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Pedro M. Reyes is assistant professor of operations management in the Hankamer School of Business, Baylor University. He received a Ph.D. in operations management, an MBA, an MS in information systems, and a BS in mathematics at The University of Texas at Arlington (UTA). Dr. Reyes was recognized by UTA College of Business as a *Lawrence Schkade Research Fellow* (2002) and has received the Hankamer School of Business Young researcher Award (2005). His research publications include *Production and Inventory Management Journal*, *Applied Mathematics and Computation*, *Decision Sciences Journal of Innovative Education*, *Supply Chain Management: An International Journal*, *International Entrepreneurship and Management Journal*, and *International Journal of Integrated Supply Management*, among others. His current research interests include supply chain management, RFID technology, and grocery inventory management.

Radio Frequency Identification-Enabled Inventory Management Approach for Grocery Supply Chains

Over the past decade, grocery retailers have acknowledged that their supply chains are not responsive enough despite investing heavily in new techniques during the 1990s. Having employed automatic replenishment programs, grocery retailers have actually *increased* average inventory levels and their attendant costs. Fortunately, new technology applications with radio frequency identification (RFID) can provide the opportunity to reverse this trend and better integrate their grocery supply chain. The potential for RFID technology allows real-time inventory tracking to finally be feasible. In this paper a simulated grocery supply chain will show how RFID-enabled inventory management approach can provide three advantages. First, it will allow inventory management and ordering to be done by the DC instead of the individual stores. Second, it will reduce overall inventory levels while maintaining high service levels. Finally, it will reduce shelf space requirements at stores, thus allowing for greater variety of products offerings. The problem scenario is for a two-echelon distribution system with batch ordering, periodic review, fixed replenishment intervals, and product substitution by consumers at the retail level.