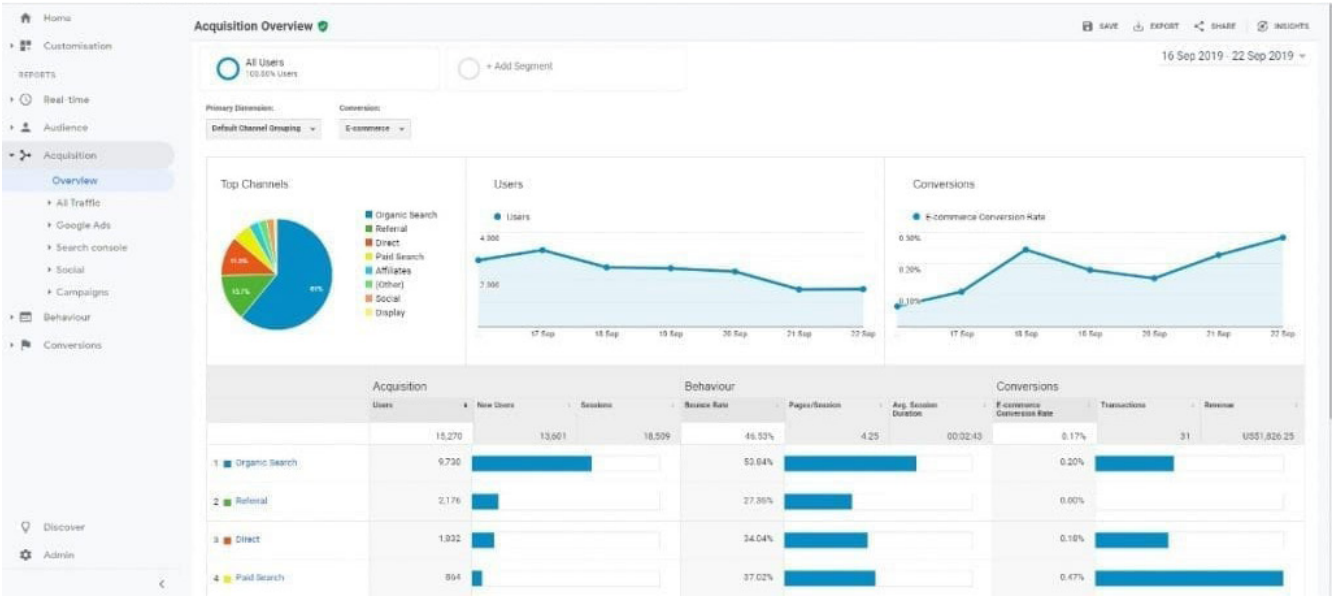
The next major report you can look at is the **Acquisition report**. Under the Acquisition > Overview tab, you will see the main sources of your traffic (Google Analytics, 2020).

The dashboard shows each channel and how the traffic referred from that channel performed in Behavior and Conversions.

You can drilldown into each channel and see where the traffic is coming from within the source.

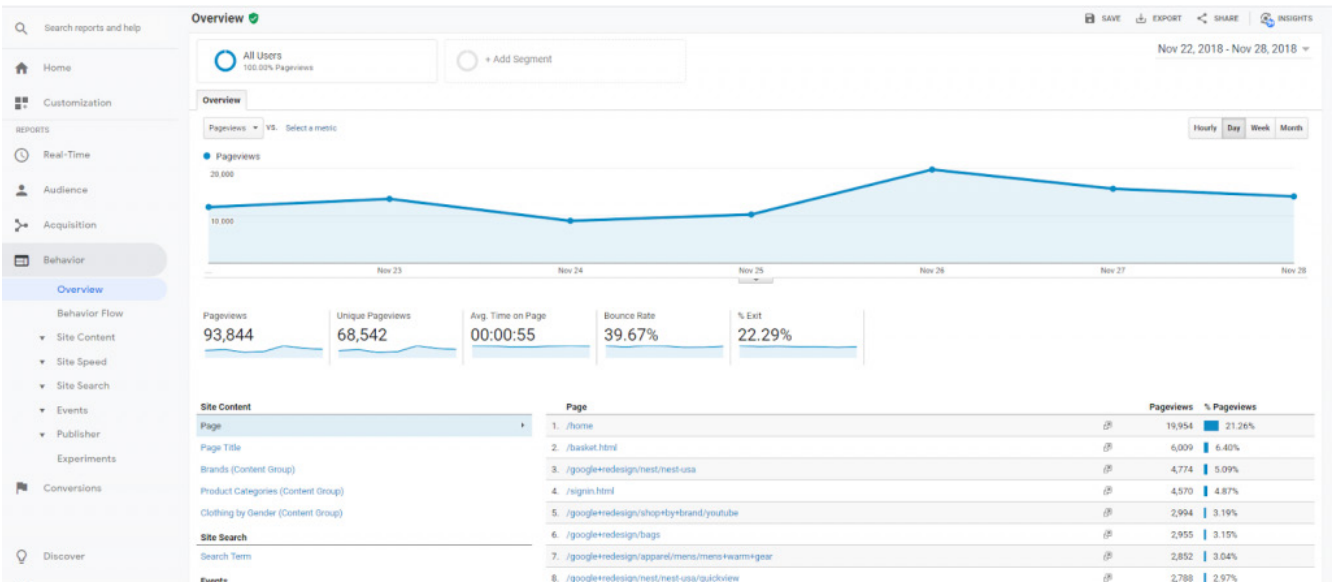
Social traffic can be tracked to each platform and referral traffic can be viewed by referring site.

Familiarize yourself with your website's data by tracking it on a fairly regular basis. In the next section, we will discuss in-depth measurement and goal tracking, but having a generalized knowledge of what to expect from your website will help strengthen your analysis as you dive deeper into the data (Gotter, 2019).



The Acquisition tab is also where you can track your **Google Ads** if that if a marketing tactic you are utilizing. By linking accounts between Google Ads and Google Analytics, you can see data from your Google Ads repots, import metrics and goals from Analytics into your google Ads account, Access enhanced remarketing capabilities, and see richer data in Multi-Channel Funnels.

# /Behavior Dashboard



One more major report you can look at is the **Behavior report**. Under the Behavior > Overview tab, you will see your top-performing pages and basic pageview information.

Clicking on Behavior > Site Content > All Pages will show you a more in-depth report on top-performing pages, including the ability to add secondary dimensions to narrow into the data.

The Site Content reports include the following:

**All Pages:** engagement metrics for each page on your site.

**Content Drilldown:** engagement metrics for directories and pages on your site.

You can drill into directories to see subdirectories and individual pages.

**Landing Pages:** Acquisition, behavior, and conversion metrics for the landing pages on your site.

See whether your landing pages are engaging users and contributing to conversions the way you expect.

**Exit pages:** exit metrics for the last pages users open on your site.

See if users are exiting your site from the pages you expect (e.g., a checkout page).

All of these reports will help you when reviewing your data and relating KPI's to your objectives and goals.



photo by Launchpresso on Unsplash

# /Digital Marketing Analytics

## Your Owned Media Ecosystem

Diving deeper into your marketing efforts, digital marketing analytics provides a good, solid look into the direct relationships between your marketing channels (Järvinen & Karjaluo, 2015). There are many services that will create a marketing ecosystem of your distinct marketing channels and house them together for ideal comparison. If you have established marketing channels (an active email marketing campaign, strong social media pages, active Google Ads, company/organization blog) then considering one of these paid services may be right for you.

Short of paying for an additional service, there are some great ways to compare your marketing channels yourself. Most any service that you use to send marketing emails will include some analytics for those campaigns. Your social media pages (if set to “business” rather than “personal”) include insights including reach, engagement, etc., and similar to the email campaigns, most sites that host your blog will include some data which can be used for tracking.

Most importantly, it is important for you as the marketer to keep track of what efforts you are exerting and when (Mishra, 2012). Time your social media posts to highlight your new blog or make your social sharing icons prominent in your next email. Using basic reports in Google Analytics, you can view how many users found your website through your social pages, or you can use the insights on your social pages to see how many people engaged with your new content. Look for cause and effect between channels (Mishra, 2012). Keeping a detailed log of your marketing efforts (blog posts, social posts, new Web content, emails, etc.) will help you work smarter, not harder with your marketing going forward.

## Paid, Owned, Earned: What does it mean?

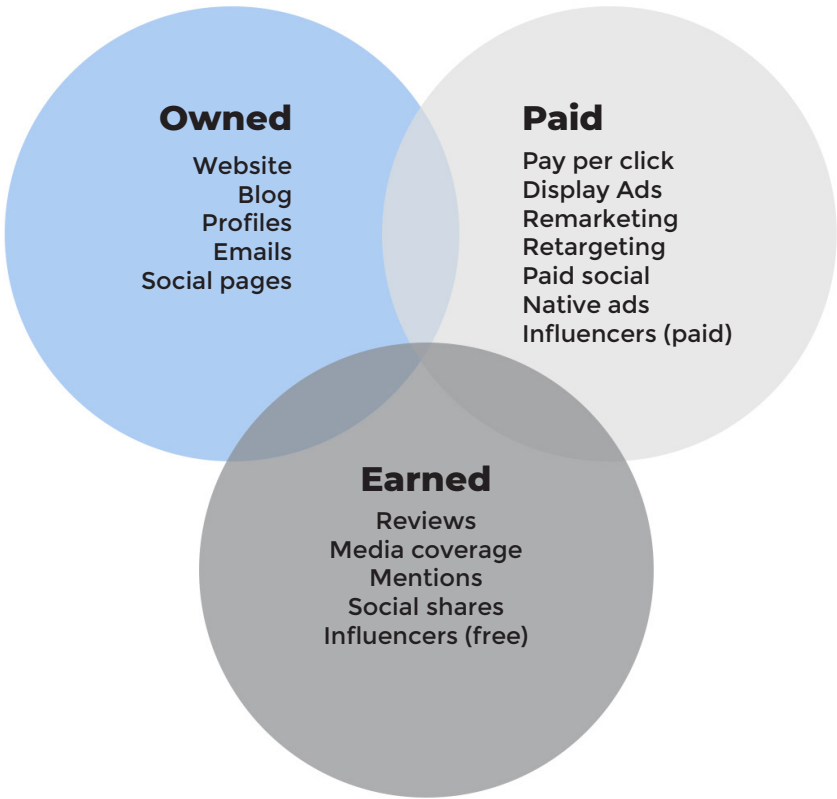
Most experienced marketers will be familiar with the concept of Paid, Owned, and Earned media. A quick refresher for those scratching their heads: This phrase is simply a framework for how to organize and execute your marketing:

**Owned media** is when you leverage a channel you create and control. This could be your company blog, YouTube channel, your website, or even your Facebook page. Even though you don’t strictly “own” your YouTube channel or your Facebook page, you do control them and don’t have to pay for basic usage.

**Earned media** is when customers, the press and the public share your content, speak about your brand via word of mouth, and otherwise discuss your brand. In other words, the mentions are “earned,” meaning they are voluntarily given by others.

**Paid media** is when you pay to leverage a third-party channel, such as sponsorships and advertising on third-party sites.

This guide is focusing on Owned media, namely your website, email campaigns, social media pages and the intersection of those channels. Before rushing to paying for ad space and pouring money into social campaigns or sponsorships, you need to have a solid grasp on your owned media and what traffic and conversions you are generating without the additional costs.





# /Search Engine Optimization

SEO stands for “**search engine optimization.**” It’s the practice of increasing both the quality and quantity of website traffic, as well as exposure to your brand, through non-paid (organic) search engine results.

Despite the name, SEO is as much about people as it is about search engines themselves. It’s about understanding what people are searching for online, the answers they are seeking, the words they’re using, and the type of content they wish to consume. Knowing the answers to these questions will allow you to connect to the people who are searching online for the solutions you offer.

## Google Webmaster Guidelines for SEO

**Basic principles:**

- Make pages primarily for users, not search engines.
- Don’t deceive your users.
- Avoid tricks intended to improve search engine rankings. A good rule of thumb is whether you’d feel comfortable explaining what you’ve done to a website to a Google employee. Another useful test is to ask, “Does this help my users? Would I do this if search engines didn’t exist?”
- Think about what makes your website unique, valuable, or engaging.

**Things to avoid:**

- Automatically generated content
- Participating in link schemes
- Creating pages with little or no original content (i.e. copied from somewhere else)
- Cloaking – the practice of showing search engine crawlers different content than visitors.
- Hidden text and links
- Doorway pages – pages created to rank well for specific searches to funnel traffic to your website.

While webmaster guidelines vary from search engine to search engine, the underlying principles stay the same: Don’t try to trick search engines. Instead, provide your visitors with a great online experience. To do that, follow search engine guidelines and fulfill user intent.

This list was retrieved from Google Search Console Help (Webmaster Guidelines).

# /Social Media Marketing

Social media is an undeniable facet of society in 2020 and it is not going away anytime soon. Social Media marketing can generate immense exposure for your company. The benefits are exhaustive, but the process of partaking in social media marketing can also be exhausting. Not knowing where to focus efforts is the most significant pitfall of social media marketing. This is where analytics can help.

The benefits of social media marketing cannot be overstated. Advantages come in both measurable and immeasurable concepts. **Social media marketing is one of the most cost-efficient methods used to syndicate content and increase a business or organization’s visibility.** Implementing a social media strategy will greatly increase your brand recognition since you will be engaging with a broad audience of consumers. While this is a concept that is not directly measurable, increased inbound traffic is measurable. Every social media profile you add to your marketing mix is a gateway to your website, and every piece of content you post is another opportunity to acquire a new customer.

**Google Analytics will allow you to:**

- Discover which social media platforms give you the most traffic
- Calculate the ROI of your social media campaigns
- See what content works best with what social media platform
- Make sure that you’re pulling traffic from the right demographics with social media
- See how many sales conversions your business gets from social media



Considering which social media pages are generating the most traffic (a report found under the ‘Acquisition’ tab in Google Analytics) can help you to identify which social media platforms are working the best for your business or organization, allowing you to get the most out of your social media campaigns and effectively strategize for the future.

photo by NeONBRAND on Unsplash

## /Email Marketing

### It's time to discuss email marketing.

If you do not already have an email marketing strategy for your company or organization, it is something you could absolutely consider.

Email marketing reaches your customer where they live, right in their email inbox. It is giving you

exposure without requiring any effort from the user (after the initial sign-up.) Utilizing email marketing to drive traffic to your website can be hugely beneficial to your company or organization.

**If can also help you to uncover insights into what your customers are interested in.**

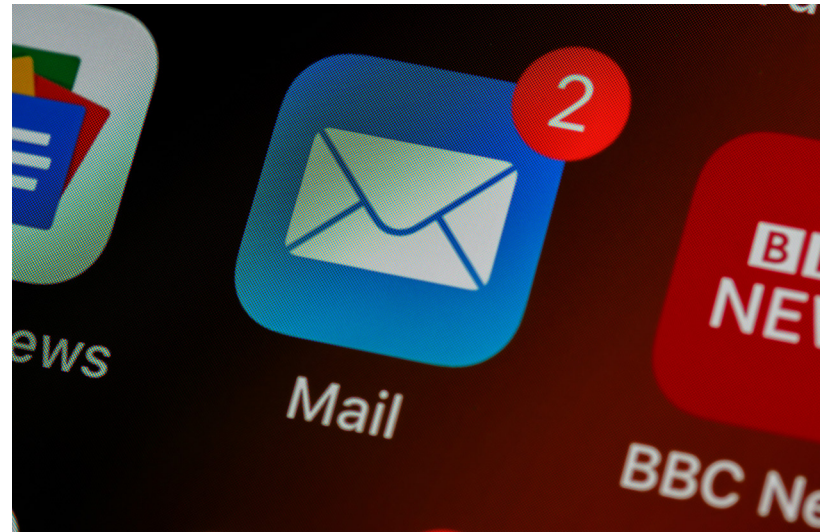


photo by Brett Jordan on Unsplash

Based on 2018 data from SmartInsights, email marketing is still ranked as the most effective marketing channel, beating out social media, SEO, and affiliate marketing (Chaffey & Hall, 2019).

There are several high-performing email providers to choose from. Constant Contact, Sendinblue, Mailchimp, Drip, AWeber, ConvertKit, and the list goes on. All of these services have varying price points and varying features, some including SMS marketing, some with advanced editing tools, etc. Choose which service fits your budget, skill set, and desired outcome.

**All of them should include access to data gleaned from your email marketing efforts. It is essential to know what email recipients were drawn to and what drove them to click.**

Email marketing is an art and science, so give yourself some wiggle room to experiment and find that tactics work best for your business and your subscribers.

## /Email List Segmentation and A/B Testing



### Email List Segmentation

Email list segmentation is the process of breaking your subscribers into smaller groups based on specific criteria so that you can send them more personalized and relevant emails.

Rather than blasting every email to your entire email list, segmentation lets you send certain emails only to those subscribers you think will be the most interested in that content, resulting in higher conversions.

## A/B Testing

A/B Testing: An A/B test is the shorthand for a simple controlled experiment. As the name implies, two versions (A and B) of a single variable are compared, which are identical except for one variation that might affect a user's behavior.

A/B testing is a user experience research methodology. A/B testing is a way to compare two versions of a single variable, typically by testing a subject's response to variant A against variant B, and determining which of the two variants is more effective.

A/B Testing is especially beneficial to email marketing and ad campaigns and can help you discover what your audience is best responding to. Layering this information with the percentage of sales or conversions will help to focus in on your most profitable and/or beneficial efforts.



# /Campaigns - Social + Email

Setting up your social media and email marketing for ideal measurement starts much like measuring any Web data, **you must understand your objectives and set your goals.**

Below are some common goals for email marketing campaigns:

- Email list sign-ups
- Increase lead generation
- Purchases
- Grow and retain subscribers

Below are some common goals for social campaigns:

- Email list sign-ups
- Contact form inquiries
- Purchases
- Downloads of a whitepaper or other document

**Note that all of these goals are based on someone taking a measurable action that can be tracked.** In order to get the most accurate numbers for your ROI, set your goals based on defined actions. Specifically, actions that convert a casual viewer to a lead and ultimately to a paying customer or client.

Rather than look at the big picture of your social and email presence, goals should be campaign-specific. **A campaign is a planned effort with set goals and a measurable outcome.**

One of the most important reasons you want to set up campaigns is that it will allow you to track individual links that you share on Instagram, Twitter and other platforms or through email. This allows you to easily attribute visits from the specific links you share. For example, brands on Instagram often update their ‘link in bio’ to coincide with recent campaigns, promotions or other timely content. Rather than use a generic link, URL trackers help tie clicks to specific campaigns and calls-to-action.

By adding campaign parameters to the destination URLs you use in your ad campaigns, you can collect information about the overall efficacy of those campaigns, and also understand where the campaigns are most effective.

For example, your current campaign might be generating a lot of revenue, but if you’re running the campaign on several different social platforms and in email campaigns, you want to know which of these is sending you the customers who generate the most revenue. Or if you’re running different versions of the campaign via email and social media, you can compare the results to see where your marketing is most effective.

There are many URL shortening websites and platforms that allow you to build campaign-specific links. **An easy place for beginners to start is through Google Analytics’ Campaign URL builder.**

**Google Analytics’ Campaign URL builder allows you to incorporate UTM codes into your URLs.** UTMs, or Urchin Tracking Modules, are a tracking device to help you get really specific with your traffic source. UTM tracking involves adding unique UTM codes to your URLs to easily identify exactly where your traffic is coming from.

Below is an example from Google’s Campaign URL builder for the different parameters you can track through a campaign URL.

Campaign Source utm_source	Required. Use utm_source to identify a search engine, newsletter name, or other source. Example: google
Campaign Medium utm_medium	Required. Use utm_medium to identify a medium such as email or cost-per- click. Example: cpc
Campaign Name utm_campaign	Required. Used for keyword analysis. Use utm_campaign to identify a specific product promotion or strategic campaign. Example: utm_campaign=spring_sale
Campaign Term utm_term	Used for paid search. Use utm_term to note the keywords for this ad. Example: running+shoes
Campaign Content utm_content	Used for A/B testing and content-targeted ads. Use utm_content to differentiate ads or links that point to the same URL. Examples: logolink or textlink

Image retrieved from <https://ga-dev-tools.appspot.com/campaign-url-builder/>

# Measure

Once you have defined your objectives, you can begin to set data-driven goals to measure success.

## The Many Facets of Data

Data measurement and the analysis of data is a multi-faceted task. Context is key with data analytics as a number, rate, or ratio that seems good can be compared to a previous period (last week, last month, or last year) and you will discover the performance is actually lacking in comparison. Similarly, a low click thru rate on an email campaign can be discouraging, but if it performed better than previous emails, that is still a win. Increases or decreases in engagement and website visitors can typically be explained through the data, you just have to find the most likely cause. Drilling down through analytics reports can help you support hypotheses for why performance is good or bad, and adaptation and testing can help you improve moving forward.

photo by fabioha on Unsplash

# /Beware Vanity Metrics

It is important to remember that basic Web metrics can very easily slip into the realm of ‘**vanity metrics**’ if you are not careful.

**Vanity metrics** are things you can measure that don’t actually matter, especially in regards to your objectives and goals. They are numbers that are easily changed or manipulated, and they don’t bear a direct correlation with numbers that speak to business success (Alscher, 2020).

So, if performance is low, it might be tempting to tout a large User number or an increased Pages per Session rate. Looking closer, that Pages per Session number might be indicative of misleading information or a confused customer who is not finding what they are looking for. Increased User numbers do not matter if your Bounce Rate is climbing in kind.

Taking into account the layered nature of Web analytics means realizing that a Referring site is not performing well if the Bounce Rate is in the 90th percentile. That means that the users visiting your page from that Referring Site are not finding whatever it is they are looking for, and are therefore, not the users you want.

	Referral Path ?	Acquisition			Behavior		
		Users ? ↓	New Users ?	Sessions ?	Bounce Rate ?	Pages / Session ?	Avg. Session Duration ?
		790 % of Total: 20.46% (3,862)	705 % of Total: 27.29% (2,583)	858 % of Total: 14.82% (5,788)	86.25% Avg for View: 32.84% (162.60%)	1.24 Avg for View: 3.46 (-64.14%)	00:00:40 Avg for View: 00:03:51 (-82.57%)
<input type="checkbox"/>	1. /board/products/referral/	790(100.00%)	705(100.00%)	858(100.00%)	86.25%	1.24	00:00:40

An example of a poorly performing Referral site. Note the high Bounce Rate, low Pages/Session, and low Avg. Session Duration.

This is not to say User counts and Pages per Session are always vanity metrics. Any metric can be meaningful if it directly correlates to a business objective or goal. **But clouding reports with numbers just because they can be measured does not mean that they necessarily should be considered.**

## /Measurement Plans & KPI's

### What is a measurement plan?

A measurement plan is a document that translates your business objectives into the metrics and dimensions you can measure through Google Analytics. At this point, you have a clear understanding of your business' primary objectives. Now it's time to define what the specific KPI's and metrics are that you will measure to track your success on the way to your objectives and goals.

Let's say, for example, your business objectives were to increase sales and company growth, build your brand, increase customer loyalty, and more actively engage your social media community.

See below for an example of what your measurement plan could look like:

Objectives	Sales & Growth		Brand Building		Customer Loyalty		Engage Community	
	KPIs		KPIs		KPIs		KPIs	
Metrics	Revenue	New registrations	% new visitors vs. returning visitors	Organic sessions	Return visitors	Newsletter subscriptions	Passive social clicks	Social source and action
	Transactions	Grow customer base in "x" city	Newsletter subscriptions	Referral sessions	Transactions per customer	Blog readers	New likes	Shares
	Revenue by category	Grow international customers	New blog readers	Social traffic	Custom dimension: existing customer	Average visit duration	New follows	Tweets and retweets
	Average order value		New Pinterest followers		Lifetime value		Custom dimension: "socially engaged"	Pins and repins

## /Setting Goals in Google Analytics

Goals in Google Analytics measure how well your site or app fulfills your target objectives. Goals can be applied to specific pages or screens your users visit, how many pages/screens they view in a session, how long they stay on your site or app, and the events they trigger while they are there. Every goal can have a monetary value, so you can see how much that conversion is worth to your business. Using values for goals lets you focus on the highest value conversions, such as transactions with a minimum purchase amount.

### Goal Types

You can set up goals in your Google Analytics dashboard to notify you whenever certain goals are met. The four main types of Google Analytics goals are:

Goal Type	Description	Example
Destination	A specific location loads	Thank you for registering! Web page or app screen
Duration	Sessions that last a specific amount of time or longer	10 minutes or longer spent on a support site
Pages/Screens per session	A user views a specific number of pages or screens	5 pages or screens have been loaded
Event	An action defined as an Event is triggered	Social recommendation, video play, ad click

Here are some good rules to follow when getting up goals for your website:

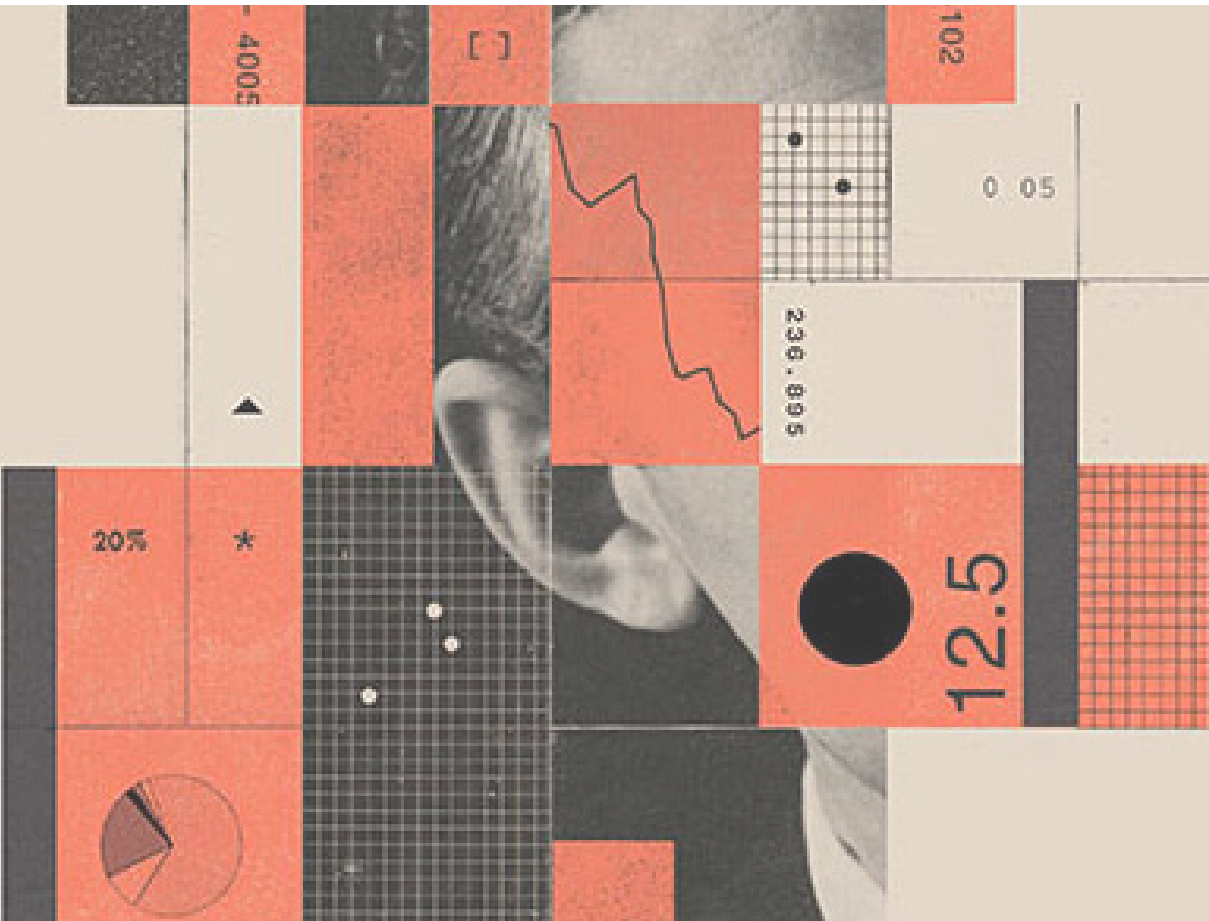
**A goal should be ageless.** A visitor should be able to accomplish them as long as your website (or app) exists. Google Analytics only allows you 20 goal slots per view.

**A goal must require action on the part of the visitor.** Views of a category or product page, even if they're important for you to measure, are not good goals because people can accomplish them sometimes just by landing on your website, without any engagement at all. Pages that can only be reached with an action—a form fill or a purchase—are better candidates.

**A goal must map to your business objectives.** If you can't demonstrate how a visitor achieving your analytics goal has an impact on brand awareness, customer loyalty, or revenue, it's probably too generic.

**A goal should not have a high conversion rate.** This seems counterintuitive, but hear me out: If a majority of your visitors are able to accomplish an analytics goal, it's too easy of an action for them to take and probably not a meaningful way for you to segment them versus an average user of your site.

photo by Mike McQuade



# /Targets

Next you want to set targets for how to want these KPIs to perform. Targets (or benchmarks) put your website's goals into perspective. They are a numeric value that force you to measure the success of your goals. You should use your company or organization's historical data to choose targets. If no such data exists, use industry benchmark data (a simple Google search will help you track down the data).

Segmentation is the filtering of data according to metrics and dimensions so you can analyze specific subsets of your website's users (Google Analytics - Segments, 2020). It allows you to answer more in-depth questions about user behavior by allowing you to focus only on particular users who exhibit certain behavior or traits, or to compare one set of users against a different set. There are basic kinds of segmentation in standard analytics reports, like dividing up usage metrics by what keyword users searched for, or you can set your own segments. Segmenting data will help to glean even more information from your goals and give additional context to meeting your targets (Google Analytics - Segments, 2020).

Finally, you need to decide on the format and frequency of reporting. In some cases, all KPIs can be tracked and reported on using the standard reports in Google Analytics. The process of gathering all the key numbers can be simplified by creating a custom report or GA dashboard and by having automated emails sent to all stakeholders.

Building your own custom report is another viable option. Knowing what matters to your company or organization, you can easily export data from Google Analytics to Excel, Google Sheets, as a PDF or as a CSV file.

The export option is extremely helpful when building a comprehensive view of your data analytics. Layering Google Analytics reports and information with the context of email marketing and social media marketing will give a more well-rounded idea of how your comprehensive marketing efforts are performing.

We have said it before but it bears repeating: remember, **it is important to understand that you should always analyze data in context**—you can only interpret numbers in contrast to historical data on the same website, and trends and proportions are more important than absolute values. (Beasley, 2013).



# /Engagement

**Engagement is a predictive measurement.** By analyzing how users engage with your online content, you can predict their likeliness to convert.

**Engagement can mean a lot of different things.** The concept of “engagement” has been widely explored by scholars from different disciplines, including management, marketing and information systems (Kunz et al., 2017). It is a phenomenon and a branding practice that stands at the crossroads of the relationship marketing and the value co-creation paradigms (Kunz et al., 2017). However, there is no consensus in the current literature providing a singular definition and conceptualization of customer engagement.

**Overall, the goal is to create interactions that lead to a conversion.** Your challenge as a marketing professional is to identify those actions and encourage them, bolstering the specific type of engagement you want to see so you can create a user experience that leads (more times than not) to conversion. **If you want to increase your conversion rates, you have to know which metrics matter most.** And you need to be measuring how well people move through your funnel (refer to the Customer Journey Map from pg. 16) Find the points where people stop moving or drop out of your funnel, and test solutions. The bottom line is this: You need to test continuously to keep improving your engagement levels.

**But remember, engage users enough to drive conversions without overdoing it. Use engagement strategically**—to keep people on your site without adding friction or confusing them—and you’ll likely improve your conversion rates as well.



photo by Headway on Unsplash

# /Types of Engagement

**Landing Page Engagement:** Landing page engagement is often measured by how much time a user spends on your landing page or how many clicks you get on a form field. On a landing page, the engagement you generally want is the conversion: sign-up, purchase, download, or whatever other goal you’ve set for the page.

**Website Engagement:** A key metric for website engagement is your bounce rate—if your pages are truly engaging, people will often explore your site further. A second factor is your site’s page-load speed. If your website takes too long to load, you’re likely to see a higher bounce rate.

**Social Media Engagement:** Engagement on social media can be measured by the number of likes, shares, comments, and mentions your content gets. Do your fans engage with you online? This is a good measure of how well you’re building relationships with your followers.

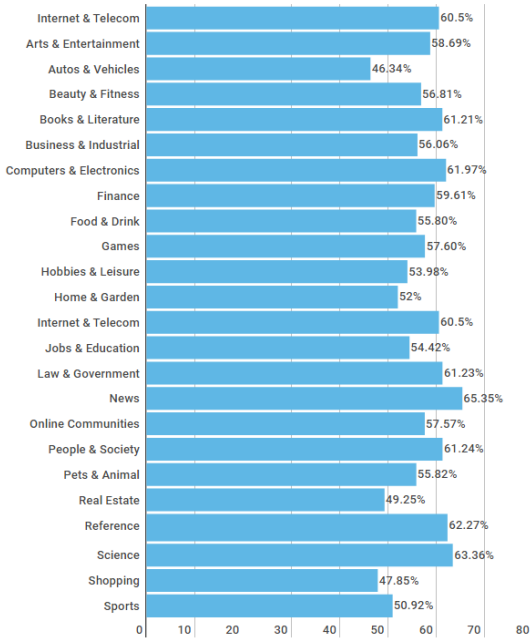
**Brand Engagement:** This type of engagement attempts to encourage relationships between brands and consumers. Metrics used to measure brand engagement include customer loyalty, which can be measured by the number of repeat purchases, and the Net Promoter Score, which asks users how likely they would be to recommend your brand to a friend.

## What is a Good Bounce Rate?

Many different variables determine what a “good” bounce rate is. Things like your business type, industry, country, and the types of devices your visitors are using all influence what a good average bounce rate would be for your site.

If you are looking for a generic rule of thumb, the majority of website bounce rates fall between 26% and 70% (Patel, 2018). However, bounce rates are highly subjective. Your goal is to keep your bounce rate as low as possible while simultaneously boosting your site’s conversion rates.

## Bounce Rate by Industry



Stats as per Google Benchmarks 2017

## /Engagement vs. Reach vs. Impressions

In measuring social media data, a distinction must be drawn between attention (or engagement) and exposure (or reach). Engagement, defined as “a focused mental involvement with a particular item of information” (Davenport & Beck, 2002), can be seen at its most basic level as the number of interactions your content received (likes, comments, shares, saves, etc.)

This differs from reach, which refers to the viewing of media content, whether intended or unintended (Zheng et al., 2012).

Impressions refer to the number of times your content is displayed, whether or not it is viewed.

**The traditional criteria in the world of audience measurement and advertising have relied on reach.** Yet, the Internet revolution has transformed how audiences consume media, as well as how media industries perceive and define their audiences (Napoli, 2011). Precisely because the Internet is a virtually infinite source for information, it offers users nearly infinite selectivity in choosing what to consume or to avoid (Zheng et al., 2012).

Rightfully so, these days, engagement outshines reach as a much stronger focus in communications and marketing plans. This is because engagement is the only one of the three terms to involve the user directly. Marketers want more than simply putting their brand (or product or organization) in front of an audience, we want to engage with that audience and, hopefully, have that audience engage with us.

**All three of these metrics work together in the content marketing funnel.** First, a piece of content must be delivered to a feed (impressions), then a user has to interact with the platform to actually see the piece of content in their feed (reach). Finally, the user will interact with the content, if that content inspires them to do so.

Social content with high reach is much more likely to see an increase in the number of people who interact and engage too. Tracking reach helps clarify whether there is anything wrong with the content. If reach is high but engagement low, it highlights issues with the creative itself. The content reaches people, however because the creative concept isn't good, those people don't engage.



### IMPRESSIONS:

The number of times your content has been displayed in front of an audience. There are 3 main types:



**ORGANIC IMPRESSIONS:**  
The number of times your non-paid content is displayed



**PAID IMPRESSIONS:**  
The number of times your paid promotion is displayed



**VIRAL IMPRESSIONS:**  
The number of times your content is displayed as a result of high engagement

### REACH aka UNIQUE IMPRESSIONS:

The number of individual users who have seen your content

### REACH RATE:

The number of people who have seen your content divided by the number of followers you have



### ENGAGEMENT:

The number of shares, likes, comments, replies, saves, link clicks and profile clicks your content has received.

### ENGAGEMENT RATE:

The number of engagements with your content divided by the number of impressions or reach

# /Measuring Social Media

Metrics like social shares, followers, likes and comments can be tracked through the insights or page admin of whichever social platform you are using. These metrics are absolutely worth tracking but you shouldn't stop there. Unless you're focused solely on engagement and awareness, these metrics don't drill down deep enough for assessing ROI. **To truly assess campaign ROI, you want to track your social media goals and you can do that through Google Analytics.**

From your Google Analytics dashboard, go to Acquisition > Social > Conversions. If you don't have any goals set up, you'll be prompted to create one. Click on "Set Up Goals."

1

Goal description

Name

Newsletter signups

Goal slot ID

Goal Id 4 / Goal Set 1

Type

☐ Destination

 ex: thanks.html

☐ Duration

 ex: 5 minutes or more

☐ Pages/Screens per session

 ex: 3 pages

☐ Event

 ex: played a video

2

Goal details

Destination

Equals to

App screen name or web page URL

☐ Case sensitive

For example, use *My Screen* for an app and */thankyou.html* instead of *www.example.com/thankyou.html* for a web page.

Value optional

OFF

Assign a monetary value to the conversion.

Funnel optional

OFF

Specify a path you expect traffic to take towards the destination. Use it to analyze the entrance and exit points that impact your Goal.

You can view your Conversions report as a whole or filter it by existing goals. This report showcases the total number of conversions as well as the monetary value of each one, if you have assigned a value. You'll also be able to filter by specific social platforms.

Google Analytics includes this helpful information on the reports offered for tracking social media.

# /Measuring Email Marketing

Using your preferred email marketing platform, you can track the metrics provided from your email campaigns like Clickthrough Rate, Conversion Rate, Bounce Rate, Open Rate and Unsubscribe Rate, to name a few. How many emails were opened, how many links were clicked on, how many users unsubscribed after a particular email campaign – all these are important metrics. But your final goal should always be a conversion – for example, how many leads or customers you've generated owing to your email campaign.

Google Analytics allows you to track your email campaigns on a granular level. You can map the journey your subscriber takes after landing on your website from an email. With its help, you can understand which links in your email campaigns brought the most clicks to your website and look deeper into the users' on-site behavior.

Like we saw on the previous page, this is when you will set up a goal in your Google Analytics. To set a goal, you click on ADMIN from your Google Analytics home page and under the "View" column, you click on "Goals."

*TIP: make sure to use your campaign-specific URLs in your goals!*

This intuitive process will help you to measure when specific actions are completed on your website. For email marketing, the next step is to create an advanced segment of your audience. Under Audience > Overview, you can create a New Segment of your audience. Go to Traffic Sources, choose "Email" in the "Medium" field. Additionally, you can set up to 20 filters in each segment, such as age, location, language, and so on.

Filtering any of your Google Analytics reports by Medium can allow you to see how different users are behaving on your website based on how they got there.

A good email marketing platform will gather and report important metrics. But the real trick is to apply the human touch to those graphs and figures. When the measurements show a dip in engagement, look at the relevant data, compare them with any relevant context, and figure out what's causing the problem. Then use creative tactics to steer the campaign back on track. The more you can measure your success, the better their campaigns will be both on a short and long-term basis.

## The Social Relationship

The social web connects people where they share, critique and interact with content and each other. Social analytics provides you with the tools to measure the impact of social. You can identify high value networks and content, track on-site and off-site user interaction with your content, and tie it all back to your bottom line revenue through goals and conversions.

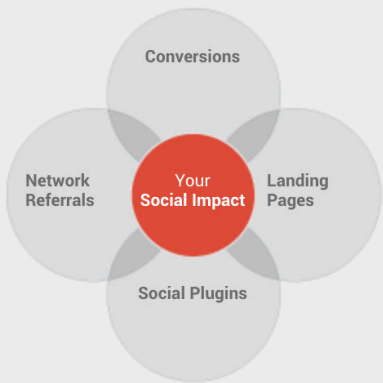
Here's how we see this story:

**Sources & Pages:** Identify networks & communities where people engage with your content.

**Conversions:** Measure the value of social by tracking your goals, conversions and ecommerce transactions.

**Social Plugins:** Measure your on-site user engagement.

**Social Users Flow:** Compare traffic volumes and user traffic patterns through your site.



Images retrieved <https://analytics.google.com/>



# Strategize

Strategy is abstract by definition, but metrics give strategy form, allowing our minds to grasp it more readily.

If strategy is the blueprint for building an organization, metrics are the concrete, wood, drywall, and bricks.

But there's a hidden trap in this organizational architecture: A company can easily lose sight of its strategy and instead focus strictly on the metrics that are meant to represent it.



photo by Patrick Perkins on Unsplash

## Here's a common scenario...

A company selects “pleasing the customer” as a strategic objective and decides to track progress on it using customer surveys.

The surveys do tell managers something about how well the firm is pleasing customers, but quickly, employees begin focusing on **maximizing survey scores**. Through pressure to perform, employees and managers can lose sight of the original goal: to deliver a great customer experience.

It's easy to see how this could quickly become a problem, because there are plenty of ways to boost scores while actually displeasing customers. Think about all the pop-up windows, follow-up emails, and robocalls that pester you with surveys you would rather ignore.

Such tactics tend to lower a customer's satisfaction with a company, but focusing too much on metrics can lead those charged with delighting the customer to use them **despite the strategy**.

## /Common Mistakes in Data Strategizing

**1. Tracking the wrong things,** or not tracking things in enough detail, leading to data that is not providing actionable insight

**2. Tracking too much,** without a plan on how to utilize it, hoping that it might be useful at some point.

**3. Analysis paralysis:** spending tons of time slicing and dicing data, but failing to act on it (often exacerbated by the next point...)

**4. Failing to effectively structure** the data that is collected, leading to a growing pile of unused or surplus data that fails to add value

**5. Failing to keep analytics up to date** with new updates, leading to data which does not reflect product usage accurately



photo by Glenn Carstens-Peters on Unsplash



# /Tips for using data in your business strategy

## 1. Make sure your business strategy is updated.

The world is changing quickly and a business strategy that hasn't evolved to be relevant for the world today won't be effective. It makes no sense to spend time and resources on collecting and analyzing data in support of an out-of-date business strategy. Not only will you not get to where you need to be, but you will waste time and resources trying to get there.



photo by Mark Konig on Unsplash

## 2. Start with your business goals and challenges

There are many ways and reasons to analyze data but they aren't all important to you achieving your business goals or helping you solve a business challenge.

Too many companies develop their data strategy around use cases that are interesting or easy to implement rather than ones that get them to their goal.

First, be clear on what business goal or challenge you're trying to overcome. Then, figure out how you can use data to help you get there.

## 3. Regularly track your measures of success

How will you determine if your data strategy is successful? We discussed defining key performance indicators (KPIs) for your data strategy that link to a specific goal, and how it is also important to set targets for those KPIs.

Targets (or benchmarks) put your website's goals into perspective. This will help your organization track progress and ultimately know if you achieved your objective or not.Using your company or organization's historical data, regularly check the KPIs affected by your marketing campaigns to establish correlation and consistency.

If you are seeing major inconsistencies and outliers in your data, and you are sure your tracking code is implemented correctly, you should consider what other factors may be affecting your performance.

## 4. Consider all forms of data

Today, data comes in many more forms than just databases and spreadsheets. Much of the growth of data can be attributed to unstructured data including photos, sound recordings, text files and more. A solid data strategy needs to account for structured and unstructured data in order to yield robust insights. There are internal sources of data that each organization collects, but external sources of data including from data repositories, governments and data brokers shouldn't be overlooked and can be insightful for your business.



photo by Startaê Team on Unsplash

## /Data Insights

### What does all this data mean?

The value of analytics lies, not in measuring them, but in contextualizing them. Translating the numbers into insights and next steps will improve your marketing efforts.

### Putting Data into Context

The initial step to contextualizing data is to understand what each of these metrics truly means. It's one thing to know that  $\text{conversion rate} = \text{total conversions} / \text{total clicks}$ . It's another thing to understand the real life implications of analytics.

For instance, what does it actually mean to have a 5.7% conversion rate? Well, it means that, for every 100 clicks on your ad, between 5 and 6 of those people became a customer. It means that 5.7% found your product, Web design, and/or copy compelling enough to take the next step in the customer journey and purchase (or click, or download, etc.)

### When you put data into context, a story begins to emerge.

Look at how your conversion rate has fluctuated over the last week, month, and year. What are the marketing actions that correspond with those peaks and valleys? Identifying how specific marketing tactics and campaigns have affected key metrics allows you to translate data into a performance evaluation of sorts – did last month's email marketing campaign have a positive impact on sales growth? Do spikes align with social media posts or email campaigns? Or both?

Having a clear picture of how different tactics affect conversions, sales growth, and other KPIs empowers you to make decisions about how to proceed.

If you can connect the dots to determine that social media marketing boosted sales growth from 2% to 6% month over month, it's easy to see that the campaign was a success. This all means you can make informed decisions about where to invest your time and budget going forward.

Another way to pull insights out of data is to dig even deeper in the direction your analytics point you. Talk to your subscribers and customers. Test different variations of copy, email design, send time, etc. Try to find out what aspect of the email made it so effective. Insights like this take it your knowledge a step further, giving you more information to not only improve your current campaigns, but to help build an even better strategy the next time around.

## /Crafting a Strategy Around Insights

As Google notes, **many of us limit the potential of our data by using it to support decisions we've already made, instead of to drive action.**

It's the same with marketing analytics. If you go looking for data to backup your decisions, you'll most certainly find some. As we covered previously, the multi-faceted nature of data can be deceiving in this way. But to craft a strategy that truly capitalizes on the insights available, and to avoid the pitfalls vanity metrics can so often cause, you have to let the data lead your decision-making and planning.

To build a strategy around your analytics, follow these tips:

- 1. Embrace being wrong.** Part of letting the data drive your strategy is letting go of initiatives that simply don't work (or don't work enough to justify their investment – whether that be monetary or time).
- 2. Approach data from a number of angles.** There are likely a number of ways to interpret your marketing data, so bring in a partner or a few to include fresh perspectives and ideas. Collectively work to make sense of it all and ensure you aren't missing any key viewpoints.
- 3. Test, test, and test some more.** Data analytics give you a picture of how things are – to find out how things could be, you'll need to test your tactics and theories.
- 4. Above all, listen.** At the end of the day, the number one mistake you can make is to ignore what all of your valuable analytics are telling you. Let the data speak for itself instead of trying to make it say what you want to hear.

# /References

**Agius, A. (2019).** How to Create an Effective Customer Journey Map.  
Retrieved from <https://blog.hubspot.com/service/customer-journey-map>

**Alscher, D. (2020).** Don't Waste Your Time With Vanity Metrics: Use These Instead.  
Retrieved from G2 Learning Hub: <https://learn.g2.com/vanity-metrics>

**Analytics. (2020).** In Oxford English Dictionary. Retrieved from  
<https://www.lexico.com/en/definition/analytics>

**Bazeley, M. (2005).** Google buying Web analytics company. Retrieved from  
[http://www.siliconbeat.com/entries/2005/03/28/google\\_buying\\_web\\_analytics\\_](http://www.siliconbeat.com/entries/2005/03/28/google_buying_web_analytics_company.html)  
[company.html](http://www.siliconbeat.com/entries/2005/03/28/google_buying_web_analytics_company.html)

**Beasley, M. (2013).** Practical Web analytics for user experience: How analytics can help you understand your users. Elsevier Inc. <https://doi.org/10.1016/C2012-0-01162-3>

**Beer, D. (2017).** Envisioning the power of data analytics. *Information, Communication & Society*, 21(3), pp. 465–479. <https://doi-org.libproxy.lib.unc.edu/10.1080/1369118X.2017.1289232>

**Berral-García, J.L. (2016).** A quick view on current techniques and machine learning algorithms for big data analytics. *18th International Conference on Transparent Optical Networks (ICTON)*, Trento, pp. 1-4, doi: 10.1109/ICTON.2016.7550517.

**Burby, J., Brown, A., & WAA Standards Committee. (2007).** Web Analytics Definitions [PDF]. Washington DC: Web Analytics Association.

**Burcher, N. (2012).** *Paid, owned, earned: Maximizing marketing returns in a socially connected world*, pp. 226-244. London: Kogan Page.

**Burton, M.C., Walther, J.B. (2001),** The value of Web log data in use-based Web design and testing. *Journal of Computer-Mediated Communication*, 6(2). Retrieved from <https://academic.oup.com/jcmc/article/6/3/JCMC635/4584228>

**Chaffey, D., & Hall, M. D. (2019).** Email marketing is still worth taking seriously in 2018. Retrieved from <https://www.smartinsights.com/email-marketing/email-communications-strategy/email-marketing-still-worth-taking-seriously-2018/>

**Chaffey, D., & Patron, M. (2012).** From Web analytics to digital marketing optimization: Increasing the commercial value of digital analytics. *Journal of Direct Data Digital Marketing Practice* 14, pp. 30–45. <https://doi.org/10.1057/dddmp.2012.20>

**Davenport, T. H., & Beck, J. C. (2002).** Chapter 2: Attention, The Story So Far. In *The Attention Economy: Understanding the new currency of business*, pp. 16-33. Boston, MA: Harvard Business Press.

# /References

**Dennis, M. A. (2020).** Tim Berners-Lee. *Encyclopedia Britannica*.  
<https://www.britannica.com/biography/Tim-Berners-Lee>

**Google Analytics. (2020).** Glossary - Analytics Help. Retrieved August 4, 2020, from  
<https://support.google.com/analytics/topic/6083659?hl=en>

**Google Analytics Mobile App Implementation Guide. (2014).** Retrieved from  
<https://developers.google.com/analytics/solutions/mobile-implementation-guide>

**Gotter, A. (2019).** 5 Ways to Get More Out of your Google Analytics Data. Retrieved from  
<https://www.disruptiveadvertising.com/analytics/get-more-from-google-analytics/>

**Hay, L. (2017).** Section 1: The Importance of Analytics for UX. In *Researching UX: Analytics Understanding is the Heart of Great UX*, pp. 3-4. Victoria: SitePoint Pty.

**History of Web Analytics. (2019).** Retrieved from <https://www.leadforensics.com/web-analytics/history/>

**Inkbot Design (2019).** 14 Skills You Need To Build A Strong Web Design Career. Medium.  
<https://medium.com/@inkbotdesign/14-skills-you-need-to-build-a-strong-web-design-career-394545ee91e4>

**Jansen, B. (2009).** *Understanding User-Web Interactions via Web Analytics*. Morgan & Claypool Publishers. Retrieved 2020, from <http://www.iro.umontreal.ca/~nie/IFT6255/Books/User-WebInteractions.pdf>

**Järvinen, J., and Karjaluo, H. (2015).** The use of Web analytics for digital marketing performance measurement. *Industrial Marketing Management*, 50, pp. 117-127. <https://doi.org/10.1016/j.indmarman.2015.04.009>

**Kunz, W., Aksoy, L., Bart, Y., Heinonen, K., Kabadayi, S., Ordenes, F. V., Sigala, M., Diaz, D., & Theodoulidis, B. (2017).** Customer engagement in a Big Data world. *The Journal of Services Marketing*, 31(2), 161-171. <http://dx.doi.org.libproxy.lib.unc.edu/10.1108/JSM-10-2016-0352>

**Mishra, M. (2012, October 29).** Re-imagining Google Analytics to support the versatile usage patterns of today's users. Retrieved from <https://analytics.googleblog.com/2012/10/universal-analytics.html>

**Napoli, P. M. (2011).** *Audience Evolution: New technologies and the transformation of media audiences*,

**Patel, N. (2018).** Bounce Rate Analytics: How to Measure, Assess, and Audit to Increase Conversions. Retrieved from NeilPatel website: <https://neilpatel.com/blog/bounce-rate-analytics/>



# /References

**Search Engine Optimization. (2020).** In Oxford English Dictionary. Retrieved from <https://www.lexico.com/en/definition/search-engine-optimization>

**Turner, S. (2001).** Dr Stephen Turner. Retrieved from <https://web.archive.org/web/20011201175645/http://www.statslab.cam.ac.uk/~sret1/home.html>

**Usability.gov. Web Analytics Basics. (2013).** Retrieved from <https://www.usability.gov/what-and-why/web-analytics.html>

**Web Analytics as a Tool for Strategic Communication. (2011).** Conference Papers – *International Communication Association*, 1–37.

**Wiggins, A. (2007).** Data-Driven Design: Using Web Analytics to Validate Heuristics. *Bulletin of the American Society for Information Science & Technology*, 33(5), 20–24.

**Zheng, N., Chyi, H., & Kaufhold, K. (2012).** Capturing “Human Bandwidth”: A Multidimensional Model for Measuring Attention on Websites. *JMM: The International Journal on Media Management*, 14(2), 157–179. <https://doi-org.libproxy.lib.unc.edu/10.1080/14241277.2011.619153>

**Zheng, J. & Peltsverger, S. (2015).** Web Analytics Overview. *Encyclopedia of Information Science and Technology*, [https://www.researchgate.net/publication/272815693\\_Web\\_Analytics\\_Overview](https://www.researchgate.net/publication/272815693_Web_Analytics_Overview)