

COBIT 2019 Framework in IT Governance: A Systematic Literature Review of Implementation Challenges and Benefits Across Various Industry Sectors

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Abstract

Information technology (IT) governance is a critical factor in ensuring that IT investments align with business objectives, improve operational efficiency, and mitigate risks across various industries. COBIT 2019, a widely used IT governance framework, has been adopted in numerous sectors to address these needs. This study explores the implementation of COBIT 2019 by conducting a systematic literature review (SLR) of 23 relevant articles published between 2020 and 2024, sourced from internationally indexed journals. The research focuses on identifying the challenges, benefits, success factors, and strategies to mitigate the issues encountered during the implementation of COBIT 2019. The findings indicate that COBIT 2019 has been successfully applied in diverse industries such as education, healthcare, logistics, and mineral mining, demonstrating its flexibility and adaptability to different organizational contexts. Key benefits include improved alignment of IT with business strategies, enhanced risk management, better resource optimization, and increased operational efficiency. However, challenges such as the complexity of the framework, limited resources, and a lack of understanding of the framework's terminology have been identified. Successful implementation is largely dependent on strong management support, stakeholder engagement, and adequate resource allocation. Mitigation strategies such as ongoing training, development of comprehensive communication plans, and regular evaluation of IT governance practices have been suggested to overcome these challenges. This study provides practical insights into the implementation of COBIT 2019, offering organizations guidance on maximizing its benefits while addressing the barriers to successful implementation.

Keywords: COBIT 2019, IT Governance, Implementation Challenges, Benefits, Systematic Literature Review

Introduction

Effective information technology (IT) governance is a crucial element in supporting business strategies, improving operational efficiency, and ensuring information security across organizations. By aligning IT objectives with business strategy, organizations can improve governance effectiveness, optimize resources, and reduce information security risks. (Wijaya, 2023). In this case, the implementation of COBIT 2019 is relevant as it provides a comprehensive framework for managing IT. For example, in the mineral mining sector, COBIT 2019 helps improve IT governance by focusing on managing information security risks and improving compliance with applicable policies and regulations (Mubarak & Fianty, 2023). In the business process outsourcing sector, COBIT 2019 supports performance measurement and facilitates access to knowledge repositories, ultimately improving the effectiveness of IT governance (Fianty & Brian, 2023). Therefore, this research was conducted to answer the increasingly urgent needs of organizations in aligning information technology with business objectives, in order to create strategic and operational alignment.

COBIT 2019 is an information technology governance framework designed to help organizations achieve business objectives through effective IT management. It also serves as an audit framework used to control IT governance in a structured and standardized manner (Ramadhana et al., 2023). COBIT 2019 offers various benefits, including increasing confidence in IT management and strengthening internal control procedures. In addition, the framework helps fill gaps in economic units that use IT in their activities, thereby improving operational efficiency and organizational sustainability (Jawad et al., 2023).

The purpose of this systematic literature review is to identify the industry sectors that have adopted COBIT 2019 for information technology governance. In addition, this research also aims to analyze the main challenges faced in implementing COBIT 2019, explore the benefits gained from implementing the framework, and identify success factors that influence the effectiveness of its implementation. Furthermore, this research formulates mitigation strategies to overcome the challenges that arise during the implementation of this framework.

This research is expected to contribute in several important aspects. From the academic side, this research enriches scientific references related to COBIT 2019 implementation, especially in the context of information technology governance. From the practical side, this research offers guidance for organizations that want to adopt COBIT 2019 by providing insights on how to overcome challenges and maximize benefits. In terms of methodology, this research presents a systematic approach through a literature review that can serve as a reference for future research. In addition, from a strategic perspective, this research provides evidence-based recommendations to improve the effectiveness of COBIT 2019 implementation in various industry sectors.

The writing structure of this research is organized systematically. The first section discusses the introduction, which includes the background, problem formulation, research objectives, research contribution, and scope of study. The second section explains the literature review, covering the basic concepts of COBIT 2019, challenges, benefits, and relevant previous research related to information technology governance. The third section describes the research methodology, including the methods used, article selection process, inclusion and exclusion criteria, and data analysis approach. The fourth section presents the results and discussion, which includes the implementation of COBIT 2019 in various sectors, challenges faced, benefits gained, and success factors. Finally, the fifth section presents conclusions that summarize the research findings, practical applications, study constraints, and suggestions for subsequent investigations.

Literature Review

COBIT 2019 is the latest framework for enterprise and information technology (EGIT) governance designed to provide a flexible and integrated approach to governance design and implementation. The framework introduces new governance and management objectives such as "managed data" (APO14), "managed projects" (BAI11), and "managed assurance" (MEA04), as well as concepts such as focus areas and design factors. With a goals cascade approach, the framework supports the achievement of IT goals that are aligned with business strategies. COBIT 2019 also comes with four key guidelines: core methodology, governance objectives, design guidelines, and implementation guidelines to maximize the business value of information technology (De Haes et al., 2019).

The framework also emphasizes six core principles, namely creating value for stakeholders, holistic approach, flexibility to change, distinction between governance and management, customization to the specific needs of the organization, and end-to-end coverage that covers all enterprise functions. In addition, COBIT 2019 is equipped with four key guidelines, namely core methodology, governance objectives, design guidelines, and implementation guidelines, to maximize the business value of information technology and help senior management understand IT's contribution to the organization's strategic goals (Ahmed et al., 2022).

COBIT 2019 provides various benefits in information technology (IT) governance by supporting the strategic alignment of IT with the company's business objectives, ensuring IT services and new projects provide significant added value, and managing risks to protect the organization from potential disruptions or threats. In addition, the framework helps optimize the management of IT resources, including people, technology, and budget, thereby supporting operational efficiency. COBIT 2019 also enables organizations to measure IT performance in a structured manner, ensuring the achievement of strategic and operational goals with globally acceptable standards (Davis, 2021).

The challenges of COBIT 2019 implementation are multifaceted, including adaptation to organizational needs, deep understanding of the framework, and efforts to effectively integrate relevant processes. Many organizations experience difficulties in adapting COBIT components to their specific objectives, due to the complexity of the framework and the need for customization according to the organization's unique context. In addition, the process of mapping between organizational objectives and COBIT objectives often requires significant time and resources. Evaluation of capability levels also adds to the challenge, as organizations must ensure consistency in measurement and application of the practices laid out in COBIT 2019. This becomes more complicated in environments with limited resources or low IT governance maturity levels (Ishlahuddin et al., 2020).

Materials & Methods

This research employs the Systematic Literature Review (SLR) approach to identify and evaluate studies concerning the implementation of COBIT 2019. The steps involved in the SLR process include.

Research Question (RQ)

Research questions in this study are designed to explore the implementation of COBIT 2019, including the implementation industry, challenges, benefits, success factors, and mitigation strategies. The questions asked are as follows.

- RQ1 : Which industries is COBIT 2019 applied to?
- RQ2 : What are the challenges in implementing COBIT 2019?
- RQ3 : What are the benefits of COBIT 2019 implementation?
- RQ4 : What factors influence the success of COBIT 2019 implementation?
- RQ5 : What are the mitigation strategies to overcome the challenges of COBIT 2019 implementation?

Protocol Review

Research questions in this study are designed to explore the implementation of COBIT 2019, including the implementation industry, challenges, benefits, success factors, and mitigation strategies. The questions asked are as follows.

Inclusion and Exclusion Criteria

After the initial search, the articles found were screened in stages using inclusion and exclusion criteria to ensure relevance and quality according to the research objectives. The selection process began with an evaluation of titles and abstracts to exclude articles that did not fit the focus of the study, followed by a full-text assessment to evaluate the depth of content and relevance of empirical data. Next, articles were screened based on indexation criteria, where only articles that were internationally indexed or ranked above SINTA 3 were retained. The results of this selection are presented in the following table.

Table 1. Inclusion and Exclusion Criteria

Criteria	Description
Inclusion Criteria	Articles focus on the implementation of COBIT 2019. Written in English or Indonesian. Published between 2020 and 2024. Internationally indexed or ranked above SINTA 3. Relevant to the research questions that have been formulated.
Exclusion Criteria	Articles that are not available in full (limited access). Not relevant to the focus of the research question. No relevant empirical data. Not indexed internationally or under Sinta 3.

As a result of applying the inclusion and exclusion criteria, ineligible articles were excluded from the analysis. Next, the selection process continued with a more in-depth evaluation to ensure the remaining articles had strong relevance to the research questions and met the established quality standards.

Results and Discussion

Article Selection Process

Based on Figure 1, a total of 688 scientific articles were found through the search process using appropriate keywords in databases such as Scopus, Science Direct, and Google Scholar. From these results, an initial screening based on title and abstract was conducted, leaving 43 articles. The selection process then continued with the application of strict exclusion and inclusion criteria, resulting in 30 articles. In the final stage, a full text review of the articles was conducted, and 23 articles were selected from Scopus and SINTA indexed journals and proceedings with a rank above SINTA 3.

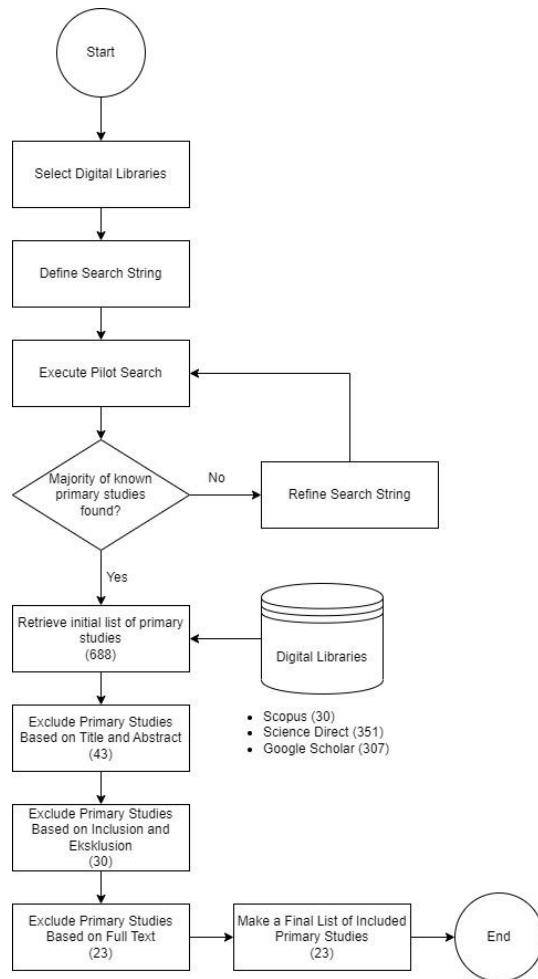


Figure 1. Article Selection Process Flow

Selected Article List

The search process for scientific articles resulted in a group of articles organized by title and journal, to facilitate identification of the type of data and publications obtained. Table 2 displays a list of selected articles, including author, year of publication, journal, and article title relevant to the topic of Challenges and Benefits of COBIT 2019 Implementation in Governance.

Table 2. Appendix of Selected Articles

No	Article	Journal
1	Analysis of Processes Information Flows and Items as Additional Design Factor in COBIT Framework (Rozehnal & Novák, 2021)	Central European Business Review
2	Leverage the COBIT 2019 Design Toolkit in an SME Context: A Multiple Case Study (Amore et al., 2023)	Economies of the Balkan and Eastern European Countries
3	Implementation Evaluation of Information Technology in the New Normal Era Using Cobit 2019 Method (Ajismanto & Surahmat, 2023)	International Conference on Advance & Scientific Innovation & Scientific Innovation
4	Evaluating the Performance of IT Management Under the Implementation of the COBIT 2019 Framework (Jawad et al., 2023)	Eximia Journal
5	Analysing IT Governance Maturity Level using COBIT 2019 Framework: A Case Study of Small Size Higher Education Institute (XYZ-edu) (Ishlahuddin et al., 2020)	2020 3rd International Conference on Computer and Informatics Engineering (IC2IE)
6	Applying COBIT 2019 to IT Governance in Higher Education Establishing IT governance for the collaboration of all universities and universities of applied sciences in Bavaria (Gerl et al., 2021)	INFORMATIK
7	Capability Assessment of IT Governance Using The 2019 COBIT Framework for the IT Business	International Journal of Science, Technology & Management

No	Article	Journal
8	Consultant Industry (Hardjadinata & Wiratama, 2023)	
8	Evaluation of The Implementation of Business Continuity Management Using COBIT 2019 Framework in Public Sector (Dionisius & Utama, 2023)	Journal of System and Management Sciences
9	Leveraging COBIT 2019 to Implement IT Governance in SME Context: A Case Study of Higher Education in Campus A (Utomo et al., 2022)	CommIT Journal
10	Utilization of the COBIT 2019 Framework to Identify the Level of Governance in Internet Services (Fernandez et al., 2022)	Jurnal Infotel
11	Information Technology Governance Audit Using The COBIT 2019 Framework at XYZ Institution (Francolla et al., 2022)	Cogito Smart Journal
12	Audit Tata Kelola Teknologi Informasi pada Perusahaan Menggunakan Domain DSS dan MEA Kerangka Kerja COBIT 2019 (Studi Kasus: Fakultas Teknik UNDIP) (Windasari et al., 2022)	Teknik
13	Measurement of IT Governance Capabilities Using COBIT 2019 in the Indonesian Business Sector (Cuatanto & Sutomo, 2023)	Indonesian Journal of Computer Science
14	COBIT 2019 Implementation for Enhancing IT Governance in Educational Institutions (Wattimury & Faza, 2023)	Jurnal Informatika Sunan Kalijaga
15	Analisis Tata Kelola Pusat Data dan Informasi Kementerian XYZ Menggunakan COBIT 2019 (Prasetyo & Sitokdana, 2021)	Journal of Applied Computer Science and Technology
16	Analysis of Information Technology Governance Using COBIT 2019 Framework (Case study: PT. Bangkit Anugerah Bersama) (Putra & Wijaya, 2022)	Journal of Information Systems and Informatics
17	Design of Information Technology Governance in Educational Institutions Using COBIT 2019 Framework (Tulus & Tanaamah, 2023)	Journal of Information Systems and Informatics
18	Leveraging COBIT 2019 Framework to Implement IT Governance in Business Process Outsourcing Company (Fianty & Brian, 2023)	Journal of Information Systems and Informatics
19	Audit Keamanan Sistem Informasi Manajemen Rumah Sakit dengan Framework COBIT 2019 pada RSUD Palembang BARI (Algiffary et al., 2023)	Journal of Applied Computer Science and Technology
20	Evaluation of Integration and Human Resources in Information Technology Governance using COBIT 2019: PT. Pelabuhan Indonesia Tanjung Priok Branch (Karo & Faza, 2023)	Journal of Information Systems and Informatics
21	Leveraging COBIT 2019 to Implement IT Governance in Mineral Mining Company (Mubarak & Fianty, 2023)	Journal of Information Systems and Informatics
22	Perancangan Tata Kelola Teknologi Informasi dengan Menggunakan Framework COBIT 2019 pada PT JWT Global Logistics Indonesia (Mariatama et al., 2022)	Jurnal Sistem Informasi dan Informatika
23	Pengukuran BSC TI Menggunakan Metrik Alignment Goals COBIT 2019 (Studi Kasus: Unit Business Complaint Handling Divisi Solution Delivery and Assurance PT XYZ) (Fadilah et al., 2022)	Jurnal Ilmiah Penelitian dan Pembelajaran Informatika

COBIT 2019 has been applied in various industries, ranging from education, health, to manufacturing sectors. In this RQ1, COBIT 2019 is used in the education sector such as Diponegoro University to improve efficient SI governance (Ishlahuddin et al., 2020). In the pharmaceutical sector, PT Bangkit Anugerah Bersama uses COBIT 2019 to improve

efficiency in the distribution of medical devices (Karo & Faza, 2023; Putra & Wijaya, 2022). In the logistics sector, PT Pelabuhan Indonesia Tanjung Priok implements COBIT 2019 to manage port operations, including ship and cargo services (Karo & Faza, 2023). In addition, the mineral mining sector also utilizes COBIT 2019 to improve risk management and information security (Mubarak & Fianty, 2023). This industry diversity reflects the flexibility and adaptability of COBIT 2019 for various organizational needs (Rozehnal & Novák, 2021).

In answering RQ2, various challenges in the implementation of COBIT 2019 have been identified, including the complexity of the framework and difficulty of understanding by the parties involved. In small and medium-sized enterprises (SMEs), the biggest challenge is the lack of SI resources as well as limitations in adequate IT skills (Amore et al., 2023). In the public sector, the National Single Window Agency faces difficulties in achieving the expected level of capability, especially in service continuity management (Dionisius & Utama, 2023). Challenges in the educational context include IT capability gaps, especially regarding the evaluation of the maturity level of the implemented systems (Ishlahuddin et al., 2020). In addition, many organizations are faced with challenges in understanding and implementing COBIT 2019 effectively amid limited resources (Ajismanto & Surahmat, 2023).

The benefits of COBIT 2019 implementation discussed in RQ3 vary widely and are closely related to the industry sector that adopts it. In the banking sector, COBIT 2019 improves risk management efficiency and strengthens internal control systems (Jawad et al., 2023). In the education sector, as in STMIK Palcomtech, the implementation of COBIT 2019 helps in SI risk management and improves the security of services used to support online learning (Ajismanto & Surahmat, 2023). In a healthcare context, Palembang BARI Hospital saw improvements in risk management and patient data security thanks to the implementation of COBIT 2019 (Algiffary et al., 2023). Other resulting benefits include improved operational efficiency and alignment between business strategy and IT in various sectors, such as logistics and education (Fernandez et al., 2022; Gerl et al., 2021).

RQ4 shows that the success of COBIT 2019 implementation is highly dependent on several key factors, such as stakeholder engagement and support from management. In the higher education sector, such as XYZ University, management commitment is a major determinant of the success of COBIT 2019 implementation, especially in the audit process and policy development (Francolla et al., 2022). In the public sector, the involvement of all work units in risk management and full support from management ensure the smooth implementation of this framework (Dionisius & Utama, 2023). In addition, in the mineral mining sector, a good understanding of strategic business needs helps determine priorities for developing better SI governance (Mubarak & Fianty, 2023).

In RQ5, the mitigation strategies proposed to overcome the challenges in COBIT 2019 implementation include developing a training plan and managing human resources. In the logistics sector, developing intensive training for IT staff and upskilling is a priority to address the skills gap (Mariatama et al., 2022). In the health sector, Palembang BARI Hospital adopts mitigation strategies through regular monitoring of security risks and strengthening of risk management policies (Algiffary et al., 2023). In addition, mitigation strategies in the education sector include the development of more structural governance policies and improved communication between units to achieve more effective COBIT 2019 implementation success (Windasari et al., 2022).

Conclusions

Based on the systematic literature review (SLR) conducted, it can be concluded that COBIT 2019 has been implemented in various industry sectors such as education, healthcare, manufacturing, and logistics, demonstrating the flexibility of this framework in supporting information technology (IT) governance. COBIT 2019 provides various benefits, including improved operational efficiency, better risk management, and alignment between business and IT strategies.

However, its implementation also faces significant challenges, especially in terms of the framework's complexity, limited human resources, and lack of understanding of COBIT 2019 terminology. The gap between expected capabilities and actual conditions is a barrier, especially in sectors with low IT governance maturity. Successful implementation of COBIT 2019 is highly dependent on management support, stakeholder engagement, and the availability of adequate resources. Recommended mitigation strategies to overcome these challenges include continuous training, improved communication, and periodic evaluation of IT governance policies. Thus, this SLR provides a comprehensive overview of the challenges, benefits, and success factors of COBIT 2019 implementation in various industries.

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