9-2008

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Recommended Citation

Bose, Indranil; Lee, Jae-Nam; and Yen, Benjamin P-C (2008) "Editorial: RFID in Retailing and Customer Relationship Management," *Communications of the Association for Information Systems*: Vol. 23 , Article 11.

DOI: 10.17705/1CAIS.02311

Available at: <https://aisel.aisnet.org/cais/vol23/iss1/11>

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Communications of the Association for Information Systems

CAIS

Editorial: RFID in Retailing and Customer Relationship Management

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Abstract:

Radio Frequency Identification (RFID) is a promising technology that is already transforming business operations throughout the globe. This special section of *Communications of the AIS* is devoted to the discussion of the novel use of RFID in retailing and customer relationship management (CRM). The guest editorial introduces the topic to the readers of *Communications of the AIS* and highlights the research themes and contributions of the seven research papers selected for this special section

Volume 23, Article 11, pp. 193-196, September 2008

I. INTRODUCTION

The use of RFID in retailing and CRM has been envisaged since the late 1990s. RFID caught the attention of the media when giant retailers like Wal-Mart, Tesco, Target, and Albertsons announced that they were going to adopt RFID for efficient supply chain management and demanded that their suppliers become RFID compliant. The key advantage of RFID is that it lends increased visibility to an item or pallet as it moves along the supply chain from the manufacturer to the retailer [Bose and Pal 2005]. Although it is an expensive technology, RFID has proved to be popular among manufacturers. It has been reported in a survey conducted in 2006 that 40 percent of manufacturers have already developed an RFID implementation timeline. In contrast to that, only 9 percent of retailers have done so. About 60 percent of the retailers in this group are large retailers with more than \$5 billion in annual revenues, and they have reported an increase in their spending as the novel technology is being introduced to increasing number of product lines. However, only 29 percent of the retailers expect to have a RFID-enabled pilot store opened by the end of 2006 [Kilcourse 2008].

In spite of the mandate of retail giants like Wal-Mart, retailers have been slow in adopting this technology. Nevertheless, it is widely believed that the contribution of RFID for retailing and CRM can be manifold. This includes better shelf-space management and recall of products, reduction of human errors in day-to-day operations, reduction of shrinkage, better product promotions for customers, better service delivery to customers, efficient customer and product profiling, among others. It is also believed that in the future RFID tags will be able to recognize customers and deliver customized shopping experience to each individual customer. The customer's identity will be recognized through the RFID chip embedded in his/her membership card. A series of real-time analysis will follow and relevant information about the customer will be downloaded to the store immediately when his/her presence is detected. In terms of customer satisfaction, knowing the customers well will help the salesmen in serving the customers better. It will create a unique and special feeling for the customer when all the needs are well catered for and will lead to increased customer fulfillment and long-term customer loyalty. Prada has already made use of RFID in allowing customers to view fashion shows where models wear apparel chosen and tracked by customers [Juels et al. 2003], and Wynn Las Vegas has utilized an RFID-based tracking system to fight fraud and to allow guests easy access to house credit [Eckfeldt 2005].

In this sense, this special section of *Communications of the AIS* focuses on advancing research in the use of RFID for retailing and CRM by publishing forward-thinking, rigorous research that stimulates future research on RFID. The special section consists of seven interesting articles that use empirical, analytical, or case-study-based approaches and generate insightful theoretical principles or provide testament to successful adoption and use of RFID in retailing and CRM. We should note that all of the submitted papers were thoroughly screened by the editors and carefully reviewed by the editors and reviewers via a blind review process. More specifically, for the first review, three editors went through all submitted papers to determine which papers were appropriate for this special section. Next, each selected paper was assigned to at least two international referees for the blind review. After two or three rounds of review, seven papers were finally accepted. In this way, we did our best to give a thorough scrutiny by experts in the field of RFID so as to select and publish high quality papers. We are delighted to publish the section and are proud of the excellent papers included in it. Hopefully these papers will help motivate researchers and practitioners in not only beginning research in this area but also continually engaging in RFID-related research.

II. GUIDE TO THE SPECIAL SECTION ON RFID

As we mentioned, this special section consists of seven papers. In the following paragraphs, we briefly explain the main theme of each article in terms of their objectives, main foci, and contributions to both researchers and practitioners so as to provide the basic understanding of those articles included in this special section.

The first article "RFID in Retailing and Customer Relationship Management," by Fabian Uhrich, Uwe Sandner, Florian Resatsch, Jan Marco Leimeister, and Helmut Krcmar, investigates the opportunities of RFID to enhance B2C marketing of apparel retailers. The paper presents six out of 17 developed RFID applications that support relationship marketing of apparel retailers to better recruit, retain, and recover customers. The RFID applications are classified by the marketing goals they fulfill and the marketing phase they support. The paper also describes the use of each RFID application exemplified, and evaluates the additional value for the customer company relationship as well as the feasibility for apparel retailers to implement the application into practice.

The second article “Extending CRM in the Retail Industry: An RFID-Based Personal Shopping Assistant System,” by E. W. T. Ngai, K. K. L. Moon, James N. K. Liu, K. F. Tsang, R. Law, F. F. C. Suk, and I. C. L. Wong, proposes an RFID value grid for retail stores that explains how RFID technology adds value to customers’ shopping experiences. The results show that the use of RFID technology provides shopping convenience, a better choice of product selection, and a differentiated shopping experience and atmosphere for customers, thereby leading to higher shopping service quality, satisfaction, and efficiency.

The third article “Value Analysis Framework for RFID technology Adoption in Retailers in China,” by Zongwei Luo, Benjamin Yen, Zhining Tan, and Zhicheng Ni, proposes an analysis framework to develop decision support tools for RFID technology adoption analysis in retailers in China. The proposed framework is then validated through an example on retailers in China to adopt RFID in their operations using a system integration approach. The results of this study provide meaningful implications to organizations in terms of how RFID technology is accepted and utilized in retailers in China and in logistics and supply chain management.

The fourth article “Item-Level RFID in the Japanese Publishing Industry: A Case Study,” by Claudia Loebbecke, and Claudio Huyskens, provides an exploratory case study detailing the trial of RFID in the Japanese publishing industry. They describe the trial that took place over the entire publishing industry supply chain starting from the production process to individual products in bookstores. The involvement of the government encouraged participation from several private organizations. Through the trials, the authors identify the technical feasibility of using RFID and show that the use of RFID leads to acceleration of numerous supply chain processes in publishing and use of innovative tools for marketing.

The fifth article “Role of Pilot Study in Assessing Viability of New Technology Projects: The Case of RFID in Parking Operations,” by Raktim Pal, Arijit Sengupta, and Indranil Bose, focuses on the important role played by a pilot study in testing the feasibility of using the RFID technology for operating the parking lot of a U.S. university. Important steps for conducting a pilot study are detailed and these steps are rigorously followed in order to decide if the use of RFID for controlling parking operations is cost-effective or not. The analytic hierarchy process is used to carefully evaluate the tangible and intangible costs and benefits associated with the pilot RFID project and the favorable results indicate that RFID should be adopted on a full scale at the university.

The sixth article “The Impact of Consumer Perceptions of Information Privacy and Security Risks on the Adoption of Residual RFID Technologies,” by Joseph A. Cazier, Andrew S. Jensen, and Dinesh S. Dave, identifies the advantages and disadvantages of residual RFID from the consumer viewpoint, and examines the impacts of consumers’ perceptions of privacy risk, overall usefulness, and ease of use on their intentions to adopt RFID technology using structural equation modeling. Results of this study show that all consumers’ perceptions identified in this study directly influence their intention to accept the technology. The results help organizations to understand how consumers mentally accept the RFID technology.

The seventh article “The Determinants of RFID Adoption in the Logistics Industry - A Supply Chain Management Perspective,” by She-I Chang, Shin-Yuan Hung, David C. Yen, and Yi-Jiun Chen, explores the factors of adopting RFID applications for the logistics industry. To avoid the negative effects derived from careless IT investments, companies in Taiwan’s logistics industry must evaluate the factors that could affect the adoption of RFID prior to its introduction. This investigation finds that competition in the marketplace, pressure of transaction partners, suppliers’ industry environment, cost, integration of supply chain strategy, complexity of RFID, and mutual standard were among the critical factors. The result anticipates these factors as crucial and beneficial for the initial introduction phase of RFID adoption.

The guest editors would like to take this opportunity to thank those individuals who made this special section possible. Our heartfelt thanks go to Editor-in-Chief Prof. Joey George for giving us the opportunity to organize this special section. We also want to thank the authors who contributed to this special section and submitted revisions to their papers in a very timely manner. This special section would not have been possible without their enthusiasm and support. Our special thanks are due to the members of the editorial review board for this special section who did a tremendous job by providing constructive criticism of the papers in their reviews and by returning the reviews within a short period of time. The members of the editorial review board included: Alvin Leung, Anand Paul, Apurva Jain, Arijit Sengupta, Carol Hsu, Dongwon Lee, Giri K. Tayi, Guohua Wan, Haluk Demirkan, Ji-Ye Mao, Joshua Huang, Jung Lee, Mihir Parikh, Minh Huynh, Minyi Huang, Radha Mahapatra, Raktim Pal, Riyaz Sikora, Sagnika Sen, Selwyn Piramuthu, Timon Du, Wen Gong, Youngjin Yoo, and Zongwei Luo.

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