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EVALUATION IT GOVERNANCE BASED ON COBIT 2019 FRAMEWORK AT BUANA PERJUANGAN UNIVERSITY

Muhammad Abi Yazid[1*], April Lia Hananto[1], Bayu Priyatna[1], Tukino Paryono[1]
[1]Information System, Universitas Buana Perjuangan Karawang
email: [*]si21.muhammadyazid@mhs.ubpkarawang.ac.id

Abstract: The utilization of Information Technology (IT) in higher education institutions is crucial for supporting academic and administrative activities. The Data and Information Center (PUSDATIN) of UBP Karawang manages various IT services, such as Sistem Informasi Perguruan Tinggi (SIPT), e-learning Buana Online Course (BOC), and others. This study aims to evaluate the maturity level of IT governance at UBP Karawang to ensure alignment with the university's strategic goals and identify areas requiring improvement. The research employs a quantitative descriptive method based on COBIT 2019, with data collected from 92 respondents, analyzed through goals cascade mapping and maturity level measurement. The evaluation results across 14 COBIT 2019 domains indicate that the IT governance maturity level at UBP Karawang is at Level 4 (Quantitatively Managed) with a score of 3.86 and an average gap of 1.13 from the expected level. The findings suggest that while IT governance at UBP Karawang is well-managed, there is still room for improvement. Therefore, several recommendations are proposed to optimize IT governance effectiveness, ensure regulatory compliance, and support the achievement of the university's strategic objectives.

Keywords: COBIT 2019; IT evaluation; IT governance; maturity level.

Abstrak: Pemanfaatan Teknologi Informasi (TI) di perguruan tinggi sangat krusial untuk mendukung aktivitas akademik dan administratif. Pusat Data dan Informasi (PUSDATIN) UBP Karawang mengelola berbagai layanan TI, seperti Sistem Informasi Perguruan Tinggi (SIPT), e-learning Buana Online Course (BOC) dan lain-lain. Penelitian ini bertujuan untuk mengevaluasi tingkat kematangan tata kelola TI di UBP Karawang guna memastikan keselarasan dengan tujuan universitas serta mengidentifikasi area yang memerlukan perbaikan. Penelitian ini menerapkan metode deskriptif kuantitatif berbasis COBIT 2019, dengan data diperoleh dari 92 responden, dianalisis melalui pemetaan goals cascade dan pengukuran maturity level. Hasil evaluasi pada 14 domain COBIT 2019 menunjukkan tingkat kematangan TI UBP Karawang berada di Level 4 (Terkelola secara Kuantitatif) dengan skor 3.86, serta rata-rata gap 1.13 dari tingkat yang diharapkan. Kesimpulan dari penelitian ini mengindikasikan bahwa meskipun tata kelola TI di UBP Karawang telah terkelola dengan baik, masih terdapat ruang untuk perbaikan. Oleh karena itu, beberapa rekomendasi diajukan guna mengoptimalkan efektivitas tata kelola TI, menjamin kepatuhan terhadap regulasi, serta mendukung pencapaian tujuan strategis universitas.

Kata kunci: COBIT 2019; evaluasi TI; maturity level; tata kelola TI.

INTRODUCTION

Information Technology (IT) has become a crucial element for organizations in meeting both internal and external needs [1]. Digital technology enables human activities to become more practical [2]. In the digitalization era, universi-

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ties utilize IT to support academic, administrative, and service processes more efficiently [3]. Universitas Buana Perjuangan Karawang (UBP Karawang) has widely adopted IT in its operations and academic activities. The use of IT not only facilitates the educational process but also simplifies resource management, academic administration, and digital interaction between students and lecturers.

IT management at UBP Karawang is handled by the Center for Data and Information (PUSDATIN), which is responsible for developing and maintaining IT services. With increasing reliance on IT, it is essential for PUSDATIN to ensure that IT management operates optimally and aligns with good governance principles. IT governance aims to ensure that the technology used not only functions operationally but also provides strategic value to the organization [4]. Effective governance enhances efficiency, service reliability, and benefits stakeholders [5].

To assess the effectiveness of IT governance, a framework that can measure and evaluate the maturity level of IT management is needed [6], one of which is COBIT 2019 is also known as Control Objectives for Information and Related Technologies. This internationally recognized framework serves as a guide for managing and overseeing IT by aligning Enterprise Goals, Alignment Goals, and Governance and Management Objectives [7], [8]. Through COBIT 2019, organizations can identify system strengths and weaknesses, improve control, and optimize IT governance in line with strategic needs [9]. Implementing this framework helps organizations achieve comprehensive IT governance efficiency and effectiveness.

A previous study titled "IT Governance Using COBIT 2019 at Psi Universitas Muria Kudus" demonstrated that the implementation of COBIT 2019, through goals cascade mapping and maturity level assessment, enhanced control and risk mitigation in IT governance at higher education institutions. Several recommendations were provided to improve areas requiring enhancement [10]. Another study, "IT Governance Using the COBIT 2019 Framework (Case Study: UPT TIK Universitas Tanjungpura Pontianak)", concluded that COBIT 2019 is effective in identifying processes that need evaluation by utilizing a design toolkit to ensure the achievement of strategic organizational objectives through technology [11]. Based on these findings, this study aims to assess the IT governance maturity level at UBP Karawang, identify areas for improvement, and provide recommendations for PUSDATIN to align IT governance with the university's strategic objectives. The results are expected to contribute to enhancing the effectiveness and efficiency of IT governance in higher education institutions more broadly.

METHOD

This study employs a descriptive quantitative method aimed at explaining a situation or event based on the collected data. Image 1 illustrates the research stages.

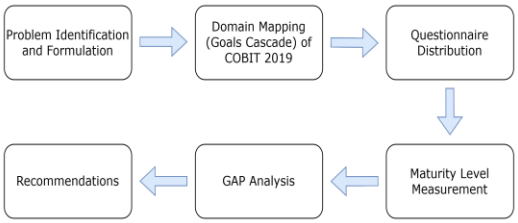

Image 1. Research Stages

The description of the research stages presented in Figure 1 is as follows:

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Problem Identification and Formulation

The researcher identifies and formulates issues related to the evaluation of IT governance at UBP Karawang.

Domain Mapping (Goals Cascade) of COBIT 2019

Mapping is conducted using the Goals Cascade approach to select the domains for analysis.

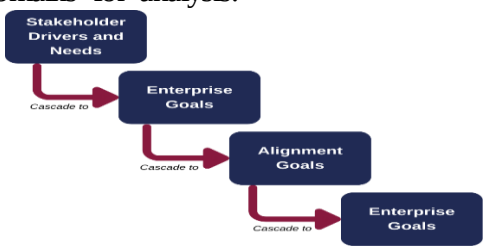

Image 2. Goals Cascade COBIT 2019

The following are the stages carried out in Mapping the COBIT 2019 Domain (Goals Cascade) :

First Step Stakeholder Drivers and Needs

The first step in this study is to identify stakeholder needs through indirect observation, such as reviewing the Vision, Mission, and objectives of UBP Karawang from the official website. Direct observation is conducted through interviews with the Head of PUSDATIN to understand the organizational structure, IT policies, user needs (faculty, students, administrative staff, and institutions), as well as aspects of security, planning, funding, and technological innovation. Additionally, a literature review is conducted on COBIT 2019 documents from ISACA [12] and relevant previous research.

Second Step Enterprise Goals

The second step is mapping UBP Karawang's objectives with organizational goals based on COBIT 2019 parameters. COBIT 2019 has defined 13 general organizational goals using a one-dimensional Balanced Score Card (BSC) approach. UBP Karawang's objectives are then aligned with Enterprise Goals, as shown in Table 1.

Table 1. UBP Karawang's objectives

No	Objectives	Enterprise Goals
1.	Achieving the qualifications and competencies of the academic community and education personnel who have the values of struggle, national identity in accordance with Pancasila and the soul/spirit of the opening of the 1945 Constitution	EG03, EG10
2.	The realization of graduates who have praiseworthy morals, abilities and competencies that are internationally competitive and the achievement of real works of research and innovation that can be applied in society	EG01, EG05, EG08, EG10, EG12, EG13.
3.	The realization of academicians and education personnel who are able to master and develop the latest information technology.	EG04, EG07, EG08, EG10, EG12, EG13.
4.	The realization of strategic networks and partnerships with various institutions (universities, government, business world and industrial world) both at home and abroad.	EG01, EG03, EG08, EG12, EG13.
5	Availability of relevant and up-to-date facilities and infrastructure to support learning, research and community service	EG04, EG06, EG07, EG08, EG12, EG13

Based on Table 1, the organizational objectives according to the COBIT 2019 standard used are presented in Table 2.

Table 2. Enterprise Goals Used

Ref.	Enterprise Goals
EG01	Portfolio of competitive products and services
EG03	Compliance with external laws and regulations
EG04	Quality of financial information
EG05	Customer-oriented service culture
EG06	Business service continuity and availability
EG07	Quality of management information
EG08	Optimization of business process functionality
EG10	Staff skills, motivation and productivity
EG11	Compliance with internal policies
EG12	Managed digital transformation programs
EG13	Product and business innovation

Third Step Alignment Goals

After defining organizational goals based on COBIT 2019 standards, the next step is mapping the organizational goals related to IT (Alignment Goals). This process is carried out using the one-dimensional Balanced Score Card (BSC) in COBIT 2019, which defines 13 IT-related organizational goals. The results of this mapping identify the IT-related goals, as shown in Table 3.

Table 3. Alignment Goals Used

Ref.	Enterprise Goals	Alignment Goals
EG1	Portfolio of competitive products and services	AG05, AG08, AG09, AG13
EG3	Compliance with external laws and regulations	AG01, AG11
EG4	Quality of financial information	AG04, AG10
EG5	Customer-oriented service culture	AG08
EG6	Business service continuity and availability	AG07
EG7	Quality of management information	AG04, AG10
EG8	Optimization of business process functionality	AG03
EG10	Staff skills, motivation and productivity	AG12
EG11	Compliance with internal policies	AG11
EG12	Managed digital transformation programs	AG03, AG08, AG09
EG13	Product and business innovation	AG13

Fourth Step Governance and Management Objective

The next stage is the determination of the COBIT 2019 process domain according to the mapping stages by means of the previous goal cascade. Determination of the COBIT 2019 process domain can also be influenced by the needs and requests of stakeholders in this case PUSDATIN in IT governance which will be calculated for its maturity level.

Table 4. Domain COBIT 2019 Used

Domain	Deskripsi
EDM04	Ensured Resource Optimization
EDM05	Ensured Stakeholder Engagement
APO01	Managed I&T Management Framework
APO04	Managed Innovation
APO06	Managed Budget and Costs
APO07	Managed Human Resources
APO14	Managed Data
DSS01	Managed Operations
DSS02	Managed Service Requests and Incidents
DSS05	Managed Security Services
DSS06	Managed Business Process Controls
MEA01	Managed Performance and Conformance Monitoring
MEA02	Managed System of Internal Control
MEA03	Managed Compliance With External Requirements

Questionnaire Distribution

After obtaining the COBIT 2019 process domains to be analyzed, the questionnaire was prepared based on the activities in each domain in accordance with the COBIT 2019 guidelines. The questionnaire was distributed to respondents including the Head of PUSDATIN, IT staff, administrative staff from each faculty, various units and institutions as stakeholders, as well as lecturers and students of UBP Karawang as service users.

Maturity Level Measurement

Used as an IT governance assessment tool to assess the maturity level of information technology implementation. The results of the questionnaire answers were then analyzed to determine the current maturity level of IT governance at UBP Karawang, using formula (1) :

$$Maturity\ Level = \frac{\sum(answer \times score)}{total\ number\ of\ respondents} \ldots(1)$$

Image 3 visualizes the 6 maturity levels of IT governance in an organization according to COBIT 2019 [13].

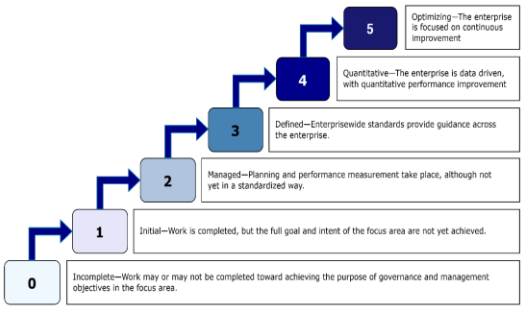

Image 3. Maturity Level

GAP Analysis

This analysis is conducted after measuring the maturity level of IT governance. It involves calculating the difference between the current maturity level and the expected level, as shown in formula (2) :

$$GAP = A - B \ldots(2)$$

A represents the expected maturity level, while B indicates the current maturity level. The purpose of this gap analysis is to identify areas that require improvement.

Recommendations

Based on the gap analysis results, recommendations for improving IT governance at UBP Karawang are formulated. These recommendations are expected to assist PUSDATIN in managing IT services to achieve the desired maturity level.

RESULT AND DISCUSSION

In Table 4, the mapping results of the COBIT 2019 domains indicate that 14 process domains were assessed for their maturity levels and gap analysis. The maturity level of each domain was determined based on questionnaire responses collected from 92 respondents, as shown in Table 5 detail.

Table 5. The Current Maturity Level

No	Process Domain	Maturity Index	Level
1	EDM04	3,44	3
2	EDM05	4,13	4
3	APO01	3,00	3
4	APO04	4,00	4
5	APO06	3,46	3
6	APO07	3,83	4
7	APO14	4,20	4
8	DSS01	4,06	4
9	DSS02	3,84	4
10	DSS05	4,04	4
11	DSS06	4,15	4
12	MEA01	4,02	4
13	MEA02	3,97	4
14	MEA03	3,96	4
Average		3,86	4

Based on Table 5, shows the lowest maturity level with a score of 3.00 in the APO01 process domain, while the highest maturity level with a score of 4.20 in the APO14 process domain. The maturity level of IT governance at UBP Karawang averages 3.86, which is included in level 4 (Quantitatively managed). This indicates that the organization has implemented consistent procedures throughout its operations to achieve the set objectives.

GAP Analysis

Table 6. GAP Analysis

Process Domain	Current Index	Expected Index	*Gap*
EDM04	3,44	5	1,56
EDM05	4,13	5	0,87
APO01	3,00	5	2,00
APO04	4,00	5	1,00
APO06	3,46	5	1,54
APO07	3,83	5	1,17
APO14	4,20	5	0,80
DSS01	4,06	5	0,94
DSS02	3,84	5	1,16
DSS05	4,04	5	0,96
DSS06	4,15	5	0,85
MEA01	4,02	5	0,98
MEA02	3,97	5	1,03
MEA03	3,96	5	1,04
	Average		1,13

Based on Table 6, the largest gap is found in the APO01 domain with a gap of 2.00, while the smallest gap is in the APO14 domain with a gap of 0.80. With an average gap of 1.13, this indicates that IT governance at UBP Karawang has reached a quantitatively managed level and defined in certain domains. For each measured process domain, a graphical representation comparing the current maturity level with the expected level is shown in Image 4.

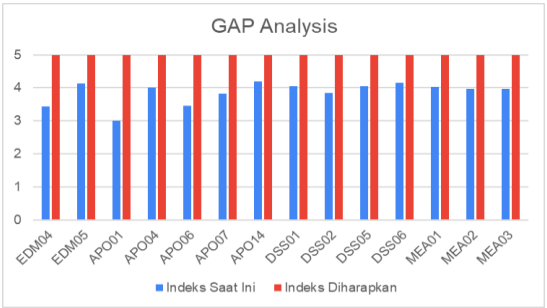

Image 4. GAP Analysis Chart

Given the gap in IT governance maturity level, improvements are needed to enhance its effectiveness at UBP

Karawang. Some of the proposed improvements that can be implemented include (1) strengthen IT risk management through transparency and system monitoring to mitigate potential threats; (2) enhance the IT framework with structured policies and standardized performance measurements; (3) optimize IT budget management by increasing cost transparency and strategic longterm investments; (4) improve IT staff competency through regular training and certification; (5) improve IT efficiency with monitoring automation and faster incident resolution; (6) strengthen IT security with more sophisticated threat detection and stricter data policies; (7) improve internal controls with rigorous audits and regular regulatory monitoring; (8) ensure compliance with external regulations through regular policy updates and regular training for staff and IT users to align with applicable standards.

CONCLUSION

COBIT 2019 with cascade goal mapping is the right approach in evaluating the maturity level of IT governance at UBP Karawang. The evaluation results show an average current maturity level of 3.86 which is equivalent to level 4 (quantitatively managed) with a gap of 1.13 from the expected level. APO01 (Managed I&T Management Framework) has the highest gap with a gap of 2.00, followed by EDM04 (Ensured Resource Optimization) and APO06 (Managed Budget and Costs) with gaps of 1.56 and 1.54 respectively. The main factor causing this gap is the lack of comprehensive IT governance policy formulation, resource optimization, and transparency in budget management. Improvements are needed in IT governance policies, increased resource efficiency, and more optimized budget management. In addition to using the goal cascade approach, there are other ways to do mapping in determining the COBIT 2019 process domain, namely with the design toolkit that has been designed by ISACA and calculating the capability level, with a combination of these various methods, allowing IT governance to be more effective and aligned with the university's strategic goals.

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