

Determinants of adoption of High Speed Data Services in the business market: Evidence for a combined technology acceptance model with task technology fit model

Margherita Pagani *

Management Department, Bocconi University, Via Bocconi 8, 20136 Milan, Italy

Received 3 May 2005; received in revised form 3 May 2006; accepted 10 August 2006

Available online 14 September 2006

Abstract

This paper presents a Business-Oriented Model of Factors that affect the adoption of wireless High Speed Data Services (HSDS). We reviewed business IT acceptance literature and developed an explorative survey of a sample of twelve companies in Europe and USA. From this, a theoretical model was created and hypotheses were formulated. Data were then collected on a sample of 1545 companies in USA and Europe. Based on these results, we developed a model that combined the key ideas of both TAM and TTF and showed that both were necessary in predicting wireless High Speed Data Service adoption.

© 2006 Elsevier B.V. All rights reserved.

Keywords: Technology adoption model; High Speed Data Services; Task technology fit model; Wireless adoption

1. Introduction

Wireless devices today include mobile phones, personal digital assistants (PDAs) with wireless modems, wireless laptops, two-way pagers/short message systems, and wireless networks. We wished to understand the determinants influencing wireless adoption decisions for a “mobile office” service based upon Third Generation (3G) mobile telecommunication technology that provides mobile workers with fast, secure, convenient access to the services on corporate networks. Plug-in PCMCIA wireless modem cards allow existing laptop PCs and PDAs with permanent connectivity to the corporate network via a secure Virtual Private Network (VPN) across a mobile operator’s network. Our study attempted to provide a

better theoretical understanding of the antecedents of business acceptance and resistance to adoption of High Speed Data Services (HSDS).

Our research questions were:

1. What are the most important factors in making the decision to adopt wireless High Speed Data Services?
2. What are the constraining factors in its adoption?
3. What is the decision-making process?

After reviewing relevant literature, a three-step methodology was developed. In the first step an explorative survey was conducted through interviews on 12 companies in Europe and the USA. In the second, we formulated a research model. Finally, in the third step, we empirically tested the model on a sample of 1545 companies (in 19 industry segments) across the USA and five countries of Europe.

* Tel.: +39 02 58366920; fax: +39 02 58366888.

E-mail address: margherita.pagani@unibocconi.it.

2. Theoretical background

Our study lies at the intersection of two issues: the technology adoption decision-making process and the analysis of determinants of IT acceptance and utilization by business users.

Technology adoption research has flourished in recent years [2,17,23,32,37,44,46,58,62,63]. Currently TAM [14,15] grounded in Fishbein and Azjen's [20] TRA is very popular. In the IS literature on IT adoption, researchers have conducted studies to examine the relationship between perceived ease of use, perceived usefulness, and the usage of other information technologies [11,29,43,57].

A second model of technology adoption, the task technology fit (TTF) model [22], extends TAM by considering how the task affects use. More specifically, it proposed that technology adoption depended in part on how well the new technology fitted the requirements of a particular task. Dishaw and Strong found that TTF was somewhat more effective than TAM for predicting use in work-related tasks; however, their study also concluded that a combination into one extended model was superior to either.

Although there are numerous studies in these fields [8,27,30,31,34,35,36,38,53,56,59,61], previous works have focused mainly on the adoption of products and technology [4,19]. In contrast, the perspective on wireless High Speed Data Services in the business market has not been discussed: few studies have discussed factors related to the adoption of telecommunications [25] and client server technology [13].

Studies on reasons that small business owner/managers do or do not adopt IT and e-commerce technologies [12,60] have highlighted both inhibitors and facilitators. Small business adoption has been discussed as depending on characteristics of the decision maker, IS, organization, and the environment.

Lack of speed is a barrier, as mobile data technologies are slow and hence inefficient [54]. Another barrier is the perception of a lack of standardized IT environment for developing mobile data applications [5,28]. Security [9,48], limited bandwidth, higher usage costs, increased latency, a susceptibility to transmission noise, and the degree of call dropouts [18,33].

Telecommunication companies have been making enormous investments in new wireless technologies and they are looking for killer applications to provide pay offs. Several empirical studies took place to find out possible applications [49–52,55,64] but these have not yet been implemented [40,42].

There is a need for more substantive, theory-based research, creating a more in-depth understanding of factors influencing adoption of wireless technologies by companies.

3. The explorative survey

3.1. Methodology

The explorative survey was conducted by interviewing personnel in 12 companies (five in USA and seven in Europe) having different size and ownership characteristics. The case study [55,64,65] interviews were conducted in years 2003 and 2004 with the CIO or equivalent executive, and one or two managers in charge of telecommunications. This resulted in a total of 36 interviews that helped us understand the determinants important in the adoption process. Multiple responses from each respondent were allowed. Determinants were spontaneously stated and evaluated by respondents through a 4-point Likert scale (where 3 meant high importance, 2 moderate importance, 1 low importance, and 0 no importance).

The specific criteria for company selection was to provide a mixture of high tech *versus* manufacturing; public *versus* private ownership; companies with a global presence; and at least one whose future was closely tied to broadband communication (a global entertainment company).

The companies belonged to eleven industries: (1) distributor of industrial products; (2) software vendor and services; (3) medical products manufacturing; (4) networking and telecom hardware; (5) entertainment; (6) media broadcasting company; (7) government and legal management company; (8) insurance company; (9) car manufacturer; (10) IT service company; and (11) system technology.

The *construct validity* was proven by consulting multiple sources (interviews and documents) and review of the case study transcripts. *Internal validity* was tested by constructing a detailed research framework ahead of time. *External validity* was limited, since it was an exploratory study. Reliability was based on a detailed case study protocol that documented the scheduling, interview procedures, recording, follow-ups, questions, and summary database.

The research framework consisted of factors under the groupings of wireless adoption, and utilization. The wireless utilization factors were: the number of mobile devices deployed, extent of anticipated future deployment, uses of mobile phones, and anticipated future uses.

Download English Version:

<https://daneshyari.com/en/article/554027>

Download Persian Version:

<https://daneshyari.com/article/554027>

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