

Chapter 67

Big Data Analytics in Retail Supply Chain

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ABSTRACT

Retail sector is in the state of flux. On one hand they face hurdles such as new technologies, tumultuous economy, new sales & distribution channels, and on the other hand they have rapidly increasing population of demanding consumers. To overcome these challenges, and to remain relevant and competitive in the market, the retail sector needs to have paradigm shift in their approach. If we track and analyze the pattern of purchasing decisions of consumers, we would find that it involves various stages of decision lifecycle. Data generated at many of these stages can be recorded, digitized, and transformed into matrices and strategic information. These matrices & information would prove to be the vital element for retail industries in their strategic decisions. We need to focus on mechanism to extract valuable insights from retail supply chain. These insights could be further leveraged to provide competitive advantage to the retailers and at the same time a better retail experience to the customers.

INTRODUCTION

The success of supply chain planning process depends upon how closely supply is managed, demands are forecasted, inventories are optimized and logistics are planned. Supply chain is the heart of the retail industry vertical, and if managed efficiently, it drives positive business and enables sustainable advantage (Howe, 2014). If we observe carefully, huge amount of data is getting generated at each and every stages of the supply chain. In today's digital world we are generating around 200 Exabyte of data each year (Issa, 2013). Organizations are increasingly questioning their own ability to realize full potential from the huge amount of data they have within their supply chain (Carraway, 2012). This huge amount of data being generated inside organizational boundaries is a contemporary problem, but at same time it can provide an opportunity for retail organizations to find information they have been looking for as an effective handle for decision making and planning. Core strength of retail organization lies in its ability of aligning demand and supply. Organization's ability to collect, interpret and leverage data, helps in making informed decisions which can lead to better profitability and growth.

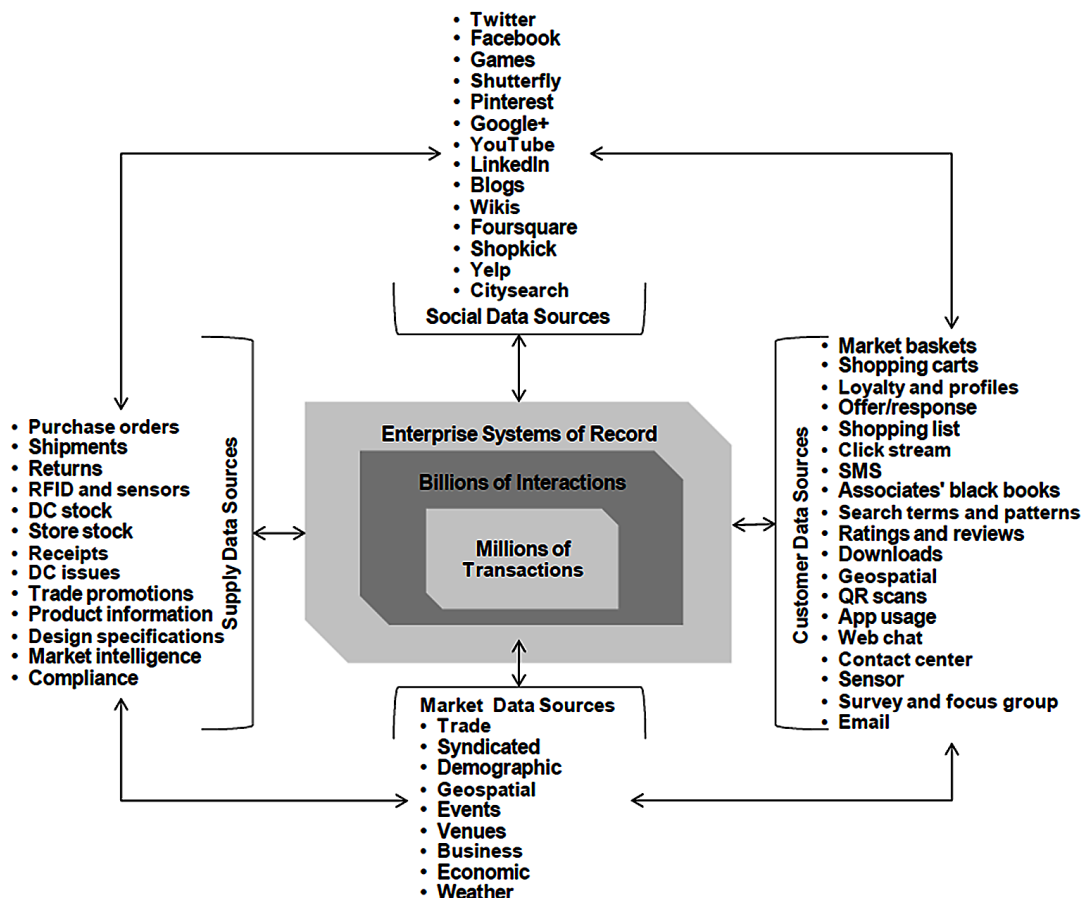
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In recent times there has been a massive explosion in the volume of data generated in the supply chain and it has become a challenge for enterprises to extract maximum value out of this ever-growing volume of unstructured and structured data. Organizations are busy exploring options that would create required infrastructure to capture, process, analyse and leverage data across their supply chain in order to optimize their capacities, inventories and logistic, without missing potential business opportunities. This infrastructure is expected to optimize processes and create analytical engines that would help deliver accurate and appropriate decisions (Provost & Fawcett, 2013).

Customers are difficult to predict. Accurately forecasting of customer's needs is risk-laden, but businesses are increasingly shifting towards customer-driven production models. Retail organizations are familiar with using structured data for planning and decision making and are now looking to combine data from external sources to better predict future risks (Dandawate, 2014). The objective here is to understand the role of big data and predictive analytics in retail industry supply chain and its impact on its future growth (see Figure 1).

Picture above presents a laundry list of Big Data sources for the retail industry. There are four dimensions of data source:

*Figure 1. Big data sources for the retail industry
(IDC Retail Insights, 2012).*



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