Identifying and Ranking Influencing Factors in Using RFID Technology in Tourism Industry via the Use of Structural Equation Modeling

Mahdie Honarzade, Department of IT management, Isfahan(Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
Mahboubeh Mahmoudinia, Department of Geography and Urban Planning, Isfahan(Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
Maryam Saberi Anari, Department of Computer, Yazd Branch, Technical and Vocational University, Yazd, Iran

ABSTRACT

RFID is one of the modern technologies that many industries have benefited from it, and there are many opportunities in the tourism industry to benefit from it. Although there are many potential opportunities, no survey has been done on factors influencing this technology acceptance in tourism industry. So despite the lack of theories, the present article is aimed to evaluate factors influencing RFID acceptance in tourism businesses, focusing on the population of executive operating in Yazd tourism sector and using Davis technology Acceptance model (TAM) as well as Tornatzkey and Flisher’s technology – organization – environment model (TOE) and using equation modeling techniques. Then, using hierarchical analysis approach, this article specifies the priority of identified factors influencing decision making of this technology acceptance. According to the results, senior management support and technical knowledge from organizational dimensions, compatibility, usefulness, ease of use, security risks and lack of standards from technological dimension, external pressure from environmental dimensions and costs from an economic dimension are factors influencing RFID technology acceptance in tourism industry. Economical dimension, among the others, is the most important, and after that organizational, environmental and technological dimension respecting an important.

KEYWORDS

Analytical Hierarchy Process (AHP), Davis Technology Acceptance Model (TAM), RFID Technology, Structural Equation Modeling (SEM), Technology–Organization–Environmental Model (TOE), Tourism Industry

INTRODUCTION

Radio frequency identification is one of the automatic detection technologies that use radio waves to identify objects and collect information without human intervention. This is a wireless technology that allows data transfer without a physical connection and instead with a direct optical sight line. This technology functions by a radio communication between two devices namely tag and reader.

DOI: 10.4018/IJISSS.2018100101

Copyright © 2018, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.
Tag is connected to the desired object by a unique identification code; this activates the tag by being placed on the area close to the magnetic field generated by the reader; then it leads to sending data from the tag via radio pulses and finally the data is processed by the desired software. Accordingly, RFID enables the automatic identification and real-time tracking and managing of resources (human and facilities). This technology is widely used in various fields. Among different industries, some sectors such as retail, manufacturing, logistics, healthcare and services have more opportunities for different applications of RFID.

Today, tourism has become one of the most flourishing industries in the world; the industry is lucrative enough to the extent that it can generate revenue and income as much as Iran’s national oil industry revenues with this low cost industry. That’s why many governments, business leaders and industry experts try to develop this industry in order to bring up a larger share of the global market of this industry for their communities. According to World Tourism Organization, Iran is ranked tenth for archaeological and historical attractions and fifth for natural attractions; however, Iran is not in a good position regarding the exploitation of these resources. Iran’s share of income out of the world’s tourism revenue does not reach one percent despite enjoying a good rank in tourist attractions of the world (Azhdari, 2010). Considering the highly competitive nature of tourism industry, it can easily fail without being equipped to compete in the new technologies. According to the statistics released by the World Tourism Organization, countries without adequate infrastructure for ICT are removed from global and regional competition cycle of tourism industry in the very near future. It is required to have systematic planning in order to use this golden opportunities (Sajjadi & Ayat, 2007).

RFID is one of the new technologies that can be utilized in various sectors of tourism industry with different objectives such as reducing operating costs, improving the management of relationship with customers, providing customized and personalized services, making services automatic, improving service quality and customer satisfaction, improving the share of information and encouraging innovation in work processes. This technology is widely used in various industries, but not in the tourism industry with its all potentialities. Many of the advantages that can be gained using this technology are not yet widely accepted. This relatively low rate of acceptance implies that in the viewpoint of managers, risk and compliance costs outweigh the benefits of this technology. Most executives and managers need to have an RFID feasibility process framework that can be used to make decisions about investing in RFID (Irani et al., 1998). In deciding whether or not to accept RFID, senior managers and executives and IT directors of tourism organizations must identify and analyze the barriers, incentives and factors effective in the successful adoption of RFID. Organizations need to understand the benefits, remove the barriers and manage success factors. Currently, many studies have been conducted about factors influencing the acceptance of RFID in other industries including Lin and Ho’s investigation (2009), about the effect of technological, organizational and environmental factors on the acceptance of RFID in logistics industry of China, Schmmit and Michahell’s research (2009), on identifying factors that influence the adoption of RFID amongst the members of international APS and Vanny et al.’s study (2008) on barriers and critical factors in accepting RFID adoption healthcare industry. No research has been conducted yet to investigate factors influencing the acceptance of this technology in tourism industry. Only two studies conducted in the area of hoteling (which will be discussed later) have tried to investigate the effective factors in acceptance of RFID.

In a study, Aluri and Palakurthi(2011), investigated the influence of demographic factors on consumer attitudes and intentions to use RFID technologies in the US hotel industry. Purpose of this paper is to explore the influence of demographic factors (age, gender, education, income) on consumer attitudes and their intentions to use radio frequency identification (RFID) in the hotel industry. The results indicate that there are few differences in consumer attitudes and intentions in terms of the demographic factors. It can be concluded that consumer differences can be associated with consumer attitudes that are determined by age. The results for demographic factors, gender, income, and education levels indicate no difference in the attitudes and intentions of consumers to use RFIDs. And in another study by Ozturk (2016), Customer acceptance of cashless payment systems
HIPAA Security and Privacy Rules Auditing in Extreme Programming Environments
*International Journal of Information Systems in the Service Sector* (pp. 1-21).
www.igi-global.com/article/hipaa-security-and-privacy-rules-auditing-in-extreme-programming-environments/165416?camid=4v1a

Technology Fears: A Study of e-Commerce Loyalty Perception by Jordanian Customers
Ahmad Khasawneh, Mohammad Bsoul, Ibrahim Obeidat and Iyad Al Azzam (2010).
*International Journal of Information Systems in the Service Sector* (pp. 70-77).
www.igi-global.com/article/technology-fears-study-commerce-loyalty/43564?camid=4v1a