

## **THE ADOPTION OF CONTINUOUS ONLINE AUDIT BY INTERNAL AUDITOR OF STATE UNIVERSITY IN INDONESIA A LITERATURE REVIEW**

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### **ABSTRACT**

The rapid ongoing advancement in information system and technology (IT) has resulted with the steadily plummeting cost in IT service acquisition bundled with the more flexible options in infrastructure operation. Among the effected changes is the growing awareness and shifts toward continuous audit in companies in Indonesia.

This research therefore aims at finding how Internal Auditor perceive the ease of use usefulness, and intention to adopt the Continuous Audit by Internal Auditor. It looks at whether there is substantial relationship observable for perceived ease of use and Intention of use of CA.

This qualitative research by literature review conducted. The technique used in this research is coding the scientific articles regarding continuous audit and write the conclusion based on the main idea of the articles.

The result of the research shows that Implementation of Continous Audit will increase the accountability in state owned universities. Furthermore, the integrated information system is a major requirement of universities in financial governance.

**Keywords:** Continuous Audit, Internal Audit, Information system, Continuous online audit

## INTRODUCTION

The convergence of information and communication technology is running at an everfaster pace. This leads to an ever-increasing speed of information flow and reach, and with cheaper interaction costs. Information technology has had a significant impact on various sectors of life, especially in the areas of economics and organizational governance.

Information technology is a digital tool full of technology and minimal physical emotional interaction. Information technology has had a significant impact on various sectors of life, especially in business and organizations. Currently, organizations can create standardized financial information in real-time and on an on-line basis. In the near future the company will allow shareholders and others to have access to corporate finance information in real-time. Real-time accounting requires real-time auditing to provide an ongoing guarantee of the quality of the data. Real time financial statement information will benefit investors and other financial statement users to accurately and accurately analyze the state of the company. Real-time financial statement data will provide a solution for trade off the characteristics of financial statement information on reliability and relevancy.

Real-time accounting requires real-time auditing to provide an ongoing guarantee of the quality of the data. Real time financial statement information will benefit the users of financial statements to analyze the state of the organization

accurately and precisely. Accountability is not just about process, performance and management, but also about financial management and output quality. Financial accountability can be measured by the lack of irregularities in the organization's financial management.

Campus autonomy is the spirit of a college. Campus autonomy is not just the freedom of academic ranks, but also non-academic autonomy, among others in the field of finance, human resources, and development of facilities and infrastructure as stipulated in Law No. 12 of 2012 on Higher Education. The autonomous university's financial management requires an internal control mechanism to create financial management accountability at State-owned Legal Entity (PTN-BH). Up to now there are 11 PTNBH in Indonesia, and require a tool in streamlining the internal audit process of the organization.

Accountability is a concept related to the mechanism of accountability from one party to another through a more participative budget planning and implementation process and internal or external oversight mechanisms in order to avoid corrupt practices (Rofiqoh, 2006). Therefore, internal supervisory officers in state universities of legal entities play an important role in financial governance becoming autonomous PTN.

In general, internal auditors at universities are responsible for the effectiveness of internal control at PTNBH, and report any differences to

management. Therefore, internal auditors require knowledge and skills related to technology-based audit practices such as continuous auditing.

According to (Rezaee, Elam, & Sharbatoghlie, 2001) defines continuous auditing as a process of collecting electronic audit evidence systematically, as an adequate basis for issuing an opinion on the fairness of financial reporting prepared with real-time accounting and paperless systems. The above definition explains that continuous auditing is one of the auditing functions used by auditors to carry out the audit process continuously, non-stop and obtain reports of CA audit results with a very short period of time due to the help of information technology which becomes a milestone in the process of continuous auditing in an entity.

(AICPA, 1994) states, "Continuous Audit is a methodology that enables independent auditors to provide written assurance on a subject matter using a series of auditors' reports issued simultaneously with, or a short period of time after, the occurrence of events underlying the subject matter".

One of the hallmarks of continuous auditing is to provide early warning prior to the occurrence of the problem. Thus, organizational management, colleges or internal supervisors can detect what failures, or what problems they are encountering on their systems and provide maximum time limits in dealing with them. In addition to these advantages given to the auditee, there are also aspects of interest to the auditor. Continuous auditing allows auditors to disseminate or share

their workload and make improvements or improvements from work scheduling to staff.

Therefore explorative research is needed in depth to know how far the readiness and acceptance of internal auditor PTNBH to continuous audit implementation and continuous monitoring in improving accountability and quality of financial report of organization. From in-depth interviews with internal auditors, as well as internal audit division managers are expected to provide an understanding of the acceptance and adoption of continuous audits by internal auditors in universities.

## RESULT AND DISCUSSION

Traditional audits have been influenced by the evolution of management information systems (MIS), thus creating a series of new audit issues (V. Chiu et al, 2014). According to research conducted by Cukier and Mayer-Schoenberger (2013) shows that in 2000, only about 25% of all information stored in digital form. In contrast, currently more than 98% of all such accumulated information is electronic. Due to the expansion of business electronics, stakeholders are increasingly demanding more timely access to relevant, reliable, and useful financial information in decision making, which motivates the needs and provides opportunities for the implementation of continuous auditing practices (CICA / AICPA, 1999).

According to AICPA (1999), Continuous Audit (CA) is defined as a methodology that enables independent auditors to provide written

guarantees on a subject matter, using a series of auditor reports issued almost simultaneously with, or in the short term, the occurrence of events underlying the subject. According to Chan et al (2011) Continuous auditing is a technological innovation of the traditional audit process. The concept of CA has been around for almost two decades, however, the CA in practice is quite new. CA innovates and advances traditional audit practices using technology and automation. Practitioners and academics are now beginning to embrace continuous auditing as an audit methodology to support real-time certainty, as evidenced by the implementation of prototypes and CA trials at major institutions.

Continuous audits are longitudinally primarily normative analyzes, which typically include the development of systems / models that aid ongoing audits, requests and environments that fuel the growth of CA, and the technology that enables CA applications (V. Chiu et al, 2014). Thus, CA allows auditors to react promptly to changes or incidents on subject matter and to adjust their audit reports based on an assessment of these changes and events (Lins et al, 2016). In the context of cloud computing (CC), research begins to propose different approaches to enable third party audits, such as methodologies to enable auditors to simultaneously verify the integrity of multiple user data (B.Wang et al, 2014) and to ensure data location compliance by analyzing audit log (P.Massonet et al, 2011).

Continuous Audit by Chan et al (2011) provides benefits in future audit activities such as:

1. The continuous auditing paradigm will be more integrated and ultimately replace the traditional audit paradigm.
2. Real time continuous auditing will occur in high-risk business processes and frequent audits will occur in other business processes.
3. In the CA environment, the information system will have a lower error frequency that occurs during a more limited set of sequential processes.
4. Standardization of data collection and formalization of internal control policies is essential for audit automation.
5. The auditor's role will evolve from performing tedious auditing procedures to investigate irregularities and handle audit procedures that require professional judgment and skepticism.
6. In the CA paradigm, the role of the external auditor may eventually develop into an independent certification of the internal audit CA system.
7. Consideration of the entire population of transactions in monitoring and testing can improve audit effectiveness and increase the likelihood that material errors, omissions, and frauds can be detected.
8. Double-level analysis of transaction data and account balances will be used in the CA environment to help detect fraud or collusion by management.

9. The initial CA application will occur in business processes where there is no obstacle to data access.

Meanwhile, according to Lins et al (2016) has several benefits in audit activities such as:

1. Auditors can improve their audit efficiency by reducing time and audit errors due to automated audit processes;
2. CA is more cost-effective by allowing auditors to test larger samples and check data faster and more efficiently than their predecessors;
3. CA allows auditors to actively detect and investigate exceptions as they occur rather than react after exceptions have long occurred.

Therefore, CA can be considered as proactive and allows corrective action to be taken once the problem is detected (Lins et al, 2016).

As for the benefits that CA provides to the provider and users of cloud computing (CC) in the audit activities such as (Lins et al, 2016):

1. Internal processes and systems can be improved by applying appropriate monitoring and internal audit techniques, and evaluating continuous feedback on how they are performing. In addition, service providers receive ongoing expert judgments about their systems. From there, CA positively affects service and risk management of service providers, which are also emphasized by practitioners.

2. Completion of infrastructure, software, or cloud computing processes may be considered early and reflected in the certification report due to ongoing assessment.

3. Service providers can differentiate themselves in the market by making their cloud services more transparent to users. Thus, they can gain a competitive edge.

According to Lins et al (2016) Cloud service users can benefit when CA is done. Typically, cloud environments are characterized by a lack of control because cloud users submit governance to cloud service providers. Especially when storing data in the cloud, users worry that data can be compromised or leaked because it is less transparent about how and where data is stored and processed. CA can address this lack of control by improving transparency regarding the operations of service providers. With increased transparency, CA is finally trying to increase user confidence in cloud services.

Auditing has grown substantially by increasingly utilizing the latest technologies to improve the efficiency and effectiveness of processes and procedures. In the near future, it is expected that continuous audits will be more widely adopted and implemented by both internal and external audit practices (Byrnes, Ames, Vasarhelyi, Pawlicki, & McQuilken, 2012).

The methodology in continuous auditing, enables the latency between the occurrence of event and reducing the auditor assurance.

Continuous auditing focuses on a narrower aspect of continuous assurance, and may be considered as a subset of continuous assurance (Alles et al., 2002; Alles, Tostes, Vasarhelyi, & Riccio, 2006; Alles, Brennan, Kogan, & Vasarhelyi, 2006). Continuous auditing has historically entailed using software to detect auditor specified exceptions from among all transactions that are processed in a real-time environment (Helms, Mancino, Warner, & Smith, 1999). Fundamentals of continuous auditing are described in CICA/AICPA (1999). The development of continuous auditing will facilitate the auditors select, monitor, and analyze the client's internal control structure and accounting information systems in continuously manner (Rezaee et al., 2002). Rezaee et al. (2002) developed an approach for building automated auditing and a description for audit data marts and the data warehouse.

Another articles ruled out that only a few auditors believe they are trained well enough to use audit software effectively in conducting their duties. It is suggested that there is a need for auditors to enhanced their ability and knowledge in information technology in order order to deploy continuous auditing methodologies efficiently and effectively, since there is a numerous advantages of audit tools.

While continuous auditing is the automated performance of control and risk assessments in an ongoing manner, continuous monitoring will facilitate the organization to ensure that policies, procedures, and business

processes are operating effectively, and will help the management in assessing the effectiveness of internal controls (De Aquino, Da Silva, & Vasarhelyi, 2008). Under certain business processes and cycles, continuous monitoring often involves the automated testing of system activities against control rules. Currently, Vasarhelyi, Alles, et al. (2010), proposed a third concept in the continuous audit methodology entitled continuous risk monitoring and assessment (CRMA).

Alles, Tostes, et al. (2006), evaluated the Continuous Monitoring of Business Process Controls (CMBPC) approach that is implemented in the U.S. internal IT audit department of Siemens Corporation.

Another PricewaterhouseCoopers study (2007) predicted that auditors will need to focus more on risk concerns, and the continuous monitoring will be viewed as the most important thing the be mastered by the internal auditor over the ensuing five years.

### **Implementation of continuous auditing and continuous controls monitoring**

When it is a need to adapt the changes in the environment financial reporting, several research studies proposed frameworks for continuous audit and continuous monitoring (Kogan et al., 1999;). Dull and Tegarden (2004) introduced "control charts" to watch the information in financial report continuously. Their results suggested that combining future refinements of the chart and combined with with statistical and

analytical skills would enable to detect the anomaly in the financial processes that are not in control, and will enhance the reliability.

Research by (Curtis & Payne, 2008), suggests that auditors will adopt more new technologies if they realize that partners in their accounting firms encourage the implementation of new technologies in the company. While research on internal auditors by (Kim, Mannino, & Nieschwietz, 2009), presents the result that there is a negative relationship between complex features and the acceptance of technology by the auditor's internal profession.

Captured data on Continuous Auditing applications can be obtained in data mart audit to test and analyze. Data mart is a well-known concept in data warehousing and data mining literature. David and Steinbart (1999) define data warehouses as a combination of large data-a single large enterprise-data warehouse-with tools for extracting and analyzing data. Data warehousing integrates data from all existing application systems in the organization. Data marts are a small subject of data warehousing that focuses on only one functional area (eg, accounting or marketing) and then integrates data over a limited number of application systems.

In the current era of information system automation, companies including PTNBH have switched from manual documentation to electronic systems, demanding corporate management and auditors to locate and customize their work functions with data or company-owned data formats. How do auditors audit

company data that has electronic data storage format? The most effective and efficient way is to use continuous auditing as an appropriate audit solution, since continuous auditing provides electronic data processing facilities using customized technology information systems, and reports on audits performed in real time to enable auditors to perform data analysis quickly and assist management in making strategic decisions of what affect their business sector so as to improve the performance and value of the company (Hiererra & Sarayar, 2014).

Continuous Audit offers many benefits to the organization, including the minimum of accounting errors, more timely analysis and improving the effectiveness and efficiency of the audit process. Much research explains the benefits of continuous auditing (Vasarhelyi et al., 2004; Kuhn and Sutton, 2006), technical aspects of continuous audit (Kuhn and Sutton, 2010), exploration implementation (Hermanson et al., 2006). Utilization of continuous auditing technology to date is used exclusively by the internal audit function in the organization (Chan and Vasarhelyi, 2011).

According to (McMickle, Razaee, Sharbatoghlie, & Elam, 2002) continuous auditing has several advantages over traditional audit systems, namely: (1) Reduced cost of basic audit determination, because an internal auditor is capable of testing large samples of transactions and determining data faster and more efficient than the manual testing required when the auditor works with the computer. (2) Reduce the amount

of time and cost incurred for testing transactions and account balances. (3) Improving the quality of financial audits by making auditors focus more on business understanding and internal control structures. (4) Can specify selection criteria of transactions to determine transactions and carry out substantive tests of control and testing with on-going basis.

Continuous Audit Implementation requires software for its implementation, such as Audit Command Language (ACL) which is a special software audit designed to perform electronic data analysis of a company and help prepare an audit report easily and interactively. Usually the audit of financial data / operations only by sampling, but with the help of this software audit the entire database can be analyzed so that the audit is done comprehensively. There are five advantages of the Command Language Audit (ACL), as follows: (1) Easy to use. (2) Built-in and functional data analysis. (3) Ability to handle unlimited file size. (4) Ability to export audit results. (5) Production of high quality reports (Hiererra & Sarayar, 2014).

Thus, the management or internal audit of State Owned university can detect what failures, or what problems they are encountering on their systems and provide maximum time limits in dealing with them. In addition to these advantages given to the auditee, there are also aspects of interest to the auditor. Continuous auditing allows auditors to disseminate or share their workload and make improvements or

improvements from work scheduling to staff. Continuous auditing can help tidy up scheduling and optimize staff performance more effectively. This will further increase the margin for the audit department, or allow them to take on more work. It could also mean that audit staff members have more freedom to take full vacation allocations or attend more training courses and improve their basic skills. Applying continuous auditing means that auditors will more often make contact with their clients, increasing the visibility of their work. This may give the auditor an opportunity to demonstrate the value of their work (Hiererra & Sarayar, 2014).

Internal control systems play an important role in creating operational efficiency and productivity, primarily in achieving institutional goals and the success of public sector reform (PP No. 19 of 2005, Altamuro and Beatty 2010). Altamuro and Beatty (2010) results show improved management and reporting of controls internal can drive the improvement of the quality of financial statements generated It's just that the internal control system that was formed was still less functioning effectively in the environment of state universities (Zamzami, 2015).

Furthermore, it is possible to control the IT audit process and will improve the effectiveness and efficiency of the audit quality itself (Havelka & Merhout, 2013). While experimental studies from (Diaz & Loraas, 2010) show that internal auditor staff may choose to try new technologies while performing audit work,

but the real emphasis of audit assignment can not be researched.

## CONCLUSION

Research on the adoption of internal auditors of state owned university to get conclusions in the form of:

1. The Implementation of Continuous Audit will increase financial accountability in state owned Universities.
2. Integrated information system is a major requirement of Universities in financial governance.
3. Internal auditors in state owned universities must enhance the capability of computer-based information systems.

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