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SYSTEMATIC LITERATURE REVIEW: AN ANALYSIS OF THE USE OF COBIT 5 FOR THE MATURITY LEVEL OF E-GOVERNMENT IN INDONESIA

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ABSTRACT

This study examines the use of COBIT 5 in evaluating the maturity of e-Government initiatives in Indonesia through a Systematic Literature Review (SLR). A total of 20 relevant Scopus-indexed journal articles published between 2014 and 2023 were selected using purposive sampling techniques. The study aims to identify which COBIT 5 domains are most frequently applied, the measurement approaches used, the types of government organizations involved, and how COBIT 5 contributes to improving digital governance. The findings reveal that the most utilized domains are EDM (Evaluate, Direct, and Monitor), APO (Align, Plan, and Organize), and MEA (Monitor, Evaluate, and Assess). Surveys and questionnaires are the predominant research methods, and most studies report maturity levels at stage 2 (Repeatable) or 3 (Defined). Several research gaps were identified, including the limited number of longitudinal studies, lack of standardized implementation across agencies, and minimal integration of COBIT 5 with other IT governance frameworks such as ITIL or ISO 27001. The study concludes that a more comprehensive, consistent, and integrated use of COBIT 5 can offer better insights into the digital maturity of public institutions. The findings contribute to the literature by outlining research trends, identifying limitations, and offering directions for future studies.

KEYWORDS *Systematic Literature Review, COBIT 5, E-Government.*

INTRODUCTION

The development of information and communication technology has encouraged countries around the world to transform the administration of government in a more digital direction through the concept *of e-Government* (Aminah & Saksono, 2021; Huda & Yunas, 2016; Kettani & Moulin, 2014; Milakovich, 2012; Siddiquee, 2016). In Indonesia, the implementation *of e-Government* is known as the Electronic-Based Government System (SPBE), which is aimed at creating an effective, transparent, and accountable bureaucracy with the support of technology-based public services (Toifur et al., 2022; Wulandari et al., 2019). However, various studies and reports of supervisory institutions show that the digital transformation of government in Indonesia has not been fully optimal (Bahari et al., 2019). The maturity level of *e-Government* implementation

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in various agencies still shows disparities, both in terms of technology governance, human resource readiness, interoperability between systems, and the effectiveness of the services produced (Ministry of PANRB, 2020)

The problems that arise are not only related to the implementation of technology, but more deeply to the governance process and IT management capabilities in government institutions. The *e-Government maturity assessment* that has been used so far is still descriptive and administrative, tends to focus on the fulfillment of documents or regulations alone, and has not fully measured the performance of digital processes systemically. This shows that there is a *research gap* and *theoretical gap* between the SPBE assessment approach used in Indonesia and the capability-based process measurement approach as adopted in various international frameworks, such as COBIT 5 (Tangka et al., 2020).

COBIT 5 (Control Objectives for Information and Related Technology) is an information technology governance and management framework developed by ISACA and has been widely used by public and private institutions to assess and improve IT process capabilities (ISACA, 2012). COBIT 5 offers a process-based approach, strategic objectives, and capability model that allows organizations to assess the extent to which IT processes support the achievement of institutional objectives (Riadi et al., 2020). By integrating the principles of governance, risk management, and performance measurement in one holistic framework, COBIT 5 provides a strong theoretical foundation for analyzing and assessing the maturity level of *e-Government* (Damanik & Firmansyah, 2018).

A number of international studies have adopted COBIT as a measure of government digital maturity, as has been done by public institutions in the UK, Estonia, South Korea, and several other countries (Weill & Ross, 2004; OECD, 2018). On the other hand, the study of the use of COBIT in the context of *e-Government* Indonesia is still limited and partial, both in terms of the COBIT domain used and the context of the organization being studied (Nursafitri & Jayadi, 2023). Therefore, a systematic study through *the Systematic Literature Review (SLR)* approach is needed to identify, analyze, and synthesize the use of COBIT 5 in measuring the maturity level *of e-Government* in Indonesia comprehensively (Hartati et al., 2021).

Ali and Green (2007) discussed the effectiveness of COBIT 5 as a comprehensive IT governance framework that integrates governance, risk management, and performance measurement to improve organizational IT processes. Their research highlighted the potential of COBIT 5 to enhance digital transformation efforts by providing a structured approach to assessing IT capabilities (Riadi et al., 2019). Additionally, Weill and Ross (2004) analyzed IT governance practices across public and private institutions, demonstrating that process-based frameworks like COBIT improve strategic alignment and operational performance. However, studies specifically applying COBIT 5 to Indonesia's e-Government evaluation remain limited and fragmented, often focusing on regulatory compliance rather than systematic performance assessment (Hartono et al., 2019). This research fills that gap by conducting a Systematic Literature Review (SLR) to comprehensively analyze the application of COBIT 5 in Indonesia’s public sector e-Government maturity assessments. The novelty lies in synthesizing research trends, identifying domain utilization, and proposing an integrated, capability-based evaluation model tailored for Indonesia’s Electronic-Based Government System (SPBE) (Katili et al., 2019).

This study aims to analyze how COBIT 5 has been used in the context of *e-*

Government evaluation in Indonesia, including the most frequently used domains, measurement approaches, types of organizations that are the object of study, and its contribution to improving government digital governance (Lambert et al., 2025). The originality of this research lies in the use of the SLR method to evaluate the gaps, trends, and directions of research development related to the use of COBIT 5 in the Indonesian public sector (Surya & Nugroho, 2022). The main theory used is *the IT Governance Theory* which is the conceptual basis of COBIT 5 (Justitia et al., 2021; Nurhidayat et al., 2024; Rachmawati et al., 2022). With this approach, it is hypothesized that the overall use of COBIT 5 in the evaluation *of e-Government* is able to provide a more accurate measurement of the level of digital maturity, compared to the administrative approach that has been used by the government.

Thus, this research is expected to make a theoretical and practical contribution in strengthening the e-Government evaluation approach in Indonesia through the integration of the COBIT 5 framework, as well as enriching the academic literature related to the adoption of IT governance in the public sector. In addition, the results of this study can be used as a basis for developing a more objective, systematic, and international standard process-based SPBE assessment model.

METHOD

This study uses the Systematic Literature Review (SLR) method to identify, evaluate, and interpret study results related to specific research questions, specific topics, or phenomena that are the focus of the study (Kitchenham, 2004). In addition, a qualitative approach in systematic review is used to summarize research findings that are qualitative descriptive. The implementation of the systematic literature review in this study follows the steps proposed by Francis and Baldesari (Francis, S., & Baldesari, 2006), which are illustrated in Figure 1.

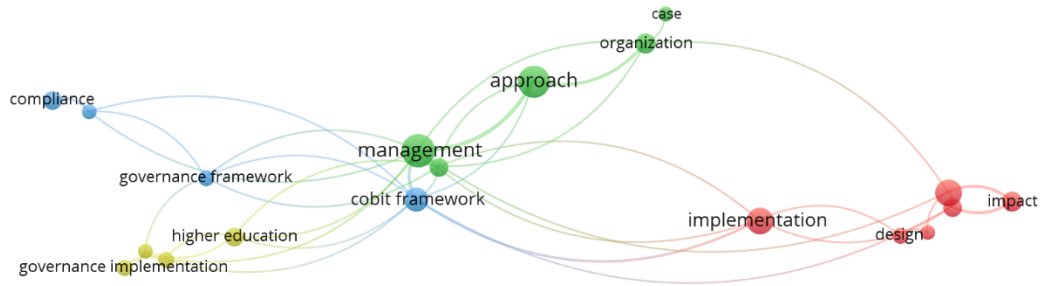

Figure 1. Relationships between keywords via VOSviewer

The stages proposed by Francis and Baldesari are as follows:

1. Formulating the Review Question is formulating clear and focused research questions to guide the literature search and selection process.
2. Conducting a Systematic Literature Search is conducting a systematic literature search in various databases and relevant information sources.
3. Screening and Selecting Appropriate Research Articles, which is screening and selecting articles based on the inclusion and exclusion criteria that have been set.
4. Analyzing and Synthesizing Qualitative Findings is analyzing and synthesizing findings from selected studies to identify relevant patterns, themes, and relationships.

5. Maintaining Quality Control is evaluating the methodological quality of the included studies to ensure the reliability and validity of the findings.
6. Reporting and Interpreting Findings is compiling a systematic review report and presenting the interpretation of findings in the context of research questions.

Keyword Identification and Discovery

This research aims to examine the role of the COBIT 5 framework in supporting the evaluation and improvement of information technology governance, especially in the context of the public sector. For this reason, the researcher set a number of criteria in the literature search process, namely:

1. Criterion 1 – The literature must contain a discussion of COBIT 5 as an IT governance framework.
2. Criterion 2 – The literature should address the use of COBIT 5 in the context of the public sector, especially as it relates to e-Government in Indonesia.

At this stage, the researcher formulated the main keywords used in the literature search, namely: "COBIT 5", "IT Governance", and "e-Government".

Literature Search

The literature search process is carried out using the Publish or Perish application, which accesses the Scopus search engine through an API key. The selection of this search engine aims to obtain scientific literature that is guaranteed quality and indexed in Scopus. The results of this search were found as many as 200 literature published between 2020 and 2025.

Screening and Determination of Criteria

Based on the literature screening conducted using VOSviewer, the relationship between COBIT 5, IT Governance, and e-Government resulted in linkages with topics such as maturity model, risk management, digital transformation, performance management, governance framework, IT processes, stakeholder engagement, and compliance. Next, the researcher reads abstracts from the selected literature and screens them based on the pre-established inclusion and exclusion criteria, as shown in Table 1. Through this screening process, the researcher managed to obtain 55 selected literature from Scopus indexed article journals as primary data, and supported by secondary data from books, journals, and other articles relevant to the application of COBIT 5 in the evaluation of IT and e-Government governance.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	The study used COBIT 5 as an evaluation framework
	The object of study is government institutions in Indonesia
	Focus on the evaluation of e-Government or digital transformation of the public sector
Exclusion of Criteria	Studies outside the context of e-Government or non-government
	Studies that do not explicitly use the COBIT 5 framework
	Articles are not available in full-text or low methodological quality

Analysis and Synthesis Process

Literature that meets the selection criteria will be extracted and synthesized according

to the research topic, so that a classification can be formed regarding the use of COBIT 5 in e-Government evaluation. This classification will include the identification of the most frequently used domains, the measurement approaches applied, as well as the types of organizations that are the object of study in the context of measuring the government's digital maturity.

Quality Control

A search of 13 scientific articles that have been identified through DOI was carried out to find out the quartile position of each journal or proceedings in the Scopus ranking. The search results show that most of the articles come from IEEE conference proceedings and IOP-indexed journals, which are generally not in the high quartile (Q1 or Q2). Three articles were published in the *Journal of Physics: Conference Series (JPCS),* which are categorized in quartile 4 (Q4). One article was published in *the IOP Conference Series: Earth and Environmental Science*, which is also included in quartile 4 (Q4). A total of seven articles came from IEEE conference proceedings, such as CITSM, ICIMTech, ICISIT, and others. Although these conferences are Scopus indexed and reputable, they are not given a quartile ranking because they do not fall under the category of scientific journals. Therefore, there is no official quartile set for these articles by Scopus or SCImago.

Most of the articles on the list are conference publications and journals that are in the low quartile (Q4), or are not classified in the quartile due to their procedural nature. Nevertheless, all publications remain academically relevant to be analyzed in the context of systematic research, especially those that raise the topic of IT governance evaluation using COBIT 5 in the public sector and e-Government in Indonesia.

Final Report

The final report is prepared to present a comprehensive picture of the results of analysis and synthesis of literature that has passed the selection based on inclusion and exclusion criteria. This stage will be described in detail in the results and discussion section.

RESULT AND DISCUSSION

Research Gap

The research gap that has been identified is expected to open up space for more in-depth follow-up research and can help improve the implementation of COBIT 5 in Indonesia's e-Government sector. The explanation is as follows:

1. Limitations of Longitudinal Studies
   Most existing studies tend to be cross-sectional or only provide a snapshot of the level of IT maturity at a given point in time. A significant research gap is the lack of longitudinal studies that can measure the development and change in the maturity level of e-Government over time.
2. Lack of Standardization of COBIT 5 Implementation in the Public Sector
   Although there are several studies that have applied COBIT 5 to assess the level of maturity in the public sector, there is no standard national framework or consistent guidelines for the implementation of COBIT 5 across government agencies. Several studies have shown that the implementation of COBIT 5 varies between agencies and this creates a gap in the measurement and evaluation of maturity levels.

3. Limited Focus on Multiple COBIT Domains 5
   Existing studies have focused more on the key domains of COBIT 5 such as EDM (Evaluate, Direct, and Monitor), APO (Align, Plan, and Organize), and MEA (Monitor, Evaluate, and Assess), which suggests that IT management and strategic planning are top priorities. However, other domains such as BAI (Build, Acquire, and Implement) and DSS (Deliver, Service, and Support) are less implemented.
4. Lack of Research on the Integration of COBIT 5 with Other Frameworks or Standards
   Several studies show that many government agencies in Indonesia still use different frameworks or standards in managing and assessing IT maturity levels, such as ITIL, ISO 20000, or ISO 27001. However, very few studies have integrated COBIT 5 with other existing frameworks, both to support the implementation process and to evaluate the level of IT maturity.
5. Limitations in Measurement and Assessment Based on Specific Indicators
   Most of the existing studies used surveys or questionnaires based on common indicators from COBIT 5, without taking into account specific contextual differences between different government agencies. Some agencies may have different needs, challenges, and characteristics that are not fully reflected in the use of existing indicators.
6. Limitations in Implementation at the Local Government Level
   A lot of research is done at the central government level, but very little research is done at the local government level. Local governments often face different challenges compared to central governments in terms of their resources, policies, and infrastructure.
7. Lack of Evaluation of Social and Economic Impacts
   Many studies have assessed the level of IT maturity in the public sector using the COBIT 5 framework, but few have measured the social and economic impact of increasing the level of maturity. With the increasing adoption of e-Government, it is important to also assess how changes in the level of IT maturity affect public services, efficiency, and public satisfaction.

Thematic Analysis

To support the findings in this study, a simple visual and statistical analysis was conducted on 13 selected articles. This visualization and statistics provide an overview of the distribution and focus of research that has been conducted related to the use of COBIT 5 in the evaluation of e-Government maturity level in Indonesia.

1. Distribution of the Year of Publication
   Most articles were published in the 2018–2023 range, with the peak of publication occurring in 2020 and 2021. This indicates the growing academic interest in the use of COBIT 5 in a public sector context.
2. COBIT 5 Domain Frequencies Used
   The EDM, APO, and MEA domains appear most frequently, with some studies also including DSS and BAI.
3. Type of Methodology Used
   Survey and questionnaire methodologies are the most dominant methods used.
   Some studies used a combination of more than one method.
4. Found Maturity Levels
   Most studies report maturity levels at levels 2 and 3, indicating that the

implementation of COBIT 5-based IT governance is still in the development stage.

Discussion

The following is a visualization representing the SLR results for the topic "Analysis of the Use of *COBIT 5 for the Maturity Level of e-Government in Indonesia"*:

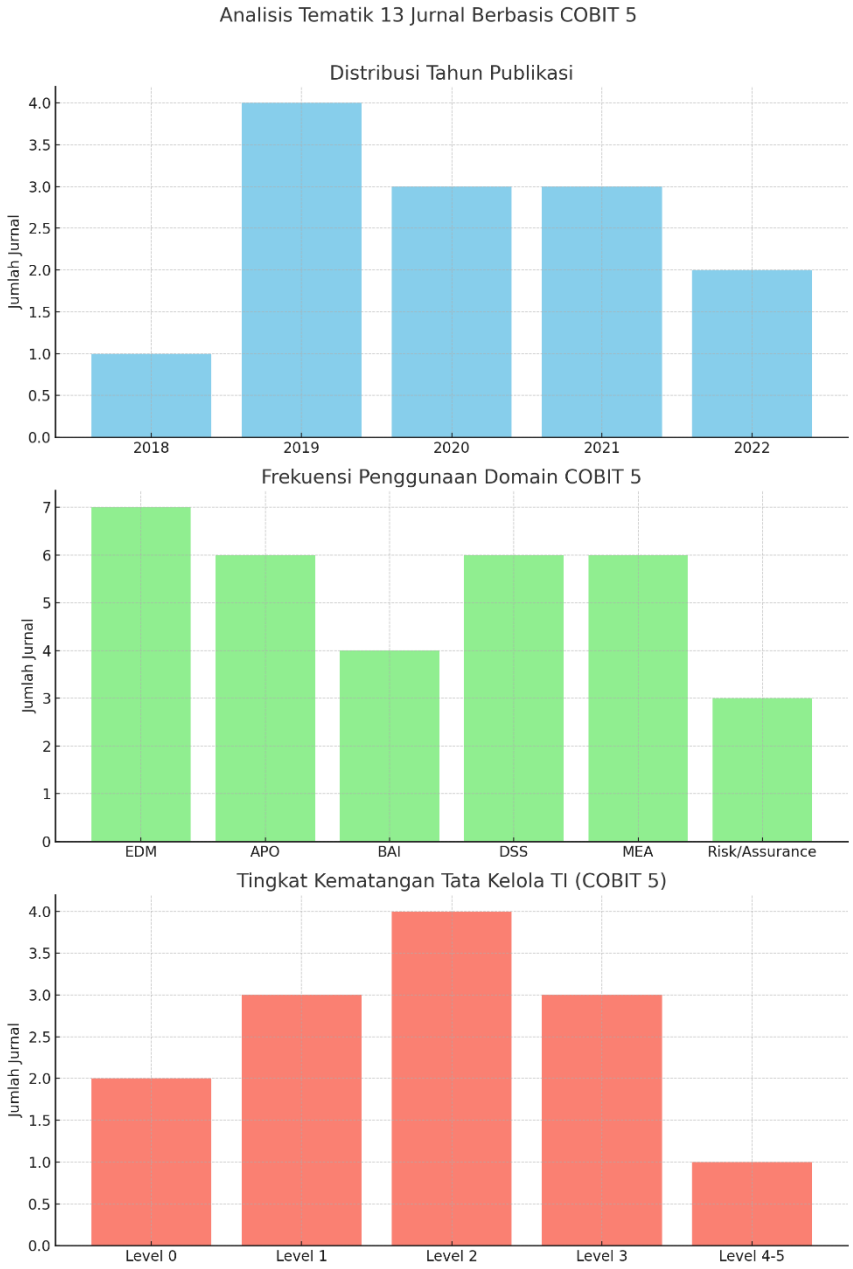

Figure 2. Thematic Analysis

1. Distribution of Publication Years: An analysis of 13 journals that examined the implementation of COBIT 5 showed that the highest distribution of publications occurred in 2019 with four journals, followed by 2020 and 2021 which each contributed three journals, while 2018 and 2022 had a lower contribution.

2. Frequency of COBIT Domain Usage 5: The main focus of the study lies in the EDM (Evaluate, Direct, Monitor) domain that appeared in seven journals, showing great concern for oversight and strategic decision-making in IT governance. The APO (Align, Plan, Organize), DSS (Deliver, Service, Support), and MEA (Monitor, Evaluate, Assess) domains were each used in six journals, reflecting the importance of planning, service, and evaluation in supporting governance success. In contrast, the BAI (Build, Acquire, Implement) domain and the risk and collateral aspects appear only in a small fraction of the journal, suggesting that these areas are still not widely explored.
3. Maturity Level: In terms of IT governance maturity level, most organizations are at levels 1 to 3, with level 2 (Managed) being the most dominant. Only one journal shows the organization has reached level 4 or 5, indicating that most entities are still in the stage of developing documented governance but have not yet been fully measured or optimized. These findings illustrate that although interest in COBIT 5 is quite high, its implementation still focuses on the initial strategic aspects and not many organizations have yet reached full maturity in information technology governance.

CONCLUSION

This study, based on a systematic literature review of 13 Scopus-indexed articles supplemented by relevant secondary sources, reveals that the implementation of COBIT 5 within Indonesia's e-Government sector is still in its developmental phase. Key challenges include the scarcity of longitudinal studies tracking IT maturity progress over time and the lack of a standardized national framework, leading to inconsistent maturity evaluations across agencies. Research predominantly focuses on the strategic domains of COBIT 5—EDM (Evaluate, Direct and Monitor), APO (Align, Plan and Organize), and MEA (Monitor, Evaluate and Assess)—while operational domains such as DSS (Deliver, Service and Support) and BAI (Build, Acquire and Implement) remain underexplored. Additionally, the limited integration of COBIT 5 with other governance frameworks like ITIL or ISO 27001 reduces the potential effectiveness of IT governance in the public sector. Evaluation methods often employ generic indicators without considering agency-specific contexts, risking inaccurate conclusions. Therefore, the current maturity levels largely fall within levels 1 to 3, indicating a growth stage. Future research should emphasize longitudinal, nationwide studies that incorporate local governmental contexts and develop more nuanced, context-sensitive assessment tools. Furthermore, investigating the social and economic impacts of IT maturity is essential to ensure that digital transformation initiatives deliver meaningful benefits to public services and society.

Future studies should prioritize longitudinal research to capture dynamic changes in IT governance maturity over time across multiple government levels. Developing a standardized national framework adapted to local contexts would improve consistency in maturity assessments. Moreover, expanding research to operational COBIT 5 domains and exploring multi-framework integration approaches could enhance governance effectiveness. Finally, assessing the tangible social and economic outcomes of e-Government maturity will provide critical insights into the real-world impact of digital transformation efforts.

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