



A Review on Information System Audit Using COBIT Framework

Heru Nugroho

Diploma of Information System, School of Applied Science, Telkom University, Indonesia
heru@tass.telkomuniversity.ac.id

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ABSTRACT

Information systems (IS) audit contains a proper review of risks associated along with the organization of information systems and processes. Also, an assessment of whether enough quality control will ensure the efficiency, effectiveness, integrity, and security of organization data and assets of the information system. An IS / IT audit is a coordinated process that specializes in high-risk areas in the organization. Selection of the areas can arise with the board of directors, the board of directors, audit committee, government agencies, or external audit organizations. Generally, it audits help organizations monitoring and evaluation of how the business is work and give protection to the interests of managers, workers, customers, and investors. Control Objectives for Information and related Technology (COBIT) is a detailed resource that consists of all the information organizations have to be compelled to adopt its governance and control framework. COBIT delivers good practices across all domains and process frameworks in an easily manageable and rational structure to assist in optimizing investments that support it. COBIT optimizes investments that support IT and ensure that IT successfully meets business requirements. In this paper, we find that paper about IT/IS audit using COBIT is had a different perspective. Base on the review from twenty papers, there is 85% with a title IT/IS Audit, but the content is about Maturity or Capability Level. The discussion paper is expected to provide new knowledge to other researchers who focused his research on the area of information systems audit. This paper is expected to provide new enlightenment that information system audit is different from the maturity/ capability level, which is also examined in the COBIT 4.1 framework.

* Corresponding author at:
School of Applied Science, Telkom University,
Jl. Telekomunikasi No. 1, Terusan Buah Batu, Bandung, 40257
Indonesia.
E-mail address: heru@tass.telkomuniversity.ac.id

ORCID ID:
First Author: 0000-0002-7460-7687

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1. Introduction

An audit is a systematized, independent, and standard process that completing the evidence and comparing it objectively to determine the extent to which audit interpretation has been fulfilled [1]. In the IT Assurance Guide: COBIT Audit document can be used to describe an attempt for assessing IT processes. They have been done for supporting the organization's goals with the control of the outcomes generated [2]. The primary purpose of the audit is to gather objective evidence, analyze evidence, and compare it with the specified requirements. The purpose is to see shortages thus facilitating the organization to be audited to initiate corrective actions that ensure continuous improvement. Information System Audit is essential for an organization to be able to avoid [1]:

1. Losses arising from loss of data,
2. Losses arising from processing errors computer,
3. Making the wrong decision as a result of incorrect information,
4. Losses due to computer abused,
5. Value of hardware, software, and people in the information system,
6. Maintenance of confidentiality of information.

Control Objectives for Information and related Technology (COBIT) is one of the standards used to implement the information systems audit process. One of the reasons why the COBIT standard is widely used as a reference in the IS audit process is a characteristic that differs from the other standards. One of the characteristics of COBIT is driven by measurement. COBIT is focused on controlling IT is widely used when the environment being audited is supported by IT. The IT Auditor own course using COBIT as the primary reference for assessing IT controls are implemented in an organization

If we review some of the paper with the title is an information system in a journal or proceeding, there is different about content. The differences are grouped into two categories,

1. Paper with the title is an information system audit, but the content discusses the maturity/capability level.
2. Paper with the title is information system audit and content discuss the process of information system audit.

Differences content of information system audit in some paper would be interesting for discussion. This paper will examine the information systems audit by several scientific papers to get an idea of how an IS audit should be performed by using the COBIT framework.

2. Related Work

Other studies that related to the topic being studied is a paper with the title A Review on Information Systems Audit on Research J. Engineering and Tech. 4(3): July- Sept. 2013. In this paper discussed several points related to the audit of SI, namely [1]:

1. The information system audit is part of the entire audit process, which is one of the most facilitators are given from corporate governance.
2. Information systems are very complex and have many components put together to create business solutions.

3. Insurance about information systems can be obtained if all components are evaluated and secured.
4. An obtained evaluation of evidence can ensure whether the organization's information system protects capital, operates data integrity, and continues to work effectively and efficiently to achieve the goals or objectives of the organization.
5. Information system audit goals are to give protection to the information system resources/assets, maintain data integrity, maintain system effectiveness, and make sure system efficiency.

Another research is Sustainability in Information Systems Auditing in European Scientific Journal September 2014 /Special/ edition Vol.3 ISSN: 1857 – 7881 explains that [3]:

1. At present, auditing practices have undergone a revolution with the development of information technology.
2. Information systems auditing focuses on evaluating the implementation, operation, and proper control of information system resources in the organization.
3. Several frameworks have been formulated for the implementation of an information system audits to achieve improvements in audit performance. They are related to compliance requirements, evaluation of internal controls, and information system success.
4. Sustainability is an essential issue in many organizations, the integration of sustainability into IS audits is very important to work to produce reliable and objective reports to the public.

3. Research Methodology

The method has been using the current scientific research is the study of literature. The general study of literature is the method used to collect data or resources related to the topics raised in a study. The study of literature for this study was obtained from scientific papers published in national journals or proceedings in Indonesia. Literature study performed on 20 scientific papers that contain the title of Information System Audit and time of publications from the past 10 years.

4. The Important of Information System Audit

Many organizations will be spending large amounts of money on IT because they recognize the fantastic advantages that IT can bring to their operations and services [4]. Nevertheless, organizations need to make sure that their IT systems are reliable, secure, and not vulnerable to computer attacks. IT audit is important because it presents a guarantee that the IT systems are protected and also provides reliable information to users and properly managed to achieve their intended benefits. Several users think about it without knowing how computers work. A computer error might be repeated indefinitely, causing more extensive damage than a human mistake. IT audit could also help to reduce risks of data tampering, data loss or leakage, service disruption, and inadequate management of IT systems [4]. It also reduces the risk data tampering, data loss or leakage, service disruption, and poor management of IT systems [5].

5. Review on Information System Audit

IS Audit within the COBIT framework is commonly referred to as IT Assurance. It is not only able to give an evaluation of the state of IT governance but also provide feedback that can be used to improve management. The COBIT 4.1 guide book described the interrelationship between the components that make up the COBIT framework, as in Figure 1 [2].

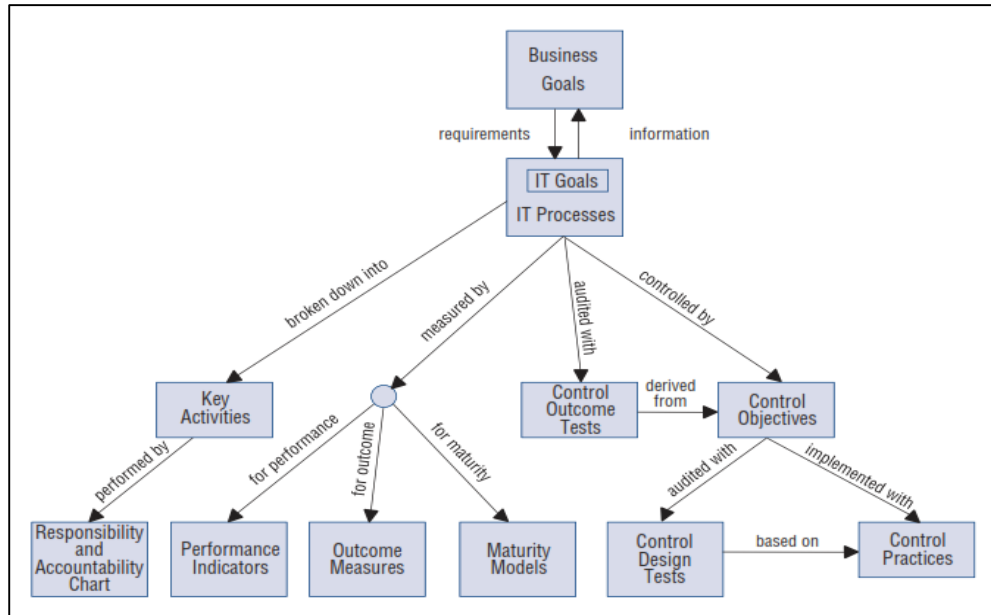


Figure 1 Interrelationships of COBIT Components [2]

In Figure 1, the IS/IT Audit is done to assess whether IT processes have been done to support the objectives of IT by taking control of the resulting outcome. The outcome is derived based on the control objective of each method. Some of the paper with the title is an information system in a journal or proceeding; it is different about content. The differences are grouped into two categories. Paper with the title is an information system audit, but the content discusses the maturity/capability level. Also, paper with the title is information system audit and content discusses the process of information system audit.

If we see the connection of each component in COBIT, the IS audit is different from the maturity/capability level but within the context of the audit of SI. In the IS audit process, maturity/capability is a part of the stage will be conducted of IT processes with the goal:

1. Provide awareness on IT management about the responsibility for the control of IT,
2. To ensure compliance with IT control requirements that have been set,
3. Optimize and prioritize IT resources,
4. Bridging for IT governance.

The audit process will be retrieved in several findings that can be used by organizations. It will also improve the related findings that could be causing an IT goal was not achieved. While on maturity/capability level generated a value that describes the position of IT to support the business processes of the organization.

A number of papers are searchable by the author of random data that is obtained from the 20 scientific papers (Table 1). Only three (15%) working papers are with the title information system audits. Their contents discuss the process of information system audit and distinguish the audit with the maturity/capability level. The remaining seventeen papers (85%) paper with the title is an information system audit, but the content discusses the maturity/capability level without any discussion of the audit process related. This fact shows that there are still differences in the presentation of scientific papers relating to the auditing of information systems. The discussion paper is expected to provide new knowledge to other researchers who focused his research on the area of information systems audit.

Table 1 Review Results From 20 Scientific Papers on IT Audit Topics

No	Paper Title	Category Paper	
		Paper with the title is information system audit, but the content discusses maturity/capability level without any discussion of the audit process	Paper with the title is information system audit and content discusses the process of information system audit
1	Audit Sistem Informasi Pada Perusahaan Dagang Aneka Gemilang Bandar Lampung Menggunakan Framework COBIT 4.1 [6]	√	
2	Audit Tata Kelola Teknologi Informasi Bagian Pengelolaan Data Menggunakan Framework Cobit 4.1 pada Bank Jateng [7]	√	
3	Audit TI Kinerja Manajemen PT. X Dengan Frame Work Cobit 4.1 [8]	√	
4	Audit Sistem Informasi Menggunakan Cobit 4.1 pada PT. Erajaya Swasembada [9]	√	
5	Audit Methodology for IT Governance [10]		√
6	Governance Audit of Application Procurement Using COBIT Framework [11]	√	
7	Audit Sistem Informasi/ Teknologi Informasi Dengan Kerangka Kerja COBIT untuk Evaluasi Manajemen Teknologi Informasi di Universitas XYZ [12]		√
8	Pembangunan Tools Audit Sistem Informasi Berdasarkan COBIT 5 pada Domain Align, Plan, And Organize (APO) [13]	√	
9	Penerapan Framework COBIT 5 pada Audit Tata Kelola Teknologi Informasi di Dinas Komunikasi dan Informatika Kabupaten Oku [14]	√	
10	Analisis Audit Sistem Informasi pada Domain APO (Align, Plan, and Organize) Manage Quality dengan menggunakan Cobit Framework [15]	√	
11	Audit Sistem Informasi pada PT Antam (Persero) Tbk Menggunakan Pendekatan COBIT [16]		√
12	Audit Sistem Informasi Perpustakaan Menggunakan Domain Acquire and Implement berbasis Cobit 4.1 pada Perpustakaan di Perguruan Tinggi Swasta Surabaya [17]	√	
13	Audit Tata Kelola Sistem Informasi Menggunakan Kerangka Kerja Control Objective for Information and Related Technology (COBIT) [18]	√	
14	Audit Sistem Informasi Sumber Daya Manusia pada PT X Menggunakan COBIT Framework 4.1 [19]	√	
15	Perancangan Panduan Kerja Audit Sistem Informasi pada Perusahaan Jasa Web Hosting Berbasis Framework COBIT 4.1 [20]	√	
16	Audit Sistem Informasi Manajemen Sekolah Menggunakan Framework COBIT 4.1 Studi Kasus pada SMK Labor Binaan FKIP UNRI [21]	√	
17	Audit Sistem Informasi Menggunakan Framework COBIT 4.1 Pada E-Learning Unisnu Jepara [22]	√	

No	Paper Title	Category Paper	
		Paper with the title is information system audit, but the content discusses maturity/capability level without any discussion of the audit process	Paper with the title is information system audit and content discusses the process of information system audit
18	Audit Sistem Informasi Menggunakan Framework COBIT 4.1 pada PT. Aneka Solusi Teknologi [23]	√	
19	Audit Sistem Informasi Menggunakan Framework COBIT 4.1 Domain Acquire and Implementasi (AI) (Studi Kasus: Dinas Komunikasi dan Informatika Kota Malang) [24]	√	
20	Audit Sistem Informasi Menggunakan Framework COBIT 4.1 (Dengan Domain Monitor and Evaluate) pada PT. Samudera Indonesia Tbk [25]	√	

6. Conclusions

Understanding the concept of auditing information systems based on the results of a study of 20 scientific papers still turned out different. From twenty scientific papers, 85% paper with the title is information system audit, but the content discusses maturity/capability level without any discussion of the audit process. Only three (15%) working papers are with the title information system audits. Their contents discuss the process of information system audit and distinguish the audit with the maturity/capability level that in line with the guidelines in the COBIT 4.1 Framework. This paper is expected to provide new enlightenment that information system audit is different from the maturity/capability level, which is also examined in the COBIT 4.1 framework. An information system audit is a strategy of assembling and comparing evidence to establish a computer system that can be accounted for integrating data, can encourage the collection of effective organizational goals, and use resources efficiently. Several aspects are discussed in the information system audit which includes the overall audit, efficiency, system availability, reliability, confidentiality, and integrity, security aspects, audit of processes, program modifications, audits of data sources, and data files. The future research of this paper is to conduct a comprehensive study related to topics related to IT Audit using a systematic literature review (SLR) methodology.

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