

Chapter 5.12

Impact of RFID Technology on Health Care Organizations

Véronique Nabelsi

École Polytechnique de Montréal, Canada

Florina Stefanescu

ePoly Centre of Expertise in Electronic Commerce, Canada

INTRODUCTION

Radio Frequency Identification (RFID) technology has been considered the “next revolution in supply chain management” (Srivastava, 2004, p. 60). Current research and development related to RFID focuses on the manufacturing and retail sectors with the aim of improving supply chain efficiency. After the manufacturing and retail sectors, health care is considered to be the next sector for RFID (Ericson, 2004). RFID technology’s potential to improve asset management in the health sector is considerable, especially with respect to asset management optimization.

In fact, health expenses have increased substantially in Organisation for Economic Co-operation and Development (OECD) countries in recent years. In Canada, the public health budget amount-

ed to \$91.4 billion (CAD) for the year 2005–2006 compared to \$79.9 billion in 2003–2004 (CIHI, 2005). Moreover, the health care industry has been the focus of intense public policy attention. In order to curb this upward trend, the public health sector in Canada is subject to strict budget constraints. Among the different alternatives for reducing expenditures, the improvement of asset management within the different health institutions appears to be worthwhile. RFID technology seems to be a viable alternative to help hospitals effectively manage and locate medical equipment and other assets, track files, capture charges, detect and deter counterfeit products, and maintain and manage materials. In other words, health care organizations would benefit particularly from RFID applications.

The main objective of this study is to investigate the potential for RFID technology within

one specific supply chain in the health care sector. Based on a field study conducted in a large nonprofit hospital, this article tests some scenarios for integrating RFID technology in the context of two warehousing activities.

We will first introduce the context of the health care sector and the current applications of RFID technology in that sector. The next section presents the methodological approach that was used in the study. The research findings and their implications are then discussed. Finally, some closing remarks are made.

CURRENT CONTEXT OF THE HEALTH CARE SECTOR

The health care sector has been investing ever more money in information technology (IT) to reduce operating costs and improve patient safety and medical services, and RFID is expected to become critical to health care organizations in achieving these goals.

The IT implementation trend in health care works toward common IT platforms, which allow patient and product information to be exchanged. For many observers, the adoption and use of IT-related technologies, especially RFID, by health care organizations could boost the effectiveness and efficiency of this information-intensive sector. However, the health care sector has been relatively slow to embrace the full potential of IT initiatives. In general, the implementation of IT in hospitals has not been particularly successful (Aarts, Doorewaard, & Berg, 2004; Hersh, 2004; Pare, 2002). The major impediments appear to be linked more to organizational issues than to technological problems (Southon, Sauer, & Dampney, 1997). Among the many factors slowing down the implementation of IT initiatives, previous studies have identified the complexity of health care organizations (Glouberman & Mintzberg, 2001; Glouberman & Zimmerman, 2002), their inappropriate organizational structure (Mintz-

berg, 1979), and integration issues (Christensen, Bohmer, & Kenagy, 2000; Kumar, Subramanian, & Strandholm, 2002).

Characteristics of the Health Care Supply Chain

In response to all those constraints, some visionaries understand and are already taking action to rectify supply chain processes as a key strategic factor supporting patient service. A study within certain hospital departments made it possible to identify the priorities (Landry & Beaulieu, 1999). The priorities of administrative departments are generally the review and improvement of the supply chain process, IT system modernization, and system integration on a common platform used by other health care organizations.

In fact, Beaulieu, Duhamel, and Martin (2004) state that the integration of procurement activities would improve efficiency by eliminating nonvalue-added activities; this would allow health care organizations to concentrate on more strategic activities (Landry & Beaulieu, 1999). According to some researchers, better resource monitoring and allocation will reduce costs throughout the restocking chain (Blouin, Beaulieu, & Landry, 2001; Perrin, 1994). In addition, the procurement activities represent a large proportion of health expenses. In a hospital, for instance, they range from 30% to 46% of all expenses (Bourgeon et al., 2001; Poulin, 2004). Moreover, the health sector currently loses up to 15% of its assets due to inappropriate and inefficient monitoring procedures (Nabelsi, 2007). The larger the hospital, the bigger these problems are (Nabelsi, 2007).

RFID APPLICATIONS IN HEALTH CARE ORGANIZATIONS

The market potential is interesting: according to a recent study, the worldwide market for RFID tags (active, passive and semi-active) and systems

10 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/impact-rfid-technology-health-care/37843

Related Content

Mobile Geographic Information Systems

Yang Liand Allan J. Brimicombe (2012). *Ubiquitous Positioning and Mobile Location-Based Services in Smart Phones* (pp. 230-253).

www.irma-international.org/chapter/mobile-geographic-information-systems/67045

Mobile and Pervasive Technology in Education and Training: Potential and Possibilities, Problems and Pitfalls

Mark J.W. Lee (2010). *Ubiquitous and Pervasive Computing: Concepts, Methodologies, Tools, and Applications* (pp. 524-556).

www.irma-international.org/chapter/mobile-pervasive-technology-education-training/37806

Local and Remote Recovery of Cloud Services Using Backward Atomic Backup Recovery Technique for High Availability in Strongly Consistent Cloud Service: Recovery of Cloud Service for High Availability

Praveen Shivashankrappa Challagidadand Mahantesh N. Birje (2019). *International Journal of Advanced Pervasive and Ubiquitous Computing* (pp. 16-33).

www.irma-international.org/article/local-and-remote-recovery-of-cloud-services-using-backward-atomic-backup-recovery-technique-for-high-availability-in-strongly-consistent-cloud-service/238853

The Rise of Robotics Data for Real-Time Management Based on New NoSQL Solution

Afef Gueidi, Hamza Gharsellaouiand Samir Ben Ahmed (2019). *International Journal of Advanced Pervasive and Ubiquitous Computing* (pp. 11-26).

www.irma-international.org/article/the-rise-of-robotics-data-for-real-time-management-based-on-new-nosql-solution/228098

Personalized Content Representation through Hybridization of Mobile Agent and Interface Agent

Priti Srinivas Sajja (2012). *Ubiquitous Multimedia and Mobile Agents: Models and Implementations* (pp. 85-112).

www.irma-international.org/chapter/personalized-content-representation-through-hybridization/56421