

Chapter 1

Case Studies of RFID Practices for Competitive Inventory Management Systems

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ABSTRACT

The nature of emerging business technologies, such as automatic identification, and data capture innovations, such as smart cards, touch memory, and RFID, proves to be a difficult process to implement and achieve, despite recent efforts, even as implementation continues to lessen. The economy of scales associated with bar codes is a difficult barrier to overcome. Two Pittsburgh-based companies are showcased in this case study, namely Mobile Aspects, Inc., a recognized leader in the integration of RFID-related technologies in inventory management processes of large acute care, and Vocollect, Inc., which is especially noted for its voice-recognition software and small hardware platforms used in warehousing and partially automated inventory systems. The firms' goals for implementing inventory management, specific inventory recommendations and changes, comparison of inventory management processes, selected measures to ensure the quality and security of data transmitted via RFID-based technologies, and lessons learned are discussed.

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INTRODUCTION

Operational and Strategic Issues Associated with RFID-Related Technologies

Currently, one of the latest packaging innovations and, perhaps most controversial, in retail stores is radio frequency identification, or RFID. RFID-related technologies, if properly implemented, have the potential to provide many advantages to both the service and manufacturing industries, despite the relatively large cash outlays initially required. Supplying more information than the standard barcode, eliminating the potential for inventory stock outs and reducing theft occurrences are some main concerns of users of such technology, but these concerns can be addressed and resolved. The global RFID market has been estimated to consist of US\$5 billion per year and is entering a phase of rapid growth due to huge orders by China for its national ID card scheme, the adoption of e-passport in over 70 countries, and MasterCard for its Paypass™ program (Harrop, 2010; “RFID industry solutions,” 2010; Sirico, 2010), with general purpose of identification and tracking via the utilization of radio waves. RFID-related technologies quickly gained attention because of its ability to track moving objects and has been used by thousands of companies for a decade or more (What is RFID?” 2010).

Purpose of Present Study

It is important for both service and manufacturing firms to develop and implement successful strategies that integrate RFID-embedded technological initiatives and information/knowledge practices and procedures, technological innovations, and customer relationship building of trust if they are to survive and, hopefully, prosper. To accomplish this task, this task, two major Pittsburgh, PA-based companies will be explored, through the selected company’s description, background,

a brief introduction to an industry overview in terms of information technology needs, partnering solutions, and product and/or service offerings as they related to RFID-based applications. The discussion that follows in the case study section tries to incorporate a customer relationship management (CRM) approach (Anton and Petouhoff, 2002; Smith, 2005a-b) in describing the types of customer-based problems and solution that RFID technologies are designed to address, both in terms of B2C (business-to-customer) and B2B (business-to-business) transactions.

As for the basis of the present study, the purpose of an RFID system is to enable data to be transmitted by a portable device, called a tag, which is read by an RFID reader and processed according to the needs of a particular application. The data transmitted by the tag may provide identification or location information, or specifics about the product tagged, such as price, color, date of purchase, to name a few applications. In particular, asset tracking, manufacturing, supply chain management, retailing, payment systems, and security and access control are illustrations of common uses of RFID (What is RFID?” 2010).

IMPLEMENTATION CONCERNS AND CUSTOMER SATISFACTION

Strategic Support for RFID-Related Technologies

RFID has been referred to as “not a science, but an art,” by Neco Can, who spearheaded item-level RFID trials at U.S. clothing retailers Gap and Abercrombie & Fitch (Collins, 2006). In 2001, Can was the director of Gap’s project management office, leading an RFID project that provided an inventory accuracy of up to 99.6%. Despite the success of the pilot in both improving in-store inventory and increasing sales, numerous factors caused the company to choose not to invest immediately in RFID tagging. This experience led Can to believe

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