Chapter 43
Business Intelligence

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ABSTRACT

Big data is driving new forms of competition, new waves of productivity growth, innovation, and providing unique ways to interact with customers. Big data is comprised of a wealth of unstructured data that is being transmitted and captured by organizations to enhance business intelligence efforts. The forms that big data takes include text, video, voice, location data, social media, and its growth is exponential. Big data encompasses multiple dimensions, including volume, variety, velocity, veracity, variability, and complexity. Despite the opportunities that big data presents, organizations are having difficulty managing it, especially in the areas of data management and data governance. Executive involvement is critical to ensuring quality data for business intelligence as well as to ensure that their firms will be able to attract the necessary talent to effectively engage in BI analytics. It is recommended that management take a common-sense approach to dealing with big data to ensure that data-driven decision making is not compromised.

INTRODUCTION

Big data is one of the most commonly written about topics in todays press. Routinely we are bombarded with reports about how much more data there is, how much more is now able to be captured, how many new sources it comes from, and how it is being used to in new and novel ways at the expense of our privacy. As Bernard Marr (2015) asserts it is a topic that is discussed in boardrooms, business publications, and the mainstream media, because big data provides new insights into everything. Big data encompasses traditional sources of structured transaction data that is now supplemented by mass quantities of unstructured data. This data is processed by new, inexpensive, and faster hardware that is then scrutinized by new and more advance analytics that provide organizations with more in-depth insight into their operational environment than ever before.

The role of business intelligence [BI] is to seek value from data. Today, BI combines text, video, voice, location data, social media, and any other new source of data with traditional data sets in order to learn about, interact with, and predict what is happening so that the organization can respond as fast as possible to whatever it perceives is the opportunity that the data reveals. BI deals with imperfect data

that is oftentimes ambiguous, but which is available on a vast scale. As a result, Mayer-Shonberger and Cukier (2014) assert that the effect is that the extraction of value from big data is analogous to a treasure hunt. That is, organizations are scrutinizing big data to learn what is happening, without necessarily needing to understand why. They argue that in a big data world, correlations supersede causality, because the data is simply used to discover patterns and correlations in the data that offer novel and invaluable insights. The more data you have the better the insights. The underlying premise for BI then becomes this: the more data an organization can capture, the better the data-driven probability of understanding what is happening, and the faster you can respond to this insight. This means then that actions taken in BI are often based on an organizational/system confidence level in the analytic assessment of what the data suggests without any clear understanding of the root cause.

Big data would appear to many to be more about systems, and less about people. Certainly people are important because they are themselves a major source of big data fodder and it is oftentimes people's behavior that big data is trying to affect. Nevertheless, big data also is dependent on people because people must inevitably be responsible for how data is used, how it is managed, and for the consequences of the decisions made when using it.

This paper is intended then to remind us that big data is not simply something that data, systems, and analytics make happen and that we are somehow divorced from it and not responsible for unintended consequences. Instead, prudence would require that since we have unleashed big data, we have to somehow insure to the best of our ability that if we can't control big data we can at least use common sense in how we approach it and manage it.

BACKGROUND

The amount of data in our world has exploded exponentially such that data, especially unstructured data, is now referred to as "big data". Where measures of data were once gradually evolving from megabytes to terabytes, the sudden phenomena of big data accelerated these measures to volumes expressed in petabytes (1,024 terabytes) or exabytes (1,024 petabytes). The new influx of data is derived from billions to trillions of records of millions of people—all from different sources (e.g. Web, sales, customer contact center, social media, mobile data and so on). The data is typically loosely structured and often incomplete.

Big Data is the natural result of four major global trends:

1. Mobile computing
2. Social networking
3. Cloud computing
4. Moore's Law [processing power doubles every 2 years]

A lot of big data is derived from cell phone traffic and social networks, with much of it being stored in the cloud. The amount of this information grows almost exponentially as people routinely interact with companies and each other via wireless and wired networks as a matter of course.

The data being transmitted and captured from these transactions has become a key basis of competition, underpinning new waves of productivity growth, innovation, and consumer surplus, according to research by MGI and McKinsey's Business Technology Office (Manyika, Chui, Brown, Bughin, Dobbs,

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