Comparison and Evaluation of Organizational Transactions for Continuous Auditing and Business Compliance

Rui Pedro Marques, ISCA-UA, University of Aveiro, Aveiro, Portugal & Algoritmi, University of Minho, Guimarães, Portugal
Henrique Santos, University of Minho, Guimarães, Portugal
Carlos Santos, ISCA-UA, University of Aveiro, Aveiro, Portugal & CICF-IPCA, Barcelos, Portugal

ABSTRACT

This article presents a comparator module which aims to compare, in real time, executions of organizational transactions with patterns of behaviors of these transaction executions, allowing the determination of which execution pattern is being followed by running each transaction. This is according to information received by the internal control mechanisms, which continuously monitors the transaction executions. A possible application using this module was deployed and results were obtained from a case study. The results prove effectiveness of the module, mainly because it is able to assess business compliance and the qualitative risk associated to each transaction execution while it is running, enabling an efficient continuous auditing application. The innovation of this article is ensured by the use of an ontological model to represent organizational transactions, which can be applicable to any type of transaction in any business area in order to audit transactions at a very low level, contrary to what happens in traditional auditing, which occurs at a high level (e.g. compare whether a completed transaction has followed a set of procedures). Besides the conceptualization, this work presents some technical details of development and discussion of results from the case study.

KEYWORDS
Auditing, Business, Case-study, Comparison, Compliance, Control, Modelling, Monitoring, Real-time, Risk, Transactions

INTRODUCTION

Due to the competition, which is currently part of the daily life of organizations, and the dynamic changes, characteristic of our globalized world, there is a constant need for more timely, relevant and reliable information to help the management team to make decisions, achieve the planned objectives and foresee the future. In addition, organizations seek productivity gains and the improvement of their methods and tools of management (Marques, Santos & Santos, 2013c; Prawitt & Tysiak, 2013; Prawitt, Smith & Wood, 2009).

In this context, new tools and management strategies associated to Continuous Auditing have been deeply exploited and developed, as the ones described in the section of related works of this paper. These play an increasingly important role in management support within organizations, ensuring the economic and efficient use of resources and the effectiveness of organizations, areas where the effects
of the impact of new risk factors caused by the constant change, fierce competition and widespread access to global information are more felt (Prawitt, Smith & Wood, 2009; Sarens & De Beelde, 2006).

To introduce the concept of Continuous Auditing, we can say it refers to activities undertaken to provide warranty and credibility to operations, giving, in addition, a more timely character to issues of control and management risk. Continuous Auditing, as its name implies, is property of the audit function and includes any audit process which is regularly repeated (Coderre, 2005; Kuhn & Sutton, 2006). Moreover, Continuous Auditing is defined as a process of collecting and evaluating data in order to determine and ensure efficiency and effectiveness of accounting systems in real time, to safeguard assets, maintaining data integrity and producing reliable financial information (Murcia, Souza & Borba, 2008).

The benefits of Continuous Auditing are many: it reduces risks; diminishes losses and fraud attempts; facilitates the objectives of internal control; allows timely access to information; allows drill-down of data, transactions and processes; integrates internal and external stakeholders; helps external auditing and improves operational transactions and processes, ensuring their compliance; allows timely adjustments by conducting operational testing and data analysis; relieves the auditors of routine tasks, allowing them to concentrate on other tasks; and increases confidence in transactions and operational processes, in decision making and in financial statements (Cantu, Liu & Zhou, 2008; Singleton & Singleton, 2005). Chan and Vasarhelyi (2011) state that Continuous Auditing enhances the quality of the auditing process, given the higher probability of detecting errors, fraud and violations, since it provides a complete view of all transactions within an organization, contrary to what happens in the traditional auditing, which only selects a sample of transactions because of the time-consuming manual testing. Besides these benefits, the number of publications on continuous auditing is considerably reduced (Marques & Santos, 2017b).

The automation of controls through Continuous Auditing reduces the number of manual errors within processes and also a decrease in time and resources needed for problem solving (KPMG, 2010). The complete coverage of transactions increases the possibility of detecting problems (e.g. the existence of reports that are automatically generated at the end of each month to detect duplication of payments) enabling their resolution sooner and reducing the likelihood of spread of the problem (Hunt & Jackson, 2010).

Motivation

The motivation of this paper arises from a more comprehensive research project of continuous auditing in the organizational environment. This project intends to architect a solution to continuously audit executions of organizational transactions of any type, dimension and state of completeness, which are executed in ERP (Enterprise Resource Planning). The continuous monitoring and auditing are particularly intended to be applicable to any organizational transaction executed in digital format.

This work is supported by the use of an ontological model, which is intended to represent the organizational transactions and which allows to decompose these into atomic operations and events, enabling their monitoring and auditing at a microscopic and low level. The adoption of this model for ontological representation of organizational transactions also supports the improvement of assessment and estimation of risk associated with the execution of transactions, since the organizational transactions come to be represented by the essential events that compose them. Because these events are manageable parts which can be monitored and audited, it is possible to assess the risk associated to the execution of every atomic event and, consequently, estimate the risk associated to the organizational transaction based on the risk of execution of its events. Hence, the ontological representation of each transaction is the object of the system presented in this paper. In turn, the system handles with the representation of transactions independently, i.e. the system is blind with regard to the type or dimension of the transactions, because the ontological model represents transactions in a generic way. Therefore, the core algorithm of this system operates with any organizational transaction, and thus the need of customization of algorithms for monitoring, analysis, auditing, and risk assessment of
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