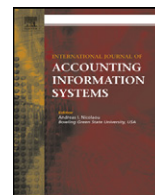




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The antecedents of the use of continuous auditing in the internal auditing context

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ABSTRACT

The concept of continuous auditing originated over two decades ago. Yet despite its much touted benefits, its acceptance and use in practice has been slow. To gain insight into the state of affairs, we surveyed 210 internal auditors worldwide on the status of their use of continuous auditing. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) we explore the antecedents of internal auditors' intentions to use continuous auditing technology. Employing the Partial Least Squares method, we find strong support for the model with an R^2 of 44.3%. Specifically, we find that internal auditors' perceptions of *effort expectancy* and *social influence* are significant predictors of their intentions to use continuous auditing. We also find that *annual sales volume* of the company and *voluntariness of use* significantly moderate the relationship between *performance expectancy* and *social influence* respectively. Additionally, we find regional differences in the significance of key UTAUT antecedents. Specifically, we find that the North American internal auditors are more likely to use continuous auditing due to soft social coercion pressures of *Social Influence* through peers and higher authorities. On the other hand, Middle Eastern auditors are more likely to use the technology if it is mandated by the higher authorities.

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1. Introduction

Continuous auditing³ has been touted as offering many important benefits to organizations. Among those benefits are the minimization of accounting errors, more timely analysis and organizational communication, and increased audit efficiency and effectiveness. Various research studies have explained the benefits of continuous auditing (Vasarhelyi et al., 2004; Kuhn and Sutton, 2006), discussed technical aspects of implementing continuous auditing technology (Kuhn and Sutton, 2010), explored actual implementations in practice (Hermanson et al., 2006), and examined the psychological effects of continuous auditing on managers (Hunton et al., 2008, 2010).⁴ Yet while the concept of continuous auditing, first introduced by Groomer and Murthy (1989) and Vasarhelyi and Halper (1991), is about two decades old, the actual practice of continuous auditing has remained the exception rather than the rule (Alles et al., 2008; Chan and Vasarhelyi, 2011). This puzzling lag in the actual use of continuous auditing is the primary motivation for this study.

Use of continuous auditing technology has so far been almost exclusively limited to the internal audit function (Chan and Vasarhelyi, 2011). Since 2005 some of the top international accounting firms have surveyed their clients' Chief Audit Executives (CAEs) and other top internal audit officers to gain an understanding of their continuous auditing practices (PricewaterhouseCoopers (PwC), 2006,2007; KPMG, 2010; KPMG International (KPMG), 2010; Grant Thornton, 2011). The results of these surveys vary in terms of how extensively continuous auditing was being used in practice. For example, one survey showed that of the surveying accounting firm's clients, 13% had a continuous auditing system that was fully operational and 37% had a system in place but not yet fully developed (PwC, 2006). Another firm's survey indicated figures of 7% and 13%, respectively (KPMG, 2010). A consistent theme among respondents of these surveys over the years, however, is the uniform apparent optimism of the respondents, followed each time by minimal usage of these technologies in the following survey: regardless of the level to which continuous auditing had been used, the survey respondents expected a considerably higher level of use in two years' time. Even in the face of repeated optimism expressed by survey respondents, it appears that the implementation of continuous auditing has actually advanced very slowly. This again raises the question of why there seems to be a lag in the use of continuous auditing.

Given the potential benefits of continuous auditing, some of which were previously mentioned (also see: Debrecey et al., 2005; Flowerday and von Solms, 2005; Kogan et al., 1999; Rezaee et al., 2002; Vasarhelyi et al., 2002), this lag is puzzling. We thus set out to gain insight into this state of affairs by conducting an online survey of industry practitioners' internal audit practices and analyzing their responses through the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT) from the Management Information Systems (MIS) discipline (Venkatesh et al., 2003). UTAUT provides a theoretical framework upon which to assess the use of a particular type of technology. In this study, we find that the UTAUT model explains a substantial amount of variance in the intentions to use continuous auditing. Most importantly, we find that perceptions of *effort expectancy* and *social influence* are significant predictors of internal auditors' intentions to use, while *performance expectancy* and *facilitating conditions* are not. *Annual sales volume* of the company and *voluntariness of use* significantly moderate the relationship between *performance expectancy* and *social influence* respectively.

Our paper is organized as follows. In the next section we briefly present an introduction to the UTAUT framework. Subsequent sections present our research model and hypotheses, discuss our data collection method, and outline the data analysis procedure and the results of model testing. Finally we conclude with a discussion of our findings and implications for practice.

2. Theoretical framework

Many MIS researchers have studied acceptance of new technologies over the past two decades. The Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) and the Theory of Planned Behavior (TPB) (Ajzen, 1985, 1987, 1991) have greatly informed work in determining behavioral intentions. TRA states that antecedents of behavioral intentions are attitudes and subjective norms. TPB added perceived behavioral control to the two antecedents of TRA and also added a direct relationship between perceived behavioral control and actual

³ The focus of a particular continuous auditing technique can range from controls-based ("continuous controls assessment") to risk-based ("continuous risk assessment") (IIA, 2005). Our use of the term "continuous auditing" is intended to encompass any techniques along this spectrum.

⁴ For a review of the literature see Brown et al. (2007).

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