Chapter 6
Information Quality in Supply Chain Software

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ABSTRACT

In the new dynamic economic environment where supply chains increasingly face constant change and instability, the better supply chain planning and management enabled by advanced data management systems provides enhanced value proposition for customers resulting in improved profitability for firms along the supply chain. However, achieving such high quality level of supply chain visibility is not an easy task requiring technological capability, organizational willingness and data quality management intensively demanding attention from both managers and scholars. Therefore, the chapter begins with an overview of the role of information systems in supply chain management followed by a discussion regarding the role of information quality in successful supply chain interactions. Data quality management in terms of strategy and data governance is then reviewed. Finally, data quality tools complementing strategy dimension of data quality management are studied.

1. INTRODUCTION

Information management as the new supply chain's frontier (Lee, Pipino, Funk, & Wang, 2009) stresses the important role of information quality both in organizational and inter-organizational information systems (Pereira, 2009) leading to supply chain integration and management (Hartono, Li, Na, & Simpson, 2010), supply chain agility (Gunasekaran & Ngai, 2004) and operational efficiency (DeGroote & Marx, 2013). In the new dynamic economic environment where supply chains increasingly face constant change and instability, this better supply chain planning and management due to advanced data management systems such as reference data management systems (Chae, Yang, Olson, & Sheu, 2013), master data management systems (Chen et al., 2013), and RFID technologies (Loshin, 2010b) provides enhanced value proposition for customers resulting in improved profitability for firms along the supply chain in such roles as supplier, manufacturer, distributor, and retailer.

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However, achieving such high quality level of supply chain visibility is not an easy task requiring technological capability such as Information Technology (IT) infrastructure capability, organizational willingness such as top management dedication and data quality management (Sarac, Absi, & Dauzère-Pérès, 2010) intensively demanding attention from both managers and scholars. Despite the fact that there exists no consensus to differentiate "data quality" and "information quality", some authors prefer to reserve the term "data quality" for technical issues and "information quality" for general and non-technical issues (see, for example, Lee et al., 2009; McGilvray, 2010).

However, in this chapter, we do not make such a distinction and choose to use the terms "data quality" and "information quality" interchangeably to avoid repetitive and boring use of a single term throughout the chapter and we believe this does not harm the rigor of discussion since they both refer to the same idea in our presentation. Furthermore, we do not intend to provide a substantial and systematic review of data quality literature as it is not the mission of this chapter.

Therefore, this chapter does not cover the whole published literature of data quality. However, we provide a proper presentation of data quality management issues and their impact on supply chain performance based on useful and pertinent research works so as to provide a suitable big picture for the reader about common data quality impacts on supply chain management, data quality problems and their solutions and guide the interested reader to consult technical references as advised throughout the chapter for more technical details.

In this chapter, we discuss information quality in supply chain management in terms of strategies and tools required for data quality management. The review begins with an overview of the role of information systems in supply chain management followed by a discussion regarding the role of information quality in successful supply chain interactions. Data quality management in terms of strategy and data governance is then reviewed. Finally, data quality tools complementing strategy dimension of data quality management are reviewed.

2. INFORMATION MANAGEMENT AS THE NEW SUPPLY CHAIN'S FRONTIER

Information sharing systems play an important role in the success of supply chain management through enabling the access of supply chain partners to quality shared information. Sharing useful, accurate and accessible information enables firms to quickly learn the dynamics in their supply chain environment (Pereira, 2009). This important process provides valuable knowledge about the supply chain context for eager and attentive supply chain managers to make effective and efficient decisions. Such precise decisions lead to planning and controlling supply chain processes in a productive manner that is never possible without proper access to quality shared information. Consequently, information quality problem is now a top priority concern for many aspiring supply chain managers.

There is growing concern among companies, aware of positive and negative impacts of data quality throughout the world, to establish organizational departments to deal with business data quality issues seriously as failing to delegate the responsibility of data quality is a preventing barrier for the achievement of data quality in an organization to be discussed in later sections of this chapter. In fact, many appropriate strategic, tactical and operational decisions must be made to ensure information life cycle has the acceptable level of quality guarantee from the viewpoint of the stakeholders and users of data.