

Chapter 16

From Information Sharing to Information Utilization in Food Supply Chains

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ABSTRACT

Information sharing has been extensively studied as a key enabler for coordination and integration in supply chains. However, exactly how the shared information is utilized for decision making has only received limited scientific attention in the research literature. The aim of this study is to identify the characteristics of information sharing, and conceptualize how to move from information sharing to information utilization in food supply chains. Using a case study methodology together with a review of the existing literature the authors describe the main facets of shared information - which influence the information utilization in a supply chain - and propose a mapping notation for how these facets can be visualized together with a supply chain operations reference (SCOR) model. Information utilization is especially important because more information sharing does not necessarily result in a better supply chain performance unless the shared information is effectively used in the relevant processes in the chain and well-aligned with the requirements for those processes. The proposed notation provides a systematic structure for mapping the information flows, their specific facets, and helps clarify what information is available and how this information can be utilized in different supply chain processes. Four facets of information sharing are identified and elaborated for food supply chains, together with a mapping tool that emphasizes the information flows and the utilization of information in supply chains.

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1. INTRODUCTION

Information sharing, i.e. the availability of information from other inter-organizational partners has been of interest for more than half a century (Forrester, 1958; Lee, So, & Tang, 2000; Montoya-Torres & Ortiz-Vargas, 2014). It is considered to be one of the key mechanisms for coordination across organizations and has shown to enable more accurate forecasts, lower inventory levels, and reduction of bullwhip effect (Mason-Jones & Towill, 1997; Trapero, Kourentzes, & Fildes, 2012; Zhao & Xie, 2002). However, to fully reap the potential of the shared information, recent studies in the field of supply chain management suggest not only to make information available, but placing a strong focus on how the shared information is and could be utilized at the receiving company (Baihaqi & Sohal, 2013; Jonsson & Mattsson, 2013; Myrelid, 2015).

It has been acknowledged that the utilization and the value of shared information is context specific (El Kadiri et al., 2016; Shaik & Abdul-Kader, 2013). We have chosen food supply chains as the context for this study for two main reasons. Firstly, the characteristics of food supply chains and the products are known to impose special logistical requirements (limited ability to use of buffer inventories, traceability requirements, etc.) (Fredriksson & Liljestrand, 2015; Trienekens & van Der Vorst, 2006). Secondly, due to detailed and fine meshed traceability requirements, starting from the primary producer to the final store, the supply chain as a whole encompasses a vast amount of information (Folinas & Manikas, 2010; Trienekens & van Der Vorst, 2006). Thus, on one hand, food supply chains call for special logistical activities, and on the other hand, the actors in the chain capture valuable information that may be utilized to a higher extent for those logistical activities.

Utilization of shared information is poorly defined in the existing literature (Jonsson & Myrelid, 2016; Kim & Narasimhan, 2002; Myrelid, 2015). Insights from one of the largest wholesalers and retailer in Norway confirms the necessity and potential benefit of utilize the shared information across the whole supply chain to improve coordination further. On one hand, limited transparency or access to information implies that decisions are taken without considering other actors in the chain. On the other hand, the vast amount of information that is captured due to traceability requirements are mostly used for reporting and safety purpose as other areas of usage has not been systematically identified. These challenges have also been stressed in the literature by (Endsley, 2016, pp. 3-4) stating that: "In the face of this torrent of information, many of us feel less informed than ever before. This is because there is a huge gap between the tons of data being produced and disseminated, and our ability to find the bits that are needed and process them together with the other bits to arrive at the actual needed information. That is, it seems to be even harder to find out what we really want or need to know".

To grasp the complexity of all processes and the available and potentially available information in the supply chain and the linkages between processes and information requires a comprehensive and systematic model. According to (Andersson, Jansson, Sandblad, & Tschirner, 2014) visualizing the problem can increase the understanding of the problem - not by reducing the complexity but by coping and recognizing it in the visualization. In operations and supply chain management field several methodologies and mapping tools have been proposed to ease this issue by providing structure and overview of this complexity (Aguilar-Saven, 2004; Alfnes, Dreyer, & Strandhagen, 2008; Thakur et al., 2011). Current solutions seem to either aim towards depicting facets of shared information (timeliness, content, etc.) (Holweg & Pil, 2008) or showing the linkage between the shared information and the decisions processes (Verdouw, Beulens, Trienekens, & Wolfert, 2010). However, no concept nor overview exists to identify what, when, and whom to share information with and more importantly how to utilize the

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