



Driving Value Through Data Analytics: The Path from Raw Data to Informational Wisdom

Massive amounts of data can be operational and marketing game changers, but only if organizations create value by applying analytics to understand the past, predict the future, align findings with business strategy and define outcomes.

Executive Summary

In today's digital world, every action translates into a data footprint, fueling a vast expansion of metadata ripe for mining the meanings within. In fact, the digital universe is approaching the physical universe in its size and complexity. According to data storage vendor EMC, by 2020 there will be nearly as many digital bits in existence as there are stars in the universe, with the data we create and copy annually reaching 44 zettabytes, or 44 trillion gigabytes.¹

Harnessing all this data can be a daunting, even intimidating, proposition for most organizations. But the fact is, to substantially outperform industry peers, organizations need to embrace an analytics-driven culture, one that requires a detailed business strategy, highly focused management and a willingness to adapt and change. Analytics is the key to driving value through data. Otherwise, data is nothing but noise.

This white paper explores the advantages of understanding data, and how that understand-

ing can benefit all aspects of a company's culture. Essentially, it also provides a blueprint for "the data journey" - how enterprises can make sense of today's unrelenting deluge of data; how this data can be converted to successful business outcomes; and how this journey - a continually reiterative one - can be applied to map out the best courses of action.

Data Provides Value Via Analytics

We are living in a world without boundaries, where virtually every activity, interaction, transaction and communication is digital. The resulting accumulation of data is not merely "big," but rather has now reached a magnitude that should be termed "colossal." Many organizations are swimming in a deluge of data but those that have figured out how to harness and unlock business value from its essence - what we call Code Halo™ thinking² - are not only realizing meaningful benefits but also are leading their markets.

Deriving value from data requires that the data be examined from multiple dimensions. Data can



Extracting Ever-Greater Value from the Flood of Data

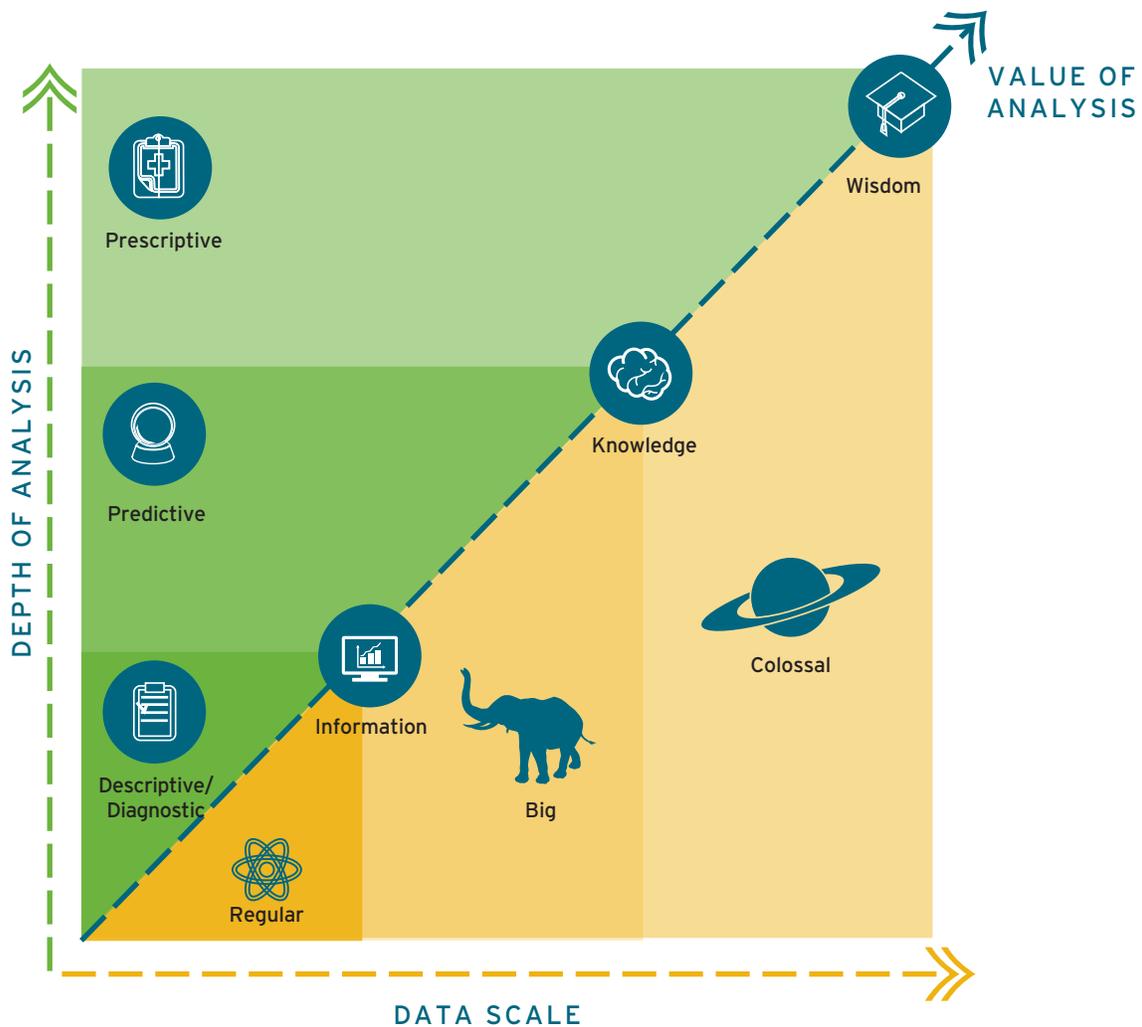


Figure 1

prove to be a key driver of competitive advantage and growth, but only if accurate and complete data is combined with in-depth analysis. This, in turn, can produce actionable insights, better decisions, increased ROI, cost savings, increased profitability and improved processes.

Data can prove to be a key basis of competition and growth. Its value can primarily be classified as “information,” “knowledge” or “wisdom” (see Figure 1). Analytics addresses such considerations as what and why, as well as what will and what should be done. Answering these questions can uncover optimal courses of action, but only if organizations make up-front investments in complex modeling, the latest tools and technologies and the talents of highly skilled personnel.

The Data Journey

Many organizations are overwhelmed by data because they fail to develop the right strategy to

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derive benefits from it. In fact, most organizations fail to look at all the aspects of colossal data collectively, and instead seek to implement individual point solutions to address specific issues. Organizations need to think strategically and work collaboratively to realize the value of data in driving business outcomes.

Data, value and analytics are directly proportional to each other. With the immense growth of data, organizations can realize higher value only if the depth of analytics is increased. Figure 1 illustrates this point.

Let's consider the meaning of this chart, and the challenges it poses for the modern organization.

- **Data growth is a journey.** Data is central to any decision or action. It is required to define a proper progression towards success. Since data is nearing colossal status, smarter data collection is necessary to obtain both historical and predictive insights. But as the chart shows, moving upwards towards truly colossal amounts of data demands analytics that produces both predictive and prescriptive information. It also produces wise business decisions.

Once a strong data foundation is built, the next logical step is to run analytics to obtain actionable insights to enable decision-making and produce business growth.

- **Every piece of data has value.** The collection of data alone cannot change an organization's performance. Businesses need to follow, collect and store all of it, and they need to filter out noise to derive value. This value can be classified as follows:
 - **Information**, which provides details about what already has been done and accomplished.
 - **Knowledge**, which comes from the insights gained from data that explain why something happened or future outcomes.
 - **Wisdom**, based on historical data, which informs future actions.
- **Depth of analysis drives business outcomes.** Once a strong data foundation is built, the next logical step is to run analytics to obtain actionable insights to enable decision-making and produce business growth. What kind of in-depth analysis is possible with today's modern technologies? They range from the simple to the truly informed:
 - **Descriptive**, a form of standard reporting that provides information about what already has happened in a campaign or other business operation.
 - **Diagnostic**, which mines data to understand why something happened, whether good or bad.
 - **Predictive**, a kind of analysis that leverages statistical models and algorithms to better understand previous actions, and thus better predict what is likely to happen next.

- **Prescriptive**, the pinnacle of data analytics, produces a synergy of data, business and mathematics to define the best course of future action.

Looking Forward: How to Be a Winner

How can an organization move to the next level, to become a high-performing analytics machine? [Note: This is not merely for technology's sake but rather to reap the extreme value of data analytics and the benefits that come from a predictive and wise approach to decision-making.]

Numerous challenges arise as organizations transition towards becoming analytics-driven. Moreover, there are distinct parameters that separate leaders from followers. Organizations need to understand each parameter and ensure they have in place an integrated strategy towards becoming analytics-driven. These include:

The CEO and other C-level managers must describe how to make an analytics culture part of the organization's DNA, to ensure that everything is aligned, including the business's vision, changing trends, and internal services and processes.

- **Intent:** Many organizations embark on a data analytics journey but very few succeed. One of the main reasons is the lack of management support. To become an analytics-driven organization, a cultural shift is required that involves strategy and focus. The CEO and other C-level managers must describe how to make an analytics culture part of the organization's DNA, to ensure that everything is aligned, including the business's vision, changing trends, and internal services and processes. Industry leaders who realize this are realigning their businesses around data and technology. (For more on this topic, read our white paper "[How to Create a Data Culture.](#)")
- **Case in point: A strategic commitment to data.** A telecom start-up envisioned creating a client base of 100 million customers, and in the process delivering an enriched customer experience. To do this, the company not only invested in world-class telecom infrastructure but it also committed to creating a data-driven organization that leverages cutting-edge technology. This strategic vision of management resulted in the development of an interactive business intel-

ligence platform to perform diagnostic and predictive analytics on both unstructured and structured data. The company's commitment from its inception to data, business intelligence and analytics will ensure a platform that is visionary, foolproof and future-oriented.

- **Data:** Organizations need to have a strategic plan to collect all relevant data that can drive business outcomes. They need to define comprehensive data policy covering critical data sources, means of data capture, data storage and management architecture. Organizations also must understand that this is an ongoing process that must be continuously reviewed and enhanced to align with ongoing business-technology trends and changing market conditions.

If an organization does not have the right people who can understand its vision and make it happen by applying advanced tools, technologies and techniques, an analytics culture will never take hold, nor will the enterprise achieve its fullest data-driven potential.

- **Case in point: Making data collection a reality.** When planning to launch a new product, a multinational beverage corporation knew that a first priority was embracing data collection that would scale to as much as a petabyte. The company defined a cloud-based, pay-per-use architecture featuring real-time data acquisition, processing and reporting on clean and consistent data. This commitment to data collection is providing the flexibility to handle increasing or decreasing volumes of data over several years from the initial product launch date, while maintaining control over capital and operating expenditures.

- **Tools:** Tools and technology are advancing rapidly, enabling the application of analytics across business challenges in order to grow exponentially. Technologies such as Apache Hadoop, not only SQL (NoSQL), MemSQL, in-memory computing and high-performance computing cluster (HPCC), to name a few, enable the next generation of analytics. These and other technologies facilitate advanced analytics methods and techniques, such

as clustering, predictive modeling, statistical modeling and algorithms to gain deeper insights. Here, preemptive actions can employ advanced visualization, intelligent data discovery, artificial intelligence and machine learning. A multitude of options are available, but enterprises should conduct intelligent and careful evaluations to select the proper “fit for purpose” tools and technologies to meet their business needs

- **Case in point: “Good enough” is never enough.** A leading online platform, used by millions, had become a success using traditional, contemporary technology. However, management knew that new tools would inevitably be required to not overwhelm its current system, as well as to maintain and increase its market dominance. The company moved forward aggressively to acquire new-age business intelligence tools, processing 50 petabytes of data feeding a next-generation BI platform. These new tool sets are not only maintaining current operating efficiency, but are also yielding better insights into user behavior and have emerged as the drivers of customer satisfaction.

- **People:** To be a successful analytics-driven organization, the right people are essential. If an organization does not have the right people who can understand its vision and make it happen by applying advanced tools, technologies and techniques, an analytics culture will never take hold, nor will the enterprise achieve its fullest data-driven potential. The right team is required to convert data into value by using matrices, algorithms, models, optimization and functions. And it is essential to ensure team balance, to allow a 360-degree feedback on data. So the ideal team should include business analysts, data scientists and technical specialists.

Getting Started

Enterprises that start as soon as possible have an advantage, but since this is an evolving arena it's never too late to start. A good first step is to benchmark your industry and peers to identify what is trending, and how the explosion of data is impacting business. Thereafter, it depends upon your organization's colossal data ambitions - to dream, align, experiment and succeed by making advanced analytics core to decision-making. To do this an organization should:

- **Strategize and focus.** Organizations can chart a path to success when top management defines an integrated strategy to create an analytics-driven culture. If this comes from the top, with a proper strategy and focus, it will help your organization realize the benefits of an analytics-driven dream faster and better.
- **Manage data.** The digital world is your source of data. Yes, it is turning colossal and all of it may or may not be useful. Still, every bit of data can have value. Leverage what you have, collect and integrate more, and manage it properly to achieve good insight.
- **Be agile.** There is no one-size-fits-all solution that never changes. As trends emerge and

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novel technologies move mainstream, organizations need to be flexible and adapt to ever-changing advancements and ways to derive meaning from data.

- **Innovate and invest.** An investment in people and their skills will help build a workforce that can think differently and innovate, placing the organization on the fast track to success.

Footnotes

- ¹ "The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things," by EMC Corp., with research and analysis by IDC: <http://www.emc.com/about/news/press/2014/20140409-01.htm>.
- ² For more on Code Halos and innovation, read the book, "Code Halos: How the Digital Lives of People, Things, and Organizations Are Changing the Rules of Business," by Malcolm Frank, Paul Roehrig and Ben Pring, published by John Wiley & Sons. April 2014, <http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118862074.html>.

About the Author

Nitin Srivastava is Principal Architect within Cognizant's Enterprise Information Management Practice. He has over 15 years of experience in technology and architecture consulting, including defining and orchestrating data warehousing and business intelligence strategies for traditional and big data technologies worldwide. Nitin has extensive experience in defining strategy and road maps, technology architecture consulting, data architecture and complex program delivery. He has defined data warehousing and business intelligence analytics solutions on cloud, data lake technical architecture and solution architecture, including the coexistence of traditional and big data technologies. Nitin can be reached at Nitin.Srivastava2@cognizant.com.

About Cognizant

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