

# Measuring the Maturity Level of Social Assistance Distribution Data Governance Using the 2019 Cobit Framework

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**ABSTRACT** – This study aims to measure the maturity level of data governance in the distribution of social assistance using the COBIT 2019 framework. We chose COBIT 2019 as the methodology due to its comprehensive guidance for information technology governance. Measurements were made by assessing researchers focused on 4 domains APO, BAI, and DSS. The results of the study indicate variations in the level of maturity across processes. Some processes, such as risk management and operational efficiency, have reached the desired level of maturity, while other processes, such as information security and organizational change management, still require significant improvement. The gaps found in this measurement provide valuable insights into areas that require further attention. Recommendations for improvement include improving user training, strengthening security procedures, and improving communication and stakeholder engagement. Implementation of the proposed improvements is expected to improve data governance maturity and, in turn, improve the quality and accuracy of social assistance distribution. This study makes a significant contribution to understanding and improving data governance in the public sector, especially in the context of social assistance distribution. The results and recommendations from this study can be used by related organizations to optimize their data management processes so that they can be more effective and efficient in serving the public.

**Keywords:** Cobit 2019, data governance, maturity level, governance

**ABSTRAK** – Penelitian ini bertujuan untuk mengukur tingkat kematangan tata kelola data dalam penyaluran bantuan sosial menggunakan kerangka kerja COBIT 2019. Kami memilih COBIT 2019 sebagai metodologi karena panduannya yang komprehensif untuk tata kelola teknologi informasi. Pengukuran dilakukan dengan menilai para peneliti yang berfokus pada 4 domain APO, BAI, dan DSS. Hasil penelitian menunjukkan adanya variasi tingkat kematangan di seluruh proses. Beberapa proses, seperti manajemen risiko dan efisiensi operasional, telah mencapai tingkat kematangan yang diinginkan, sementara proses lain, seperti keamanan informasi dan manajemen perubahan organisasi, masih memerlukan perbaikan yang signifikan. Kesenjangan yang ditemukan dalam pengukuran ini memberikan wawasan berharga tentang area yang memerlukan perhatian lebih lanjut. Rekomendasi untuk perbaikan meliputi peningkatan pelatihan pengguna, penguatan prosedur keamanan, dan peningkatan komunikasi dan keterlibatan pemangku kepentingan. Implementasi perbaikan yang diusulkan diharapkan dapat meningkatkan kematangan tata kelola data dan, pada gilirannya, meningkatkan kualitas dan akurasi penyaluran bantuan sosial. Penelitian ini memberikan kontribusi yang signifikan untuk memahami dan meningkatkan tata kelola data di sektor publik, terutama dalam konteks penyaluran bantuan sosial. Hasil dan rekomendasi dari penelitian ini dapat digunakan oleh organisasi terkait untuk mengoptimalkan proses pengelolaan datanya sehingga dapat lebih efektif dan efisien dalam melayani publik.

**Kata Kunci:** Cobit 2019, tata kelola data, tingkat kematangan, tata kelola

## 1. INTRODUCTION

In the increasingly developing digital era, information technology (IT) plays a significant role in various aspects of life, including in the government sector[1]. The distribution of social assistance is one critical aspect where IT can have a significant impact.

Efficiency, accuracy, and transparency in the distribution of social assistance are essential to ensure that the assistance provided reaches the right targets and meets the needs of the entitled community[2]. However, this process frequently encounters various challenges, including data errors, misappropriation, and a lack of transparency.



To overcome these challenges, the implementation of effective IT governance is a must. COBIT 2019, as one of the comprehensive IT governance frameworks, offers guidance and best practices to ensure that IT can optimally support business objectives. COBIT 2019 covers various domains that reflect important aspects of IT governance and management, including planning, management, implementation, service, and monitoring [3].

COBIT (Control Objectives for Information and Related Technologies) is a framework for IT governance and management that helps organizations achieve their strategic goals by managing risks and optimizing IT resources [4]. COBIT 2019 is the latest version of this framework, developed by ISACA (Information Systems Audit and Control Association) [5]. The design of COBIT 2019 aims to enhance its flexibility and adaptability to meet the unique requirements of an organization. This framework offers guidance for IT governance and management that covers multiple domains [6].

The issue at hand pertains to the governance of BANSOS data, which is sourced from the Regional Revenue and Expenditure Budget (APBD). This requires a variety of assistance and attributes, including entrepreneurship training, marketing training, the provision of seeds, livestock, and green seedlings, basic food assistance for the poor, health problem management, home renovation programs, scholarship programs, disaster management programs, and BLT DD. Therefore, a data governance system is necessary to monitor and manage the latest data with guaranteed quality.

This study aims to measure the maturity level of social assistance distribution governance at the Regional Development Planning Agency (BAPPEDA) using the COBIT 2019 framework. To measure maturity in the context of social assistance distribution at BAPPEDA, researchers focused on four domains: APO, BAI, and DSS. We expect this maturity level measurement to provide a clear picture of BAPPEDA's implementation of effective IT governance practices in social assistance distribution. Thus, the results of this study can be the basis for identifying areas that require further improvement and development.

We expect this maturity level measurement to identify the gap between the current and desired conditions. Furthermore, the recommendations made based on the findings of this study will assist BAPPEDA in improving the quality of their IT governance so that the social assistance distribution process can run more effectively, efficiently, and transparently.

This study does not only focus on evaluating the maturity level but also on developing strategies for continuous improvement. Therefore, we aim to establish IT governance that can facilitate the efficient allocation of social aid for the betterment of the broader community. Relevant research in this study [7] conducted an evaluation and improved information technology (IT)

governance in higher education institutions in Indonesia using Cobit 2019. The study provides concrete recommendations to improve the level of maturity in various selected COBIT domains, with the aim of aligning IT governance practices with industry standards and increasing institutional competitiveness. The Cobit framework can help reduce information uncertainty among stakeholders [8] and several previous studies related to measuring the level of data governance maturity [9][10][11][12][13].

## 2. METHODOLOGY

In this study, we employed the following research method to gauge the level of data governance in government agencies using information technology:

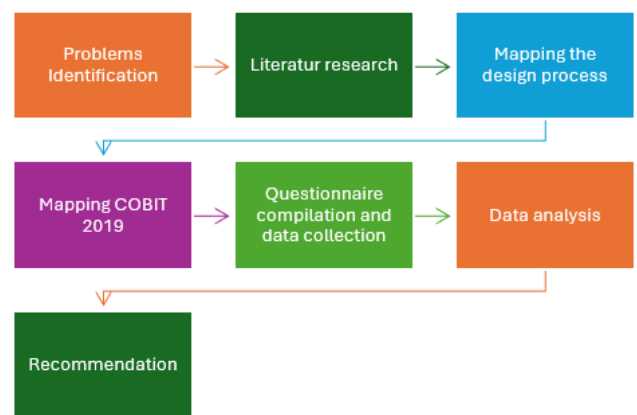


Figure 1. Research Design Flow

### A. Problem Identification

Identifying the problem to study is the first step. To accomplish this, one must identify and comprehend the current challenges related to the management of social aid distribution within the framework of the system or organization under investigation. This can be achieved by conducting interviews with those involved in the delivery of social assistance, specifically those who possess duplicate and erroneous data about social assistance beneficiaries.

### B. Literature Research

After identifying the problem, the next step involves conducting literature research. The goal is to collect information and data from various relevant sources, such as journal articles, books, reports, and other documents related to IT governance and COBIT 2019.

### C. Mapping the Design Process

We will map the governance design process after completing the literature review. This involves identifying the pertinent processes and devising strategies for their implementation or analysis within the organizational setting.

**D. Mapping COBIT 2019**

At this stage, we map the COBIT 2019 framework to the domains and processes in COBIT 2019 to determine how the processes identified in the previous stage can link. This aims to ensure that the analysis will be in line with the standards and best practices recommended by COBIT 2019.

**E. Questionnaire Compilation and Data Collection**

We developed a questionnaire to collect data after mapping the COBIT 2019 model. We designed the questionnaire based on the processes and controls in COBIT 2019 to evaluate the organization's IT governance processes' capability and maturity. We collected data from relevant respondents, including IT managers, executives, and operational staff.

**3. RESULTS AND DISCUSSION**

**A. Problem Identification**

The study's respondents included the Poverty Alleviation Coordination Team (TKPK), which comprises eight Regional Apparatus Organizations (OPD) within the South Lampung Regency Government, the Head of the Regional Development Planning Agency (Bappeda), and the Head of Social and Government Affairs (Kabid Sospem). Inaccurate recipient data, a significant deal of duplicate recipient data, and lax recipient data security were among the issues with data governance for the delivery of social assistance.

**B. Mapping COBIT 2019**

The Cobit 2019 framework provides the design toolkit for the mapping process.

1. Gaining an understanding of the context and strategy of government agencies (Bappeda) as the subject of research is crucial. The strategy of government agencies is to provide services to the community in relation to the distribution of social assistance. The Strategy of Government Agencies (bappeda) aims to optimize internal business processes' functionality and manage the company's business risks. The potential IT risk profile includes issues related to data management and the agency's IT skills. Government agencies experience IT-related problems related to data integrity capabilities and accuracy.

2. At this stage, the agency determines the initial scope related to data governance related to social assistance data distribution. This is done for data management, risk management, and security management.

This research uses the Cobit 2019 Objective IDs APO14 (Manage Data), APO12 (Manage Risk), APO13 (Manage Security), BAI01 (Managed Programs), BAI03 (Managed Solutions Identification and Build), BAI05 (Managed Organizational Change), BAI08 (Managed Knowledge), DSS01 (Managed Operations), DSS03 (Managed Problems), and DSS05 (Managed Security Services).

**F. Data Analysis**

We analyzed the questionnaire data to highlight the level of IT governance capability and maturity using the

COBIT 2019 framework. This analysis helps identify areas that require improvement and areas that are already effective.

**G. Recommendation**

We analyzed the questionnaire data to assess the level of IT governance capability and maturity using the COBIT 2019 framework. This analysis helps identify areas that require improvement and areas that are already effective.

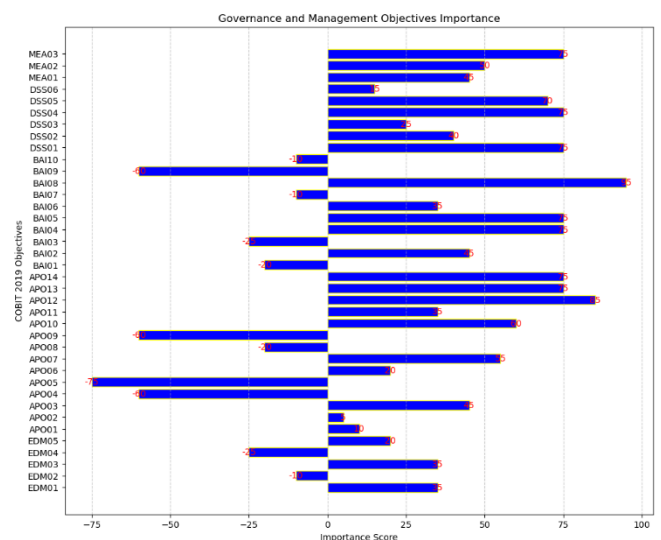


Figure 2. Design Factor

Table 1. Capability Level Measurement Result

Objecti ve ID	Capabili ty Level (1-5)	Information
APO14	3	The data management process has been defined, but there are still some inconsistencies in the implementation.
APO12	4	There is an effective risk identification and assessment process, but there is no comprehensive mitigation plan for all risks.
APO13	2	We need to improve the security process, especially in terms of employee security awareness, as it is still in its early stages.
BAI01	3	Although IT programs are well-managed, program

BAI03	4	performance evaluation still requires improvement. The process of identifying and building IT solutions is structured, but there are still opportunities to improve efficiency.					management processes. Conduct security risk assessments, implement additional security controls, and increase employee security awareness.
BAI05	2	Managing organizational change remains a challenge, requiring better communication with all stakeholders.	APO13	2	4	There is a need for significant improvements in information security.	Develop more comprehensive performance metrics and conduct regular performance evaluations. Continuously improve the efficiency of the solution identification and development process.
BAI08	3	Documentation of IT-related knowledge exists, but there is no integrated system for knowledge sharing.					Improve communication, involve stakeholders, and provide adequate training.
DSS01	4	IT operations are running well, but there is still opportunity to improve efficiency through automation.	BAI01	3	4	Program performance evaluation needs improvement.	Develop knowledge-sharing platforms and encourage employee contributions.
DSS03	3	Although we have problem management processes in place, we still need to accelerate problem response times.					Continuously improve operational efficiency through automation.
DSS05	2	IT security services are still in the development stage and need to be improved, especially in terms of threat detection.	BAI03	4	4	Target achieved.	Optimize problem-handling processes and increase

**Capability Level Description:**

- 1: Initial: The process is undefined or non-existent.
- 2: Repeatable: The process is defined, but inconsistent.
- 3: Defined: The process is defined and documented.
- 4: Managed: We measure and control the process.
- 5: Optimized: We continuously improve the process.

**Table 2.** Gap Analysis Result

Objective ID	Actual Maturity Level	Target Maturity Level	The Gap	Corrective action				
					BAI05	2	4	There is a need for significant improvement in organizational change management.
					BAI08	3	4	We need to integrate knowledge-sharing systems.
APO14	3	4	There is a need to improve consistency in the implementation of data management processes.	Conduct reviews and improvements to data management procedures, as well as improve user training.	DSS01	4	4	Target achieved.
APO12	4	4	Target achieved.	Continuously maintain and improve risk	DSS03	3	4	We need to speed up the response time to problems.



DSS05	2	4	There is a need for significant improvements in threat detection.	resource availability.	BAI01	Form a strong program management team and conduct regular coordination to ensure alignment of goals.
				Implementing intrusion detection systems and conducting attack simulations.	BAI03	Create detailed and standard documentation for each solution identification and development process.
					BAI05	Create a comprehensive change management plan and involve all stakeholders in the process.
					BAI08	Implement a knowledge management system that allows efficient storage, access, and sharing of information.

**Table 3.** Recommendation

Objective ID	Recommendation		
APO14	Implement an integrated data management system and develop standard data management procedures.	DSS03	Create an efficient issue reporting system and ensure that there is a rapid response team to handle any issues promptly.
APO12	Develop and implement a comprehensive risk management policy and conduct regular risk training.	DSS05	Update security services regularly according to the latest threat developments and conduct security training for staff.
APO13	Ensure the thorough implementation of security policies by conducting regular security audits.		

#### 4. CONCLUSION

This study used the COBIT 2019 framework to measure the maturity level of data governance in the distribution of social assistance. The measurement results revealed that some areas required significant improvement, while others had met the expected targets.

- **Maturity Gap:** Several processes, such as information security (APO13) and organizational change management (BAI05), showed a significant gap between the actual and target maturity levels. This indicates that there is a need for significant improvement in these areas.

- **Corrective Actions:** Recommended corrective actions include improving training for users and employees, assessing security risks, developing more comprehensive performance metrics, and improving stakeholder communication and engagement.

- **Target Achievement:** Several areas, such as risk management (APO12) and operational efficiency through automation (DSS01), have met the set targets, indicating that several aspects of data governance are running smoothly.

Overall, the measurement results indicate that while there are some areas for improvement, the organization has shown progress in achieving the desired level of maturity in social assistance data governance. We expect the implementation of the improvement recommendations identified in this study to enhance the effectiveness and efficiency of data management.

#### DAFTAR PUSTAKA

[1] A. M. A. Saputra, L. P. I. Kharisma, A. A. Rizal, M.

I. Burhan, and N. W. Purnawati, *Teknologi Informasi: Peranan TI dalam berbagai bidang*. PT. Sonpedia Publishing Indonesia, 2023.

[2] A. K. Saputra, R. Muhida, Y. Aprilinda, and F. Ariani, "Maturity Level Assesment Tata Kelola Data Bantuan Sosial Menggunakan Domain Data Governance DAMA-DMBOK," *Explor. J. Sist. Inf. dan Telemat.*, vol. 14, no. 2, p. 177, Dec. 2023, doi: 10.36448/jsit.v14i2.3355.

[3] V. Svata, "COBIT 2019: Should We Care?," in *2019 9th International Conference on Advanced Computer Information Technologies (ACIT)*, Jun. 2019, pp. 329–332, doi: 10.1109/ACITT.2019.8779995.

[4] M. Anjelina and Wella, "Information Technology Capability Using COBIT 2019 Framework (Case Study: PT. Emobile Indonesia)," in *2023 7th International Conference on New Media Studies (CONMEDIA)*, Dec. 2023, pp. 56–61, doi: 10.1109/CONMEDIA60526.2023.10428645.

[5] M. Yasin, A. Akhmad Arman, I. J. M. Edward, and W. Shalannanda, "Designing Information Security Governance Recommendations and Roadmap Using COBIT 2019 Framework and ISO 27001:2013 (Case Study Ditreskrimsus Polda XYZ)," in *2020 14th International Conference on Telecommunication Systems, Services, and Applications (TSSA)*, Nov. 2020, pp. 1–5, doi: 10.1109/TSSA51342.2020.9310875.



- [6] I. B. Santoso, R. Hartanto, and L. E. Nugroho, "Acceleration of Integrated Electronic-Based Government System in Indonesia with the Maturity Model of Electronic-Based Government System: A Systematic Literature Review," in *2021 IEEE 5th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE)*, Nov. 2021, pp. 12–17, doi: 10.1109/ICITISEE53823.2021.9655933.
- [7] W. Febriyani, F. R. Hendrawan, and T. F. Kusumasari, "Advancing Towards IT Maturity Governance Excellence: COBIT 2019 in Higher Education (Indonesia)," *2023 8th Int. Conf. Informatics Comput. ICIC 2023*, pp. 1–6, 2023, doi: 10.1109/ICIC60109.2023.10382082.
- [8] T. H. Thabit and S. H. Abdullah, "Perceived Trust of Stakeholders: Predicting the Use of COBIT 2019 to Reduce Information Asymmetry," in *2023 3rd International Conference on Emerging Smart Technologies and Applications (eSmarTA)*, Oct. 2023, pp. 1–5, doi: 10.1109/eSmarTA59349.2023.10293688.
- [9] I. Mirza Harwanto and A. Nizar Hidayanto, "Data Governance Maturity Assessment: A Case Study Directorate General of Corrections," in *2022 International Conference on ICT for Smart Society (ICISS)*, Aug. 2022, pp. 01–06, doi: 10.1109/ICISS55894.2022.9915243.
- [10] A. Taufik Budiman and P. Wuri Handayani, "Maturity Evaluation and Improvement Recommendation of Information Technology Governance with the Control Objective of Information and Related Technology 2019 Framework: A Case Study of Tax Court Secretariat," in *2022 International Conference on Advanced Computer Science and Information Systems (ICACSIS)*, Oct. 2022, pp. 161–166, doi: 10.1109/ICACSIS56558.2022.9923448.
- [11] Y. Setiadi, A. N. Hidayanto, F. Rachmawati, and A. Y. L. Yohannes, "Data Quality Management Maturity Model: A Case Study in Higher Education's Human Resource Department," in *2021 IEEE 7th International Conference on Computing, Engineering and Design (ICCED)*, Aug. 2021, pp. 1–5, doi: 10.1109/ICCED53389.2021.9664881.
- [12] M. Rahmatika, D. Krismawati, S. D. Rahmawati, A. Arief, D. I. Sensuse, and M. Fadhil Dzulfikar, "An Open Government Data Maturity Model: A Case Study in BPS-Statistics Indonesia," in *2019 7th International Conference on Information and Communication Technology (ICoICT)*, Jul. 2019, pp. 1–7, doi: 10.1109/ICoICT.2019.8835352.
- [13] D. H.-T. Wong, N. Maarop, and G. N. Samy, "Data Governance and Data Stewardship: A Success Procedure," in *2020 8th International Conference on Information Technology and Multimedia (ICIMU)*, Aug. 2020, pp. 54–61, doi: 10.1109/ICIMU49871.2020.9243574.