Chapter 14
The Information Technology Audit

David Reavis
Texas A&M University – Texarkana, USA

ABSTRACT
As a critical component in almost every organization, Information Technology may provide services that allow the organization to function and in many cases allow the organization to achieve a competitive advantage. As technology costs and functionality rise, many organizations risk losing the perspective needed to ensure that their investment in technology is appropriate and well spent. This chapter discusses some auditing techniques that may help any organization to test their IT functions to make sure that the outcomes are appropriate given the costs of technology. After discussing the background of IT audits, several functional areas are discussed with example goals and suggestions for evaluating IT functions.

INTRODUCTION
This chapter discusses the information technology audit process and its components, the history of Information Technology (IT) auditing, and outlines the qualifications needed for IT audit personnel. One of the purposes of an IT audit is to evaluate the organization’s internal control design and effectiveness. This includes efficiency in operations and systems development, security protocols for physical, logical, and data assets, and project management. In the audit components section of this chapter, several areas of consideration are presented which should be target areas for an IT audit. Some of the areas may not apply to every organization, but the majority of the areas (i.e. backup and recovery procedures and security issues) will apply to most organizations. Within each audit area, example goals are given to illustrate the possible areas for audit. If an IT staff prepares in each of the stated areas, they will likely have considered the overwhelming majority of issues that would be audited.

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BACKGROUND

Why Audit IT?

Technology has become a critical part of most organizations. Not only is it required for operations, it is the method many organizations use to implement their business processes. From the cash register in a retail store to the customer database in a financial institution, technology allows the organization to compete in their chosen market and often provides a competitive advantage for one or a few key players. The most prominent audit for many organizations is the financial audit. The financial audit is done to verify that the financial statements of an organization fairly represent the financial position of the organization and to assure that the most important assets in the organization are properly accounted for. Many organizations now consider information technology one of their most critical assets and the technology audit provides a way to verify that IT is conducting its functions in a way that supports the objectives of the organization. McCafferty (2012) emphasizes the importance of maintaining accountability for the CIO and the IT audit is one of the primary tools for IT accountability.

History of IT Auditing

IT auditing began in the mid-1960s and was originally patterned after the financial audit process. Changes in how technology is used and how organizations approach risk, competition, and communication have all impacted the IT process over the past decades. The modern understanding of IT combines computers, software, communication networks, and business processes into one area of concern. Historically there have been several iterations of how an organization titles and views IT. Prior to combining the above mentioned areas into IT, companies used titles such as Data Processing, Systems, or Programming to describe the computer related aspects of the business. Prior to those terms, and one of the initial terms of reference was EDP or Electronic Data Processing. During the 1970s and 1980s EDP was a common term for how organizations used the technology of the day.

One of the earliest groups to formalize auditing in the computer environment was the EDP Auditors Association (EDPAA), which incorporated in 1969. That group spawned the Information Systems Audit and Control Association (ISACA) and currently is comprised of more than 100,000 members who have an interest in IT auditing (ISACA, 2013a). In the earliest period of auditing, the focus was on the automated accounting systems of the day. Techniques for those audits were focused on verifying the phases of processing and verifying the results of processing accounting transactions (Cash, Bailey & Whinston, 1977).

Another step towards the modern IT audit took place in the late 1970s when EDPAA began to develop and publish standards for EDP audits. Their first standard, Control Objectives, published in 1977 has gone through numerous revisions. The current framework is termed COBIT 5 and is an acronym for “Control Objectives for Information and related Technology” now in its 5th major revision (Solms, 2005). In November 2000 the British Standards Institute (BSI) published a standard for evaluating IT Service Management. The standard, BS 15000, was superseded by ISO/IEC 20000 in 2005 (International Standards Organization and International Electrotechnical Commission) and the ISO/IEC 20000 standard has evolved into a series of standards (20000-1 through 20000-11) for various IT related areas (Salle, 2004).

The massive increase in use of computers for almost every aspect of business along with the connectivity available via internal and external networks has intensified the need for evaluating IT against specific written standards. Among major events that pushed the necessity for IT auditing to the forefront was a network failure at AT&T in 1998. In mid-April of that year AT&T experienced two network switch failures that caused its national
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