Capitalizing on Change:
Turning Disruption into Opportunity

The Impact of Big Data, Mobile, Cloud Computing, and Social Media

The world is in the midst of unprecedented change, with multiple technology disruptions transforming the way business is conducted. Big Data, Mobile, Cloud computing and social media are all impacting every facet of business -- from sales and marketing, to operations and infrastructure. This transformational era is creating anxiety and uncertainty across all industries, and like any period of change, there will be winners and losers. Companies that are unable to keep pace will face diminished prospects for growth. But for those companies that can successfully navigate these disruptions, there is enormous potential, and the opportunity to create a sustainable competitive advantage within their industries.

There are four core trends that are driving these disruptions:

- **Big Data:** The McKinsey Global Institute defines big data as “datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze.” As the amount of information is projected to grow by over 60% per year, global IT spending is projected to increase only by 2%. Companies are challenged to effectively manage their data. Meanwhile, they risk losing millions by not doing so, as the value of harnessing big data is greater than ever. Companies strive to provide consumers with easy access to this data, but inevitably struggle to do so.

- **Mobile Computing:** The Fifth Wave of information technology, mobile computing, will have a far greater impact and adoption than any of the previous cycles: mainframes, mini computing, personal computing, and desktop computing. The use of the Internet on smartphones, tablets, and other mobile devices has changed the way people communicate and consume information, creating an exponential rise in the acceptance, adoption, and usage of data. Mobile allows business users to gain insight into increasing volumes of information and take action, from anywhere, at any time.

- **Cloud Computing:** Cloud computing is the most revolutionary trend in data storage and software delivery in years. It provides a superior platform for the storage and delivery of the critical big data gathered by companies. Companies can now move their IT environment and business applications to the cloud, which drastically reduces their time to market, at minimal costs and effort. The cloud enables companies to quickly begin using new BI applications and functionality.

- **Social Media:** The emergence of social networks is likely to completely transform marketing as we currently know it, while also exacerbating the “big data” dilemma. Companies know there is a wealth of consumer information available via social networks, and many already use social networks to communicate to consumers. However, companies struggle to fully realize the promise of social media – to leverage the unprecedented consumer interaction, advertising, and branding potential of these channels.

The repercussions of these trends are having a dramatic and clear effect on the market. With change, however, also comes opportunity. It is critical for companies to be prepared and not underestimate these movements that are transforming business and technology, in other words, to turn these disruptions into opportunities to improve business and maximize profitability.

The Enterprise-grade MicroStrategy Platform is uniquely suited for companies to face these disruptive trends head-on. The performance, flexibility, and accessibility of MicroStrategy—including MicroStrategy Cloud Intelligence and MicroStrategy Mobile—will help navigate your organization through these technologies, and enable companies to fully embrace the potential these technologies have to offer.

Managing Big Data at a High Level of Performance, and Realizing the Benefits

The Value of Harnessing Data has Never Been Greater

Companies are gathering trillions of bytes of data on all aspects of their business. Meanwhile, this “big data” is more important than ever, as it includes invaluable consumer and market information from new and widespread sources. Mobile devices, social networks, and the rapid growth of apps now augment traditional sources such as data warehouses and CRM systems. As the amount of data in the world explodes, and companies have trillions of bytes of data about all aspects of their business, there is an unsurpassed chance to monetize it. Revenue watersheds await companies that can mine these massive amounts of data effectively. For example, the U.S. healthcare industry stands to gain a projected $300 billion in potential annual value if it can effectively manage its big data. Meanwhile, if companies in the retail industry can successfully manage their data, they can anticipate a projected 60% increase in their operating margins going forward. Other industries will experience similar returns on investment, as timely action on updated product, consumer, and market information helps improve the bottom line.

Companies are Challenged to Deliver Information Rapidly and to Make it Easily Accessible

Companies today face a conundrum: data is more important than ever, but the exponential growth of that data has overwhelmed their ability to manage and monetize it. The explosion in data is far outstripping IT budgets and the ability of businesses to handle all the information. It is projected that, while the growth in data increases exponentially each year, companies will only increase their IT spending by 2% in comparison.

Figure 1: As the amount of information around the world increases exponentially, IT spending is projected to increase very modestly.

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MicroStrategy Delivers Accelerated Response Times with the Largest Data Volumes in the World

MicroStrategy has a long history of helping companies gain insights and make informed business decisions from large volumes of data. In regard to delivering data across the enterprise rapidly, MicroStrategy has accelerated response times through a series of proprietary innovations and strong partnerships:

- **Optimal Use of the Database**: MicroStrategy fully leverages the analytical powers of the database so that data-heavy calculations are conducted very close to where the data resides on the database. This reduces the amount of data moved across the network, optimizing performance. Only the final result-set is sent from the servers to the user, making the query run as quickly as physics allows.

- **Rapid Access to Frequently-Used Reports, Documents, and Datasets**: Every report, dashboard, and dataset is automatically and dynamically cached when first used, so it can be instantly retrieved when requested by a subsequent user. This performance benefit is evident with fully-rendered dashboards, fully-rendered reports, component datasets, prompt selection lists, and even database connections.

- **Fast Retrieval of Large Datasets**: MicroStrategy pre-deploys very large sets of data for fast, efficient use and reuse by many reports and dashboards. This is accomplished with MicroStrategy’s high performance layer of in-memory BI. Because the “in-memory” data resides in the MicroStrategy server memory, it can be accessed much more quickly than disk-based data managed by databases. Reports or dashboards making use of the data will automatically reap this performance benefit of in-memory storage. This technique can accelerate the data access for 25-50% of a company’s standard reporting needs.

- **Performance Optimized for Any Database**: MicroStrategy is highly-customized and automatically-tuned to a number of certified databases, ensuring high performance.

- **Strong Partnerships**: By remaining an independent software company, MicroStrategy is database-agnostic and maintains strong, collaborative relationships with all the major database vendors, including Teradata, Netezza, Greenplum, and other query-optimized systems. This allows MicroStrategy to optimize performance based on the specific architecture of each database vendor.

Furthermore, MicroStrategy provides all of this at the lowest total cost of ownership (TCO) for organizations. For instance, MicroStrategy runs effectively on commodity hardware, rather than requiring companies to purchase expensive, proprietary hardware. In addition, MicroStrategy provides a greater level of administration efficiency than any other BI vendor⁶, as it requires dramatically fewer IT personnel to manage the platform.

**MicroStrategy Makes Information Easily Accessible via Many Delivery Channels**

MicroStrategy has specifically designed many of its features to make information as accessible and pervasive across the organization as possible. The goal: to help companies fully reap the most benefits from their data.

MicroStrategy provides an unmatched level of self-service to executives and other business users. By providing easy-to-use automations, tools, and user interfaces, MicroStrategy enables people to analyze data independently. The latest, most powerful example of this is MicroStrategy Visual Insight, which enables business users from across the organization to explore data and spot trends on their own in a completely visual and code-free way, eliminating the need for long IT development cycles.

⁶ “BI Survey 9,” Business Application Research Center (BARC), 2010
In addition, MicroStrategy provides convenient delivery channels that are easy for everyone, including mobile, web, email, Microsoft Office products, proactive alerts, and offline access to reports. No matter which the user prefers or is most comfortable with, she or he can access the information needed to make a timely decision. All of these delivery channels would be rendered useless if not for the high level of performance described above. The MicroStrategy platform is designed to maintain high performance across the entire platform, eliminating the problems of latency or reliance on the network. This ensures that people, both internal and external to the company, have constant access to their business information.

Leveraging Mobile to Improve the Speed and Reach of Critical Enterprise Communications

Transforming the “When”, “Who”, “Where”, and “How” of Information Consumption

Mobile computing is revolutionizing information consumption across the business landscape and how decisions are made. Computers have followed an inexorable trend toward greater amounts of computing power in ever smaller devices. These devices give us the power to run or access everything that is important in our lives or business. It delivers instant insight from anywhere, at any time – a reality that has significant ramifications across the global economy.

Mobile apps open the world of information to vastly more people than Web and desktop-based applications. While a billion or so people around the world have access to a computer, well over 5 billion people have smartphones and other cell phones. The ability to access information at anytime in any location allows immediate decision-making. For instance, a typical retail store manager may spend only a few hours working at a desk. With Mobile Intelligence, the manager can process decisions and analyze the latest information at any hour or location.

The new breed of mobile apps combines three core capabilities, each of which creates new opportunities for improvement in business:

- **Business Intelligence**: Typical business intelligence (grid and graph reports, dashboards, and data visualizations) has moved from the web or desktop to a mobile device. Mobile adds features and interactivity that make BI even more useful.

- **Transactions**: Executives and others can instantly traverse from business insight directly to business action by entering data, approving requests, adjusting forecasts, adding comments, uploading photos, scanning product SKUs, and much more, without ever needing to return to a desk.

- **Multimedia/Content Delivery**: Mobile apps are enhanced with multimedia such as PDFs, videos, portals, libraries, and the internet, all of which enrich the relevance and scope of the app.

Mobile BI Apps Provide Functionality Unmatched by Paper or a Web Browser

In only a short time, mobile apps have proven why they are superior to Web and desktop-based applications, and paper reports. For one, using responsive, multi-touch screens, business users can not only analyze data, but also interact with it directly using native gestures such as tapping and swiping. This highly intuitive and tactile form of analysis is powerful because a user immediately knows what to do or how to interact with the data. In addition, Mobile BI leverages the integrated geo-
location capabilities of mobile devices to enable location-specific data filtering, selection, and modification.

Mobile BI apps enable business users to create report queries and answer business questions in ways never before possible. A mobile tablet’s accelerometer, bar code reader, Bluetooth, GPS, and speech input capabilities can now be used to submit data and view updated report results. For example, a merchant can scan a product bar code with her mobile device, and sales details for the product instantly appear on the screen. Mobile BI apps also include immersive data visualizations such as heat maps, time series, and calendar visualizations. These visualizations enable business users to remotely capture business data and initiate a transaction immediately.

**Transaction Capabilities in Mobile Apps Enable the Development of Revolutionary Enterprise and Consumer Apps**

When users find the information they have been searching for, it is generally done in order to make a business decision to move the organization forward. Unfortunately, after finding this “nugget of insight”, users are generally forced to switch to a different application to complete the action that they are now prepared to take. The ideal case, obviously, is to give business users the capabilities they need to take the required action directly from the information app that they are currently in. Transactional capabilities in Mobile apps do exactly that.

Transactional capabilities will enhance and evolve Enterprise Apps. As managers increasingly rely on apps to drive their business, they also require the ability to communicate decisions immediately. This requires replacing disconnected and analog decision processes, with in-context, digital transactions. Whether it is request processing, order management, or data collection, transactions give you the ability to approve, deny, edit, update, and execute an action. With Mobile Transaction Services, MicroStrategy takes businesses from insight to action in seconds.

![Figure 2: With a transactional mobile app focused on Merchandising, a retailer can, from anywhere, analyze the business to determine which orders to accelerate, edit an order, update values to increase orders, increase prices, and execute those changes.](image)
The Transactional capabilities of mobile apps also empower organizations to build powerful Consumer-facing Apps. Transactional Mobile Apps, in the hands on consumers, empower organizations with anywhere, anytime product selling and service engagement. Transactional Mobile Apps deliver low cost sales channels, location-based services, transparent pricing, and immediate gratification.

Mobile Transactions will Revolutionize All of an Organization’s Transaction Systems

Mobile apps bolstered with transactional capabilities help you make the most of your transaction systems. They enable your business users to access and use your organization’s ERP systems, including Finance/Accounting and Customer Relationship Management (CRM) systems, while on-the-go, from a mobile device. For instance, a CFO can access a transactional mobile app from his or her tablet, pull up the latest sales figures, and enter comments and data directly into the app, from anywhere. Those comments and modifications are entered automatically into the organization’s ERP system.

Mobile Apps Embedded with Multimedia are the Next Generation of TV Channels, and are Powerful Advertising and Communication Tools

The success and adoption of mobile apps can be attributed, in large part, to the inclusion of rich multimedia in those apps. With intuitive apps embedded with multimedia, companies are capturing the interest of customers, employees, and other mobile consumers around the world. And now, companies can produce BI apps that are more useful and engaging for users by combining non-relational content like videos, PDFs, websites, and other content right alongside their data.

With the onset of the mobile revolution, mobile apps have become the world’s next generation of television channels. An organization’s mobile apps have effectively become that organization’s new “information channels”: powerful tools of corporate communication and advertising. Organizations can and will continue to use their mobile apps to advertise their events and products, generate valuable content, build their customer base, extend their reach, and sell advertising space. The most successful companies will be those who develop their mobile apps as information channels and, in doing so, essentially become their own full-fledged network. They will be the ones who use these new information channels to interact directly with their customers, compete for advertising, and control the content and messaging surrounding their brands at all times. These companies will be the ones who pass their competition by providing custom-tailored mobile apps, or “channels,” for their brands, events, employees, partners, customers, and regions of business.

Transform a Business with MicroStrategy’s Next-Generation Mobile Apps

In the coming years, companies will need to deploy hundreds of apps across business areas, which will consist of many combinations of the three core capabilities: Business Intelligence, Transactions, and Multimedia. For instance, human resource departments will unveil new hiring, training, time-off request, expense, and salary apps that can be used from anywhere to approve requests and streamline processes. A mobile sales force will need mobile apps to enable them to track leads, enter customer details, access updated lists of services, and track expenses. Various other departments will develop and use apps focused on sales, facility management, and marketing campaign analysis.

MicroStrategy helps to drive this mobile transformation by speeding app development and reducing costs. The Enterprise-grade MicroStrategy platform is well-suited to make mobile app development fast and easy for any company. This is accomplished through a combination of code-free development, and the integration of data manipulation, device interactivity, security management, and other development features.
MicroStrategy Mobile Apps Protect and Secure Your Data

Due to the nature of mobile devices, mobile apps present new security challenges that must be addressed by both the BI platform and the security capabilities of mobile devices. Data access, data transmission, and data storage must all be considered when deploying a complete and secure solution. MicroStrategy Mobile is built to meet the security requirements of any organization and is designed to integrate seamlessly with the proven security features of the Apple iPhone® and iPad®. Robust features for device security, data security, authentication, authorization, and transmission security combine to provide a layered approach that protects sensitive data contained in mobile business intelligence applications.

MicroStrategy Has Already Helped over 150 Companies Build their Mobile Intelligence Apps

MicroStrategy has extensive experience in mobile apps, helping over 150 companies develop mobile applications to run their businesses more effectively, including Edmunds.com and VHA. Edmunds.com’s “Web Metrics” iPad app displays Consumer Consideration, Favorable Opinion, Purchase Intent, Leads and Cross-Shopping data on Edmunds.com. The app is used by auto manufacturer executives and decision makers, the account directors who work with them, and car dealers.

The VHA PriceLYNX™ app is a powerful Health Care Supply Chain App for the iPhone that helps hospitals reduce their supply costs. With a few taps and touches of a screen, C-level executives, service line managers, physicians, and clinicians can view performance summaries and price index information on their iPhones and compare product pricing on-the-go.
Dramatically Reducing your Time to Market at Low Costs with Cloud Computing

Cloud Computing is Growing Rapidly in Adoption, and Companies are Saving Millions by Moving to the Cloud

Cloud computing is the most revolutionary trend in data storage and software delivery in years. It is shifting where enterprise computing takes place, elevating it out of the corporate data center and into the cloud.

Computing has essentially followed the path of electricity. As public electricity utilities grew, companies realized it was vastly more efficient to outsource their power requirements to those utilities. Companies knew their core business was not electricity generation, and intelligently shed that responsibility. In this way, electricity underwent a transformation from an “owned” commodity to one that is consumed as a service. This is essentially happening to computing today. Companies, such as banks, government agencies, and retailers, are increasingly moving their IT environments to the cloud. They are entrusting the management, optimization, and maintenance of this infrastructure to either centralized IT teams or to external IT companies with the expertise required. In doing so, they are freeing themselves of the inherent, expensive IT costs and personnel required to manage IT environments and business applications themselves. By embracing the cloud, companies can shift their employees to focus on the value-added segments of their business. In turn, companies save millions of dollars that would have been otherwise spent on infrastructure and maintenance costs.

Evidence of this adoption and movement to the cloud is clear:

• Spending on public Cloud services is growing more than 5x faster than IT spending in general.
• By 2014, 31% of net new IT spending will be invested in the public Cloud.
• By 2014, the total market for public Cloud services will be $56B, up from just $17B in 2009.\(^7\)

The vast majority of companies do not necessarily want to be in the IT hardware and software management business, and as such, it makes sense for them to offload that aspect of their business.

Companies of All Sizes, with a Broad Scope of Requirements, Will Adopt Business Intelligence in the Cloud

Cloud computing appeals to a wide range of companies, each with their own specific business requirements. And business intelligence, specifically, is well-suited to cloud environments. Due to the fact that data sources, infrastructure, and end users are already spread across the organization and around the world, virtualizing the access to information is a no-brainer. And more and more companies are moving their business intelligence into a cloud environment, with a few common scenarios driving them:

• Small and mid-sized companies who are ready for enterprise-caliber BI but do not have the resources for any or additional IT personnel
• Larger companies who want to provide a “sandbox” environment for certain users, to enable fast and easy prototyping
• Providing vendors and customers with a comprehensive portal environment
• Using the cloud as an application development and testing environment, and for applications with uncertain return-on-investment
• Ensuring speed-to-market for high-return, low investment applications
• Extending the capabilities of business applications, such as using the cloud to deploy mobile dashboards

\(^7\) International Data Corporation (IDC), June 2010
MicroStrategy Delivers all the Benefits of Cloud Computing with a Fully-Managed, Comprehensive BI Environment

As revolutionary as cloud computing is, MicroStrategy takes it a step further by combining the enterprise-grade MicroStrategy platform with the benefits of cloud computing. Since 1989, companies have entrusted MicroStrategy to provide and develop industry-leading business applications. Now, companies can also enlist MicroStrategy to be the host and manager of their entire business intelligence environment. MicroStrategy offers superior BI tools, data integration tools, and selection of database capabilities, all preconfigured to work together to suit each company's requirements. This is an environment that would take months for corporate architects to build.

Instead, MicroStrategy Cloud Intelligence enables companies to take an enterprise-wide BI environment from stand-still to stand-up in a very short amount of time, at a fraction of the capital expense. MicroStrategy provides the necessary pre-established infrastructure, staffing, and processes to “kickstart” the process. In addition, companies receive comprehensive management and the full solution capabilities of the MicroStrategy BI Platform, which include complete database, ETL, and business application management. This results in immediate cost savings for companies, allowing them to maintain minimal hardware and software infrastructure. There is no capital expenditure required, and companies pay only for what they use.

The elastic capacity of MicroStrategy Cloud Intelligence automatically addresses increasing user demands. This is accomplished via on-going monitoring and capacity planning. Multi-level security is ensured via the comprehensive MicroStrategy security architecture, as well as MicroStrategy facilities and personnel. Moreover, your company's cloud environment is easily adaptable, allowing a company to add new services immediately or locate their databases either on-premise or in the cloud.

MicroStrategy technology is ideally suited for the cloud. Due to a number of inherent technical features in the MicroStrategy platform, users can expect higher levels of performance and information access compared with other technologies. Specifically,
since MicroStrategy optimizes the amount of data moved from the data sources to the end user by writing efficient SQL and using push-down analytics, no wasted data is moved across the network, which is often the biggest hindrance to performance. Also, because MicroStrategy features In-memory BI and makes full-use of 64-bit systems, users will avoid the latency that is sometimes a part of cloud environments.

Users can be comfortable in their choice of MicroStrategy for cloud-based environments, whether they choose to use their own private cloud, the MicroStrategy private cloud, or even the public cloud.

**Taking Advantage of the Powerful Customer Interaction and Marketing Opportunities of Social Media**

**Widespread Consumer Adoption of Social Media Challenges Businesses to Adapt or Lose Competitive Advantage**

The emergence of social networks has made “big data” even bigger and is the most disruptive force in business today. In fact, social media may be the most disruptive trend to hit the world since the Industrial Revolution. Social network adoption and usage statistics are staggering, and bring this point to light.

As of 2011, there are over 600 million active Facebook users, meaning that 1 out of every 13 people on the Earth uses Facebook. There are 206 million Facebook users in the U.S. alone. Individuals rely on Facebook as their primary communication tool, as evidenced by the fact that 48% of 18-34 year olds check Facebook as soon as they wake up. Facebook users are not just consumers, but are huge providers of content. For instance, Facebook users uploaded a record-breaking 750 million photos over New Year’s Weekend in 2011. The social network is no longer just an interesting technological success; it is a cultural phenomenon, and one that organizations should embrace as an unprecedented advertising and marketing opportunity.

**Social Media Presents a Global Consumer Interaction and Communication Opportunity Like Never Before**

Despite massive adoption and use by individuals, businesses have been challenged to capitalize on the power and reach of social media. As noted by Gerardo Dada, Senior Director of Product Marketing for Vignette, “Customers and prospects expect companies to adopt social media tools. Social media today is like the Web was in the 90s – with the enterprise adoption of social media so new, everyone knows they need to use it but they aren’t sure how.” In fact, the idea of gathering and managing data from social networks only further overwhelms companies. Social media, in effect, exacerbates the “big data” dilemma.

Many companies have taken a first dive into social media by building corporate Facebook pages and aggressively courting “fans” to their pages to build their base of contacts. However, these companies are not able to provide personalized service and communications to their fans and aren’t able to segment or customize the content they distribute to individuals, be they existing or prospective customers. Currently, they must rely on anonymous broadcast messages to the entire “fan” base.

Yet, this shortcoming provides a huge gap to fill, as it is clear that social network integration is the next major leap forward in intelligent consumer interaction. The trend in marketing for the past two decades has been greater segmentation, better targeting, and increased personalization. Social networks are the world’s most comprehensive, current consumer databases ever created. They contain complete demographics data, in addition to rich information on likes and interests, sentiment, status, and location information, kept constantly up to date by the people themselves. For marketers, this is gold.

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Social media creates the opportunity to accelerate this trend, and reach an entirely new level of sophistication with marketing programs catered to each individual. Facebook will far surpass every current marketing channel the same way the Web has impacted commerce. It is driving the next phase for marketing, one focused on hyper-segmented, hyper-personalized, mobile activity predicated on the use of social data.

The question is: How do companies capitalize on the emergence of social media and take this next step forward?

**MicroStrategy Leverages Social Media to Produce the Ultimate Personalized Marketing Engine**

MicroStrategy can usher companies into this new, personalized form of marketing that will revolutionize every industry. MicroStrategy promises to be the next-generation marketing engine for Facebook. It will empower companies to conduct personalized marketing at the most granular level, and generate tangible business opportunities as a result. This form of marketing will provide significant benefits above and beyond Facebook and social media. It presents an unprecedented opportunity for companies to grow their customer base, build brand loyalty, and increase revenue.

MicroStrategy will help companies to easily manage and maximize the marketing impact of social media. While Facebook only provides aggregate stats on fans, MicroStrategy will be able to provide companies with granular insight into each of their Facebook users, including their demographics, interests, influence, and friend network. With a look into the detailed analytics of its “fan base”, companies can offer customers and prospective customers personalized messaging based on demographics, psychographics, behavior, and likes/dislikes. They can create new loyalty programs and provide purchase incentives tailored to specific individuals. For example, a retailer specializing in bridal products will be able to quickly and easily broadcast a message about a new assortment of engagement products to only their “fans” that are listed as engaged on Facebook. Such promotional messaging offers will become so much more powerful when accentuated with this kind of personalization.

As the one-to-one marketing engine for Facebook, MicroStrategy is poised to become the anchor for all future Customer Relationship Management (CRM) initiatives. MicroStrategy delivers the segmentation, personalization, and mobile engine for Facebook required to deliver on this promise.

**MicroStrategy Empowers Companies to Fully Capitalize on the Opportunities Presented by Big Data, Mobile, Cloud Computing, and Social Media**

Many of the repercussions of big data, mobile, cloud computing, and social media are apparent, and many more will take shape soon. Companies who embrace these “disruptions” and capitalize on these exciting opportunities will be better positioned to move their business forward. Otherwise, they risk being outpaced by leaner, faster organizations that are forging ahead and making the most out of a growing amount of information.

MicroStrategy is uniquely poised to empower companies to capitalize on these opportunities, work more efficiently, and gain competitive advantage. It is critical to take action now and face these changes head-on.