

會計師運用資料下挖技術執行連續性審計：應用之開發

計畫編號：NSC 90-2416-H-002-046

執行期限：90年08月01日至91年07月31日

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中文摘要

本研究之主要目的在運用資料下挖技術以發展財務簽證各科目如存貨應收帳款、銷貨等科目合理性及預測功能，作為嵌入企業系統之審計模組以作連續監督之用。

關鍵詞：連續性審計、分析性程序、資料下挖、財務報表審計

英文摘要

Data mining is the search through real-world data for general patterns that are useful in classifying individual observations and in making reasoned predictions about outcomes. The application areas for CPAs are defined to cover the test of reasonableness of various balance sheet accounts and income statement accounts in the financial statement audit area. The analytic and heuristic rules were developed by the study and a focus group including accountants, academics were used to derive consistency of expert opinions.

Keywords : Continuous Auditing, Data Mining, Financial Statement Audits, Analytical Procedures

1. Research Motivation and Objectives

In this day and age, with immediate information available, doing a periodic audit provides very little relevant information. A new audit paradigm, continuous auditing, is defined as "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." The concept is emerged jointly by the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA). Vasarhelyi and Halper(1991), Vasarhelyi and K. J. Ezawa(1991) first used the term "continuous audit of online systems"

The advent of computers has affected numerous aspects of accounting and auditing. The use of computer in accounting induced the development of EDP auditing as a new auditing field (e.g., Cash et al. 1977; Boritz 1995; Warren et al. 1996). Yu and Chou (2000) stated that the demand for continuous auditing comes from the demand for more reliable, relevant, and timely decision-making information.. Although many corporations have enterprise systems and data warehouse capabilities, their systems lack financial intelligence capabilities, and auditors are unable to recognize the exceptions continuously.

Kinney (2000) noted that analytical monitoring has become increasingly important in recent years due to the effect of information technology (IT). IT has increased the inherent reliability of routine business transaction processing to the extent that large-scale detailed substantive testing of financial balances is not that essential. This research developed new analytical review application using data mining methods to take full advantage of the capabilities of online real time systems.

The auditor may consider employing continuous auditing when most information exists only in electronic form, such as in a paperless airline reservation system. The sales processing application could contain an embedded audit module (**an intelligent agent**) that contains intelligent selection rules. Such modules allow continuous monitoring and analysis of transaction processing. To prevent unauthorized modification to the embedded audit module, the auditor also might investigate controls such as the use of passwords to restrict access to source codes and procedures to ensure the audited entity comply with adequate application maintenance control procedures.

Data Mining application examples are as follows. Auditing retailers can use data mining techniques to detect fraudulent cashier behavior using POS data . Auditing credit card companies could use data mining methods to verify credit card approval applications, making purchase authorization decisions, analyzing cardholders' buying behavior, and detecting fraud. Auditing financial service companies could use data mining to identify fraud patterns, and mortgage screening. Auditing manufacturers can use data mining to detect potential quality problems. Auditing telephone companies can apply this technology to defend against calling fraud by quickly detecting unusual patterns. Auditing the insurance industry can use data mining to provide them with a wealth of useful information extracted from huge databases to know their customers better and detect insurance fraud more effectively. Data mining can be used in companies when they are data intensive. In addition, when their data and information play critical roles in achieving organizational goals

Data mining is the search through real-world data for general patterns that are useful in classifying individual observations and in making reasoned predictions about outcomes. That generally entails the use of statistical methods to link a series of independent variables that collectively describe a case observation to the dependent variable(s) that classifies the case.

Chen, Sakaguchi, Adriaans, and Zantinge (1996) summarizes information sought in data mining. Categories of information sought in data mining are as follows: association, cluster, classification, sequence, forecasting.

4. Research Outcome

This research developed an analytical review application using data mining methods that take full advantage of the capabilities of online real time systems. This enables independent auditors to provide the written assurance on a subject matter (application context) using a series of auditors' report issued simultaneously with, or a short period of time after, the occurrence of events underlying the subject matter.

The specific research outcomes are as follows:

We formulate reconciliation tasks that auditors perform annually, and build it into the continuous auditing software. It is then performed as frequently as desired. Ratios that are calculated in analytical review are programmed in the system. These ratios were monitored and compared with critical values so that significant variances can be flagged in real-time. The time-series data were kept to provide an expanded data view and a wider choice of analytical methods, including the wide array of time-series analyses.

We then embedded this audit module in the business information systems to detect auditor-specified exceptions from among all transactions that are processed either in a real-time or near real-time environment. We discover irregularities almost instantly-- not at the end of the year. The exceptions also are written to an auditor's log (called Systems Control Audit Review File) for further review.

A group of local experts in independent auditing was involved for the new paradigm. This raised their level of attention and knowledge in dealing with issues in the new age. In addition, the research contributed to providing guidance for the regulatory bodies in setting rules for the information quality assurance services.

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