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# A SYSTEMATIC LITERATURE REVIEW: QUALITY MANAGEMENT OF INFORMATION TECHNOLOGY GOVERNANCE COBIT 2019 FRAMEWORK EDUCATION FACTORS IN INDONESIA

## Abstract

Reviewing information technology (IT) governance in the education sector in Indonesia using the COBIT 2019 framework through a systematic literature review (SLR) approach. COBIT 2019 is a global framework designed to assist organizations in managing IT effectively. The COBIT 2019 framework is a global standard for IT governance, which integrates quality management to achieve strategic goals. In the education sector, implementing quality IT governance is essential to support the ongoing digital transformation. The SLR process involved identifying, selecting and analyzing relevant literature to evaluate the implementation of COBIT 2019 in the Indonesian education sector. The results show that this framework can help improve the quality of IT governance, especially in terms of risk management, resource efficiency, and operational sustainability. The findings show that COBIT 2019 implementation in the education sector faces challenges such as a lack of management understanding, limited human resources, and inadequate infrastructure support. To overcome these challenges, collaboration between the government, educational institutions, and the private sector is required. The study also emphasizes the importance of continuous training to improve the understanding of management and IT staff in implementing COBIT 2019. Emphasizing the importance of integration between technology and education aspects in an effort to improve the quality of education services. The framework is considered capable of encouraging collaboration between various stakeholders to achieve the goal of sustainable education in Indonesia.

**Keywords:** *IT Governance, COBIT 2019, Education, Quality Management, Indonesia.*

## 1. INTRODUCTION

The era of rapidly developing digitalization, information technology (IT) has become an important factor in supporting the development of various sectors, including education [1][2]. Indonesia really needs the role of information technology in the world of education, which plays a very important role [3] in the process, it requires up-to-date and always up-to-date sources of information [4]. Organizations show increasing attention to IT from year to year [5]. Steps to achieve the implementation of information technology can be well utilized for the organization, then its governance must be periodically monitored with its standards [6][7][8].

Evaluation needs to be carried out in the technology governance management process where there are frequent changes in policy direction and functional needs between stakeholders, executives and related management parties [9]. Educational institutions, information technology greatly supports administrative and academic processes, so that activities can take place more effectively and efficiently [10]. Therefore, effective information technology governance is needed to ensure that IT can optimally support the mission and vision of educational institutions [11][12].

The COBIT (Control Objectives for Information and Related Technology) 2019 framework is one of

the most widely used frameworks in IT governance. [13][14] This framework provides a structured approach to ensuring alignment between business strategy and information technology [15], and provide guidance in risk management and analysis of IT Governance quality resources [16][17][18]. COBIT 2019 is a relevant tool to be implemented in the education sector, especially in the context of information technology governance in Indonesia which has its own challenges and problems [19][20].

The proposed systematic literature review (SLR) aims to conduct a systematic literature review related to information technology governance quality management using the COBIT 2019 framework with a focus on the education sector in Indonesia. The SLR approach was chosen to identify, analyze, and conclude several relevant researchers to gain a deep understanding of the implications and impacts of the research results.

Literature is also proposed to identify key factors that influence the success of IT governance implementation in the context of education in Indonesia. Based on the proposed literature, it is expected to provide comprehensive insight into the implementation, challenges, and opportunities in implementing the COBIT 2019 framework in the education sector. The expected results can be a reference for policy makers, IT managers, and education practitioners in designing and implementing

effective, sustainable, and appropriate IT governance according to the needs of educational institutions in Indonesia.

Therefore, the literature will discuss the assessment of the use of the COBIT Framework 2019 in the management of the quality of governance of Information Technology in the field of Education. Management of the management of the quality of governance of Information Technology in the field of education, which is summarized in 2 literature questions (RQ, research questions). The research method used in writing this journal uses the Systematic Literature Review method. The structure consists of a research method that explains the SLR approach method used. Result discussion and Conclusions that we can convey.

## 2. RESEARCH METHOD

The research method consists of literature in an approach that includes several aspects related to the proposed identification based on data searches in Google Scholar, screening, eligibility, and inclusion to load the method approach shown in Figure 1.

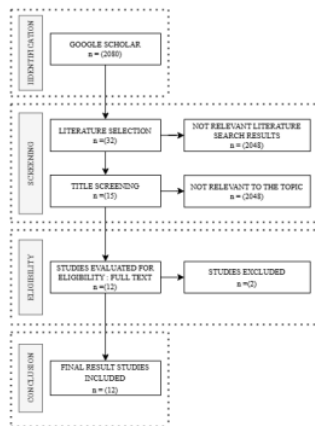


Figure 1. Identification alure

The methodology or method used in this study uses the SLR (Systematic Literature Review) approach. This study is based on journals that have the topic of IT governance quality management in the scope of education. The journals obtained are sourced from national journals on the Google Scholar platform using the keywords IT governance management using the COBIT 2019 Framework for education, COBIT 2019, COBIT 2019 framework and IT governance management.

A systematic literature review is a rigorous method for synthesizing evidence on a particular topic, reducing bias, and providing a comprehensive picture. [21][22]. This is especially important in interdisciplinary research where different approaches, perspectives, and research methods can be mapped. [23][24] Paper contributions in general, our contributions in this systematic literature reviews and analysis article can be stated as follows:

1. Investigasi Research Questions
2. Literature Search
3. Literature Selection
4. Quality Assessment
5. Overview of open challenges and future research directions

The study conducted enhances the existing survey by providing a detailed and up-to-date review and analysis based on the most recent year to help researchers in understanding and utilizing the key elements of cobit governance quality management 2019. The literature also helps in knowing the limitations available at present, open research issues, and challenges by which one can decide the direction of future research.

### 2.1 Research Questions

Determining the Research Question (RQ):

1. RQ1: What COBIT frameworks are used in case studies of IT governance quality, particularly in education?
2. RQ2: What domains are the focus of education in IT Governance Quality?

### 2.2 Literature Search

The literature search process was conducted to obtain relevant research data sources to answer the research questions and related references. The literature search process was conducted in the Google Scholar database using the keywords "COBIT 2019", "governance quality", and "education". The year of publication of the journal is limited between 2020 and 2024. The journals obtained based on the search results amounted to 2080 in general and will be further specified in the details of the files with the details in Table 1, which can be illustrated and displayed below:

Table 1. Literature Search Results

Database	Number of Files
Google Scholar	2080
Total	2080

### 2.3 Literature Selection

Inclusion and exclusion criteria will be used to select the selected literature or journals. This will be done so that the literature or journals are in accordance with the needs and can be used in this SLR research.

The inclusion criteria will be as follows

Inclusion criteria:

- a. The research used was obtained from the Google Scholar database.
- b. The research has a COBIT scope with case studies of activities in education.
- c. The research mentions and explains the COBIT domains used.
- d. Research using Indonesian and international languages.

Exclusion criteria

- a. Research is a final assignment that has not been published.

b. The research does not explain the COBIT domain used.

From the literature selection based on the inclusion and exclusion criteria above, 32 journal files were obtained with details in Table 2 below:

Table 2. Literature Selection

Database	Number of Files
Google Scholar	32
Total	32

#### 2.4 Quality Assessment

The data or journals obtained will be evaluated based on quality assessment criteria questions, which may include the following:

- QA1: Does the journal contain domains that focus on education related to information technology governance quality management using the COBIT 2019 framework?
- QR2: Does the journal state what domains are used?

### 3. RESULT AND DISCUSSION

#### 3.1 Domain Scope

Data analysis is conducted to gain a more detailed understanding of the selected references. In this case, the literature will describe the results of research related to the scope of the IT governance quality domain in the field of education. The description can be seen in table 3 domain scope analysis including the name of education, the scope of COBIT 2019 research and the level of maturity of the capability calculation used by each study.

Table 3. Domain Scope Analysis

No	Journal	Education	COBIT 2019 research scope	Capability Level
1	[22]	Universitas XYZ	APO03	2
			APO09	2
			APO12	2
			APO13	2
			APO14	2
			BAI03	2
			BAI06	2
			DSS04	2
			DSS01	3
			DSS05	3
2	[11]	Universitas Muria Kudus	EDM04	3
			APO01	3
			APO02	3
			APO07	3
			APO11	3
			APO12	3
			APO14	3
			DSS01	3
			DSS05	3
			MEA01	3
3	[15]	STMIK Pringsewu	MEA02	3
			APO07	2
			DSS05	2
			DSS05	2

4	[25]	Universitas Mandiri	MEA01	2
			MEA02	2
			MEA03	2
			MEA04	2
5	[26]	Perguruan Tinggi XYZ	DSS02	2
			BAI01	3
			MEA01	3
			MEA02	3
			MEA03	3
			MEA04	2
6	[3]	Universitas Tanjungpura	APO08	5
			APO09	1
			APO11	2
7	[27]	Pontianak Institusi Pendidikan Tinggi XYZ	EDM01	0
			EDM02	0
			EDM04	1
			APO01	0
			APO02	0
			APO04	0
			APO07	0
8	[28]	STMIK Palcomtech	BAI01	0
			BAI02	0
			EDM02	-
			EDM03	-
			APO04	-
			APO08	-
			APO09	-
			APO12	-
			APO13	-
			BAI01	-
9	[1]	XYZ di Pekanbaru	BAI02	-
			BAI02	-
			EDM02	-
			EDM03	-
			APO04	-
			APO08	-
			APO09	-
			APO12	-
			APO13	-
			BAI01	-
10	[12]	KAMPUS XYZ	BAI02	-
			BAI03	-
			BAI06	-
			DSS05	-
			MEA03	-
			APO04	2
			APO07	2
			BAI02	3
			BAI03	2
			BAI11	2
10	[12]	KAMPUS XYZ	DSS01	2
			DSS04	2
			DSS05	2
			EMD01	3
			EMD03	1
			EMD04	1
			APO04	3
			APO07	2
			BAI05	3
			BAI09	3
10	[12]	KAMPUS XYZ	MEA04	1
			MEA04	1

#### 3.2 Distribution of Research Years

Analysis in related studies, there are 2080 relevant studies, based on 32 studies after a thorough review that meets the inclusion and exclusion criteria designed quantitatively. In 32 published studies, 10 studies out of 32 have domain scope analysis with education related to IT governance management.

Details 2 year can be presented to show in-depth interest. The search grouping chart by year is shown in Figure 2.

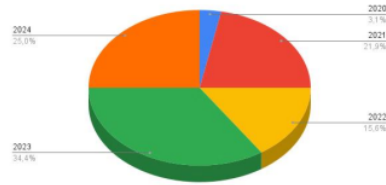


Figure 2. Identification Research Year

### 3.3 Calculation Topic of levels

Many studies have conducted general case studies for IT governance. Studies have also explored several factors such as maturity level, capability level, COBIT 2019, and IT governance. The topic distribution graph is shown in Figure 3 with the number of research units.

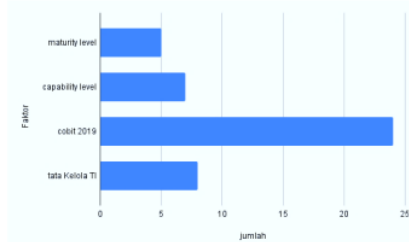


Figure 3. topics

The graph shows the frequency distribution based on the main factors that are the focus of research related to information technology (IT) governance using the COBIT 2019 framework. The COBIT 2019 factor has the highest number compared to other factors, with a striking value of more than 20 times mentioned. This shows that the COBIT 2019 framework is a central element and is most often analyzed in research related to IT governance, especially in the context of supporting risk management, increasing operational efficiency, and achieving strategic goals.

### 3.4 Identification of Data Collection

The frequency of data collection methods in IT governance based on COBIT 2019 shows that the questionnaire method is used most often, followed by interviews, and the mixed method is used least often. This reflects that the survey approach through questionnaires is more often used in IT governance evaluations, as it is convenient to reach a wide range of respondents and allows for structured data collection. Meanwhile, interviews are used to explore more in-depth qualitative information. Mixed methods, although rarely used, provide a balance between quantitative and qualitative data. This

approach reflects the flexibility of COBIT 2019 to support data-driven decision-making according to the needs of the organization.

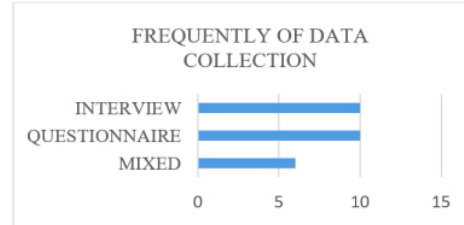


Figure 4. Frequently of Data Collection

### 3.5 Analysis of findings

In this journal, the results of applying the COBIT 2019 framework to IT governance in the education sector in Indonesia provide important insights. The research shows that COBIT 2019 can effectively improve risk management, resource efficiency, and operational sustainability in educational institutions. However, the main challenges are a lack of management understanding of the framework and limited trained human resources. In addition, inadequate IT infrastructure is a barrier to optimal implementation. The findings highlight the need for collaboration between government, educational institutions, and the private sector to address these issues. With an integrated approach and continuous training, educational institutions can reap the benefits of COBIT 2019 to improve the quality of educational services, strengthen information security, and support innovation in the digital age. This study provides practical guidance for policymakers and practitioners to improve IT governance.

### 3.6 Research recommendations and motivation

The maturity level is very necessary to determine the operational level of an organization. The higher the maturity level, the better the IT governance process. [29]. Improve IT maturity in the Developer development focus area [30]. Developers must have familiarity with how the topic is interpreted and the epistemology and methodology that guide the interpretation of the measures, and the recent validation of each domain used in the validation of capability values.

Research should, in most cases, not aim to target a broad domain but rather a series of well-defined frames, design factors, principles, detailed domains, and the addition of the system's purpose domains. Using a six-point Likert-scale questionnaire indicator is used referring to previous research or interviews that can be used in the same object to measure previous differences.

Some researchers do not mention the transparency of the objects used in the research. The cause of the lack of transparency in the research leads to repetition in the research, which is only the application of the

domain in management management. The lack of object transparency is a common problem with IT governance approaches. This needs to be evaluated in further reviews. Recommendations for research: The role of user knowledge such as experimental studies should be conducted to bridge the gap between theory and applied use such as data collection using mixed methods from Creswell's theory. [1][2].

The knowledge-based institutional strategy [31] targeted at university students, segmenting students who have an important role in technology can make the validation of the questionnaire more accurate. Some researchers focus only on irrelevant objects that can be changed to also be able to evaluate IT strategic decisions and how IT and business determine their priorities to allocate the right IT resources [32]. Build a customized Information Technology Governance strategy for Higher Education: The Strategic Model can also study the implementation and impact of Information Technology Governance (ITG) which should provide recommendations [33]. The ITG core model recommendations can be implemented [34].

#### **4. CONCLUSION**

The systematic literature review describes the research focus on evaluating the implementation of COBIT 2019 in the context of education. Based on the review, COBIT 2019 provides a comprehensive approach to improving IT governance with the goal of aligning technology needs with organizational goals, particularly in educational institutions. The COBIT 2019 framework has been proven to provide effective guidance to ensure alignment between IT strategy and the goals of educational institutions, including managing risk, improving efficiency, and strengthening operational processes.

In the context of Indonesian education, the main challenges include limited management knowledge of the framework used, lack of training for IT personnel, and inadequate infrastructure in the education sector. However, with the right implementation strategy, COBIT 2019 can help overcome these obstacles, such as increasing IT management efficiency, strengthening data security, and ensuring compliance with education regulations.

This study also underlines the importance of human resource development and continuous training to support the implementation of the COBIT 2019 framework. Collaboration between the government, educational institutions, and the private sector is needed to overcome obstacles and maximize the potential of this framework. Optimal implementation of COBIT 2019 can be a strategic solution for the education sector in Indonesia to support innovation and sustainability in the digital era. These findings provide practical guidance for policy makers and practitioners in improving the quality of IT governance in educational institutions.

#### **5. REFERENCE**

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