Re-engineering the Role of the Internal Auditor in ERP Solutions

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ABSTRACT

Implementation of an Enterprise Resource Planning (ERP) solution is basically a matter of implementing business process re-engineering. The internal auditor needs to assess the risks associated with ERP implementation and its built-in controls because traditional controls may not be effective and efficient in the ERP environment. The internal audit function also needs to be re-engineered in terms of objectives and approaches without impairing its independence. This article addresses the changes facing the internal audit function and develops a framework for the new role of internal auditors in ERP solutions. In this framework, the internal auditor interfaces with users, information technology (IT) and information systems (IS) managers, software vendors, and consultants. In such a situation, the role of the internal auditor is transformed from that of a watchdog to that of a facilitator, and from that of a performer to that of an orchestrator.

I. INTRODUCTION

The globalization of business and increased competition has created a new wave of large-scale technology-based projects. This is demonstrated by the adoption of client-server technology and the rapid growth of Enterprise Resource Planning (ERP) application software. Each ERP solution consists of a set of business application software modules. The modules are integrated and span most functions required by a major corporation, including human resources, finance, manufacturing, sales, and distribution. The system provides true integrated real time enterprise-wide information system processing. Examples of major ERP software vendors are SAP, Baan, Oracle, J.D. Edwards, and PeopleSoft.

The ERP solution brings new changes to the organization and its information systems. It requires business process re-engineering, the ability to manage the system's flexibility, and the ability to cope with high complexity levels. Most companies prefer to re-engineer their business processes concurrently with an ERP implementation. A survey by Gemini Consulting indicated that 88% of European firms had greater benefits when they implemented business process reengineering simultaneously with SAP software (Peak, 1996).

The ERP solution also has implications related to the audit function and the role of the internal auditor. Internal control systems contribute significantly to the needs of management by providing assurance that assets are safeguarded, accounting data are accurate and reliable, operations are efficient and the organization adheres to managerial and legislative policies. The ERP solution with its integrated built-in controls becomes an enabling technology for internal auditors. While the objectives of the internal control function remain the same, the mechanism of controls and control procedures change. Traditional controls, such as segregation of responsibilities, will not be cost-effective in the ERP solution and may not be able to deliver the required level of control (Chapman, 1998b).

The design of an efficient and effective internal control system in an ERP solution is an important issue. The commitment of internal auditors before the implementation is essential so that the organization always initiates business analysis with ERP implementation. This will ensure that controls designed to implement efficient and effective business processes in support of daily transactions and monitoring will not only provide assurance of reliable transaction information but also keep these transactions consis-

tent with the business goals.

The purpose of this paper is to address the changes facing the internal audit function and develop a framework for the new role of internal auditors before and after the implementation of an ERP solution. First, the paper defines the objectives of internal control and the internal control procedures in an ERP environment with broader business issues in internal control design including understanding the business environment, business processes, and the implications of an ERP solution on the organization. Next, the fundamental changes in the traditional audit function are discussed and developed as the basis for general guidance in the conceptualization of the new audit function and the development of the framework.

II. INTERNAL CONTROL OBJECTIVES

The American Institute of Certified Public Accountants (AICPA) and the Committee of Sponsoring Organizations (COSO) include the internal controls that comprise the following objectives (Ratliff et. al., 1996):

1. The reliability and integrity of information.
2. Compliance with policies, plans, procedures, laws, and regulations.
3. The safeguarding of assets.
4. The economical and efficient use of resources.
5. The accomplishment of established objectives and goals for operations and programs.

These internal control objectives are established to maintain effective control over activities and operations. Traditionally, internal auditors have been concerned with accounting and financial issues, and some expertise in these areas is generally been considered to be essential. The coverage of these areas served to provide the opportunity for expanding the range of internal audit services into the broader operational areas. Since accounting records directly or indirectly reflect all operational activities, financially oriented reviews performed by internal auditors open the door to other activities.

Auditors became involved with computers and data-processing controls as manual and punched card accounting applications were first installed on early computer systems. Those early applications were not particularly sophisticated, and internal auditors 'audited around the computer'. By the 1970s, the Institute of Internal Auditors (IIA) had began to emphasise the importance of reviewing data-processing operations and application controls.

Since then, Internal auditors have become familiar with information systems controls and 'audit through the computer' provides a significant contribution to the internal audit organization (Moeller et. al., 1999). The trend towards this emphasis on information system controls continued with the appearance of ERP solutions.

III. ERP INTERNAL CONTROL PROCEDURES

The strategic and tactical business requirement of an organization must be the driving force for implementing an ERP solution. An ERP solution replaces the huge number of databases in a company with one powerful system capable of integrating, analyzing, and reporting on information from all of the company's business functions. Programs and data files are fully integrated into one virtual system. There are no subsystems, partitions, or non-interfacing legacy systems that need to be reconciled. It also includes advanced control and audit features, such as security profile administration tools, logging capabilities, Business Workflow, and the fully traceable transaction capabilities. Financial closing entries can be accomplished quickly, in a matter of hours, not weeks, as in the case of the traditional environment. There is no need to do reconciliation activities or journal voucher adjusting entries because the sub-modules are fully integrated.

However, the re-engineering associated with the ERP implementation may lead to inadequate business controls which are needed to ensure that management objectives are met. Many organizational units and departments may have inadequate new controls to replace the controls from the traditional system. Furthermore, due to the real-time nature of an ERP system, many internal auditors may not be well prepared to accomplish their mission in auditing the business. The traditional audit function would not be sufficient under these circumstances. A detailed design of the business processes, management, and operations must therefore come before the implementation of an ERP solution.

It is essential to consider the integrated control procedures while the ERP solution is being implemented. Internal auditors have expertise in the area of risk-management and have the big-picture perspective of the organization's business operations and are capable of suggesting alternatives to reengineer the organization's processes to increase efficiency and effectiveness. A detailed analysis of application internal controls should come after a broad-based business and system analysis (Glover et. al., 1999). Consequently, this ensures that the control processes solve the broader business objectives and mitigate the key business risks.

Internal audit functions are redefined in terms of focus, scope, and range of services in light of strategic management, alliance with other appraisal functions, and the need to audit 'technical' applications. The internal auditor is now open to a broad range of activities that have not been considered before (Chapman, 1998a).

IV. THE FRAMEWORK OF THE ROLE OF THE INTERNAL AUDITOR IN ERP SOLUTIONS

Figure 1 depicts the framework for the relationship between the internal auditor and the various associated groups in ERP implementation.

Figure 1 depicts the control focus of the relationships among software vendors, information system (IS) and information technology (IT) managers, users, and consultants. This control focus is classified according to implementation and post-implementation phases. During implementation, the internal auditor roles include the following, in order of execution:

1. Strategist: is involved in the strategic planning and decision making of the organization. Develops an understanding of the business process reengineering with users and facilitates the consultants' work.
2. ERP Expert: evaluates the control features of an ERP solution and assesses current and future risk exposure. Highlights the importance of soft controls and delegates the accountability of control.
3. Communicator: maintains relationships throughout the organization and facilitates the adoption of audit controls with users, as well as with consultants from outside the company.
4. IT Manager: updates and unifies terminology to take advantage of the integrated nature of the ERP solution. Shares expertise, knowledge, and ideas with IS/IT management.

These roles will continue to be experienced in the post-implementation phase but to a lesser degree. In the post-ERP implementation phase, two questions are raised: (1) What will be the function of internal audit, and what is the role of internal auditors? (2) What are the capabilities that required of internal auditors? An ERP solution drives the organization strategically and presents changes to the audit environment. These are changes in the business processes, changes in information technology, and changes in the ERP software version. Ultimately, these changes affect the internal audit function. Internal auditors need to identify internal and external sources of risk and their effects on controls, to evaluate the adequacy of resources, and to assess the effects on control procedures (Gibbs, 1998). These changes also require internal auditors to develop new expertise. The internal audit functions need to be seen in a fuller text and include:

1. Developing: understand control processes and perhaps seek a consultant's ad-

Figure 1: The Relationship between the Internal Auditor and Various Associated Groups in the ERP Implementations
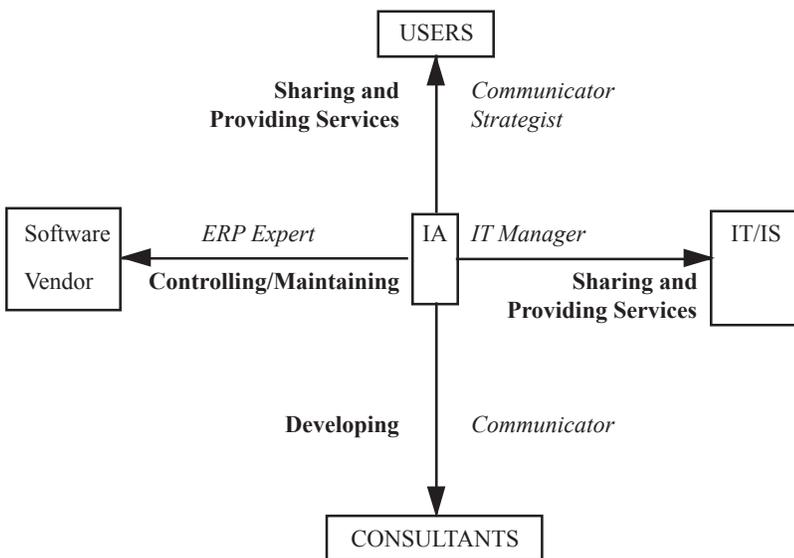
Note: IA- Internal Auditor, IT- Information Technology, IS- Information System
Italic: Roles of the Internal Auditor during the ERP implementation phase
Bold: Functions of the Internal Auditor in the post-ERP implementation phase

vice in the case of continuous process reengineering. Review Business Workflow and continue process monitoring. Ensure historical data warehousing is accurate, consistent, and complete for future intelligent decisions.

2. Sharing: share knowledge and expertise with and provide services to both IS/IT managers and users.

3. Maintaining and controlling: maintain close contact with the vendor to ensure the adequacy of configuration change control of the ERP solution.

V. CONCLUSION

Internal controls are established to achieve management objectives and to maintain effective control over activities and operations. An ERP solution drives the organization strategically and presents changes to the audit environment. It replaces the huge number of databases in a company with one powerful system capable of integrating, analyzing, and reporting on information from all of the company's business functions. An ERP solution brings about changes in the business processes, changes in hardware engineering, and changes in the ERP software version, which affect the internal audit function. A new framework is needed to guide the internal audit function in ERP implementation phase as well as in post-ERP implementation phase. This paper presents a framework for the new role of internal auditors in ERP solutions.

The internal audit function is now being redefined in terms of focus, scope, and range of services in light of strategic management, alliance with other appraisal functions, and the need to audit 'technical' applications. An ERP implementations re-engineer business processes and the internal audit functions should be re-engineered accordingly. During the transition from the traditional to the new internal audit functions, the internal auditor has evolved from a *watchdog* (a performer of routine checks and compliance testing) to a *facilitator* (an orchestrator making sure that the organization achieves its mission and objectives and that everyone involved knows exactly what he is doing).

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