Using the Analytic Hierarchy Process Methodology to Assess the Drivers Affecting the Implementation of Interactive Digital Television as a Commerce Platform

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ABSTRACT

Interactive Digital Television (IDTV) service providers have been looking for ways to maintain their competitive advantage in the marketplace. To do this, IDTV service providers need to carefully evaluate the drivers affecting their existing commercial operations and practices. Hence, this study was undertaken to investigate various adoption drivers for IDTV commerce. A combination of research methods and tools (literature search, semi-structured interviews, mail survey, and the analytic hierarchy process (AHP)) were utilized to identify, examine, analyze, and rank the major adoption drivers for IDTV commerce. The results indicated that the development and implementation of IDTV commerce should be managed and operated in-house. The results also showed that AHP was a powerful tool in assisting decision makers in arriving at the best decision, particularly for the IDTV service providers.

Keywords: Analytic Hierarchy Process (AHP), Decision Analysis, Drivers, Interactive Digital TV (IDTV), Operational Capability, Service Providers

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1. INTRODUCTION

Interactive Digital Television (IDTV) offers the viewers the capability to use their TV to view or search for information and services in a way that is not possible with traditional analogue TV. It has been reported that approximately 5 million homes in US are now using IDTV services and this figure does not include those who access the IDTV services from other portable devices such as smartphones and iPads (Nelson, 2013). According to Multimedia Research Group, the number of global interactive IP television subscribers is likely to grow from 41.2 million in 2010 to 101.7 million in 2014 while the service revenue will increase from US$17.5 billion in 2010 to US$46 billion in 2014, a compound annual growth rate of 27% (MRG, 2010). Many countries (e.g., the UK and US) are now replacing their analog television services with the new interactive digital television services to allow better uses of the television radio spectrum. For example, the penetration rate for interactive digital television service is expected to reach 100% by 2014 in Taiwan (Shan, 2012).

IDTV has brought about many benefits to the customers (Blasco-Arcas et al., 2013; Buhalis & Licata, 2002; Ha, 2002). The proliferation of IDTV has also given customers easier access to products and services. Not only IDTV service providers are able to provide additional services, customers also benefit with better quality and variety of channels on offer (Perrinet et al., 2011). According to Pagani (2003), this has a profound effect on the market outlook for the existing IDTV service providers. Although IDTV contributes many benefits to the quality and the transmission of more TV channels for customers, it has also resulted in fierce market competition and decreased profit margins for the digital TV industry as a whole. Therefore, the industry needs to look for new ways to utilize the technology to be competitive.

Businesses often encounter challenges and problems when implementing new information technology (IT) (Lin et al., 2005; Standing & Lin, 2007). For instance, businesses are likely to face uncertainties when assessing the new adopted IT investments (Lin and Pervan, 2003; Huang et al., 2009) such as IDTV (Vennou et al., 2012). Similar to other industries, digital TV industry is often overly complicated due to internal and external factors (Lin, 2013). However, very few studies have examined and evaluated the drivers affecting the implementation and adoption of IDTV commerce. Hence, the main objective of this study is to establish a decision analysis mechanism that can assist the IDTV service providers in implementing and adopting IDTV as their commerce platform. Literature search, semi-structured interviews, and mail survey were utilized to investigate and identify the key adoption drivers for implementing IDTV commerce. The Analytic Hierarchy Process (AHP) methodology was then used to analyze and rank adoption decision processes and drivers affecting the implementation of IDTV commerce. The AHP methodology was developed by Saaty (1980) to reflect the way people actually think and it continues to be the most highly regarded and widely used decision-making theory (Bernasconi et al., 2010; Lin et al., 2007). The results have revealed that that the adoption of IDTV commerce should be fully operated and managed in-house, rather than outsourced. One key contribution of the paper is the identification and ranking of the three most important adoption drivers for implementing IDTV as a commerce platform: (1) operational capability of the IDTV service providers; (2) innovation and strategy execution capabilities of the IDTV service providers; and (3) the level of maturity in technological development within the digital TV industry.

2. INTERACTIVE DIGITAL TELEVISION

IDTV has been defined by Cauberghe and De Pelsmacker (2011:p45) as “a group of technologies that gives user the possibility to take control over their experience, enabling interactivity with the content (in)dependently of the distribution channel.” In other words, IDTV offers a wide range of benefits such as information...
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