

Chapter 4

Opportunities and Challenges of Implementing Predictive Analytics for Competitive Advantage

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ABSTRACT

Predictive analytics has become an increasingly hot topic in analytics landscape. As a result, predictive analytics deployments are gaining momentum. Yet, the adoption rate is slow, and organizations are only beginning to scratch the surface in regard to the potential applications of this technology. Implemented properly, the business benefits can be substantial. However, there are strategic pitfalls to consider. The key objective of this chapter is to propose a conceptual model for successful implementation of analytics in organizations. This chapter highlights the importance of predictive analytics, identifies determinants of implementation success, and covers some of the potential benefits of this technology. Furthermore, this study reviews key attributes of a successful predictive analytics platform and illustrates how to overcome some of the strategic pitfalls of incorporating this technology in business. Finally, this study highlights successful implementation of analytics solutions in manufacturing and service industry.

INTRODUCTION

Data is growing faster than ever before from a variety of sources including social media, mobile devices, and the Internet of Things (IOT). According to Gartner Research, data volume will grow 800 percent over the next 5 years and 80 percent of that data will be unstructured (Feki, et al, 2016). Several trends have contributed to this data explosion including massive growth in video and photo data, staggering usage of smart phones, 50 billion smart connected devices in the world, widespread usage of CRM, ERP,

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and product/service logs (Marr, 2015; Perrin, 2015). Additionally, growing numbers of companies are collecting data from their customers. This trend will continue in the future. By the year 2020, about 1.7 megabytes of new information will be created every second for every human being on the planet. By then, our accumulated universe of data will reach 44 trillion gigabytes (McAfee and Brynjolfsson, 2012).

The majority of Big Data (unstructured data) doesn't offer a lot of value in its unprocessed state. Of course, one can pull powerful insights from this stockpile of data by applying the right set of tools and analytics. One can also see patterns and build a model of how these data work. Once you build a model, you can predict. The right use of Big Data can enable analysts to find trends and give big insights that help create value and drive operational efficiencies for the enterprise. Moreover, Big Data can bring other important benefits to organizations such as: enabling new products and services, helping to better meeting customer demands, and facilitating growth and analytics use. Insights hidden previously by data too costly to process can help in the creation of new products and in the discovery of ways to gain competitive advantages. Similarly, the ability to process every item of data in reasonable time and successfully exploiting the value in Big Data removes the troublesome need for sampling and promotes an investigative approach to data.

After years of slow adoption, Big Data and business analytics solutions have finally hit mainstream. Among all analytics tools, Predictive Analytics has become an increasingly hot topic in analytics circle as more organizations realize that predictive modeling of customer behavior and business scenarios is the big way to gain insights out of Big Data. Predictive Analytics is also considered as one of the key pillars of enabling digital transformation efforts across industries and business processed globally. Furthermore, heightened development and commercialization of analytics tools by IT vendors has also helped expand predictive analytics capabilities. As a result, there has been an increase in adoption levels.

When implemented properly, the technology can enable organizations to tap their collection of data to gain business benefits. Although the current users of predictive analytics are primarily large corporations, there are numerous additional industries and organizations where predictive analytics tools could advantageously assist decision makers.

In spite of the apparent advantages of using predictive analytics, a 2015 study by the MHI/Deloitte revealed that less than one-quarter of companies surveyed have adopted predictive analytics, though that number is expected to climb to nearly 70 percent by 2020 (DeAngelis, 2015). Therefore, it is important to explore the opportunities and challenges of implementing predictive analytics into the core business applications of businesses, and present the findings for enterprise leaders, administrators, managers, and policymakers to consider.

THE EVOLUTION OF BIG DATA AND ANALYTICS

The Rise of Big Data

The term "Big Data" was coined in mid 1990s and is defined as data that is too large, complex, and dynamic, and exceeds the processing capacity of conventional database architectures of an organization (Weiss and Indurkha, 1998). According to Gartner, Big Data is comprised of high Volume, high Velocity, and high Variety data, which he calls 3V's. The data is too big and cannot be handled easily, it moves with excessive speed flowing in and out, making it difficult to analyze. Finally, the range and type of data sources are too great to assimilate (Figure 1). (Diebold, 2012)

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