

The Role of IT Audit in the Era of Digital Transformation

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Abstract. The purpose of this paper is to explain that the evolving digital transformation will automatically affect the role of IT audit. In the era of digital transformation, IT audit will become increasingly involved to ensure that IT implementation does not create unacceptable risks to the business. That way, the IT audit should have gained a favourable position as many companies are transforming the business as it is today. This research methodology use a qualitative approach by emphasizing the data analysis. The result of this research can contribute to the field of modern IT audit by presenting practical guidance for determining the role of IT audit in the era of digital transformation.

1. Introduction

In the era of digital transformation, IT risk is the main focus for top management, especially in business decision making [1]. This is because the current IT risk will not only threaten the IT environment but can also make the company lose its overall business [2]. Limited knowledge of top management about IT make it difficult for them to evaluate the effectiveness of IT implementation on their business [3]. The top management has realized that IT audit become so important to help management to evaluate of IT implementation [4] in order to ensure that IT implementation does not create unacceptable risks by businesses [5]. In other words, the IT audit should have gained a favorable position as many companies are transforming the business as it is today [6-7].

However, current IT audit is still not able to provide value added to the business [8]. The existence of IT audit is often considered less important and even impressed only to exist [9]. This is mainly due to the fact that IT audit not being prepared with changes in the business environment that occurred [10-11]. Thus, it is necessary to refine and redefine the role of IT audit, especially in the era of digital transformation [6-12].

Therefore, it is important to study the role of IT audit in the era of digital transformation. The purpose of this paper is to explain that the evolving digital transformation will automatically affect the role of IT audit, and this will be a good opportunity to improve the role of IT audit. The results of this study can contribute to the field of modern IT audit by presenting practical guidance in determining the role of IT audit in the era of digital transformation. The purpose of this paper is to explain that the evolving digital transformation will automatically affect the role of IT audit.

2. Methods

This research is a kind of general review that it uses a qualitative approach by emphasizing the analysis and descriptive in order to support the discussion about the role of IT audit in the era of



digital transformation. The data sources used in this study are from various literature about IT audit. The data analysis used in this study consists of four stages. The first stage is the identification of the need for IT audit in the era of digital transformation. The second stage is the identification of the impact of digital transformation on IT audit. The third stage is the identification of key aspects in determining the role of IT audit. Furthermore, in the fourth stage is to analyze the changing role of IT audit.

3. Result and Discussion

3.1. Importance of IT Audit

In order to increase the business value and become a market leader, various industries have transformed their product and operations into the digital ecosystem [13]. In the era of digital transformation as it is today, the proper use of IT is the best way to be chosen by a company [14-15]. In other words, IT has become a major instrument in the changing business [2]. Therefore, the company must have good competence and knowledge in IT investment selection and its implementation [15].

In addition, top management is required to have a sense of belonging and a fairly intense engagement in support of effective IT implementation. One concrete way is to make the measurement of the effectiveness of IT implementation as one of their key performance indicator (KPI) [15]. This needs to be done in order to maintain the value of IT investment, as well as minimize the risks that will arise. So that IT implementation can be effective in supporting the business, and even expected to open the opportunity to create a new business model [2-16].

However, the IT investment made by most companies often do not achieve the expected results and often even harm the company: failure, waste of money, cybercrime, and others [17-18]. To that end, the company needs a systematic, independent and objective insurance function to provide reasonable insurance, that is through the practice of IT audit.

3.2. Digital Transformation and Its Effects on IT Audit

In digital transformation, the company must follow the rapid changes that occur. It causes IT audit become increasingly involved and become a mainstay of the company in the evaluation of IT. In other words, digital transformation has opened up new opportunities for IT audit to play a greater role in contributing positively to the company. This is certainly a good opportunity for IT audit to be able to change the negative perceptions of IT audit practices that have been perceived by auditee. However, digital transformation not only opens opportunities for the existence of IT audit but also raises challenges for IT audit practices, especially regarding the efficiency and effectiveness of IT audit [19-20] which often makes IT audit targets to deviate from business objectives [21].

In general, there are at least three issues and challenges that arise in the IT audit as a result of digital transformation [14]:

- The increased volume of available data.
Data integrity, data reliability, data completeness, and data security are the problems arising from the increased volume of data available. This means that IT audit will be faced with issues related to the data, especially in the use of data during the IT audit process and especially when making IT audit conclusions.
- The emergence of new technology.
The emergence of new technologies provides new benefits and risks to the company. This means that IT audit will be faced with new risks. The new technology is like hyperconnectivity, new payment methods, big data, BYOT, and others.
- Reform requirements and regulations.
Around the world, there has been an increase in reforms of requirements and regulations. This means that IT audit are faced with issues related to regulatory changes that occur, especially in offsetting the rapid changes to IT-related regulations and other compliance requirements.

Besides that, digital transformation also affects the increasing need for qualified IT auditors. The company must begin to prepare well the IT auditor in order to follow the various changes that exist [5]. In order to properly evaluate risk, the IT auditor must have extensive knowledge and experience not only on the subject and related regulations but also to have a broad knowledge of information and communication technology, as well as the modern trends happening in the field [7]. IT auditors also require special skills and knowledge related to security aspects [7].

In addition, the widely used frameworks in IT audit practices such as ISO 27002, COSO and COBIT are also issues. The framework is still too large to be managed [4] and is considered to be unable to assist in supporting the effectiveness of IT audit practices in today's business environment [11].

Thus, it is undeniable that digital transformation has affected how IT audit is conducted [12]. So IT audit must constantly make improvements and adjustments to complex environments as a result of digital transformation [22].

3.3. *The Role of IT Audit*

The role of IT audit will vary between companies, even if they are in the same industry. In other words, the role of IT audit cannot be made universal or equated to the whole company, this is because each company will have different IT audit universe and IT audit characteristics. The role of IT audit will depend on how the company defines IT audit universe and IT audit characteristics.

The definition of IT audit universe will be largely determined by how much value and risk of IT in the company [16][23]. Therefore, it is important for the company to define the IT audit universe before engaging in IT audit practices. Companies can define IT audit universe using own frameworks based on their current needs (project, risk, etc.), or it can also define IT audit universe based on existing IT audit frameworks [24]. The Institute of Internal Auditors (2013) argues that IT audit universe can be defined based on 4 aspects as follows [16]:

- IT management, a collection of people, policies, procedures, and processes that govern the IT environment, such as software development life cycle, system monitoring, IT planning, change management, vendor management, IT project management, disaster recovery, service management, security management, and IT governance
- Technical infrastructure, the underlying technology in supporting major applications for businesses, such as operating systems, database management systems, networks, data centers, and security infrastructures.
- Applications, computer programs that perform specific tasks related to the business operations of the company and become an integral part of business processes, such as transactional applications and support applications.
- External connections, an external network connected to an operational network. The operational network will not operate if it is not connected to the external network, such as the internet, cloud computing, and software as a service provider.

IT audit characteristics will determine the success of the role of IT audit. Therefore, IT audit characteristics become important to be the top management concern in the IT audit practices [23]. The IT audit characteristics are closely related to the IT audit universe, meaning that any IT audit universe will have different IT audit characteristics [23]. In general, the definition of IT audit characteristics can refer to 3 key elements as follows [25-26]:

- Resources, the availability of resources related to IT audit practices, such as a number of IT auditors, IT audit budgets, tools and techniques, theories and methodologies, and standards/frameworks.
- Competencies, the skills or capabilities of the internal audit department related to IT audits, such as the maturity of the IA organization, experience, interpersonal skills, knowledge, number of hours the IT auditor, and number of IT auditors who have certified.

- Interaction with Board of Directors Committee, how the interaction between internal audit department and audit committee related to IT audits, such as structure of reporting, IT audit senior executive involvement, and IT audit committee involvement.

3.4. *The Changing Role of IT Audit*

Traditionally, the role of IT audit is done by using a traditional approach. The traditional approach is a compliance-oriented IT audit, with a focus on analyzing and disclosing past practices [4-27]. In other words, the role of IT audit is perceived by the auditee as "a corporate watchdog" in charge of monitoring compliance with an IT-related policy or procedure [28]. However, a nowadays traditional approach has been abandoned and has started to shift toward modern IT audit. A modern approach is an IT audit that is oriented to risks that can hamper business performance improvements [4]. In other words, the role of IT audits is perceived by the auditee as "right hand" to assist the auditee in continuously improving business performance [28], as well as focusing on the future [27]. Thus, the role of IT audit should start focusing on IT risks for businesses. In addition, IT audit should also start thinking how to be able to contribute positively to the company.

Guideline for Determinate the Role of IT Audit in the Era of Digital Transformation

In determining role of IT audit in the era of digital transformation, there are 2 key elements that must be considered by the company related to the effectiveness and efficiency of IT audit practices:

- Defining IT audit universe based on IT value and risk for the business.
- Identify the characteristics of the existing IT Audit in the company, as well as the effort to fulfill the gap on the IT audit characteristics required by each IT audit universe.

Deloitte (2015) has provided an example of defining an IT audit universe that can be used in the era of digital transformation. The definition of IT audit universe is conceptualized in 3 different levels, ie core level, advanced level and emerging level. Specific from each level can be seen in Table 1 [23].

Table 1. IT audit universe based on Deloitte.

	IT Audit Areas
Core	IT Risk Assessment, ICFR Certification IT Controls, Enterprise Security Health, ERP Controls, Segregation of Duties, Business Continuity Management & Disaster Recovery Planning, and Business Process & Sys Transformation Pre-Impln reviews
Advanced	IT Governance, ERP Governance, Risk, and Compliance, App Development Security, Application Security, Vulnerability Management, Software Asset Management, EUC/Spreadsheet Integrity, IT Outsourcing & Third Party Risk Management, and IA Data Analytics
Emerging	Cloud Computing, Social Media, IT Risk Management, Mobile Security, Data Privacy & Protection Risk Assessment, Cyber Risk Assessment and audit, Predictive Project Analytics, and Sustainable IT

However, it should be noted that the IT audit universe is an integral part of the global audit universe that has been created by the company. This is because digital transformation has changed the existence of IT audit into an inseparable part of the entire audit process [28][29]. Therefore, the company must always ensure that the IT audit universe that has been created does not deviate from the global audit universe.

After defining the IT audit universe, then the company should be able to know the IT audit characteristic needs of each IT audit universe. Thus, the role of IT audit will be optimally executed and will be able to deliver results in accordance with expectations, if the company has to know the gap

between the characteristics of IT audit owned by the characteristics that should exist, for the next company seeks to meet the gap.

4. Conclusions

A digital transformation has been done by many industries. Its development has had an impact on IT audit practices, such as the increasing demand for IT audit and the opening of opportunities for IT audit to improve their roles in order to make a real contribution to the development of business and organizations. On the other hand, digital transformation also provides a number of issues and challenges for IT audit resulting in increased complexity of IT audit practices. In addition, an increase in the need for qualified IT auditors, as well as lack of support from existing IT audit frameworks, is also a problem in modern IT audit.

Therefore, it is important for top management to understand the role of IT audit within the company and its impact on business continuity. With the IT audit universe, it can be clearly described how the role of IT audit will be run by a company. The definition of IT audit universe can refer to the existing IT audit framework, or the company can make its own IT audit universe tailored to the needs of the company.

Every IT audit universe has different IT audit characteristics, so it can not be made universal, as the IT audit personnel needs, the cost, the complexity of the risk, and the IT audit methodology will differ from one IT audit universe with other IT audit universe. In order to optimize the role of IT audit and in accordance with company expectations, it requires commitment from top management to meet the needs of IT audit characteristics of each IT audit universe.

In conclusion, digital transformation is a good opportunity for IT audit to play a more positive role and contribute to the development of business and organizations. Defining IT audit universe and IT audit characteristics becomes a key element in driving the changing role of IT audit in order to become more relevant, forward-looking, and risk-focused. In addition, the high demand for qualified IT auditors, as well as the need to adapt specifically to existing IT audit frameworks, will be an interesting issue for further research in order to support the effectiveness of modern IT audit in the era of digital transformation.

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