

Contents lists available at [SciVerse ScienceDirect](http://SciVerse.Sciencedirect.com)

Telematics and Informatics

journal homepage: www.elsevier.com/locate/tele

Digital television adoption: Comparing the adoption of digital terrestrial television with the adoption of digital cable in Taiwan



Shu-Chu Sarrina Li*

Institute of Communication Studies, National Chiao Tung University, 1001 University Road, Hsinchu City, Taiwan, ROC

ARTICLE INFO

Article history:

Received 23 March 2012

Accepted 7 February 2013

Available online 21 February 2013

Keywords:

Digital television

Terrestrial television

Digital cable

Rogers' diffusion of innovation

Technology adoption

Innovation attributes

ABSTRACT

This study employed Rogers' model to compare the diffusion of digital terrestrial television with the diffusion of digital cable in Taiwan. A telephone survey, which yielded 753 valid questionnaires, was conducted to collect data. The results of this study show that the factors affecting the intention to adopt digital terrestrial television differed widely from those affecting the intention to adopt digital cable. The diffusion of digital cable was discovered to be generally congruent with the prediction of Rogers' model, while the diffusion of digital terrestrial television was not. This second finding reveals a limitation in Rogers' model, namely, its alleged pro-innovation bias. It may be that the respondents in this study looked favorably on digital cable because they considered it, and not digital terrestrial television, to be an inevitable technology. Furthermore, this study found that awareness played an important role in respondents' adoption of digital television. This study therefore suggests that, to accelerate digital conversion, Taiwan's government should establish policies to educate people about digital television.

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Television digitization is considered by Taiwan's government to be a key part of the national information infrastructure. As a result, following the American digital television conversion in 2009, the governing organization, Taiwan's National Communications Commission (NCC), also mandated that Taiwan's five terrestrial television stations complete their digital conversion by 2012. That is, after 2012, Taiwan's five terrestrial television stations have to broadcast only digital signals instead of broadcasting both digital and analog signals as the five stations are currently practicing. However, more than 75% of Taiwan's television households subscribe to cable television, and the government has realized that both terrestrial and cable television must be digitalized before Taiwan can complete the digital television conversion. Therefore, the government has also instituted several policies that give cable operators an incentive to accelerate cable digitization (Li, Liu and Chen, 2007; NCC, 2010).

Taiwan's five terrestrial television stations, including one public broadcasting station, began the process of digital conversion in 1998. By 2004, all of the terrestrial television stations had completed their digitization, and 15 digital TV channels were available for the public in Taiwan. However, the 15 digital TV channels are not incorporated in the current cable channels, and consumers have to purchase set-top-boxes in order to receive the 15 digital channels. Furthermore, the NCC plans to issue five more licenses for digital terrestrial television, which will make the platform of digital terrestrial television more competitive because the total number of channels for digital terrestrial television will reach 30. In addition to television

* Tel.: +886 3 5712121x58211; fax: +886 3 5727143.

E-mail addresses: shuchu@mail.nctu.edu.tw, shuchuli@gmail.com

programs, digital terrestrial television stations will offer many interactive services including the Internet to consumers. The NCC attempts to enhance the competitiveness of Taiwan's terrestrial television in order to give consumers more options for television viewing. After digitization, cable system operators do not have to carry all terrestrial television channels. According to the revised Taiwan's cable law, cable system operators must carry at least 1/3 of the terrestrial television channels and must negotiate with terrestrial television stations regarding the fees they will pay for carrying these channels (NCC, 2011; Tsai, 2010). In contrast, digital cable is on a much slower path than digital terrestrial television, and a recent survey has shown that only approximately 6% of Taiwan's population has adopted digital cable. Furthermore, a report by the NCC (2008) has indicated that most people were satisfied with the number of cable channels available in Taiwan and did not feel a need to have digital cable, which has greatly slowed the diffusion process of digital television in Taiwan.

Taiwan's cable TV was legalized in 1993, which brought strong competition to the then terrestrial TV stations. Since then, terrestrial television has been competing fiercely with cable television for advertising income, which was evidenced by the decreasing advertising shares of the terrestrial TV stations after 1993 (Li and Lee, 2010). Specifically, for Taiwan's television advertising income, the shares of the terrestrial television declined drastically from almost 100% in 1993 to only 12.6% in 2011 comparing with cable television's share of 87.4% in the same year (Brain, 2011). Similar to the US, Taiwan's cable television industry is heavily integrated both horizontally and vertically with four multiple system operators dominating the market. To preserve free television in the market, Taiwan's cable law requires that cable system operators must carry the five terrestrial television channels in their cable systems. Because of this must-carry rule, the terrestrial television channels are able to keep a small share of advertising income when encountering the competition from cable television. Scholars predict that after digitalization, terrestrial television and cable television will be in more direct competition for consumers because (1) the number of terrestrial television channels will reach 20–30, which allows the terrestrial television to form its own platform rather than to incorporate its channels into cable television; (2) though cable television has more channels, terrestrial television is available free of charge. Therefore, scholars consider digitalization as an advantage that gives terrestrial television more competitiveness in the market (Tsai, 2010). This study, by adopting Rogers' diffusion of innovation model, attempts to compare the diffusion process of digital terrestrial television with that of digital cable to understand the factors that influence consumers' choice between the two competing media.

The two theoretical models often used to predict technology adoption are Rogers' diffusion of innovation model and Davis' technology acceptance model (TAM). TAM is a concise and powerful model for technology adoption, but it is only useful for technologies that are adopted in work environments. In particular, studies show that TAM is more useful to examine technology adoption under the circumstances that adopters are not voluntary. The focus of this study is the adoption of digital television that is more entertainment-oriented and that adopters are voluntary, and thus Rogers' model is more suitable for this study (Davis, 1989; Rogers, 1995, 2003; Schepers and Wetzels, 2007; Venkatesh and Davis, 2000; Venkatesh and Bala, 2008; Zhou, 2008). Although Rogers' diffusion of innovation model has been widely recognized as a powerful model for predicting technology adoption, it has been found to have limitations, one of which is the exclusion of awareness from the model (Atkin et al., 2003; Chan-Olmsted and Chang, 2006; Rogers, 1995, 2003). Taiwan's digital television is still in its early stages of diffusion, and most people are unaware of the technology. Therefore, this study takes the concept of awareness into consideration to investigate its predictive power for the adoption of digital television. Because digital television conversion in some countries has not yet been completed; the findings of this study will allow policy-makers to better understand how to accelerate their country's adoption of digital television.

2. Literature review

Rogers (1995) defined the diffusion of innovations as “the process by which an innovation is communicated through certain channels over time among the members of a social system.” (p. 10). Three elements in this model have been identified as critical for technology adoption: innovation attributes, communication channels, and adopters' characteristics.

2.1. Innovation attributes

According to Rogers (1995, 2003), an innovation's perceived attributes, namely, its relative advantage, complexity, compatibility, observability, and trialability, explain 49–87% of the variance in technology adoption, and most empirical studies have confirmed that this variable is critical for predicting adoption behavior. For example, Chan-Olmsted and Chang (2006) found that the intention to adopt digital television was positively related to consumers' perceptions of the relative advantages, compatibility and observability of digital television. Chang et al. (2006) examined the adoption of online games in South Korea and discovered that perceived relative advantage, complexity, observability, risk-time, and risk-money were factors that could differentiate adopters from non-adopters. Lin (2004) found that technology fluidity was positively correlated with interest in adopting webcasting in the United States. Dupagne and Driscoll (2010) compared the owners with non-owners of high-definition television in the US and found that perceived relative advantage, compatibility, trialability, and observability were able to differentiate owners from non-owners.

Recently, scholars have stressed the necessity of revising the conceptualization of Rogers' five attributes. For example, Zhu and He (2002) proposed the addition of one attribute—perceived image of a technology. Zhou (2008) suggested that Rogers' complexity attribute be replaced by the concept of “ease of use”. In addition, several empirical studies found that relative advantage was not distinguishable from compatibility (Moore and Benbasat, 1991; Wei, 2006).

Download English Version:

<https://daneshyari.com/en/article/466530>

Download Persian Version:

<https://daneshyari.com/article/466530>

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