

Chapter 6

Contribution of IT– Based Logistics Solutions to Sustainable Logistics Management: Development of an Assessment and a Procedure Model

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ABSTRACT

This chapter deals with the development of a model to assess the contribution of IT-based logistics solutions to sustainable logistics management. After introducing and explaining the pertinent concepts logistics management, IT-based logistics solutions and sustainability, certain conflict areas between IT and sustainability are discussed to gather relevant insights for the development of the assessment model. The balanced scorecard approach and the concept of maturity models are the main additions to determine the assessment model. The assessment model is embraced by a procedure model which includes guiding principles and success factors to look at before the assessment is executed and methods for navigating within the maturity model, managerial implications and aspects concerning the strategic alignment as subsequent discussion points. The chapter concludes with an outlook into further research and practical application as well as a conclusion.

INTRODUCTION

Due to the increasing role of IT solutions especially in logistics and supply chain management, assessment tools to evaluate the value of IT solutions in terms of efficiency, the degree of process support and other essential aspects need to be dealt with. Sustainability as one of the still actively debated trends in

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logistics and supply chain management can be seen as such an essential aspect. Whereas this branch of research is very advanced, research efforts within the triangle of logistics, sustainability and IT solutions are pretty low. The overall objective of this chapter is to elaborate on the contribution of IT-based logistics solutions to sustainable logistics management. This is conceptualized by constructing an assessment model combining logistics management performance measures integrated in a balanced scorecard approach together with the status quo and improvement analysis of maturity models. The assessment model is embedded in a broader procedure model to provide more practical and theoretical relevance by stating guiding principles, success factors and managerial implications.

BACKGROUND AND THEORETICAL FOUNDATION

Logistics and Supply Chain Management

Logistics and logistics management are still strongly connected with the concept of supply chain management (SCM). Whereas a lot of delimitation approaches were conducted (Larson & Halldorsson, 2004; Lummus, Krumwiede, & Vokurka, 2001; Niine & Lend, 2013), different viewpoints are still shaping the research landscape. Nevertheless, some clear directions how to distinguish between logistics respectively logistics management and SCM do exist. Basically, logistics is associated with material and information flows and can be regarded as the management of procurement, movement and storage activities of goods and therefore commonly follows an operational focus (Hausladen, Haas, & Lichtenberg, 2013, p. 164; Lummus et al., 2001, p. 431). According to the Council of Supply Chain Management Professionals (CSCMP), logistics management can be defined as “that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information” (Vitasek, 2013, p. 117) within a focal company and between the focal company and strongly connected tier 1 suppliers and tier 1 customers. In contrast to logistics management, SCM is covering a wider scope and integrates coordination and cooperation mechanisms among all partners within an end-to-end supply chain, i.e. from the very basic suppliers until final customers (Hausladen et al., 2013, p. 164). Again, the definition of CSCMP is used to define SCM as follows: “Supply Chain Management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.” (Vitasek, 2013, p. 187). By bringing this viewpoint of logistics and logistics management into relationship with SCM, different perspectives are revealed by Larson and Halldorsson (2004). While Traditionalists see SCM as a part of logistics, Unionists evaluate logistics as a part of SCM. Furthermore, Relabellers only replace logistics by SCM whereas Intersectionists claim that SCM and logistics have some content-related intersections, but SCM is more viewed as strategic and logistics more as operational (Larson & Halldorsson, 2004, pp. 18–21). As also indicated in the definitions of both management concepts, logistics management is seen as a part of SCM, therefore the Unionist perspective is followed in this chapter. Nevertheless, recent research has shown that there are strong intersecting relationships concerning logistics management and SCM (Niine & Lend, 2013, p. 226). To cover the effects of IT-based logistics solutions to sustainability in a logistics environment in a better way, logistics management as a subset of SCM but still as a management approach integrating both operational and strategic logistics aspects is chosen as the domain of interest. A graphical illustration to delineate between logistics and supply chain management is provided in figure 1.

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