

UNIVERSITI TEKNOLOGI MARA

**RFID ADOPTION INTENTION IN
RETAIL SECTOR IN MALAYSIA**

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of the requirement for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Radio frequency identification (RFID) technology can be considered as an important application in retail operations and supply chain management (SCM) to increase the companies' performance via tracking the real location information of products or equipment throughout the supply chain. Nevertheless, the expected rapid industry adoption of RFID has not taken place up to today as no supply chain organizations in Malaysia have adopted RFID yet. At the other side, Academic researches on RFID's adoption in supply chain domain are still lacking. Regarding the control power of retailers in the supply chain, it is important to explore and investigate the basic drivers and obstacles in deciding to adopt RFID in the retail supply chain (RSC). Hence, this study aims to identify and evaluate a comprehensive set of factors that may influence RFID adoption intention in RSC in Malaysia and ascertain the inhibitors and facilitators of the adoption. To do this, an exploratory survey questionnaire was applied to collect data from 221 IT and Management Personnel in both Retailer and Hypermarket Sectors. This data was analyzed using the structural equation modelling technique. As the results, a comprehensive theoretical framework of IT innovation adoption in the supply chain and at inter-organizational level of analysis was proposed. Considering strategic choice and institutional rationales perspectives, the framework provided a four-dimensional evaluation framework which includes technological, organizational, inter-organizational and environmental aspects of the adoption. The results showed that out of 27 proposed initial factors, 14 factors were found to be important in the intention to adopt RFID in RSC in Malaysia. They are financial justification, return on investment, ease of use, trialability, reliable maturity, standard maturity, organizational readiness, organizational scale, employees' cooperation, coercive regulatory pressure, normative trading partner communicability, mimetic competitive pressure, availability of adoption support and privacy & security. It was also found that high costs of RFID adoption, Low rate of return on investment, existing of a weak market competition environment, unavailability of information, service providers and equipment of RFID technology, small volume of transaction and lack of proper communication between the organizations and their trading partners are the important barriers toward the RFID adoption. Meanwhile, easiness of using and implementing RFID, acceptable reliability of data captured by RFID, high organizations' readiness in adopting RFID and high employees' cooperation in adopting IS like RFID technology was found as the facilitators toward the technology adoption. The results also indicated that perceived technological factor of RFID could mediate the relationship between RFID adoption intention and its organizational, inter-organizational and environmental drivers. Moreover, it was observed that high level of RFID radicalness provides a greater profound effect on the relationship between technological factor and RFID adoption intention, indicating the moderation effect of RFID radicalness. Upon the results of the research, managerial implications and scholar contributions were discussed accordingly.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Supply chain management (SCM) is one of the important elements of an effective supply chain system which highly contributes to growth in the economy. The number of companies in the supply chain is growing continuously. Decreasing costs, increasing service quality and improving productivity are the main concerns of the companies in a competitive environment in the chain. Improving the supply effectiveness operation requires the adoption of more adequate, relevant and effective information or automation technologies (Berry, Evans, Mason-Jones, & Towill, 1999; Sauvage, 2003).

The literature found innovation as an important tool for supply chain companies to increase their benefits and stay in a competitive market environment (Damanpour & Evan, 1984; Kimberly & Evanisko, 1981). Innovation refers to the process of making new ideas from the opportunity and then uses these ideas in real practices. (Tang & Tsai, 2009). Using technological innovation as a strategic element can help the organizations improve their capability in collecting, analysing, interpreting and distributing the information (Angeles, 2005). Thus technological innovation can be considered as leverage for organizations to compete with their rivals (Christopher, 1993).

Bowersox, Closs, Cooper (2002) found that an effective SCM highly depends to improving the operation efficiency in the retail sector through applying technological innovations. However, many retail companies have confessed that their supply chain operation and responsiveness are not efficient enough. Recently, a body of research reveals that retail companies can improve their supply chain operation by adopting new information or automation technologies. Cohen (2000) found that employing information technologies (IT) can improve the relationship networks and communications between the various supply chain members (i.e., suppliers, warehouses and retailers). Nixon (2001) argued that companies can benefit from improving their real-time decision making through adopting real-time information gathering technologies and decision support systems.

Thus, employing IT can be a success factor for retail companies to improve their efficiency and compete with their rivals. Nowadays, operations in retail supply