Chapter 11
Business Intelligence:
Strengths, Weaknesses, and Opportunities

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ABSTRACT

This chapter discussed business intelligence (BI), highlighting its general strengths, weaknesses, and opportunities in the organizational context and in the context of unstructured data. Initially, a brief background on BI was discussed, followed by the discussion on benefit and challenges in different context. Recommendations provided for the challenges were discussed. Later, the chapter further looked at business intelligence and artificial intelligence followed by the future outlook of business intelligence. The contents of this chapter will help theoretically to understand the business intelligence, its background, benefits and challenges, and how to deal with the challenges by the given recommendations. Practically, this chapter will give insight to organizations about challenges to think about earlier stage based on the discussion on challenges in the organizational context.

INTRODUCTION

Information Systems is a process that is used to mine, process, store and make sense out of data by converting them into meaningful information that can be used to support decision makers; executives, managers, and front-line operators. In the day to day operations of organisations and businesses, various information system tools are used; examples of such tools are Enterprise Content Management (ECM) and Enterprise Resource Planning (ERP). While the former is for content management, the latter is more for processing transactions. However, for future predictive, prescriptive, and fast growth of organisations and businesses, innovative tools for business intelligence/analytics and social media analytic tools like IBM Watson, Microsoft Power BI, Tableau, comes to play. Those tools enable accurate and fast

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decision making in a dynamic and competitive business environment. Having understood this, it then suffices to say that BI is at the top and over other information tools that can provide actionable insights for business support. When using these tools, organisations are usually faced with many challenges. The major strength of BI is that it integrates with the other tools or information systems to pool more data for insight; this can also be its major weakness because of the compatibility issues and other dynamics of those tools or systems.

Now-a-days, organisations have to deal with a large volume of data and information which is generated by the use of technology in transactions. The uses and need for business intelligence are rapidly growing in order to process these large volumes of data and information. Organizations will be benefitted with a large volume of data when it will be processed to valuable information (H. J. Watson & Wixom, 2007). In business intelligence, various analytical tools are used to analyse data. Through business intelligence; structured, semi-structured and unstructured data is processed to retrieve valuable and crucial information which enable decision makers to take decision effectively in a timely manner (Negash, 2004; Sabherwal & Becerra-Fernandez, 2011). Organizations also use business analytics which sometimes is considered as a part of business intelligence by many researchers (Negash, 2004; Chen, L., Chiang, & Storey, 2012). To understand the current and future aspects of decisions, organizations are using business analytics with different analytical capabilities i.e. descriptive, prescriptive and predictive applied (Seddon, Constantinidis, Tamm, & Dod, 2017; Sun, Strang, & Firmin, 2017).

BACKGROUND

According to Devens (1986), the concept of business intelligence was first used by Richard Millar to describe how Sir Henry Furness, a banker, profited over his competitor by acting on the information he gathered. In 1958, an article was written by an IBM computer scientist whose name is Hans Peter Luhn, describing the potential of business intelligence gathering through the use of technology. Literature suggested that the modern version of business intelligence evolved from Decision Support Systems (DSS). It was the first database management system to be developed; following by Online Analytical Processing (OLAP), Executive Information Systems (EIS) and data warehouses tools. These were developed alongside DSS to ease access and organisation of data.

Chaudhuri and Narasayya (2011), defined Business Intelligence as the set of tools and techniques for Online Analytical Processing (OLAP); data mining, processing, and storing; turning data into information and knowledge as output, and providing actionable insights or forecast to support the decisions of organisations and businesses. According to (Forrester, 2018), BI is a set of methodologies, architecture, processes, and technologies that leverage the output of information management processes for analysis, reporting, performance management, and information delivery. Advanced data analytics allows the organization to have a complete or 360 degree view of their operations and customers (Ranjit, 2009). BI technologies drives big data for business analysis, according to (Katal, Wazid, & Goudar, 2013), big data is in large amount of which requires new technologies and architectures to enable the extraction of value by capturing and analysis process. Big data have the following defining characteristics: Volume, Variety, velocity, and veracity know as four V's in some literature. Due to the rapid growth and the heterogeneity of data, it becomes difficult and almost impossible to process data using the existing traditional methodologies. However, emerging innovative BI tools have the capacity to process data in their Volume, Variety, and Velocity and also considering the veracity of the data source which can affect