



# Moderating effect of personal innovativeness on mobile-RFID services: Based on Warshaw's purchase intention model

Naeyang Jeong<sup>a,\*</sup>, Youngsang Yoo<sup>a</sup>, Tae-Young Heo<sup>b</sup>

<sup>a</sup> Technology Strategy Research Division, Electronics and Telecommunications Research Institute, 161 Gajeong-dong, Yuseong-gu, Daejeon, 305-700, South Korea

<sup>b</sup> Division of Nano Data System, Korea Maritime University, 1 Dongsam-dong, Youngdo-gu, Busan, 606-791, South Korea

## ARTICLE INFO

### Article history:

Received 14 November 2007

Received in revised form 6 July 2008

Accepted 1 August 2008

### Keywords:

Purchase intention model

Personal innovativeness

PIIT

Moderating effect

Mobile-RFID service

South Korea

## ABSTRACT

As telecommunication market becomes more competitive and the customers' expectations regarding services or products increases, understanding customer or market needs is at the center of successful telecommunication business.

In this study, we attempt to explore the intention of using mobile services based on the Warshaw's purchase intention model. We also focus on a personal innovativeness in the domain of IT (PIIT) because we assumed that as characteristics of telecommunication services become increasingly sophisticated, personal innovativeness could be a key factor of telecommunication services usage. In this study, we examine whether PIIT has the moderating effect on purchasing mobile-RFID services. The result shows that both purchasability and perceived need collectively explain purchase intention of mobile-RFID services, as well as PIIT serves to moderate the relationship between perceived need and purchase intention of mobile-RFID services. The study findings also indicate that IT knowledge, responsiveness to IT news and ability to use mobile phone of customers are positively related with PIIT.

© 2008 Elsevier Inc. All rights reserved.

## 1. Introduction

The telecommunication market in Korea is becoming saturated in terms of the number of service subscribers and the industry growth rate. The growth rate of telecommunication service subscribers, such as broadband Internet access service subscribers and mobile telecommunication service subscribers, is rapidly decreasing [1,2]. Moreover, the growth rate of telecommunication industry is expected to decrease [2]. Recently, to overcome these crises, telecommunication companies have started to focus on data service rather than voice service, and the revenue from data service is gradually increasing [3]. In addition to such changes, telecommunication corporations are struggling to find new a business model through convergence services like Digital Multimedia Broadcasting (DMB), Internet Protocol Television (IPTV), and mobile-RFID services.

While developing these convergence technologies or services, telecom firms should consider several points, as not all new technologies are successful. Even though new technologies or services may be superior to existing ones, some of the new ones have difficulties in reaching users and being successful in the market. Factors affecting successful technology diffusion include the performance of the technology, market needs, socio-economic conditions, and government policy [4–8]. Among these factors, we focus on customers' needs because diffusion of new technologies usually results from a series of individual decisions to begin using the new technology. Individual decisions are the result of a comparison of the perceived values of the new technology with the uncertain costs of adopting it. Thus, it is worthwhile to understand the factors affecting this choice. This paper explores the personal perspective of technology adoption processes and therefore aids forecasting.

\* Corresponding author. Tel.: +82 42 860 3879; fax: +82 42 860 6504.

E-mail address: [nyjeong@etri.re.kr](mailto:nyjeong@etri.re.kr) (N. Jeong).

In order to understand customers' behavior and intentions, researchers have applied the theory of reasoned action (TRA) [9] across a wide variety of areas. Since the TRA, however, is quite general, it should be tailored for specific behavior [10]. The technology acceptance model (TAM) by Davis [11], as an adaptation of the TRA, has been considered as an appropriate model for explaining computer usage behavior. On the other hand, Warshaw [12] has argued that TRA has weak predictive power in marketing applications, and thus he has suggested a new intention model specialized in product purchase situations.

Prior studies on intentions to use mobile services can be categorized by service types; studies on mobile advertisements [13–15], studies on mobile commerce and mobile banking [16–18], studies on mobile Internet [19], and studies on mobile entertainment [20,21]. However, most of these are based on TAM, few use product purchase intention theories in a marketing field. In a preliminary study, we found that the purchase intention model can be adopted to mobile-RFID service purchases, moreover, the purchase intention model has a better explanation power than TAM [22]. Based on this preliminary study, we expanded the present study into two steps and increased the sample size.

In the first step, we present our research model, based on Warshaw's purchase intention model, to examine whether the purchase intention model can be applied to purchasing mobile-RFID services. It is worth doing because Warshaw's model was developed and tested to predict the purchasing behavior of some products, such as detergent or shampoo, not for services [12]. Few studies have tried to apply product purchase intention theories to service purchases, especially in telecommunication services. Purchasing services versus products may differ in several aspect, however, the charge systems behind mobile-RFID services is similar to buying a product; in that the customer pays for each use. Therefore, we believe that the purchase intention model can be adopted.

As a second task in the first step, we examine whether a personal innovativeness in the domain of IT (PIIT), proposed by Agarwal and Prasad [23], has a moderating effect on the purchase of mobile-RFID services. As the characteristics of telecommunication services become increasingly sophisticated, personal innovativeness can be a key factor in determining telecommunication services usage.

In the second step, we attempt to find the relationship between PIIT and the personal characteristics of Korean customers for practical use. Even though the moderating effect of PIIT is significant, it is of little use because telecommunication service providers do not have information about the degree of PIIT possessed by their customers. Thus, we planned this second step to examine the relationship between PIIT and the personal characteristics that are available to service providers. Demographics and variables used in computer alienation [24] are tested.

## 2. Theoretical background and hypotheses

### 2.1. The adoption of new technologies

The adoption of new technologies by the ultimate users takes time. Rogers [25] defined the diffusion of innovation as the expansion of a new idea or product from its source to its ultimate adopters. Of the many new technologies introduced to the market every year, only a small percentage becomes successful. As the market becomes more competitive, and the customers' expectations regarding services or products increases, the probability of successful adoption of a new technology becomes more uncertain. This increased ambiguity shifts our attention from a 'technology-push' perspective to a 'demand-pull' perspective. In current research on technology adoption there are two main branches; one of them relates to new innovative processes or frameworks for successful technological adoption [26–28], the other one aims to discover critical factors through case analysis [4–8]. Factors affecting successful technology adoption include; technological factors; market-related factors; socio-economic factors; regulatory factors; and factors related to internal organization.

In a prior study focusing on market demand side of the technology adoption, Tang [7] considered the needs of the customers to answer the question as to what should be of interest to identify technology opportunities. The paper investigated the adoption process of five navigation technologies, to discover why some of them had more difficulty and took longer than the others to reach their eventual users. From the review of five cases, the research concluded that successful developments of technological innovations depend on the performance of those technologies; however, the adoption of an innovation depends on non-technical factors.

Shin [8] investigated the user factors that drive the adoption of IPTV. The research analyzed the demand for IPTV using the TAM as a conceptual framework and method of logistic regression. Shin [8] defined intrinsic factors as those individually motivated behaviors of users who want to seek intrinsic satisfaction, while extrinsic factors were defined as behaviors prompted by a user's need to interact with external entities. The findings suggest that a user's motivation can be explained in terms of intrinsic and extrinsic factors; intrinsic desire to enjoy individualized content and service, and extrinsic desire to interact with others. These findings further show that respondents who will adopt IPTV have used other convergent services.

Lee, Gemba and Kodama [27] expanded the concept of demand articulation to social demand articulation in order to analyze innovation based on environmental considerations. Demand articulation, usually used at the product development stage, is a skill that converts an unclear set of needs into well-defined products. Some individual firms successfully realize the needs of potential users through a process of demand articulation [29]. The study suggested a framework for social demand articulation that internalizes social demands in the corporate decision-making process. In the framework, the role of environmental knowledge and information flows is to connect firms and social stakeholders. The practical application of the framework, in the case of hybrid engines, revealed that knowledge and information flows on local air quality led to the development of high-efficiency and low-emission automobiles.

Download English Version:

<https://daneshyari.com/en/article/897037>

Download Persian Version:

<https://daneshyari.com/article/897037>

[Daneshyari.com](https://daneshyari.com)