



WHITE PAPER

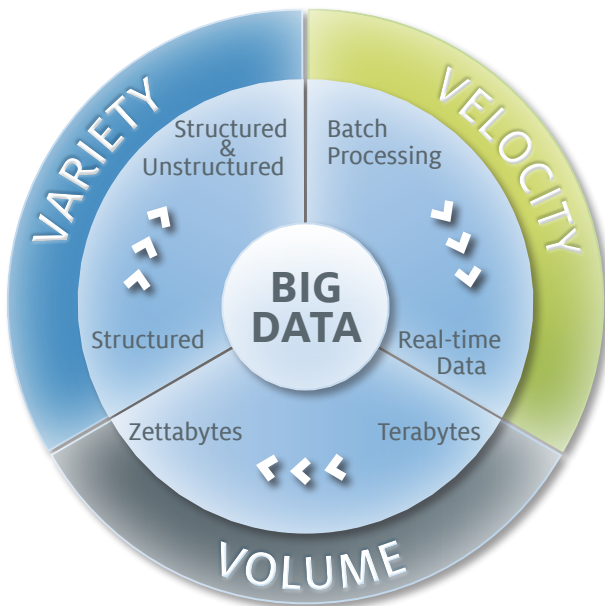
# Harnessing Big Data for Web Content Management Success

Enabling true data-driven customer engagement through close WCM and Big Data integration

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## NEXT GENERATION CUSTOMER ENGAGEMENT — HOW BIG DATA CAN HELP

According to analyst firms such as Gartner, Big Data is distinguished by three factors: volume, velocity and variety. Collectively we're now generating massively more data than ever before. It's being exchanged globally at an even greater pace, and it's no longer confined to the traditional confines of IT.



Variety, velocity and volume — the three Vs of Big Data — are part of a data management trend that was conceived to help organizations realize and cope with the emergence of Big Data. They compare the storage, utilization and consumption of data in three basic dimensions, and they encompass all data forms, regardless of storage location or format that are eventually compiled as a Big Data repository.

Hidden in this vast amount of data are new insights — including indicators, correlations, trends, relationships and information — that simply weren't accessible or easy to get at before. Indeed, research from IDC suggests that by 2020 a third of the data in the digital universe will have Big Data value — but only if it is correctly tagged and analyzed<sup>1</sup>. These new connections, when suitably collected, analyzed and actioned, have the potential to transform traditional interactions — bringing new levels of contextualization and personalization to customer engagement.

Big Data provides businesses with the opportunity to surface new insight from a broad range of structured and unstructured data sources. Unlike traditional CRM data that only shares what customers have done in the past, Big Data reveals the connections and patterns to help understand what customers are doing in real-time, and to inform decisions as towards what they might do next.

**Coupling Big Data intelligence with the power of Web Content Management offers the potential for significant competitive differentiation in customer engagement. However, as Big Data volumes continue to increase, the challenge lies in harnessing its power and leveraging the information to identify those insights that can be most useful.**

**This white paper looks at how businesses can harness the power of Big Data, and outlines how Chief Marketing Officers can apply the latest Web Content Management techniques to enable true data-driven customer engagement across their operations.**



## Demystifying Big Data

According to IBM®'s Robert LeBlanc, we're now globally generating some 2.5 quintillion bytes of data each day<sup>2</sup> — and 90% of that has been created in the last two years alone. This tremendous volume of data is coming from an increasingly wide range of sources and devices — including stock trades, customer call and CRM records, social media posts, patient test results, meter readings, geospatial information, mobile devices, climate sensor results, as well as all the digital images and videos we're uploading every day.

Today less than 2% of all stored information is non-digital. That's a huge change from a decade ago, when digital accounted for just a quarter of all the world's data<sup>3</sup>. Gartner agrees, acknowledging growth estimates and suggesting: "this year's Big Data is next year's normal-sized data." This acceleration is only set to increase, particularly as the "Internet of Things" — the growing number of objects that connect themselves to the Internet such as heart monitors, cars, environmental sensors and security cameras — opens up further possibilities for data gathering and predictive analytics.

With this momentum we're also seeing a shift from traditional, "curated" data towards the collection of messier unstructured information. It's not sorted, screened or cleaned, and it's very different to the kind of pristine data that marketers have grown to love.

So is this Big Data? Not according to The Economist's Kenneth Cukier, who feels it is misleading to understand Big Data solely in terms of size. He focuses particularly on the idea that Big Data is "characterized by the ability to render into data many aspects of the world that have never been quantified before."

Big Data is about much more than size. It's about a strategic approach that encourages businesses to uncover insights and opportunities from a broad range of internal and external sources of content and data. That's why some sectors — financial services particularly — are turning to Big Data to gain competitive advantage. Indeed a recent Big Data and Analytics study<sup>4</sup>, conducted by the Säid School of Business at the University of Oxford with IBM's Institute for Business Value, found that 71% of some 1,100 finance firms surveyed worldwide reported that the use of Big Data information and analytics was already creating a competitive advantage for their business. This was up from 36% in an earlier 2010 study.

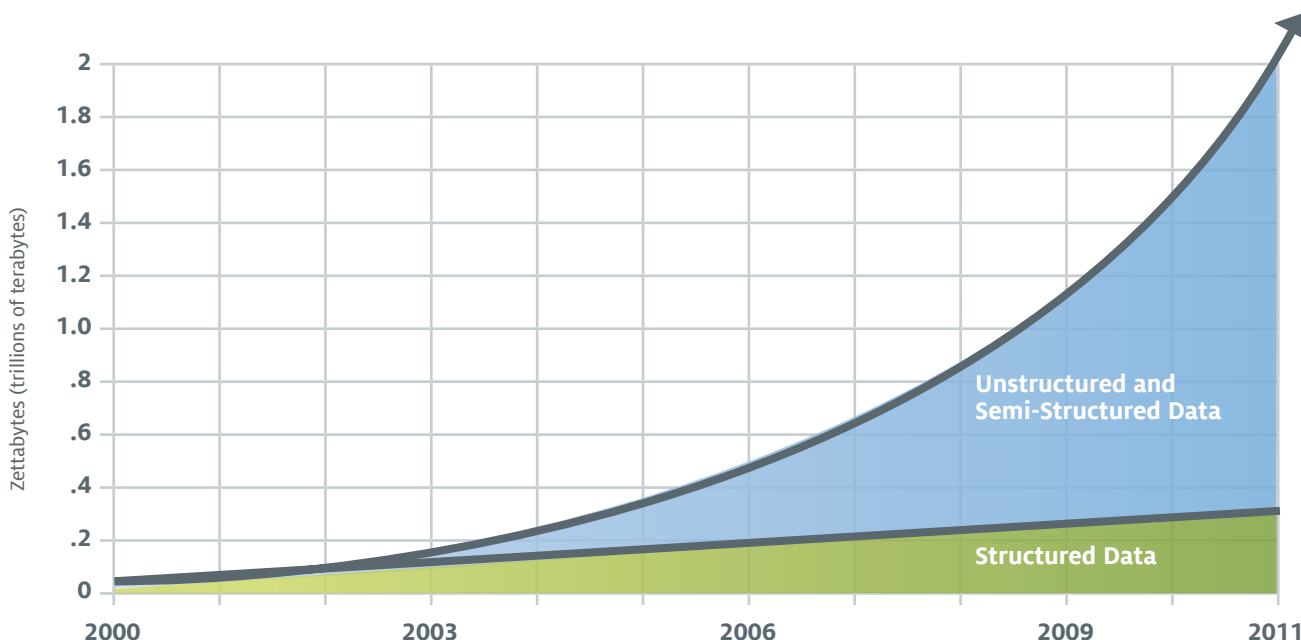
The research went on to highlight the key role that Big Data will have to play in helping businesses make sense of the growing volumes of unstructured data available for analysis. It estimates that unstructured data is now growing at 15 times the rate of structured data, and with — for example, more than a billion tweets now sent every three days — it's easy to gain a sense of where these volumes are coming from.

## Dealing with today’s exploding volumes of data

Big Data of course means different things to different people. However, perhaps the reason it has become so topical is that it’s increasingly hard to overlook the sheer volume of data that we’re collectively now generating. For example:

- More than 30 billion pieces of content shared each month on Facebook by more than 600 million users
- 100 hours of video are uploaded to YouTube every minute — 2 billion YouTube videos are watched each day
- Walmart handles more than 1.5 million customer transactions each hour
- Bild.de, the leading German media portal, generates 2.3 billion page impressions per month
- The Press Association holds 15 million images and 60 million news stories in its unstructured data content store
- Customers have downloaded over 50 billion apps from Apple’s App Store, and over 10 billion from the Android Store
- UK retailer Tesco has more than 16 million members in its Clubcard loyalty card scheme

It’s increasingly clear that as individuals we’re all generating far greater volumes of personal data. A simple indication is our smartphone usage. The latest Apple and Android smartphone devices, for example, are now running at over 10 million registrations a month and feature 5-8 megapixel cameras, HD video recording and larger data allowances.



The explosion of data sources since 2000. Source: IDC 2011 Digital Universe Study.



According to CSC, individuals now generate 70% of all data — not just through our digital and social media activity, but also in large part due to the broad range of information, records, and measurements gathered from our interactions and daily activities. At the same time there is a dramatic growth in the machine-to-machine (M2M) communications market, where devices such as smartphones, vehicles, refrigerators, sensors, tagged items in shops and Web tracking systems will drive the growth of a broader “Internet of Things.” Indeed, research firm Markets and Markets estimates that M2M communication will be the fastest growing IT technology sector in the next 3 to 5 years<sup>5</sup>.

Clearly the amount of data in our world is exploding. Leaders in every sector now have to grapple with the implications of big data, but — as former Google CIO Douglas Merrill said: “Every bit of data is noise. But when you add enough of them together in a clever way you can start making sense of the garbage.” However, there’s still a long way to go: IDC estimates that just 3% of potentially useful data is currently tagged — let alone analyzed<sup>6</sup>.

In working to define the concept, Gartner suggests<sup>7</sup> that Big Data is all about putting in place the specialist IT components that will allow high-volume, high-velocity and high-variety information assets to support “enhanced insight and decision making.” Other analyst firms see Big Data as a strong growth opportunity, with IDC projecting that the worldwide technology and services market around Big Data will grow at seven times the rate of the overall ICT sector<sup>8</sup>.

Big Data provides the platform and the opportunity to surface new insights, encouraging the combination of data assets to improve operational decisions and enhance business delivery. As Microsoft describes: “Big Data is about to render ‘guestimation’ obsolete.”<sup>9</sup>

## Enabling data-driven customer engagement

When data was difficult and expensive to collect, businesses typically had to rely on smaller sample sizes to try and gain greater insight into the behaviors and needs of their broader customer and prospect communities.

Now with Big Data technologies effectively harnessing cost and performance advances in computer processing power, it’s possible to harvest and analyze previously inconceivable volumes of data. As a result businesses are quickly coming to terms with the kind of insights that are achievable when they move beyond samples to collecting and processing almost all the data that’s available to them.

The ability to draw on and merge findings from multiple Big Data sets, allows businesses to start identifying and understanding new patterns and connections that were much harder to spot before. And with results delivered in real time, the opportunity for businesses to act on findings and adjust accordingly can quickly become a powerful competitive differentiator.

Where a data-driven approach can really deliver, though, is in the crafting and refinement of customer experiences — a critical issue given how the traditional customer journey from initial offer through to eventual purchase can now take just a click or tap in the online world. Of course being able to serve the right content based on the right data at exactly the right stage of the customer journey can lead to more personalized customer experiences.

Analyzing Big Data and using the results to test online propositions can help businesses to deliver the right customer experiences at every stage of the buying process. Indeed the combination of Big Data and intelligent testing can help businesses derisk the process of pursuing real customer experience innovations. Being data-driven can also allow businesses to scale their engagement activities in highly innovative ways.

According to MIT's Center for Digital Business, companies that adopt data-driven practices — and use Big Data practices to guide their decision-making — can achieve output and productivity returns that are some 5-6% higher than expected. Central to this is the ability to derive data-driven insights that lead to better decision-making and help businesses accelerate quicker than their competition.

The clear benefits resulting from adopting data-driven practices can also be significantly enhanced when tied into an agile delivery approach based on a proven cycle of innovating, measuring results, learning from them, optimizing performance and then implementing again. This approach acknowledges the reality of the sheer “speed of things” and its ability to fuel customer expectations. Combining data-driven practices with continuous innovation, offers an opportunity to really drive business agility and efficiencies.

However there's no direct correlation between simply gathering Big Data and subsequently being able to deliver exceptional customer experiences on a consistent basis. If a business doesn't have a clear idea of how it's going to act on the data collected, or if there's a lack of clarity about the customers targeted then Big Data can't make things better.

So it's important that Big Data is collected, analyzed and applied in ways that lead to a more in-depth understanding of each customer's situation. At its core, Big Data only represents the collated results of thousands — if not millions — of individual customer actions. The smart businesses will be those that use these findings to inform, personalize and contextualize each customer's engagement with their brand.





## Unlocking Big Data benefits for Chief Marketing Officers

With factors such as the shift towards digital, channel diversification, the increased impact and influence of social media, as well as rising customer expectations, the role of Chief Marketing Officer is always challenging — and high risk.

In setting out its Top 10 Predictions for CMOs in 2013<sup>10</sup>, analyst firm IDC suggested that the C-suite will increasingly insist on CMOs having both a strategy and a plan for how market-driven data will significantly contribute to corporate objectives. IDC also warned that many CMOs could find themselves in difficulty if they fail to produce a robust data analytics function.

It's an option that doesn't come cheap, with a recent IT salary survey<sup>11</sup> reporting that Big Data technology expertise now commands a salary premium over prized skills such as cloud, virtualization and mobile. However, when IBM surveyed 1,700 Chief Marketing Officers for its Global CMO Study in 2011 it found that over 70% of CMOs weren't ready for the coming data explosion.

For CMOs, the potential of Big Data is significant, enabling them to look beyond traditional segments and demographics and start focusing on delivering the right propositions, services and information at exactly the right moment in the customer relationship. Not surprisingly, CMOs are keen to get Big Data working across their operations, as they look to successfully deliver what IBM describes as 'the new science of giving people what they want'.

To achieve this they need to address two specific elements: first building predictive profiles of each customer persona based on individual needs and aspirations, and then implementing the systems of engagement to translate Big Data analysis into bottom line delivery. First, however, CMOs need to establish where exactly on the customer journey data needs to be collected. In addition to capturing traditional transactional data, a Big Data approach would also require the integration of social media and other unstructured data to create a more detailed profile of each customer.

Where CMOs can help to differentiate their brands is through the real-time capture and processing of Big Data to create truly personalized marketing campaigns. It's estimated that some \$83 billion is lost each year as a result of poor customer experience provision<sup>12</sup>, so there's a significant reward for businesses that underpin their marketing programs with successful Big Data initiatives.

In today's omnichannel engagement world, however, this has become increasingly complex with CMOs needing to look far beyond traditional CRM levels of information to accommodate the dynamic and contextual nature of today's customer journeys. What channel is the customer currently using? Where are they? What have they said lately about the business? What are they likely to do next? At one level the CMO is concerned about transitory issues such as channel, location and sentiment, however they also need to have visibility into issues such as customer retention, further sales opportunities, profitability and the lifetime value of individual customers.

Once marketing has collated these profiles on a massive scale, the challenge comes in creating the tailored experiences and engagement systems that can deliver against the desired interaction volumes. It's here that having the right people and application solutions in place are key — particularly those that can successfully help the marketing team to put Big Data to work.

So it's hardly surprising that the kind of hard-core numeracy and statistics skills that drive Big Data are so popular today. Whether it's Brad Pitt's application of data to baseball in the movie *Moneyball*, or the success of statistician Nate Silver in predicting the outcome of all 50 states in the 2012 U.S. Election, numbers experts are in the ascendency. Perhaps that's why *Fast Company* magazine named Nate Silver top of its list of 100 most creative people in business for 2013?<sup>13</sup>

## How does Big Data impact Web Content Management?

Online has put the control in the hands of the customer. Businesses need to adjust to the fact that traditional customer relationship structures and mechanisms simply aren't agile enough to react to a world where a single tweet or social media post can start a ripple effect that might push customers towards a competitor or make them reconsider an upgrade.

Businesses that can apply Big Data to track these micro-shifts in customer behavior and react accordingly are the ones that will accelerate, creating new levels of positive engagement. They will also benefit from marketing operations that can spot customer context and integrate accordingly, act on customer insights systematically, and are able to take a broader view of the customer experience. According to IBM's *Global Survey of Marketers*<sup>13</sup>, leveraging individual behavior and context to make the most of every interaction is over 2.5 times more prevalent among leading marketers.

While Big Data analytics promises to change everything about marketing performance management and customer engagement, marketers and their business colleagues still need tools to put Big Data to work across the operation. When it comes to capturing, storing, analyzing and acting on both structured and unstructured Big Data, Web Content Management (WCM) applications have a critical role to play in translating Big Data analytic outputs into actionable customer insights.







From social media to mobile apps to a range of Web properties, today's customers increasingly demand contextualized, personalized content to support their engagement with businesses. Conversely, they have very limited tolerance for generalist marketing initiatives and online experiences ruined by irrelevant content.

Today's WCM solutions extend far beyond what was available just two to three years ago. According to analyst firm Forrester: "WCM makes the vision of digital experience come to life," particularly with its ability to manage and deliver dynamic, targeted and consistent content, offers, products and service interactions across an increasing variety of digitally-enabled consumer touchpoints.

Forrester views Web Content Management as the "linchpin that organizations and brands rally around to create and execute digital strategies,"<sup>15</sup> and sees its ability to manage and deliver dynamic, targeted and consistent content, offers, products and interactions as one of the reasons why "suddenly, WCM software is sexy."

Web Content Management is already changing the way organizations engage with customers and prospects. Innovations such as cloud support, seamlessly scalable mobile publishing, two-way social media interactions and integrated hubs for contextual multi-platform publishing all contribute to best practice deployments — and place WCM at the heart of comprehensive Customer Experience Management approaches.

The best Web Content Management applications also offer a powerful framework to support marketing operations in leveraging the power of Big Data. Marketers already have a deep understanding of the kind of data and insight that can add value to interactions — advanced WCM solutions give them the flexibility and control they need to apply Big Data information sources and gain a better understanding of their customers.

To do this successfully, Web Content Management applications need to incorporate information from a broad range of internal and external and data sources — both structured and unstructured. Having access to information — such as what drives customers, why they're buying, their preferred channels, what stops them from completing a transaction, and what kind of things they recommend to others — combines to create powerful insights. However they also need to provide marketers with the capability to apply this insight to create compelling customer experiences.

## Putting Big Data to work with CoreMedia

Forrester’s David Aponovich emphasized the importance of Web Content Management earlier this year<sup>16</sup> when he described WCM as “an essential foundation for enabling successful digital experience efforts.”

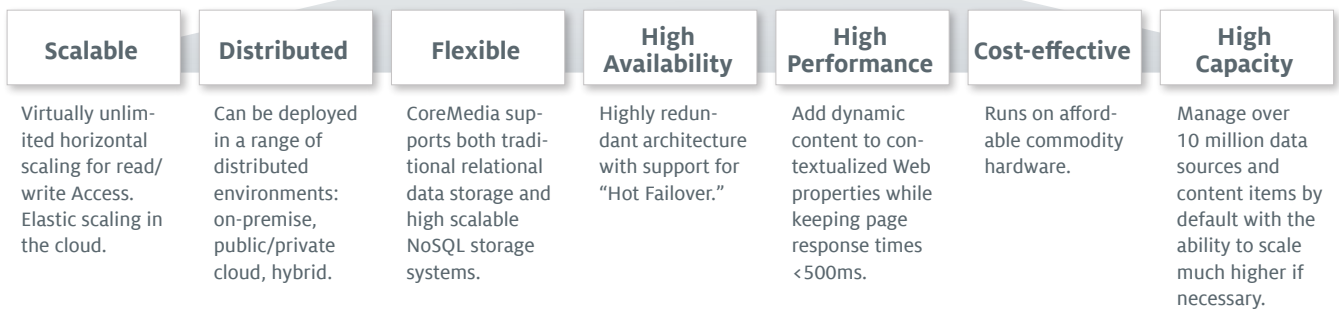
However, to truly unlock the potential of WCM and Big Data, businesses need to ensure that they’re working with a Web Content Management platform that can scale and evolve in line with an inevitable growth in Big Data volumes. Before businesses can even start to think about using WCM to deliver interactions that are personal, contextual, and multichannel, they must be able to harvest information from all their key datasets — and have the capabilities to put that information to use.

CoreMedia provides businesses and key functions such as Marketing with both these key elements, giving them the essential control and integration functionality needed to be even more responsive to evolving customer demands.

Businesses benefit from an approach that is designed from the start to address Big Data challenges. CoreMedia’s Elastic Core — based on next generation Big Data storage — handles particularly large amounts of data, while relevant social data such as user behaviors, insights and user-generated content are processed to support the delivery of more focused and engaging experiences.

At the same time, CoreMedia also lets businesses to gather information and insights from Big Data sources and put them to work. Examples here include comprehensive bi-directional analytics integration, the ability to query Big Data sets such as CRM and Hadoop as a context source, as well as tight integration with leading ecommerce and marketing suites from key vendors such as IBM and SAP®.

### Benefits of Elastic Core





With CoreMedia and its powerful WCM offering, business users such as Marketers gain the control and freedom to be even more responsive to evolving customer demands, while content professionals can focus on delivering highly engaging, contextual and interactive experiences at every stage of the customer journey.

With CoreMedia, content teams can draw on a broad range of behavioural, situational, historic and social media data sources to create compelling customer engagements using a single dashboard — effectively collating multiple data sources and inputs to create a true understanding of each customer’s context.

## Conclusion

The power of Big Data, when coupled with the real-time delivery of state-of-the-art Web Content Management solutions, provides businesses with the agility and scalability needed to offer truly contextualized customer engagement. CoreMedia’s powerful WCM software lets Marketing teams put Big Data to work, helping them to be even more responsive to today’s constantly changing customer demands.

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