Analysis of Information Technology Maturity Level For Academic Services Using Cobit 2019 Framework: Case Study of Global University Jakarta

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Abstract

The use of information technology (IT) in managing academic services at universities is a strategic step to improve service efficiency and quality. Universitas Global Jakarta has implemented an academic information system, but still encounters obstacles in terms of information accuracy and control, indicating the need for an evaluation of the implemented IT governance. This study aims to assess the maturity level of IT governance in Universitas Global Jakarta's academic services using the COBIT 2019 framework, specifically the Delivery, Service, and Support (DSS) domain. The research method used is a qualitative descriptive approach with data collection techniques in the form of observation, interviews, and documentation studies. The results show that several processes in the DSS domain have not reached an optimal level of maturity, especially in the aspects of operational supervision and control. This finding indicates the need for improvements in the implementation of IT governance to be more aligned with the university's strategic objectives and able to support academic services sustainably.

INTRODUCTION

The rapid advancement of Information Technology (IT) has fundamentally transformed organizational operations across various sectors, including higher education. Universities, as institutions tasked with fostering education, research, and community service, are increasingly dependent on IT to support academic and administrative functions. The integration of digital platforms into academic services enables institutions to enhance efficiency, improve service quality, and provide real-time access to critical information for students, lecturers, and administrators. However, such integration also necessitates effective IT governance to ensure that technological initiatives align with institutional strategies and contribute to long-term sustainability.

Globally, higher education institutions face pressure to adapt to digital transformation, especially in response to the growing demands for transparency, accountability, and competitive advantage. Universities that fail to adopt effective IT governance frameworks risk experiencing inefficiencies, poor data management, and a decline in service quality. This situation highlights the importance of assessing IT governance maturity levels as a mechanism for identifying gaps and guiding institutions toward strategic improvements. Frameworks such as COBIT 2019 have become increasingly relevant in this context because they provide standardized methods for evaluating governance processes and ensuring alignment with organizational goals.

In the Indonesian context, higher education institutions are experiencing similar challenges. The government has emphasized the need for digital transformation in universities to improve competitiveness at both regional and global levels. Policies such as Kampus Merdeka and

digital-based learning initiatives further underline the urgency for reliable IT infrastructure and governance. Nevertheless, many universities continue to struggle with limited resources, weak oversight mechanisms, and a lack of standardized governance practices, which hinder the optimal use of technology in supporting academic services.

Universitas Global Jakarta (UGJ), as one of the emerging higher education institutions, has implemented an academic information system as part of its digital transformation efforts. This system is designed to facilitate various academic processes, including student registration, learning management, and academic records. Despite these advancements, challenges remain evident, particularly concerning information accuracy, monitoring mechanisms, and the alignment of IT initiatives with institutional objectives. These challenges indicate a potential mismatch between IT implementation and governance principles, making it necessary to evaluate the maturity of IT governance practices at UGJ.

IT governance can be defined as the responsibility of executive management and boards of directors to ensure that IT supports organizational objectives, optimizes resources, and manages risks effectively. According to the IT Governance Institute, IT governance is an integral component of corporate governance, comprising leadership, organizational structures, and processes designed to sustain strategic alignment. From this perspective, governance is not merely about managing technology but ensuring that IT initiatives provide measurable value and reinforce institutional competitiveness.

To address the need for standardized evaluation, the COBIT (Control Objectives for Information and Related Technologies) framework, developed by ISACA, has been widely adopted. COBIT has evolved significantly since its first release in 1996, with COBIT 2019 representing the latest and most comprehensive version. This framework is particularly valuable because it bridges the gap between business objectives and IT strategies, emphasizing risk management, compliance, and value creation. COBIT 2019 introduces a flexible design that can be adapted across industries, including higher education, making it relevant for evaluating IT governance maturity at UGJ.

Among the domains in COBIT 2019, the Delivery, Service, and Support (DSS) domain holds particular significance for academic services. The DSS domain focuses on ensuring operational stability, managing incidents and problems, maintaining continuity, and safeguarding information security. For universities, these aspects are critical because they directly affect the quality of services provided to students and staff. Weaknesses in the DSS domain can lead to service disruptions, data security breaches, and reduced trust in institutional systems. Therefore, evaluating this domain provides insights into both current practices and opportunities for improvement.

Previous studies on IT governance have highlighted the importance of maturity assessments in various organizational contexts. For instance, research conducted in corporate environments has shown that COBIT-based evaluations help organizations identify gaps in operational processes, mitigate risks, and optimize resource utilization. Similarly, studies in higher education contexts have demonstrated that COBIT can be used to align IT services with academic goals, ensuring that institutions remain competitive and responsive to stakeholder needs. Despite these findings, empirical research applying COBIT 2019 to Indonesian higher education remains limited, creating a gap that this study seeks to address.

Theoretical perspectives on IT governance suggest that organizations with higher maturity levels are better equipped to adapt to environmental changes, innovate, and sustain long-term

performance. The Capability Maturity Model Integration (CMMI), which underpins COBIT 2019, provides a structured scale ranging from Level 0 (non-existent) to Level 5 (optimizing). Each level represents the extent to which processes are defined, measured, and continuously improved. For UGJ, understanding its current maturity level in the DSS domain offers a baseline for developing strategies that enhance operational effectiveness and academic service delivery.

Evaluating IT governance maturity is not only an internal necessity but also a strategic requirement in the era of global competition. Universities are expected to demonstrate transparency in managing resources and ensuring accountability to stakeholders, including students, parents, and regulatory bodies. Weak IT governance could lead to reputational damage, reduced trust, and inefficiencies that undermine academic excellence. Conversely, effective governance can serve as a differentiating factor that strengthens the institution's credibility and competitiveness.

Furthermore, the COVID-19 pandemic has accelerated the digital transformation of higher education, reinforcing the critical role of IT governance. Universities worldwide had to rapidly adapt to online learning, remote administration, and virtual collaboration. This shift highlighted the importance of robust IT governance mechanisms to ensure service continuity, data security, and stakeholder satisfaction. The experience of UGJ reflects this broader global trend, emphasizing the need for systematic evaluation and continuous improvement of IT governance practices.

From a managerial perspective, the implementation of IT governance provides decision-makers with a framework to balance risks, resources, and returns. By applying COBIT 2019, institutions can develop clear policies, assign responsibilities, and establish monitoring mechanisms that ensure accountability. This structured approach is particularly important for UGJ as it seeks to align its academic services with strategic objectives while also meeting external expectations from accreditation bodies and government regulators.

In addition, the role of IT governance extends beyond operational efficiency to include risk management and compliance. Universities handle sensitive data, including student records, financial information, and research outputs, making them vulnerable to cyber threats. Weaknesses in governance can expose institutions to risks such as data breaches, financial losses, and regulatory penalties. COBIT 2019 provides mechanisms to identify, evaluate, and mitigate these risks, ensuring that universities can safeguard their assets while delivering high-quality academic services.

The alignment between IT governance and institutional strategy is another critical dimension. According to stakeholder theory, organizations must balance the interests of various stakeholders to achieve legitimacy and long-term sustainability. For universities, this means ensuring that IT services not only support internal operations but also meet the expectations of students, lecturers, policymakers, and the wider community. Evaluating IT governance maturity allows institutions like UGJ to identify misalignments and take corrective actions that reinforce stakeholder trust.

Empirical evidence also suggests that institutions with higher IT governance maturity are more likely to achieve strategic agility. They can respond more effectively to technological changes, adopt innovative practices, and sustain academic excellence. For UGJ, this implies that maturity assessment is not merely a compliance exercise but a strategic investment in institutional resilience. By identifying gaps and implementing targeted improvements, the university can enhance its ability to deliver sustainable academic services and strengthen its position within the higher education landscape.

This study, therefore, addresses two central questions: (1) What is the maturity level of IT governance in the academic services of Universitas Global Jakarta based on the COBIT 2019 framework, particularly the DSS domain? and (2) What strategic recommendations can be proposed to enhance the effectiveness and alignment of IT governance with institutional goals? By answering these questions, the research contributes to both academic discourse and practical policy development.

The findings are expected to provide theoretical contributions by expanding the application of IT governance frameworks within higher education. Practically, the results will offer UGJ a roadmap for improving its academic services through structured governance mechanisms. These contributions are particularly relevant given the increasing emphasis on accountability, quality assurance, and global competitiveness in higher education.

In summary, the introduction of this study underscores the critical role of IT governance in higher education, particularly within the context of digital transformation and academic service delivery. By adopting the COBIT 2019 framework and focusing on the DSS domain, the research seeks to evaluate the maturity of IT governance at Universitas Global Jakarta, identify gaps, and propose actionable recommendations. Ultimately, the study aims to enhance institutional performance, strengthen stakeholder trust, and contribute to the broader discourse on sustainable academic excellence in the digital era.

METHODS

The type of research used is descriptive research, namely research that aims to collect facts and describe them carefully without conducting treatment or hypothesis testing. This research focuses on the assessment of IT governance in the Delivery, Service, and Support (DSS) domain based on the COBIT 2019 framework. The research materials include literature studies and field studies. The literature study was conducted by reviewing books, articles, journals, theses, and organizational documentation related to IT governance.

A field study was conducted at Universitas Global Jakarta to identify issues and collect necessary data on academic services. The research instruments used were COBIT maturity model-based interviews and documentation. The collected data were processed through tabulation, coding, averaging, normalization, and maturity level determination. The analysis results were compared with the expected maturity level to identify gaps, which were then visualized using a spider diagram. Furthermore, an evaluation was conducted to provide recommendations for improving IT governance. The research stages included problem identification, literature review to understand theories and frameworks, primary data collection through observation and interviews, and data processing according to the COBIT 2019 framework to support the assessment and evaluation of IT governance at Universitas Global Jakarta.

RESULTS AND DISCUSSION

Before analyzing the Information Technology maturity level based on COBIT 2019 at JGU through document analysis and interviews, researchers conducted a maturity level survey with several JGU academics. There were 5 (five) questions for each objective ID in the DSS domain, resulting in a total of 30 questions asked to 3 (three) respondents. The following is a list of questions asked to respondents:

Table 4.1 List of Survey Questions

Objective ID	A list of questions
DSS01 - Managed Operations	In carrying out daily operations of IT systems, it is necessary to organize, implement, and document these activities to ensure efficiency and consistency.
	In monitoring IT infrastructure performance, it is necessary to organize, implement, and document these activities for early identification of potential problems.
	In performing data backup and recovery processes, it is necessary to organize, implement, and document these activities, including routine testing, to minimize data loss.
	In conducting IT capacity management (including trend analysis and forecasting), it is necessary to organize, implement, and document these activities to meet future business needs.
	In performing software and hardware update processes, it is necessary to organize, implement, and document these activities, including testing in non-production environments, to maintain performance and security.
DSS02 - Managed Service Requests and Incidents	In handling service requests (including SLA definitions), it is necessary to organize, implement, and document these activities to ensure user satisfaction.
	In conducting incident identification, it is necessary to organize, implement, and document the procedures, including detection mechanisms, for rapid response.
	In classifying and prioritizing incidents, it is necessary to set, apply, and document these criteria for proper resource allocation.

	In conducting the incident escalation process (including time thresholds and escalation paths), it is necessary to organize, implement, and document these activities for timely resolution.
	In conducting communications during an incident, it is necessary to organize, implement, and document the plan to maintain relevant information to all stakeholders.
DSS03 - Managed Problems	In conducting problem identification (including incident trend analysis), it is necessary to organize, implement, and document these activities to prevent recurrent incidents.
	In conducting root cause analysis, it is necessary to organize, implement, and document a structured method to find permanent solutions.
	In conducting problem life cycle management (from identification to closure), it is necessary to organize, implement, and document clear stages.
	In implementing problem solutions, it is necessary to organize, implement, and document these activities through integration with change management to prevent recurrence of the problem.
	In conducting a post-implementation review of a problem solution, it is necessary to organize, apply, and document the lessons learned for continuous improvement.
DSS04 - Managed Continuity	In conducting IT continuity planning (including BIA and risk assessment), it is necessary to organize, implement, and document these activities to minimize the impact of disruptions.
	In implementing an IT disaster recovery strategy (including determining RTO and RPO), it is necessary to organize, implement, and document the activities to restore critical services.

	In conducting routine testing of IT continuity plans (through exercises and simulations), it is necessary to organize, implement, and document these activities to verify their effectiveness.
	In conducting continuity incident management, it is necessary to organize, implement, and document procedures and response teams for a coordinated response.
	In conducting periodic reviews and maintenance of IT continuity plans, it is necessary to organize, implement, and document these activities to ensure continued relevance.
DSS05 - Managed Security Services	In performing identity and access management (including authorization and authentication), it is necessary to organize, implement, and document these activities to control access to information.
	In conducting threat and vulnerability management (including vulnerability assessment and penetration testing), it is necessary to organize, implement, and document these activities to protect against cyber attacks.
	In conducting a security incident response, it is necessary to organize, implement, and document a plan (CSIRT) and train the team for an effective response to a breach.
	In carrying out security compliance management (including regulatory compliance), it is necessary to organize, implement, and document these activities to comply with applicable regulations.
	In conducting employee security education and awareness, it is necessary to organize, implement, and document the program to reduce the risk of human error.
DSS06 - Managed Business Process Controls	In supporting business objectives, it is necessary to set up, implement and document relevant IT controls for critical business processes.

	In monitoring the effectiveness of business process controls, it is necessary to organize, implement, and document these activities to ensure expected performance.
	In reporting business process control performance, it is necessary to organize, implement, and document these activities to stakeholders for appropriate decision making.
	In conducting reviews and updates of business process controls, it is necessary to organize, implement, and document these activities for adaptation to changes in the business or IT environment.
	In carrying out integration between IT controls and other internal company controls, it is necessary to organize, implement, and document these mechanisms for holistic governance.

Table 4.2 Recapitulation of average objective ID scores

Objective ID	Question Code	Average value
DSS01	*Managed Operations*	4.27
DSS02	*Managed Service Requests and Incidents*	4.2
DSS03	*Managed Problems*	4.27
DSS04	*Managed Continuity*	4
DSS05	*Managed Security Services*	4.4
DSS06	*Managed Business Process Controls*	4.2

Based on a survey of JGU academics, the perception of information technology maturity based on COBIT 2019 within JGU is at 4, or Quantitatively Measured. The survey results will serve as a target for IT capabilities within JGU.

The capability level assessment was conducted to help JGU understand the current state of IT governance and management, comprising 40 objectives. The assessment focused solely on the Deliver Service and Support (DSS) objective. The assessment was conducted using a document review approach related to IT operations, governance, and management.

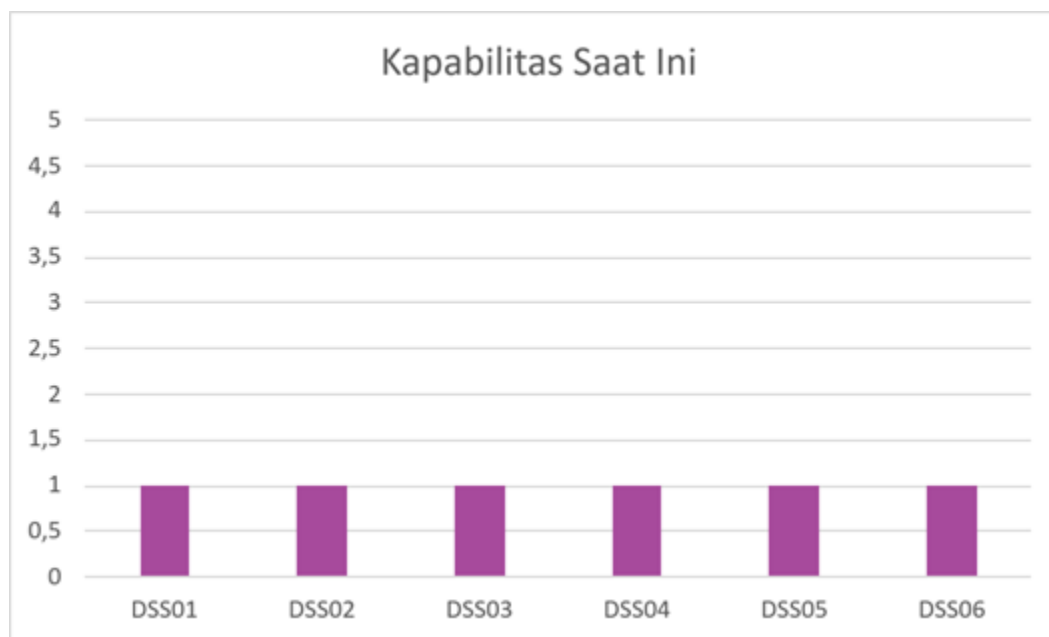Following are the results of the DSS domain assessment:

Figure 4.1 DSS Domain Assessment Results Diagram

As for the maximum capability target that can be achieved according to COBIT 2019, it is at level 5, which is shown in the image below:
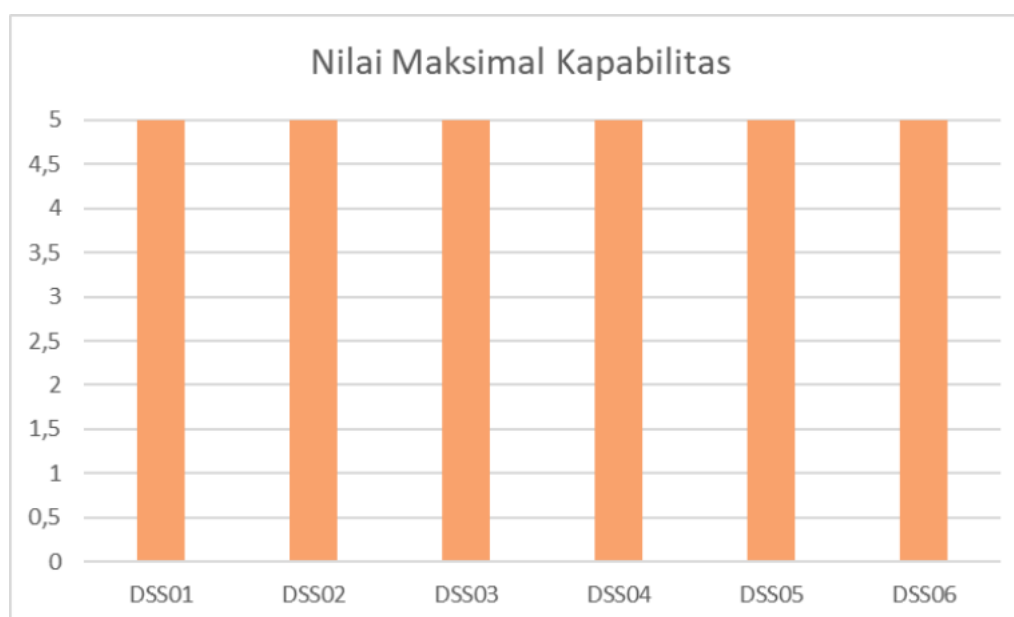

Figure 4.2 Maximum Value of IT Capability

Detailed assessment results and targets are shown in the table below. The capability-level assessment results were obtained from document review, and the capability target results were derived from the assumptions about governance development in IT operational aspects.

Table 4.3 Capability Level Assessment Results

Area	Domain	Objective ID	Objective	Baseline Capability	Target Capability
Management	DSS - Deliver, Service and Support	DSS01	Managed Operations	1	4
		DSS02	Managed Service Requests and Incidents	1	4
		DSS03	Managed Problems	1	4
		DSS04	Managed Continuity	1	4
		DSS05	Managed Security Services	1	4
		DSS06	Managed Business Process Controls	1	2

On average, the current baseline capability is at level 1 for all objective IDs within the DSS domain. This indicates that in the DSS domain, JGU is still at the initial or intuitive level, indicating that activities and processes have been carried out even though they are not yet aligned with the company's objectives or goals. The specified target is at level 4, which is included in the Quantitatively Measured category, where activities and processes achieve their objectives, are well-defined, and their performance is measured quantitatively.

Based on the analysis of current conditions and the identification of gaps, there are several recommendations that JGU can implement to achieve its IT governance capability targets. In the operational management aspect (DSS01), JGU needs to develop and consistently implement policies and procedures related to IT operations, monitoring, environmental management, and facilities. For service request and incident management (DSS02), it is important for JGU to have a specific structure, recording system, verification process, and integrated incident resolution and monitoring mechanisms. In problem management (DSS03), a specific structure is recommended for effective problem identification, escalation, and resolution. Furthermore, in business continuity management (DSS04), JGU needs to prepare policies, plans, and procedures that cover business continuity and backup management. In the security service aspect (DSS05), policies are needed related to malware protection, access management, and comprehensive IT security monitoring. Finally, in business process control management (DSS06), JGU needs to ensure the

alignment of controls with company objectives, the security of information assets, and the accountability and traceability of business processes. Consistent implementation of these recommendations will help JGU close existing gaps and improve the overall effectiveness of IT governance.

CONCLUSION

Based on the results of research conducted within the scope of JGU, the conclusions drawn are as follows:

1. All DSS domain capability levels are level 1, which means that IT governance is still carried out irregularly and has not been carried out consistently because there are no standard policies or procedures.
2. JGU does not yet have a structure/function in accordance with the DSS domain, resulting in there being no party responsible for the DSS domain.
3. JGU needs to fulfill the structure/functions in accordance with the DSS domain, the preparation and implementation of policies and procedures on an ongoing basis to improve the quality of IT governance.

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