Chapter 7

Big Data and RFID in Supply Chain and Logistics Management: A Review of the Literature and Applications for Data Driven Research

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ABSTRACT

Big Data refers to complex and unstructured data that is difficult to analyse and utilize with traditional applications and analyses. Big Data comes from a variety of sources, including tracking and sensor devices which are widely used in logistics and supply chain management, and relate to Radio Frequency Identification (RFID) technology. Thus, this chapter reviews the literature on RFID adoption in supply chain/logistics management from 1995-2015. We identify current trends in the lit-
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INTRODUCTION

Over the last years, there has been an increased interest in big data (e.g. Riggins & Fosso-Wamba, 2015; Fosso-Wamba et al., 2015; Zhong et al., 2015; Wang et al. 2016). Companies have invested in creating and acquiring the necessary capabilities in order to obtain value from big data and attain competitive advantage (ibid). Big data may come from different sources, such as mobile devices, Internet of Things, and tracking and sensor devices which are widely used in logistics and supply chain management, including radio frequency identification (RFID), which is the focus of this chapter. In particular, this chapter reviews the literature on IT and in particular RFID in Supply Chains to identify current data-driven research and suggest future research avenues. In particular, the chapter presents a critical analysis of the articles published in the last 20 years (1995-2015) through a systematic literature review. The relationship between RFID and big data has been highlighted in the literature. RFID tagging is generating huge operational and strategic data across diverse industries’ value chains in terms of volume, velocity, variety, value, and veracity (Wamba et al., 2015). DeRoos (2013) had predicted that the number of RFID tags will increase from 1.3 billion in 2005 to about 30 billion in 2013.

Ferrer et al. (2010) have argued for the further study of RFID for the following reasons:

1. Although the idea of RFID is not new, organizations have started to investigate the potential of RFID and the generation of Big Data that follows its use, and therefore managers are under pressure to grasp the application and benefits of RFID and related Big Data for organizational and supply chain performance,
2. Experts suggest that the RFID brings superior supply chain and logistics performance (Wyld, 2005; Ferrer et al., 2010),
3. The rapid evolution of RFID technology creates uncertainty and speculation with regards to the benefits that RFID may bring to organizations and supply chains,
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