

Chapter 13

Business Analytics for Business Analysts in Manufacturing

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ABSTRACT

Many of the skills that define analytics are not new. Nonetheless, it has become a new source of competitive advantage for many corporations. Today's workforce, therefore, must be cognizant of its power and value to effectively perform their jobs. In this chapter, the authors differentiate the role of a business analyst by defining the appropriate skill level and breadth of knowledge required for them to be successful. Business analysts fill the gap between the experts (data scientists) and the day-to-day users. Finally, the section on Manufacturing Analytics provides real-world applications of Analytics for companies in a production setting. The ideas presented herein argue in favor of a dedicated program for business analysts.

INTRODUCTION

Business Analytics is something most people have heard about but fewer know or can agree on the definition. Some argue it is nothing new, simply another word for Business Intelligence. Others argue Business Intelligence and Business Analytics are two different disciplines, each with their own set of skills and software (Gnatovich, 2006). The purpose of this paper is not to debate these issues; the two terms will therefore be used interchangeably. The focus herein is to position Business Analytics, by any name, in the undergraduate curriculum in a manner that best serves students. This task will begin with a discussion on the value of analytics to today's businesses and will follow with suggestions on how to incorporate it into the curriculum. The expected challenges to implementing these ideas will be summarized in a separate section ending with ideas for future research.

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BUSINESS VALUE

Business Intelligence/Business Analytics (BI/BA) is the process of gathering and transforming raw data into actionable insights yielding better decisions. Transforming data into insights is not a new discovery. Analysis of the 1854 Cholera Epidemic in London is one of many early examples. Edward Tufte describes at length in his book, *Visual Explanations*, how John Snow used data and graphics to convince local authorities that the source of the epidemic was a water pump on Broad Street. Later in 1958, an IBM Journal article is credited as the first documented reference of the term Business Intelligence; it did not become popular, however, until the 1980s with the advent of Decision Support Systems (Kalakota, 2011). So, why are many higher education institutions just now creating Analytics majors, minors, and institutes?

Throughout history, businesses have adopted innovative management programs in order to remain competitive. In the early 1800s it was standardized parts. In the late 1800s, it was the era of scientific management followed by mass production. In the 1980s, businesses found their competitive advantage in lean production initiatives (Heizer & Render, 2011). A recent Harvard Business Review article identifies analytics as the next source of competitive advantage for companies (Barton & Court, 2012).

Big Data has become an enabler for analytics. Big Data is the current phrase used to describe the changes in the accumulation of data over the past decade; the distinguishing factors of which are volume (2.5 exabytes per day), velocity (speed at which data is created), and variety (images, texts, videos, etc.) (McAfee & Brynjolfsson, 2012). Big Data has opened the flood gates for data analysis to achieve heights not possible in the recent past.

Business schools are responsible for preparing students to succeed in current and future business environments. According to a survey of CIOs, analytics and business intelligence was ranked as the number one technology priority; a position it has occupied in three of the last five years. Seventy percent of the CIOs rated mobile technologies as the most disruptive force with which they will be confronted in the next ten years, followed by big data and analytics each at fifty-five percent (Gartner Inc., 2013).

Analytics is a ubiquitous term in modern media. It is not difficult to find a story about a company using analytics to gain competitive advantage. Analytics is redefining companies. Overstock.com's CEO once referred to his company as "a business intelligence company" not an online retailer (Watson, 2013). Several best-selling data-driven books have also attracted attention with catchy titles such as *Freakonomics: a Rogue Economist Explores the Hidden Side of Everything* and *Super Crunchers: Why Thinking-By-Numbers is the New Way to be Smart*. Hollywood has contributed as well with a block-buster movie "Moneyball" in which baseball players are evaluated using analytics; the film was nominated for six-academy awards. Google has created an Analytics service to help businesses monitor the effectiveness of their websites. And, Google's Chief Economist, Hal Varian, said in a recent interview with James Manyika, "I keep saying the sexy job in the next ten years will be statisticians" (McKinsey & Co., 2009).

The value derived from analytics runs the gamut from cost savings to increased revenues. Nucleus Research found that analytics returns \$10.66 for every dollar invested (Nucleus Research, 2011). Examples in marketing and managing customer relationships dominate the literature. Capital One, for example, used analytics to grow its customer base and increase the likelihood that customers will pay their bills. They conducted over 30,000 experiments a year using different incentives to find the best strategy (Davenport, 2006). Sears Holdings used data clusters to reduce the time it takes to generate new sales promotions from eight weeks to one week. The new promotions were even better than previous ones because they were more personalized and targeted to the individual consumer (McAfee & Brynjolfsson,

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