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Social media and humanitarian logistics: The impact of task-technology fit on new service development

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Abstract

The concept of humanitarian technology is growing in popularity due to the role of organizations such as food charities that provide food to populations with challenges in acquiring food from traditional outlets (retail stores, restaurants, etc.). Many food charities receive donations from retail outlets looking to donate products that are near expiration dates (Jett and Crumbly, 2013). To ensure impoverished populations gain access to food with limited dates, food charities search for ways to improve the delivery process through the use of information technology tools to enhance operational efficiency and effectiveness. This paper explores how to improve supply chain management in humanitarian organizations, such as food charities, by utilizing new service development and task technology fit as the theoretical foundation. In particular, it provides the conceptual development for an integrated model of social media and supply chain management. Results and implications will be discussed at the conference.

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Keywords: Social media; humanitarian logistics; task-technology fit; new service development; supply chain management; food charities

1. Introduction

Food Charities, such as food banks, have been a source for meeting the food security needs of impoverished populations within the United States and throughout the world. Food banks receive donations from corporate donors such as retail grocery chains and local food drives from nonprofit organizations [14]. Food banks have developed

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regional and national networks since the concept was developed in the 1960s [2]. In 2013, 62 percent of food-insecure households participated in at least one of the three major federal food assistance programs.

In the United States, federal food assistance programs include the Supplemental Nutrition Assistance Program (SNAP-formerly Food Stamp Program), the National School Lunch Program (NSLP), and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) [7]. Food charity networks provide food assistance to an estimated 46.5 million people annually, including 12 million children and 7 million seniors. Based on annual income, 72 percent of all client households receiving assistance live at or below 100 percent of the federal poverty level [7].

As food banks continue to address the challenge of food insecurity, the challenge of efficiency and effectiveness in delivering food supplies to impoverished populations continue to be an issue. For example, the same regions where there is an abundant supply of food, many are underfed or malnourished as surplus local food remains unconsumed, gets discarded, or becomes spoiled. This gap persists even when agricultural productivity increases, due to food losses throughout the value-chain from farming to retail to households [13], [16].

Many organizations utilize information technology to improve the process of delivering products and services within limited time periods. Many organizations have implemented information technology services as a method to improve efficiency and effectiveness. Technology tools that have been added to food bank networks include databases, bar coding and automated warehouses [22]. Social media tools such as Facebook, Twitter, self-managed websites and other tools are used to communicate to current and potential donors of food surplus, financial support and volunteer services [14]. Despite these efforts, items are discarded due to limited warehouse capacity and the inability of food banks to deliver time sensitive products to populations with food security issues.

One possible solution to address an issue such as this is the ability for food banks to develop new services. Many organizations have turned to information technology (IT) to improve productivity and gain a competitive advantage. Research shows that sharing information in the supply chain can improve supply chain performance [18], [12], [8], [1], [21], [25]. Van der Vaart and Van Donk [26] calls for more research on supply chain management and information technology. There is a pronounced need for additional research on the benefits of social media in this domain. According to O'Leary [19]. Supply Chain Management has made a limited use of social media applications. He posits that social media applications provide an opportunity to gather information and knowledge from disparate sources which provide an increase in the visibility of information [19]. An increase in information visibility can improve supply chain design. In this study, we integrate New Service Development and Task-Technology Fit to present an inter-disciplinary model of social media utilization for humanitarian logistics. To date, few studies have integrated New Service Development (NSD) and Task-Technology Fit (TTF) to explore supply chain management in food services. We posit that an integrated theoretical framework may provide useful insight that would benefit humanitarian logistics. A social media strategy that works for one organization may not be appropriate for another organization. We posit that the task-technology fit model would be a useful tool for future exploration of this phenomenon [11].

1. Background literature

2.1 Task-technology fit

The concept of fit was introduced by Daft and Lengel [4,3] and later extended by Goodhue and Thompson [9] and Dishaw and Strong [5]. It posits that information systems provide value by aiding in the completion of some tasks and that this value will be reflected in user evaluations of the system. TTF is the degree to which a technology assists an individual in performing his or her portfolio of tasks. TTF is the correspondence between task requirements, individual abilities, and the functionality of the technology [9].

Research shows that "the strongest link between information systems and performance impacts will be due to a correspondence between task needs and system functionality (task-technology fit) [9]." Goodhue and Thompson [9] found that technology deemed useful relative to the characteristics of the task can lead to improved performance. Past studies [23], [24] have found that the fit between task and technology can increase the utilization of electronic tools and services, while increasing task performance [24]. Future studies should integrate TTF with supply chain