SOX And ERP Adoption

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ABSTRACT

The objective of this paper is to examine the relationship between the implementation of the Sarbanes-Oxley (SOX) legislation and Enterprise Resource Planning (ERP) systems, and to investigate the impact that the passage of this legislation has had on the decision for companies to adopt ERP technology. The legislation itself is discussed, along with an analysis of ERP systems, including their components, their advantages and disadvantages, and the critical factors and crucial components which must be present for the successful deployment of such systems. This paper explores the contributory effect of SOX on ERP adoption. The authors concluded that SOX merely accelerated an inevitable process. The best managers will always find and use the best tools to maximize benefits to their organizations. The requirements of Sarbanes-Oxley forced companies to rethink their processes and technology, and therefore may have provided the final incentive for companies to commit to ERP.

Keywords: SOX, ERP, Internal Control

SOX OVERVIEW

On July 24, 2002, Congress overwhelmingly passed the most sweeping financial reform legislation in decades. When President Bush signed the bill into law a week later he noted that the bill represented "the most far-reaching reforms of American business practices since the time of FDR."[1] The provisions of the Public Accounting Reform and Investor Protection Act of 2002 were destined to have a deep, wide and fundamental impact on the way that America does business, addressing such issues as corporate governance, financial disclosure and the independence of auditors. The full impact of this legislation may not be known for many years.

SOX is a comprehensive set of legal and ethical standards applicable to all U.S. public companies, their boards and management, as well as public accounting firms. The provisions of the bill that relate most directly to the topic of this paper are:

Section 302. This section requires the officers of a company to make representations related to the disclosure of internal controls, procedures and fraud assurance.

Section 404. Section 404 requires corporate management to accept responsibility for establishing and maintaining adequate internal controls. It further requires an annual assessment of the effectiveness of those internal controls as well as the framework used to evaluate that effectiveness.

- The Committee of Sponsoring Organizations (COSO) designated Enterprise Risk Management (ERM) as the recommended framework to meet the requirements of Section 404[2]. According to COSO, ERM is a process designed to identify potential events that may impact the organization, and manage risks in order to provide reasonable assurance. The framework describes five interrelated components of internal control:
  1) Commitment at the highest levels of the organization.
  2) Identification of risks and objectives and the methods proposed to manage them.
  3) Activities and procedures established and implemented to address risks.
  4) Information systems that capture and exchange the information required to "conduct, manage and control its operations."[3]
  5) Monitoring and responding to changing conditions.

Section 409. This section requires public disclosure of material changes to a company's financial position in a "rapid and current" manner.

Section 802. Section 802 mandates that the organization must have policies in place to ensure appropriate record retention and security.[4]

ERP SYSTEMS

An ERP system can be defined as a package of software solutions designed to automate and integrate the various components of the internal value chain of an enterprise. The system standardizes business processes and uses common data across the organization in real-time. ERP systems are the core of the data integration activities and operate across business functions and processes; they combine cost and financial information to provide managers with an accurate representation of current conditions by making data widely available within and throughout the enterprise. The use of an ERP system creates a "synergistic, knowledge-based management environment."[5] ERP systems provide pervasive data integration that effectively eliminates the idea of data flow and replaces it with enterprise-wide data access.[6]

ERP systems are packaged solutions comprised of a tremendous amount of complicated interconnected code defining a set of standardized processes. It is possible to change the pre-programmed software through a process known as customization, but a large number of companies spent a great deal of money to customize bad processes only to be very dissatisfied with the result. Popular wisdom now dictates that companies are better served by changing their practices to match the software rather than vice versa, which allows the company to take advantage of future upgrades, reap the benefits of using proven processes and avoid costly and possibly irreparable errors. According to a 2005 survey by Deloitte, only 47% of respondents used their ERP solutions "out of the box."[7] ERP implementation ties in with the recent trend toward business process reengineering, which involves the careful examination of the organization's practices, then redesigning them to maximize the efficiency and effectiveness of those processes. Using the processes ingrained within the chosen ERP system optimizes the organization's capabilities by taking advantage of the "best practices" which have been developed over time and have been extensively tested and validated.

ERP technology has been evolving since the use of computers by business became practical, with the sophistication and complexity of systems and processes growing in lockstep with the available technology. During the 1950s, computers were tasked to perform inventory control functions. The computerization trend continued in the 1960s and 1970s as technology enabled automation of material requirement planning and manufacturing resource planning. In the 1980s, implementation of computer-integrated manufacturing became a virtual requirement for any firm that wished to remain competitive. By the beginning of the last decade, ERP had been enabled by both the evolving technology as well as the growing managerial expertise required to utilize it.[8] In the late 1990s companies became very motivated to embrace ERP technology when business leaders were confronted with the realities of dealing with Y2K. They realized that retrofitting antiquated systems to enable Y2K compatibility throughout their systems would be more complicated and costly than installing a completely new system. Moreover, they saw opportunities to improve their operations through use of the standardized processes that shipped with the new software. Other factors driving ERP adoption in the 1990s included such items as: the lack of integration between legacy systems, increased competition, acceleration of globalization, increased national and international regulations, and growing focus on process standardization.[9]

Subsets of ERP systems are the applications that perform the various processes within the system at large. The manner in which these applications interact is known as Enterprise Application Integration (EAI). Because SOX compliance is predicated on the confirmation and control of data flows within and between these applications, EAI is of great concern to regulators and those tasked with ensuring compliance. EAI reduces or eliminates human interaction with data flows between applications, thereby enhancing the security, accuracy and integrity of the system.

The question that must be addressed within ERP is how can a system that is open for interaction with virtually any other system in the world still ensure complete, accurate, authorized and valid processing of all

transactions. It is clear that the company's ERP system must incorporate a robust security plan for internal controls. Integration is superior to interaction. One of the great benefits of ERP systems is that they "provide the rules and processes to confirm data and reconcilability."[10]

There are a number of ERP-based risk management applications including PeopleSoft's Enterprise Internal Controls Enforcer and Oracle's Internal Controls Manager. These applications have built-in diagnostic tools that test and continually monitor system activity and configuration changes.

Businesses must be able anticipate and respond to the changing demands react of the twenty-first century marketplace, or most likely they will perish. An ERP system enables and enhances these capabilities. ERP systems provide greater efficiency and effectiveness in operations, improved decision-making, better planning and control, and optimized business processes and information transmittal through the integration of all functional business processes.[11] Further, ERP and their associated applications enhance the ability of the organization to provide accurate and secure data.

The most significant barrier to ERP adoption is cost. In addition to the cost of the software, there are also significant costs incurred to install the system and to train the users. In 2005, spending on SOX compliance was estimated to total *$6.1 billion* dollars, much of which can be traced directly to ERP systems and compliance software.[12] Indeed, one survey in 2003 found that the average cost incurred to ensure SOX compliance with just Section 404 of the legislation was $2.2 million.[13] Another issue that may dissuade potential ERP users is the concern that they will not see an adequate return on the substantial investment required for implementation of ERP systems. This concern has validity because it is clear from the literature that a great number of companies that invested large sums of money in ERP technology in the late 1990s were very unhappy with the value they received for the investment they made. A survey by Financial Executives International found that only 10% of respondents believed that they had achieved a "high return" on their technology investments.[14] While these concerns have validity for internal decision making, it has been documented that the market responds favorably to announcements that a company plans on implementing an ERP system.[15] It has generally been found that using traditional metrics such as ROI as the basis for ERP implementation decisions provide a negative result; it is believed that the intangible benefits provided by the systems outweigh the quantifiable implementation costs.

The factors that play a significant role in the determination of ERP implantation success include ERP teamwork and composition, business plan and vision, and support of top management.

A 1999 study conducted by Deloitte found three major impediments to successful ERP development: people, (62%), process, (16%) and technology, (12%).[16] A subsequent report by Benesh (1999) validated these results, and summarized the common pitfalls as: inadequate integrated team planning, managed communications and a formal decision making process, failure to integrate lessons learned into current practice. These factors are all timeless barriers to organizational change.[17] In 2005, Deloitte studied the factors that identified the significant factors contributing to the success of an ERP implementation. That study found that communication, training, method of deployment and project leadership were all named as important by more than half of survey participants.[18]

ERP ADOPTION IN A SOX ENVIRONMENT

A significant number of issues need to be addressed before a company installs either an ERP system or software designed to specifically comply with the requirements of the Sarbanes-Oxley legislation. Software required for compliance with the act must enable the company to document its financial and operational risks, as well as institute the controls necessary to minimize or mitigate those risks, and provide the means to test those controls in order to ensure their effective operation. "ERP systems provide the rules and processes to confirm data integrity and reconcilability such as validation steps and substitution steps."[19] Some of the issues that need to be addressed before committing resources to SOX compliance include: the type of technology employed, the manner by which the software is deployed, the number of users that the software can simultaneously support, the manner by which user access is controlled, the ways changes and access are documented and tracked, cross-functionality between various provisions of SOX compliance, and benefits provided by the software beyond SOX compliance.

By using EAI to integrate the various processes and systems of the ERP, the system can minimize human-machine interfaces, and hence maintain tight authorization controls as well as restriction of user access.

The most prescient companies adopt the internal control measures mandated by SOX, not because they are mandated, but because they make good business sense. While other companies are complaining about implementation costs, the best companies are figuring out how to best leverage the mandated requirements of SOX into a system that is in complete compliance, yet provides a competitive advantage by giving managers accurate, timely and comprehensive information. Integrating internal audits with internal controls saves money and time. ERP systems provide a means to facilitate these compliance activities while enhancing the efficiency of other functions within the organization.

The implementation of SOX compliance software must be done with the goal of providing a consistent and reliable product that contributes to the organization's competitive and strategic advantage. Moving toward this goal is an incremental process. In the initial phase, the organization formalizes standard operating procedures, consistent behaviors and routine monitoring. Completion of these steps creates common structures for compliance with Sections 302, 404, 409 and 802 of the Sarbanes-Oxley legislation. The final step in the process is the implementation of a "best practices" framework that resolves issues before they happen, exercises effective use of resources and establishes the "capability of the company to execute a defined and standardized process."[20]

At its core, Section 404 compliance is an identity management issue as it relates to authorization and control. Regulators and auditors want to "know who was in what system, what they did, why they were there, whether they were authorized to be there and how long they were there." [21] Auditors look for potential conflicts. For example, does a person with the authority to create a vendor within an ERP system also have the ability to authorize checks to vendors? The legislation requires that companies identify key processes and the key controls within those processes and establish a system by which to measure the effectiveness of those controls. It is believed that the leveraging of ERP technology will rapidly offset implementation costs.[22] In 2005 only 28% of companies utilized software to facilitate regulatory compliance, jumping to 36% in 2006, making compliance software a growth market.[23]

In a survey performed by the META™ group, the most popular means to facilitate SOX compliance were:

- Replacement of ERP applications.
- Consolidation of ERP applications.
- Move from ad hoc solutions to ERP applications.
- Upgrade ERP applications.
- Enable existing ERP functionality.
- Implement business process management software.
- Evaluate and implement internal SOX compliance capabilities.[24]

SUMMARY

In conclusion, it is difficult to quantify the impact of the Sarbanes-Oxley regulatory legislation on ERP adoption. By the time the legislation was passed in 2002, many companies that had already invested in ERP systems in response to Y2K and other drivers. Indeed, a 2004 survey of the top 500 Danish firms found that fully 88.4% of those companies had an ERP system in place. The same study found that ERP is a mature market employing contemporary and pervasive technology that utilizes tools supplied by a single vendor.[25] The use of a single vendor greatly simplifies installation, requires less customization and provides for better overall integration of the system. In 2005, market leader SAP™ reported that 80% of Fortune 500 companies had implemented some form of ERP. In addition, they found that 76% of manufacturers and 35% of insurance and health care companies had either already implemented such systems, or were in the process of doing so.[26] As the technology advances and inter-connectability between the vendors increases, a new strategy called "best of breed" will emerge. This strategy allows companies to pick and choose the best of all worlds and capture the application architecture that is best suited for their operations independent of vendors and systems.[27] Simply put, ERP is here to stay. Capabilities are rising, while costs are falling. A stroll through the websites of Oracle™ or SAP™ convinces even a casual reader that

solutions are available that provide compliance in a cost effective manner, given a commitment by management to implement those solutions.

SOX merely accelerated an inevitable process. The best managers will always find and use the best tools to maximize benefits to their organizations. The requirements of Sarbanes-Oxley forced companies to rethink their processes and technology, and while SOX may have provided the tipping point by providing the final incentive for companies to commit to ERP, the inherent logic and business sense that the technology represents will compel those that do not yet utilize some form of ERP to do so. Those companies that elect not to utilize ERP will do so at their peril, regardless of regulatory requirements.

AUTHOR INFORMATION

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ENDNOTES

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