

# Green Supply Chains and Enabling RFID Technology

14

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## INTRODUCTION

### Green, Supply Chains, and RFID

There is considerable evidence the next frontier for achieving a competitive advantage in marketplace is taking up the idea of a green supply chain (GSC) by introducing corporate responsibility (CSR) and sustainability into your day-to-day operations. This chapter of applications of supply chain management (SCM) emphasizes the role of radio frequency identification (RFID) technology. RFID-embedded has been a major technological advance that appears to be on the verge of universal acceptance as an industrial standard that will enable companies with improved data gathering. Therefore, helping managers make more informed decisions, saving capital while improving their environmental friendliness. Since the beginning of RFID since the early 1980s, the technology has blossomed into many sectors and different purposes but there is no consensus on the actual popularity, familiarity, and overall likeability of RFID in any of this. Some of these business sectors include retail, finance, information technology (IT), healthcare, and aerospace industry. As consumers continue to educate themselves and become more environmentally conscious, they will begin looking at a company's green profile or their energy efficiency profile and begin making their purchasing decisions with that in mind. The speed at which companies peruse these indicatives will be directly related to the dollars spent on product by customers demanding green indicatives. Many firms are requiring their suppliers to be cognizant of these ideas and these customer demands, which will in turn drastically affect B2B commerce between the firm and its suppliers. With the wave of environmental friendliness emerging, these supply chains still have to deal with the challenges of keeping their strategy cost-conscious and effective; this is where RFID comes into play.

In a world that is bent on eliminating waste from its operations (i.e. eliminating redundancies, streamlining manual data collections, etc.), there is another form of waste that occurs, physical waste. In other words, the waste that is created by transportation, outside warehousing, damaged inventory, wasted effort in managing these larger fleets, etc. RFID can increase the visibility for manufacturers, distributors, suppliers and retailers, and with real time information, firms can access much more accurate information regarding inventory movement and usage. This will not only reduce wasted costs but can have a large impact on the company's overall environmental standing by reducing the operational waste in the supply chain.

### Purpose

The purpose of this research study is to find out, using a wide birth questionnaire to real world, multi-sector participants, how people feel about the use of radio frequency identification (RFID) technology. RFID technology, which is not only a multi-billion-dollar industry but also the grandchild of Radar

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technology, has only been recently becoming more popular across many business sectors, far more than run of the mill retail security tags. This diversification comes at the forefront of oftentimes, the problems of RFID persisting or even getting worse across a supply chain.

The expressed purpose of the propositions presented in this study is to aid in the discovery process of what is the best business practice concerning the usage of RFID technology in the manufacturing and service industries and see if the results corroborate with that much of the current literature says about the popularity of the technology. Across practitioner and scholarly research, have generated many different and often contrasting opinions on how well RFID works in the real world. As well, because the technology has changed so much, many of the articles about RFID scholarly articles and research models are simply obsolete. This study stands to make a more modern look at whom is using RFID technology, based on sector, business, size, longevity, and most of all, the feelings of the business/respondent on the matter.

## **DISCUSSION**

### **Current Trends**

According to Goldenhersh (2009), RFID technology assists firms with the three “R’s” of sustainability.

1. Reducing the number of logistics assets needed to operate the supply chain
2. Reusing those assets as frequently as possible
3. Recycling whenever possible

RFID plays a key role as it can vastly improve the managerial use and visibility of their inventory. A company can track everything from returnable inventory to raw materials, therefore increasing their asset utilization and reducing the strain that maintaining and storing these additional assets has on the environment. Studies have shown that RFID-tracking performance in industrial sites by developing methods that integrate Multidimensional Support Vector Regression (MSVR) and a Kalman filter have been very successful (Zhong, 2015; Song, Xiao, Zhang, & Zipkin, 2017). Zhong (2015) demonstrated that RFID technology can be used in manufacturing industries to create an RFID-enabled ubiquitous environment to advanced real time production planning and scheduling. This can be achieved with the goal of collective intelligence. Song, et al. (2017) investigated SCM inventory policy problem for a dual source with equal success. Rogers (2017, p. 276) empirically determined the key advantages of Military Information System Technology (MIST) as an optimal viscosity RFID system that improves fault tolerance, decreases entropy, decreases costs and decreases backorders. Hence, the technical and business literature have demonstrated that there are many benefits of RFID technology for reducing inventory shrinkage and optimization of SCM

For example, an empirical study case study was performed on several industries, including food and dairy industries, to assess the effectiveness of RFID technology has had on the sustainability goals of each industry (Smith, 2017; Smith & Smith, 2017). It was found that RFID had many practical uses in the food industry and has a major impact on reducing food wastage and perishability. In one company alone, a producer of about 60% of U.S. pistachio crop and exports uses RFID primarily to rationalize the processing of deliveries from its suppliers, which is a critical part of the firm’s supply chain. Because Paramount’s inventory, Pistachios, has a relatively short time horizon in which they can be harvested and processed, time spent picking, shipping and packaging are of great concern as perishability issues

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