



Carousel30

WHITE PAPER

INTRODUCTION TO BIG DATA FOR DIGITAL MARKETERS

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INTRODUCTION

It's hard to read a blog, pick up a magazine, or have a conversation about business these days without the term "Big Data" coming up in some form or another. What it is exactly and how it relates to you as a digital marketer can be harder to determine.

The purpose of this white paper is to talk about Big Data in terms that relate to marketing and advertising, and more specifically that relate to the digital marketer. There is much more information (or *data*, if you will) on this subject than this white paper allows, but the objective is to encourage further research and discovery on the areas of the subject that are most relevant to you and your current challenges within your organization or company.

Many of the references cited within this white paper provide deeper insights into specific aspects and we recommend reading them in their entirety, especially when they refer to areas of interest to you.

We hope that this provides a good introduction to Big Data and is the beginning of a new step in the sophistication of your digital marketing and advertising efforts.



WHAT IS BIG DATA?

“Analyzing large data sets—so called big data—will become a key basis of competition, underpinning new waves of productivity growth, innovation, and consumer surplus as long as the right policies and enablers are in place.”

—McKinsey & Company, 2012

The term “Big Data” has only been in use since 2010. Like many buzzwords and industry terms before it, the term “Big Data” is used often. At this point, many true and possibly untrue things are attributed to it. Regardless of whether or not it can cure the common cold or leap tall buildings in a single bound, Big Data is here to stay. It is the product of the huge amount of information being generated every day and the companies and organizations that wish to make sense of all of this data to improve profits, products and customer satisfaction.

According to IBM, we create about 2.5 quintillion bytes of data every day¹. This means that in the last two years, we’ve created nine-tenths of the data that exists. This data comes from a variety of sources, including finance, meteorology, GPS location signals, social media posts, and more.

What this means is that we are now faced with more data than we can reasonably manage with database management tools or more traditional data processing. While the size of the data set might vary, in 2012 the largest size that could be reasonably processed was in the exabytes².

We are also not just talking about the *size* of the data sets, while that certainly is a factor. There are three criteria that come into play and help us define something as Big Data:

1. **Volume**, which we’ve already discussed, refers to the *amount* (in petabytes, exabytes, etc.) of information produced.
2. **Variety** or how the different types of structured and unstructured data need to be processed and correlated.
3. **Velocity** or how quickly data is produced that requires processing and analysis.

1 IBM “[What is big data?](#)” 2012.

2 Francis, Matthew. “[Future telescope array drives development of exabyte processing](#)”. April 2, 2012.

What Can We Do With It?

The thing to remember about Big Data is that whether or not we *want* it, it's there. People aren't going to stop tweeting, checking in on Foursquare, purchasing, commenting, and all the other behaviors and actions that contribute to this large amount and frequency of information being generated every minute.

Big Data helps us accomplish many things both as marketers and in general business. Many of these go well outside e-commerce and marketing, though several are interconnected. There are many ways that an organization can use Big Data.

To give you a quick idea of what is possible, here are five uses that show the diversity of challenges it can help us solve within an organization or company:

1. Analyze risk
2. Improve data security
3. Personalization for customer interactions
4. Product development
5. Resource planning
6. Predictive modeling
7. Logistics, including supply and shipping
8. Natural language processing

This is just the start, of course. As the information we store continues to grow, as new data sets become available, and as companies and organizations become more sophisticated in sharing this information and the analysis of it, there will be even more applications for Big Data.

Three Big Data Myths Debunked

Whenever a new buzzword enters our vocabulary, there is a fair amount of misinformation among the chatter. Here are a few things to remember:

1. Big Data is not just about volume.

It's easy to focus on the term Big Data as solely referring to the size of the data set, but remember that it's about more than that. As discussed previously, there is also variety and velocity to take into account.

2. Big Data only has a few uses.

Its uses go well beyond digital marketing, though that is one area that shows much promise in the years ahead. Big data is currently being used in everything from meteorological analysis, to human genome analysis, to traffic pattern analysis, and to risk analysis across enterprises.

3. Big Data is a trend, not a thing.

As James Green of Magnetic puts it, "Data is constantly being generated about what you've sold, what you've advertised, where people go, and what they're doing. You can track everything down to an individual in ways that you were never able to before—but that doesn't mean that every single thing is worth tracking."³

The Key Takeaway

Big Data is here to stay and its applications are diverse. The companies and organizations that use it well will flourish and those that don't will grow less competitive due to inefficiencies, lack of connection with their customers, lost opportunities without being able to make real-time adjustments, and decreased profitability.

HOW DOES BIG DATA RELATE TO DIGITAL MARKETING?

“Half the money I spend on advertising is wasted; the trouble is I don’t know which half.”

—John Wanamaker

In a study performed in 2012 by Edgell Knowledge Network, it was found that while 80% of retailers are familiar with the term “Big Data,” less than half, or 47%, say they understand how to apply it to their business⁴.

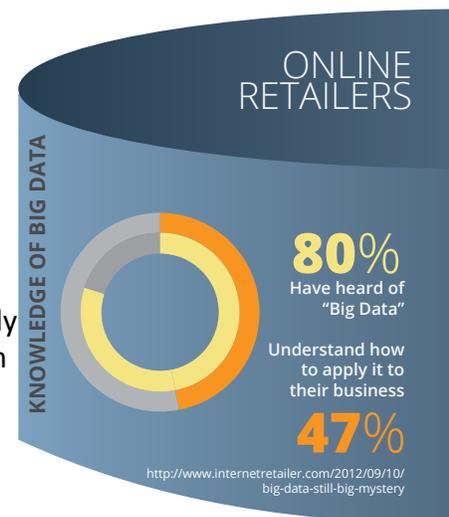
Big Data Helps You Do Your Job Better

Gaurav Pant, who directed the Edgell study, says that online retailers have an advantage over other industries when it comes to making use of Big Data. This is because of their ability to be nimble and make quick adjustments.

The data you are able to receive in abundant quantities includes demographic, geographic, psychographic, behavioral and social information about your customers and potential customers.

Figuring out how to capture, analyze and adjust based on analysis will possibly require some investments and changes in processes and infrastructure within both your marketing team and your company or organization. The insights you gain give you a much clearer picture of your customer, their motivations and triggers, and their buying behaviors. What this all boils down to is *relevance*⁵.

This new level of relevance means that we can go well beyond personas and segments and create much more personalized experiences for our customers. There are almost no major retailers that do not currently have some sort of personalization or recommendation features within their online shopping experience, but Big Data means these features can become vastly more complex.



4 Dusto, Amy. “[‘Big Data’ is still a big mystery.](#)” Internet Retailer. September 10, 2012

5 Trivunovic, Kara. [Is Big Data the New Email Marketing Catchphrase?](#) December 25, 2012.

Tim McGuire, James Manyika and Michael Chui from McKinsey & Company have the following to say about Big Data and retailers:

“Customer-facing companies have long used data to segment and target customers. Big Data permits a major step beyond what until recently was considered state of the art, by making real-time personalization possible. A next-generation retailer will be able to track the behavior of individual customers from Internet click streams, update their preferences, and model their likely behavior in realtime. They will then be able to recognize when customers are nearing a purchase decision and nudge the transaction to completion by bundling preferred products, offered with reward program benefits. This real-time targeting, which would also leverage data from the retailer’s rewards program, will increase purchases of higher-margin products by its most valuable customers.⁶”

What Can You Do With Big Data?

Despite what can sometimes be a significant initial investment in an infrastructure to support your Big Data needs, there is nearly endless potential for what a digital marketer can do with the insights that can be gained.

Masoom Gupte, in India’s Business Standard, outlined nine tactics marketers and retailers can execute based on findings they uncover using Big Data⁷:

1. *Track real time customer buying patterns and product preferences*
2. *Define customer behavior and preferences on a granular level*
3. *Develop fully articulated customer personas*
4. *Promote product recommendations, product bundles, and customized offers, via targeted online advertisements and text blasts delivered to in-store customers*
5. *Prevent stock-outs and surpluses by maintaining inventories determined by local customer demand, shopping patterns, and product/brand preferences*
6. *Provide employees with the information to swiftly resolve customer complaints*
7. *Develop and nurture personalized relationships with partners, suppliers and customers*
8. *Establish risk practices for managing possible supply interruptions and market fluctuations*
9. *Monitor news and events affecting suppliers, competitors, local markets, and global economies*

The insights that you gain may be anything from things that can help you adjust your e-commerce platform in real time to understandings about offline behavior. SCVNGR, the technology startup that created the LevelUp mobile payment app, found some interesting behavior based on weather⁸. They found that fewer customers left their houses to spend money when it rained. However, customers already in a coffee shop generally spent about 20% more while waiting out the storm.

6 McGuire, Tim, James Manyika, and Michael Chui. [Why Big Data is the New Competitive Advantage](#). Ivey Business Journal. July/August 2012.

7 Kelly, Joseph Dennis. [Empowering Retailers: 9 Tactics for Leveraging Big Data](#). Business Innovation from SAP. December 3, 2012.

8 Morisy, Michael. [In Big Data, investors see big profitable uses](#). Boston Globe. December 3, 2012.

What did they do with this data? They pushed out special promotions at the onset of inclement weather in order to counter the lull in individual foot traffic.

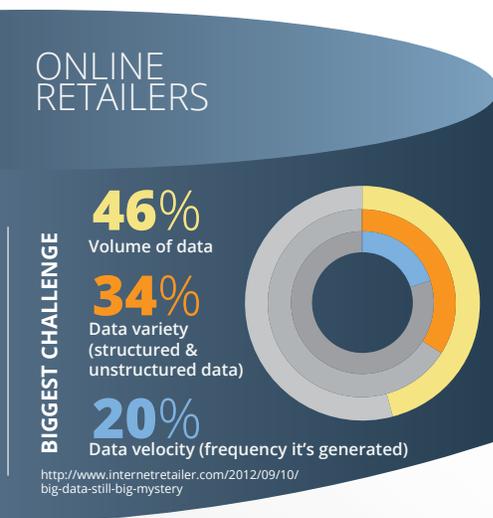
How to Get Started

The first thing to remember about getting started with Big Data is that just because something can be measured, it doesn't mean it's the most valuable information to you and your work. When you focus on the key performance indicators (KPIs) that are tied to the success of both your digital marketing work and your company or organization, it's hard to go wrong.

START SMALL(ER)

Because of the wealth of information out there, it's easy to get overwhelmed with the options you have at your disposal. It's important to focus your efforts and not simply pull in every data source that is available simply because it is there.

Amy Masters of Payfone suggests splitting up your data sets into four main areas in order to make it easier to focus on the most critical aspects of your marketing and tie them to your KPIs⁹:



1. The social graph

This includes social activity on Facebook, Twitter and across the social Web, including the connections and influence that a person has.

2. The knowledge graph

This includes tools that consumers use to gather information that help them make decisions, such as general Web search engines, product review sites, and news articles. For example, Google's Knowledge Graph is designed to augment search results with data from other sources to improve relevance.

3. The interest graph

This includes consumer interest, signaled by past purchases, behavior on sites, and messages they broadcast.

4. The payment graph

This sound pretty straightforward, and it is. This is purchasing history, financial institution information, and transaction location.

Focusing on specific areas assist you in aligning your efforts directly with KPIs and prevent you from wasting time and effort on the wrong things. This should be a good start to leveraging the power of Big Data for your marketing efforts.

THE RIGHT TOOLS FOR THE JOB

A quick search on the search engine of your choice will reveal many tools that digital marketers can use to start taking advantage of Big Data insights. Rappleaf, Marketfish and many others provide services to marketers that leverage the number crunching and analysis that larger enterprise solutions offer on a much more specialized and targeted basis.

Unless the tools you are looking at are intended for broader enterprise use, they generally fall into one of a few categories:

1. Customer demographics
2. Sentiment analysis
3. Campaign targeting, prediction

The purpose of this white paper is not to recommend particular options which would be next to impossible without knowing about your company's or organization's specific needs and objectives. We suggest doing your homework, talking to colleagues, and seeing what similar companies or organizations have done.

Big Data and the Rest of Your Organization

As we discussed previously, the applications of Big Data go well beyond the confines of marketing and advertising, and thus it makes sense to use it across your enterprise.

According to a study by David Rogers and Don Sexton of Columbia University, 51% of corporate marketers surveyed said that a lack of sharing customer data within their own organization is a barrier to effectively measuring their marketing ROI¹⁰.

Depending on the organization that you are a part of, there might be other divisions or departments that are using tools to analyze data and are not sharing that with your marketing team. Big Data is a great complement to enterprise resource planning (ERP), and thus many CFOs are using this type of information and analysis in other areas of the organization. If you've heard mention of Hadoop or MapReduce (two platforms that support the type of data-intensive activities associated with processing Big Data) around your company, chances are someone else is getting their feet wet, even if you are not.

Big Data works best when it works across an entire organization, however. Get involved and do so as early as you can.

THE FUTURE OF BIG DATA

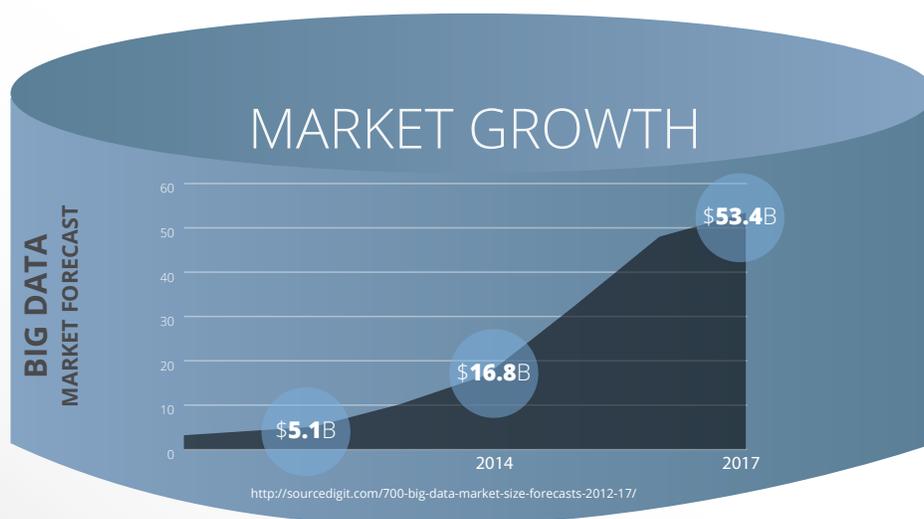
As a digital marketer, you will continue to hear about Big Data and the many products of the ecosystem that has popped up around it. Expect more predictive analytics, more third-party platforms that process data, and more job descriptions that involve data analysis.

Big Data Will Continue to Get Bigger

The amount of digital information created annually will grow by a factor of 44 from 2009 to 2020, as all major forms of media — voice, TV, radio, print — complete the journey from analog to digital¹¹.

According to the Gartner BI Summit, “Through 2015, more than 85 percent of Fortune 500 organizations will fail to effectively exploit big data for competitive advantage.¹²” There are many reasons for this, including the investment required to create a proper infrastructure to collect and process the information, hiring the correct people to analyze the findings, and then ultimately the processes, people and nimble culture that allows organizations to react to and implement changes based on analysis.

Another way to look at this is growth in the amount of people required to analyze and understand the insights. In the United States, we currently face a shortage of 140,000 to 190,000 analysts and about 1.5 million managers who possess the necessary skills to make decisions based on big data¹³.



- 11 Lennon, Mike. [EMC Digital Universe Data Growth Study Projects Nearly 45-Fold Annual Data Growth by 2020](#). Security Week. May 2010.
- 12 Kalakota, Ravi. [Enterprise Data Architecture and Big Data](#). Business Analytics 3.0. October 2, 2012.
- 13 McKinsey. [Big data: The next frontier for competition](#). 2012.

Conclusion

While there is plenty more to read on the subject of Big Data, the goal of this white paper is to scratch the surface and give some starting points for the digital marketer.

In conclusion, remember that Big Data is there to help you and your company or organization to create better products, make more profit, and have a better relationship with customers. It is much more than simply having access to information, however. What we are starting to see is the beginning of a trend where Big Data analysts are in constant demand, and this demand will probably not wane for some time. Tim O'Reilly says:

“Companies that have massive amounts of data without massive amounts of clue are going to be displaced by startups that have less data but more clue.”¹⁴

The takeaway is clear: Big Data is and will continue to be critical to the growth and success of businesses. It will also become less expensive and time-intensive to solve some of the problems that only the very top companies are able to address right now. What will set successes apart from the failures will be what data they focus on and how they apply their findings. When the collection and processing of Big Data begins to become more even across companies and organizations, the true value will be in the analysis and application of the learning.

ABOUT GREG KIHSTRÖM



Greg is the founder of Carousel30, a strategist, and creative director who has received numerous awards and honors, including Webby Awards, ADDYs, American Marketing Association, iMedia Connection Agency Award, Summit Creative Awards, and others after 15 years of experience in the advertising industry. He has been published in best-selling books by Rockport Publishers and Crescent Hill Books and industry related magazines such as Communication Arts and Graphis, has exhibited work in galleries around the country. Greg has been featured in Advertising Age, Website Magazine, Web Designer Magazine, The Washington Post, and Voice of America. He has also judged renowned design competitions around the country.

Greg frequently speaks at global industry events and has led panel discussions at such events as Internet Week New York, Internet Summit, Mid-Atlantic Marketing Summit, Digital Capital Week and the Virginia Tech Conference on Social Media and Tourism in Italy. He is a regular contributing writer to iMedia Connection, a leading online publication for the digital marketing community. While at Carousel30, he has worked along with many top brands, on a number of campaigns, including AOL, AARP, Ben & Jerry's, Geico Direct, Miller Lite, MTV, Starbucks, The Nature Conservancy, TV One, and Washington Wizards.

He is on the board of directors of the DC Ad Club — the premier organization in Washington, D.C. for the advertising industry, where he is also serving as a mentor in the Club's Career Catalyst program and has served on the ADDYs and Communications Committees for the past two years. He serves on The Trust for the National Mall's Communications Advisory Committee along with a group of marketing experts from agencies around the country. He is also an active member in the American Marketing Association, the International Academy of Visual Arts, and the Art Directors Club of Washington, DC.

ABOUT CAROUSEL30



Carousel30 is a digital agency that focuses on building audience engagement and conversions for top brands. Our diverse team translates business objectives into digital strategies that incorporate websites, mobile apps, social media marketing, email marketing, display advertising, and other efforts.

Since our founding in 2003, we have had the opportunity to work with and help grow our clients' businesses, while leading the digital marketing industry as it continues to mature. We've worked with top brands around the world, including Toyota, AOL, Geico, CQ Roll Call, The Nature Conservancy, United Nations, National Audubon Society, AARP, MTV, and more. We consistently provide clients with engaged audiences and tailored experiences that connect them to the people, brands, causes and products they love.

As a full-service agency, our offerings include:

- Digital Strategy
- User Experience
- Creative
- Technology
- Digital Marketing

Carousel30 is headquartered in Washington, DC, with additional offices in Princeton, NJ, and Raleigh, NC.

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