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Information Technology Governance Audit on implementing the XYZ Mobile Application Using the COBIT 5 Framework with the BAI Domain

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ABSTRACT

Information technology is needed in every area of human life, including the company's business needs. In the company's business activities, technology has a very important role. Therefore, information technology governance is needed so that information technology can be utilized optimally. PT XYZ has a sales service application for products with the XYZ label. This study conducted an audit on the XYZ application with the COBIT 5 domain BAI framework to determine the application's maturity level and provide suggestions for future development. The maturity level results in a value of 3,356 with a predetermined process status, and there is still a large enough gap between each subdomain with the results of the average maturity level in the BAI domain. The results of this study are that it can be seen the value of the application maturity level and recommendations for system development that can be carried out.

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1. INTRODUCTION

Technology has become an inseparable part of human life. The human need for technology is a trigger for the development of information technology systems which causes changes in roles and tasks carried out by humans, aiming to increase the efficiency and effectiveness of human work to achieve a goal[1]. In today's digital industrial era, information technology not only plays a role as a supporter of human activities but has played a very important role in determining the successful implementation of a project or program plan[2], [3]. Considering the importance of the role of information technology for human activities, especially in the business sector by industry players, information technology governance is needed to ensure an increase in the quality of performance of a company, which is one of the responsibilities of the company's management.

Information technology governance is one part of overall corporate governance, such as leadership, corporate management structure, and others, that can enhance an organization's strategic capabilities to support the achievement of corporate goals. Information technology governance is an aspect that plays a very important role in achieving company goals because it provides a competitive advantage and can increase the effectiveness and efficiency of company operations [4], [5].

COBIT 5 is the latest information technology governance framework version published by ISACA (Information Systems Audit and Control Association) in 2012[6]. COBIT 5 is the result of an update from the previous version of the framework, namely COBIT 4.1. The existence of COBIT 5 does not eliminate the role of the previous version of the framework[7], [8]. Still, it strengthens the emphasis on the importance of

information technology governance and management so that all management activities can be well integrated. COBIT 5 emphasizes the function of information technology and the quality of human resources[9]. The basic principles in COBIT 5 are Meeting stakeholder needs, Covering the enterprise end to end, Applying a single integrated framework, Enabling a holistic approach, and separating governance from management [6]

Information technology governance includes many technical and non-technical matters that can directly or indirectly affect the application of information technology in company activities[10]. This happens because many factors can determine the success of implementing information technology governance, especially in terms of human resources as the main actors in the use of information technology. Companies from various sectors are certainly aware of this and are starting to compete to improve the quality of their information technology governance so that it can become a competitive advantage that can help them win the market competition. PT XYZ, the largest bookstore and printing retail company in Indonesia, has implemented information technology governance to support the company's business activities and meet market demand. One of the information technology systems owned by XYZ is an application called "XYZ Digital". XYZ Digital is an online bookstore application launched in 2018 that sells various reading books, subscription packages for magazines, newspapers, and various other XYZ private label products. Even though this application has been used for 4 years, there are still deficiencies that need to be corrected to improve the service quality of this application. This deficiency can be seen from the ratings and comments submitted by application users through the Google Play Store and apps store services.

This study aims to evaluate IT governance with the COBIT 5 framework in the BAI (Build, Acquire, and Implement) domain. This evaluation can provide special benefits to the XYZ Digital application to obtain information regarding the Maturity Level of the XYZ Digital application. So that the evaluation results can also enrich the company's point of view regarding the future development of XYZ Digital applications.

2. METHOD

The research was conducted with a qualitative and quantitative approach. The quantitative approach to explore the literature study. This study used qualitative and quantitative approaches, and research steps were made to clarify the steps taken in this study. This research also uses a qualitative approach used to conduct literature studies and object studies related to the research topic and interviews to find out more deeply and confirm the recommendations resulting from the analysis. The quantitative approach obtains analytical data by making statements or questions. Questions are assessed with a Likert scale from 1 – 5.

2.1. Data Collection Method

The data collection method used in this study was to distribute questionnaires to a number of relevant informants and understand the XYZ Digital application system. Questionnaire data collection was divided into three phases, with a total of 96 question points posed to the informants. Each question and statement used is made with reference to the book "COBIT 5: Enabling Processes" from ISACA[1].

2.2. IT Governance Framework

The framework used in this study is COBIT (Control Objectives for Information and Related Technology) version 5 created by ISACA (The Information System Audit and Control Association) specifically for the BAI domain (Build, Acquire, and Implement)[11], [12]. The BAI domain is the second domain contained in the COBIT 5 framework, with the function of the BAI domain to conduct information system audits by taking into account the suitability between stakeholder needs and information technology governance in companies[13] [14], [15]. The objective of the BAI domain is to manage all of the company's information technology programs and projects. Based on the book COBIT 5 Process Assessment Model, there are 10 subdomains in the BAI domain (Build, Acquire, and Implement)[12], which include:

Table 1. Subdomain BAI

Sub domain	Annotation
BAI01	Manage programs and projects.
BAI02	Manage requirements definition.
BAI03	Manage solutions identification and build.
BAI04	Manage availability and capacity.
BAI05	Manage organizational change enablement.
BAI06	Manage changes
BAI07	Manage change acceptance and transitioning.
BAI08	Manage knowledge
BAI09	Manage assets

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Sub domain	Annotation
BAI10	Manage configuration

Following are the details of each question from each subdomain.

1. BAI01 Manage Programmes & Project

Sub domain yang bertujuan untuk memelihara standar manajemen program dan proyek yang digunakan perusahaan.

Table 2. Statement BAI01

No.	Statement
1	Regularly updating program and project management standards based on user evaluation results.
2	Delegate company programs and projects to competent, dedicated managers to carry out tasks effectively and efficiently.
3	Analyze the needs and desires of the company's stakeholders.
4	Prepare budget estimates that provide an overview of the company's economic cycle related to the project and estimate its financial and non-financial impact on the company.
5	Has a special division in charge of conducting project audits and realizing projects.
6	Manage project performance based on criteria such as scope, schedule, quality, benefits, costs, and risks.
7	Ensuring that services run according to the goals agreed upon by the company's stakeholders even though there are changing needs.
8	Conduct a review to ensure that every achievement obtained provides significant results for the company and customers.
9	Carry out quality control and assurance of service quality in accordance with Quality Management System standards.
10	Identify the decisions taken by management in avoiding, accepting, and reducing the risks that the company accepts.
11	Apply the standard criteria that have been set correctly.
12	Identify gaps between the service plan and implementation and then submit them to the manager for correction.
13	Obtain stakeholder approval for the results of implementing the services performed.
14	Reviewing and documenting the results of evaluations that are carried out on a regular basis.

2. BAI02 Manage Requirements Definition

A subdomain that aims to determine the most optimal solution that suits company needs and minimizes the risk of service management failure.

Table 3. Statement BAI02

No.	Statement
1	Define scope limitations and requirements, and modify the service life cycle according to the solutions that can be provided.
2	Together with stakeholders, consider alternative solutions that can be selected based on the company's eligibility standards.
3	Identify steps to control, prevent, anticipate, and improve service problems based on priority.
4	Obtain reviews and evaluations of the quality of services provided as an assessment of performance.

3. BAI03 Manage Solutions Identification & Build

A subdomain that aims to Define effective and cost-effective solutions to support company goals.

Table 4. Statement BAI03

No.	Statement
1	Involve competent testers and IT specialists to ensure optimal service quality.
2	Design an interactive and easy-to-understand application UI display.
3	Plan an appropriate data storage system according to application service needs and prepare data retrieval, backup, and recovery procedures.

No.	Statement
4	Ensuring that the UI created is easy for users to understand.
5	Anticipate data redundancy.
6	Ensuring stakeholder participation by reviewing every change plan made together.
7	Document every acquisition related to service infrastructure and software into company inventory.
8	Configure software and service infrastructure to comply with company standards.
9	Document the results of system testing and provide reports to stakeholders according to the test plan.
10	Perform routine system maintenance.

4. BAI04 Manage Availability & Capacity

The subdomain aims to Manage service availability and efficiency of company resources and optimize system performance through analysis of current and future needs.

Table 5. Statement BAI04

No.	Statement
1	There are customer needs that can be resolved through the application service.
2	There is compatibility between application services and the company's business priority goals.
3	There is a readiness of the company's budget to operate the service.
4	There is an allocation of resources in accordance with the company's business activities.
5	The existence of competent human resources in the field of IT
6	There is compatibility between service development and the latest industry trends.
7	There is monitoring carried out to monitor the actual performance of the service.
8	Identify and follow up on every case resulting from inadequate service capacity.
9	Perform routine evaluation of every process that affects application services, such as evaluating business and customer needs, service capacity, and considering changes in trends that occur in the industry.
10	Deciding the right solution according to the company's resource capabilities.
11	Performing structured mapping in implementing the right solution according to application needs and service-supporting infrastructure.
12	Collect data from any problems related to services and predict potential disruptions to services in the future.
13	Anticipate based on the results of predictions of potential system disturbances made to achieve company goals.
14	Identify scenarios where there is a possibility of failure in improving service quality.
15	Based on the scenarios created, calculate the impact of successes and failures in efforts to improve service quality.
16	Ensuring that the management of the company fully understands and agrees with the analysis results through the scenarios created.
17	Obtain an evaluation of possible unacceptable scenarios to company management and adjust possible risks to an acceptable level.
18	Conduct a review of the impact arising from the features provided in application services.
19	Identifying the impact of changing market needs and business opportunities on application services.
20	Determine priorities for improving service quality in accordance with system requirements and prepare reports on budget requirements according to system requirements.
21	Develop plans to improve service quality into business processes objectively and realistically, such as compiling details of changes to application and system supporting infrastructure and adjusting workloads with available resources and time and others.
22	Ensure that management evaluates the conformity between the actual system requirements and the system improvement plan that has been made and makes changes to the plan if necessary.
23	Make clear data flow to provide accurate information to company management.
24	For review purposes, provide regular reports to all parties related to company application services.
25	Carry out monitoring activities, case analysis, system adjustment plans, and implementation in an integrated manner as a continuous cycle.
26	Make system performance reports to find out future budget requirements.
27	There is a guide or instruction module a guide to run application services according to the standards set by the company.

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28	Identifying gaps between the company's performance level and the company's maximum potential to improve company performance
29	Able to take corrective actions when necessary, such as shifting the workload to other parties who can still handle the task, changing the priority order of tasks that must be done, and rearranging the resources needed by the company according to the problems that occur.
30	Integrate corrective actions quickly and precisely to the management of the company's project implementation plan.
31	Have the right standard procedures to solve emergency problems related to application services quickly.

5. BAI05 Manage Organizational Change Enablement

Subdomain, which aims to Prepare and assign responsibility for any system changes made to ensure business success and reduce the risk of failure.

Table 6 Statement BAI05

No.	Statement
1	Establish alignment of goals from top management to the implementation level.
2	Build a sense of trust in the team so that communication can take place effectively.
3	Convey information according to the company plan in a way that is clear and easy to understand.
4	Planning the need for competency development for old employees to improve the quality of human resources.
5	Have clear employee performance measurement standards.
6	Give appreciation to employees for achievements that support the company's plans.
7	Provide coaching, special training, and knowledge to new employees.

6. BAI06 Manage Changes

This sub-domain aims to regulate any changes to company standards and procedures and anticipate negative impacts that may affect work stability resulting from these changes.

Table 7. Statement BAI06

No.	Statement
1	Plan and schedule implementation of each approved change plan.
2	Ensuring that any action on emergency changes made is approved and in accordance with company standards.
3	Ensuring that the results of any changes made are completed on time and approved by management.
4	Include complete documents for changes made, such as procedural, operational documents, configuration information, training materials, etc.

7. BAI07 Manage Change Acceptance & Transitioning

A subdomain that aims to Implement the planned solution safely and in accordance with agreed expectations and results.

Table 8. Statement BAI07

No.	Statement
1	Confirm to all parties involved that the implementation plan has been approved by company management and has been audited according to company regulations.
2	Creating a system backup before implementing system changes as a measure to anticipate failures in the conversion process.
3	Ensure that the system test plan created is in accordance with the company's operational requirements.
4	Ensuring that system conversion results can be tested safely without causing any hazard that cannot be anticipated.
5	Ensure that the test results are correct according to the success criteria set out in the test plan.
6	Determine the implementation limits of the tests carried out in accordance with the objectives set.
7	Provides all IT needs to run services and make changes when needed.
8	Conduct post-implementation evaluation by involving all related parties.

8. BAI08 Manage Knowledge

The subdomain aims to provide the information needed to support employee work performance in making decisions related to assigned tasks.

Table 8. Statement BAI08

No.	Statement
1	The company proactively transfers knowledge to the staff
2	Collecting, compiling, and validating information sources used in accordance with company criteria.
3	Ensuring that any information provided to employees is interconnected so that each member can understand the relationship between every part of the company.
4	Ensuring that the gap between the capabilities possessed and the standard of knowledge that HR must own can be properly resolved by providing training techniques and access to the necessary tools.
5	Identify any information that is not required/irrelevant to company criteria.

9. BAI09 Manage Assets

A subdomain that aims to Manage and account for every IT asset owned by the company in optimizing every benefit that can be obtained through these assets.

Table 9 Statement BAI09

No.	Statement
1	Identify and record all IT assets currently owned.
2	Keep records of every configuration made to the company's IT assets.
3	Control the performance quality of IT assets and make improvements if necessary.
4	Acquisition of IT assets in accordance with company provisions so that they can be used to improve company performance.
5	Identify new technologies that can be used to enhance strategic capabilities and reduce company operational costs.
6	Keep every important document and license of every hardware and software that belongs to the company and enter into agreements related to usage licenses when necessary.

10. BAI10 Manage Configuration

A subdomain that aims to ensure a balance between owned IT assets and the information needed to do work using the system.

Table 10. Statement BAI10

No.	Statement
1	Create, evaluate, and formally approve any configuration, application, and infrastructure information that company employees can know as users.
2	Define and agree on scope limitations and configuration details that company employees as users need to know.
3	Review each proposed configuration change completely and accurately.
4	Matching any changes in the configuration results with the initial plan that has been approved to identify any changes that are not agreed upon and report them to management for follow-up.
5	Periodically evaluate and determine the completeness of repository configuration based on the company's business needs.

2.3. Maturity Level

The validity test phase is carried out using the Maturity Level calculation with the aim of knowing the maturity level of the system based on the data from the questionnaires that the informants have filled in. The maturity level scale is divided into 6 levels as shown in the table[7].

Table 11. Scale Maturity Level

Scale	Maturity Level
0 – 0,49	0 – Non-Existent
0,50 – 1,49	1 – Initial / Ad Hoc
1,50 – 2,49	2 – Repeatable but Intuitive
2,50 – 3,49	3 – Defined Process

.

Scale	Maturity Level
3,50 – 4,49	4 – Manage and Measurable
4,50 –5,00	5 – Optimized

2.4. Ordinal Measurement

In the answers to filling out the questionnaire in this study using ordinal measurements. Ordinal measurement defines a number of numbers so that they have a value at a certain level, starting from the lowest level to the highest level.[8] The following is a table of levels and the meaning of each number used in this study.

Table 12. Ordinal Measurement

Nilai	Annotation
1	Not good
2	Less good
3	Pretty good
4	Good
5	Very good

2.5. Measurement Maturity Index

Based on the results of the questionnaire that the respondents filled in, calculations were then carried out to determine the maturity index of each subdomain. Maturity Index calculation is done in the following way. The first step is to calculate the mean total value of the questionnaire for each subdomain using the following formula.

$$\bar{X}(Score) = \frac{\sum (Score\ each\ Resource\ persons)}{\sum (Resource\ persons)} \quad (1)$$

After knowing the mean of the total value of the questionnaire for each subdomain, the Maturity Index calculation is performed using the following formula.

$$\text{Maturity Index} = \frac{\bar{X}(Score)}{\sum (each\ \text{subdomain question})} \quad (2)$$

Before calculating the maturity index, calculations are first carried out to find out the average score of each subdomain. This is done because each subdomain has more than one source, so it is necessary to know the average value that represents each subdomain.

2.6. Measurement Maturity Level

After knowing the Maturity Index value of each subdomain, a calculation is performed to find out the Maturity Level value of the entire subdomain so that the Maturity Level level of the BAI domain is known. The following is the formula used to calculate the Maturity Level value.

$$\text{Maturity Level} = \frac{\sum (\text{Maturity Index})}{\sum (\text{Subdomain BAI})} \quad (3)$$

The calculation is done by dividing all subdomains' total value by the BAI domain's total subdomains. The result of this calculation is the Maturity Level in the BAI domain for XYZ Digital applications.

3. ANALYSIS AND DISCUSSION

Analysis with the calculation method used to determine the maturity level and the calculation's final result. Analysis of the capability level achieved by PT. XYZ in the BAI domain is used to take advantage of IT development and facilitate ongoing activities. As for the use of IT in the XYZ Digital Mobile Application at PT. XYZ. At this time, the system has been running according to plan, but currently, there are still some constraints on the use of the system. Therefore, the current IT management process is considered not optimal enough in terms of existing IT resources. This analysis uses the COBIT 5 framework with the BAI domain and analysis by asking questions to be filled into respondents.

3.1. Maturity Index Calculation Results

This study uses a questionnaire method to obtain data. Respondents in this study were part of IT (head and staff of IT), part of the head and staff of PT. XYZ. This section contains detailed calculations based on

answers to questionnaires from respondents in each subdomain of BAI. Based on the results of these calculations, the maturity index value for the BAI01 subdomain is 3.5. Based on the results of these calculations, the maturity index value for the BAI02 subdomain is 3.33. Based on the results of calculating the maturity index value for the BAI03 subdomain is 3.30. Based on the calculating results, the maturity index value for the BAI04 subdomain is 3.45. Based on the results of calculating the maturity index value for the BAI05 subdomain is 3.48. Based on the calculating results, the maturity index value for the BAI06 subdomain is 3.25. Based on the calculating results, the maturity index value for the BAI07 subdomain is 3.37. Based on the results of calculating the maturity index value for the BAI08 subdomain is 3.20. Based on the calculation results, the Maturity Index value for the BAI09 subdomain is 3.28. Here are the results of the calculations. Based on the calculation results, the Maturity Index value for the BAI10 subdomain is 3.40. Based on the results of the final calculation of the Maturity Level in the BAI domain, the XYZ Digital application has a value of 3.356.

The following is the calculation of the Maturity Level of the XYZ Digital application in the BAI (Build, Acquire, and Implement) domain.

Table 13. Maturity Level Domain BAI

Sub domain	Explanation	Maturity Index
BAI01	Manage programs and projects.	3,5
BAI02	Manage requirements definition.	3,33
BAI03	Manage solutions identification and build.	3,3
BAI04	Manage availability and capacity.	3,45
BAI05	Manage organizational change enablement.	3,48
BAI06	Manage changes	3,25
BAI07	Manage change acceptance and transitioning.	3,37
BAI08	Manage knowledge	3,2
BAI09	Manage assets	3,28
BAI10	Manage configuration	3,4
Maturity Level Domain BAI		3,356

3.2. Gap Analysis

The following is a radar diagram that illustrates the comparison of the gap between the Maturity Level and Maturity Index values for each subdomain.

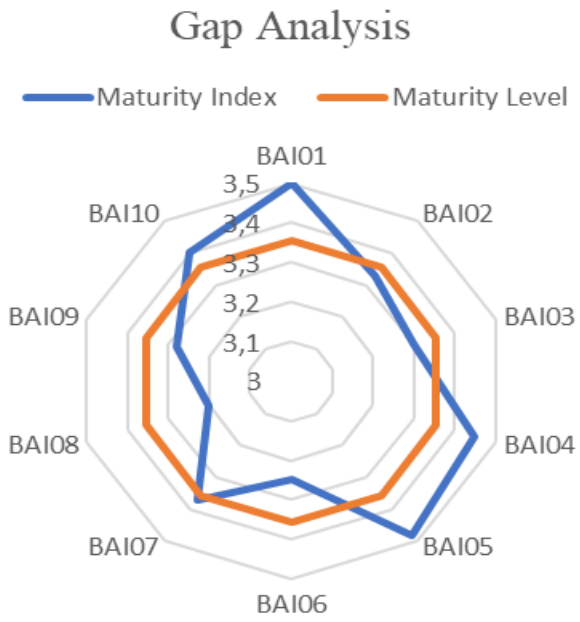

Figure 1. BAI Domain Gap Analysis Radar Diagram

The figure shows that the red line represents the Maturity Index value, and the blue line represents the Maturity Level value. The farther the line's location from the radar's center indicates, the higher the value. In contrast, the closer the line's location to the center of the radar indicates, the lower the maturity value.

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4. RECOMMENDATION

The analysis results based on the calculations and discussions that have been carried out can provide recommendations for each domain that does not reach expectations. The Maturity Level result for the BAI domain is 3.356, which is based on the Maturity Level scale described as being at maturity level 3 with a defined process status, which means that this application has standardized processes and documentation for each step of the procedure performed. Even so, there are still deviations in the procedures carried out so that their implementation has not been carried out optimally. In detail, 5 subdomains are below the Maturity Level standard, including BAI02, BAI03, BAI06, BAI08, and BAI09. The development suggestions given are based on the analysis results in the previous section. Each subdomain has development suggestions that are different from one another. This is tailored to the goals and needs of each application subdomain.

In the BAI01 subdomain, managing programs and projects can improve and improve the quality of owned quality assurance standards in accordance with the quality management system reference standards used by companies to improve application user experience. In the BAI02 subdomain, Managing Requirements and Definitions can make scope boundaries and threshold criteria more specific according to the solutions that have been determined and pay attention and consider user reviews as evaluation material in determining application quality standards in the future. In the BAI03 subdomain, managing identification and creating solutions processes can determine solutions to potential data redundancy in application databases. Some alternatives that can be done to solve this problem are: deleting unnecessary data, evaluating the entire database system and the relationships between databases, and normalizing the database. In the BAI04 subdomain, managing resource availability and capacity can anticipate potential service disruptions in the future by making predictions based on system deficiencies, detailing problem scenarios, and establishing standard procedures for dealing with these problems. In the BAI05 subdomain, managing to change organizational empowerment can improve the quality of cooperation and communication between team members within the company for smooth work processes. In the BAI06 subdomain, manage all changes in a controllable manner. You can set standard procedures for handling emergency cases that arise so that decisions taken are subject to management approval. In the BAI07 subdomain, managing acceptance of changes and transitions can routinely evaluate implementation results and perform documentation in the form of management reports. In the BAI08 subdomain, managing knowledge can carry out training activities and seminars to improve the quality of the company's human resource capabilities on a regular basis. In the BAI09 subdomain, Managing Assets can evaluate performance measurements of main infrastructure and system support, then make the necessary improvements quickly and effectively. In the BAI10 subdomain, configuration management can ensure that every system configuration that is carried out is in accordance with system requirements and still follows the company's standard procedures.

5. CONCLUSION

Based on the results of the research that has been done, it can be concluded that information technology governance is needed to manage information technology services owned by companies so that every resource owned can be used effectively and efficiently to achieve the company's business goals and increase customer satisfaction. The BAI domain Maturity Level value for the XYZ Digital application is at level 3 with a defined process status in which this application has a standardized process and documentation is carried out for each step of the procedure carried out, but the implementation is still not running optimally due to deviations from predetermined procedures. Based on the results of the Gap Analysis, it can be seen that each subdomain of the BAI domain has a maturity value below the standard, as stated in the analysis results section in the previous chapter. This can be used as a recommendation to be prioritized in improving the quality of system services. The application of information technology governance is strongly influenced by the harmony between the understanding and capabilities of human resources and the capacity of the company's systems.

REFERENCES

[1] D. Ulas, "Digital Transformation Process and SMEs," *Procedia Comput. Sci.*, vol. 158, pp. 662–671, 2019, doi: 10.1016/j.procs.2019.09.101.

[2] E. Fernando, R. Kosala, and E. Abdurachman, "Key Factor Adoption Blockchain Technology In Smart Supply Management: Literature Review Erick," in *2018 International Seminar on Research of Information Technology and Intelligent Systems (ISRITI) Key*, 2018, pp. 99–102.

[3] E. Fernando, A. H. Hetty Rohayani, P. Siagian, and D. Touriano, "Analysis of security and performance service in service oriented architecture (SOA) and data integration," *Int. Conf. Electr. Eng. Comput. Sci. Informatics*, vol. 1, no. August, pp. 270–274, 2014, doi: 10.11591/eecsi.1.339.

[4] E. Fernando, D. Touriano, and Rico, "Impact of Service-Oriented Architecture adoption in information system," in *ICITACEE 2015 - 2nd International Conference on Information Technology, Computer, and Electrical Engineering: Green Technology Strengthening in Information Technology, Electrical and Computer Engineering Implementation, Proceedings*, Oct. 2016, pp. 52–55. doi: 10.1109/ICITACEE.2015.7437769.

[5] M. V. Mishra and C. Samuel, "Tackling Supply Chain Bottlenecks of Essential Drugs in Primary Health Centers: A Case of

Eastern Uttar Pradesh, India," *IOSR J. Bus. Manag.*, vol. 16, no. 11, pp. 92–96, 2014, doi: 10.9790/487X-161119296.
[6] D. Lanter, *OBIT 5: Enabling Processes*. ISACA, 2012. [Online]. Available: www.isaca.org/cobit
[7] Sandfreni and F. Adikara, "Capability Level Assessment of IT Governance in PTP Mitra Ogan," *4th Int. Conf. Comput. Appl. Inf. Process. Technol.*, pp. 1–5, 2017.
[8] G. Ayu, T. Krisanthi, I. M. Sukarsa, and I. P. A. Bayupati, "GOVERNANCE AUDIT OF APPLICATION PROCUREMENT," vol. 59, no. 2, pp. 342–351, 2014.
[9] A. A. Prawoto, "It Governance in News Company Using Cobit 5 Frameworks," *Sisforma*, vol. 6, no. 1, pp. 7–15, 2019, doi: 10.24167/sisforma.v6i1.1927.
[10] E. Fernando, M. Meyliana, H. L. Hendric Spits Warnars, and E. Abdurachman, "Key strategic issues pharmaceutical industry of SCM: A systematic literature review," *Bull. Electr. Eng. Informatics*, vol. 9, no. 2, pp. 808–817, 2020, doi: 10.11591/eei.v9i2.1264.
[11] ISACA, *Governance and Management Objectives*. 2018. [Online]. Available: https://www.isaca.org/resources/cobit
[12] ISACA, *A Business Framework for the Governance and Management of Enterprise IT*. 2012.
[13] J. S. Neto, R. Almeida, P. Pinto, and M. M. Silva, "A COBIT 5 PAM Update Compliant With ISO/IEC 330xx Family," *ISACA J.*, vol. 1, no. February, pp. 1–5, 2018, [Online]. Available: https://www.isaca.org/Journal/archives/2018/Volume-1/Documents/A-COBIT-5-PAM-Update-Compliant-With-ISO-IEC-330xx-Family_joa_Eng_0118.PDF
[14] S. A. Melani, M. Ula, and D. Yulisda, "Penilaian Tingkat Kapabilitas (Capability Level) Tata Kelola Ti Menggunakan Framework Cobit 5 Domain Bai (Build, Acquire and Implement) Studi Kasus : Upt. Puskom Universitas Malikussaleh," *Sisfo J. Ilm. Sist. Inf.*, vol. 4, no. 1, pp. 75–95, 2021, doi: 10.29103/sisfo.v4i1.6277.
[15] N. Lediwara, "Analisis IT Governance Menggunakan Framework Cobit 5 Domain DSS, MEA dan BAI," *Pseudocode*, vol. 7, no. 2, pp. 97–104, 2020, doi: 10.33369/pseudocode.7.2.97-104.