

Chapter 20

What Drives a Successful Technology Implementation?

Exploring Drivers and Challenges of RFID Systems Implementation in a Public Sector Organisation

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ABSTRACT

Radio Frequency Identification (RFID) is revolutionizing item identification and tracking. The technology demonstrates complexities in terms of (a) huge initial capital investment, (b) validating the need for RFID followed by its implementation decisions, (c) risks associated with consumer acceptance and consequences of incorrect implementation, and (d) capability to support enhancements and upgrades in cordial agreement with the individual implementer organizations. This paper explores the extent of RFID implementation at the Swansea University Library, examining the Social, Technological, Economic, and Managerial (STEM) aspects directly associated with implementation. A focused interview approach was resorted to, for data collection purposes. The core implementation team for RFID at Swansea University was interviewed to gain insights into the study's areas of interest. It was found that self service is the most sought after benefit. It simplifies stock management and enhances security at the libraries. Although the cost of the system remains a concern, varying on the basis of the scale of implementation, vandalism also continues to exist but to a reduced degree. University libraries are public sector organizations, consequently leading these findings to have an insinuation for RFID implementations in other public sector organizations as well.

DOI: 10.4018/978-1-4666-2458-0.ch020

INTRODUCTION

RFID sought introduction by Harry Stockman in 1948 in his milestone report “Communication by Means of Reflected Power” (Stockman, 1948). RFID refers to the technology of reading and writing data remotely using radio waves. RFID found its first ever application in the Royal British Air Force’s *Identify Friend or Foe* system which now finds its use across a wide range of utilities (Hicks, 1999). Roberts (2006), describes RFID as one of the most pervasive computing technology acquiring momentum as an electromagnetic proximity identification and data transaction system. RFID is becoming a powerful technology enabling industries achieve total business visibility whilst optimizing business processes & minimizing operational costs (Fleisch & Tellkamp, 2005). Despite new entrants, RFID succeeds to be found almost everywhere, from automated toll taking for speeding vehicles to access cards that now have been made a norm to gain access into office buildings (Landt, 2005). Daily streams witness RFID assisting in preventing thievery of goods & automobiles, traffic control, automated management of parking areas & vehicle access control, business campuses and airports, ski lifting, supply chain management and more (Juban & Wyld, 2004; Reyes & Frazier, 2007). Farms use tags to keep a track of their animals & the warehouses tag their goods to better manage inventory (Want, 2004). The food Drug Administration is using RFID to identify drugs and thwart counterfeiting & DVD’s also are carrying these tags to prevent movie piracy (O’Conner, 2005).

Although RFID proves to bring in numerous benefits, its implementation is not a simple task. The technology has its own complexities in terms of – (1) huge initial investment involved in the set-up and infrastructure, the economic aspect (2) ascertaining the need for RFID and validation of the implementation decisions by the implementation managers, the technical aspect (3) backfire

effects both in the case of consumer acceptance and risks associated with the wrong implementation, the social aspect (4) ability to make most of the technology with enhancements and upgrades along with the steady organizational support, the managerial aspect. The library at Swansea University is a classic example of a *successful implementation* of RFID. It was thought of as a prospective opportunity to learn and better understand the importance of deploying such technologies in an academic set-up as vast as theirs. This paper is to explore the extent of implementation of RFID systems at the Swansea University Library to better understand the augmentation RFID is capable of providing at an academic library, whilst trying to examine the - Social, Technological, Economic, and Managerial, i.e. the *STEM* aspects directly associated with the implementation of RFID at the university library. This will be essentially aimed at an empirical examination of available literature & its subsequent comparison to real time findings at the Swansea University Library in implementing RFID within their library management system.

The paper is structured in a manner as exemplified; the structure will be articulated across diversified sections. The next section will concentrate on presenting a review of available literature on earlier implementations of RFID to explore its application areas along with the comprehensive analysis of the benefits and caveats associated with the technology. This will be followed by an account of the adopted research methodology. The quantitative findings will then be documented which will be followed by the discussion of the *STEM* aspects probed into, on the basis of literature review, personal interviews, informal discussions, and review sessions- all of which will be carried out with respect to the library at Swansea University. The study will near closure with the recommendations presented in direct relation with the collected data. Finally, the conclusions for the study will be effectively deduced.

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