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Measurement of Capability Level Using COBIT 5 Framework (Case Study: PT Andalan Bunda Bijak)

Dicky Sanjaya[1], Melissa Indah Fianty[2]
Information System, Faculty of Engineering and Informatics, Universitas Multimedia Nusantara, Tangerang, Indonesia
dicky.sanjayaa78@gmail.com[1], melissa.indah@umn.ac.id[2]

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***Abstract*— PT Andalan Bunda Bijak is a company that distributes baby equipment. In running its business, PT Andalan Bunda Bijak implements a system called MySoft to assist the company's business activities. The business development of the company has not entirely run optimally. This is because there are still problems related to risk management (no SOP for handling problems, no division to handle issues, and no problem recording) and information security (no information security policy and no information security training). With this problem, it is necessary to measure the level of capability in corporate information technology governance. This study was conducted to analyze the level of corporate information technology governance capability using the COBIT 5 framework. This study uses three domains (EDM, APO, and DSS) and four processes (EDM03, APO12, APO13, and DSS05) obtained from the mapping results PT Andalan Bunda Bijak's vision, mission, goals, and strategies for the problems faced by the company. Data was collected by interviewing the company's operational leaders and managers and observing the systems, documents, and company environment. The results of this study determined that each process was at level 1 (performed process). There is a gap of 1 level between the level of capability of the company's current state and the level of capability of the company's expectations. There are 28 recommendations for improvement given to the company.**

Index Terms—*Capability Level; COBIT 5; Information Technology Audit; PT Andalan Bunda Bijak*.

I. INTRODUCTION

Fulfilling the organization's vision and mission is an important thing that every organization must realize. One way to realize the organization's vision and mission can be done by utilizing existing information technology (IT) [1]. The utilization of information technology penetrates almost all areas of the organization, be it government, private companies, education, health, industry, and so on [2]. Using trusted information technology can help and facilitate every activity carried out by its users. Good use of information technology must be supported by good information technology governance and aligning information technology to align with the organization's vision and mission [3].

Information technology governance can be good if the use of information technology goes as expected [4]. Information technology governance helps an organization manage its infrastructure and performance [3]. In addition, information technology governance is also helpful for convincing organizations that information technology (IT) can appropriately manage IT-related risks and opportunities, support organizational goals, and maximize investment in IT [5]. To determine whether information technology governance in the organization has been implemented correctly, directed, and appropriately, it is necessary to carry out an information technology audit process [4].

Information technology audits have the benefit of correcting errors and irregularities that exist in IT implementation and can evaluate the maturity level of IT use in the organization [6]. Information technology audits are carried out by examining every process, asset, and control that exists at various levels of the organization to ensure that all of them comply with applicable standards [7]. Implementing an information technology audit requires a framework, one of which is COBIT [6].

COBIT stands for Control Objective for Information and Related Technology [2]. COBIT is a directed IT management and governance guide to bridge the gap between business risks, control needs,

and problems [8]. COBIT evolves from one version to another, and the latest version of its development is COBIT 2019 [6]. However, many studies have not used the version of COBIT 2019 but are still using the version of COBIT 4.1 and COBIT 5.0 [9].

COBIT 5.0 is a guide that helps a company generate value and achieve company goals through effective information technology management and good governance [8]. Apart from that, the use of COBIT 5 itself can provide a practical and comprehensive approach regarding the relationship or relationship between business processes and IT [2], [10] and has been widely applied or implemented in companies, making it easier for companies to implement it [11]. COBIT 5 first appeared or was published in 2012 [12], and the renewal of this type of COBIT is based on the addition of several frameworks and standards, such as IT risk, IT val, ITIL, and ISO standards which are integrated into COBIT 4.1 [13], so COBIT was born. COBIT 5 consists of two areas, five domains, and thirty-seven processes [14]. The application of the COBIT 5 framework is intended for PT Andalan Bunda Bijak.

PT Andalan Bunda Bijak is a company engaged in distributing baby equipment products. This company was founded to facilitate the distribution of products in the market. The company's business strategy in 2022 is to expand the company's business scope by opening new company partners so that later products from this new partner can be distributed by PT Andalan Bunda Bijak, which of course, is still related to baby equipment. However, to carry out this strategy, PT Andalan Bunda Bijak has several problems within the company that hinder the implementation of this business strategy.

Based on the results of a pre-interview with Mr. Joko as the leader of PT Andalan Bunda Bijak, some problems hinder the implementation of business strategies for the company, namely the lack of risk management for a problem that occurs in the company both in general and from the system used. The absence of SOPs and special units responsible for risk management causes problems in this company. In addition, in terms of risk management, PT Andalan Bunda Bijak does not have a recording document regarding events or issues that pose a threat and risk to the company.

Apart from problems regarding risk management, PT Andalan Bunda Bijak also has one more focus for the company, which is related to the security of the company itself. Mr. Joko believes that security for the company is critical because it will relate to data and information held by the company, both internal data (employees, finances, total stock) and external data of the company (customers and suppliers). In terms of security itself, PT Andalan Bunda Bijak does not have an information security policy that regulates physical safety, network security, and access rights to the MySoft system, and every employee in the company is not provided with training on physical security and malware to form self-awareness of every employee. Table 1 below describes the problems, impacts, and focus areas of the issues faced by PT Andalan Bunda Bijak:

Table 1. Company's Problem, Impact, and Focus Area

No.	Problem	Impact	Focus Area
1	Does not have SOP and a special risk management unit in the company.	Problem-solving time is longer.	*Risk management*
2	Do not have documents recording events that are threatening and risky for the company.	The magnitude of the threat and the potential loss experienced cannot be known with certainty.	*Risk management*
3	Does not have an information security policy that governs physical security, network security, and access rights to the MySoft system.	There is potential for employee negligence in terms of misuse of IT facilities and company information.	*Resource management*
4	There is no training on physical security and malware for company employees.		

Given the problems and important focus for the company, the company needs to conduct an audit of the information technology governance that exists in the company using the assistance from the COBIT 5 framework to prepare the business strategy of PT Andalan Bunda Bijak in 2022, namely expanding the scope business of the company. This information technology governance audit will focus on the part of risk management that is a problem for the company and security, which is an important focus and special request from the company.

II. Theoretical Basis

A. IT Governance

Information technology governance or IT Governance is a component of integrated company activities that include business processes and organizational structures to ensure that information technology follows corporate strategy and goals [15]. Information technology governance has five focus areas that describe the topics that executive management needs to address to manage IT within the company. The five focus areas include strategic alignment, value delivery, resource management, risk management, and performance management.

B. Information Technology Audit

Evaluation and inspection activities of an organization's IT infrastructure, data, applications, procedures, and operational activities fixed on recognized standards and established policies are the meaning of information technology audits [16]. In conducting an audit, of course, some stages must be considered. According to Gallegos, there are four stages of an audit, including planning, fieldwork, reporting, and follow-up [17].

C. COBIT 5

COBIT 5 is a standard for companies that is useful in helping a company to generate value and achieve company goals through effective management of information technology and good governance [8]. COBIT 5 first appeared or was published in 2012 [12], and the renewal of this type of COBIT is based on the addition of several frameworks and standards, such as IT risk, IT val, ITIL, and ISO standards which are integrated into COBIT 4.1 [13], so COBIT 5 was born.

COBIT 5 will be used to determine the selected IT process. 4 processes must be carried out in choosing the IT process, which can be seen in Figure 1 below [18]:

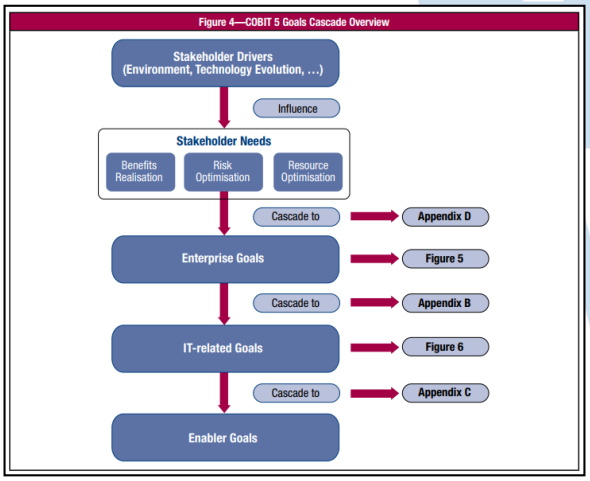

Figure 1. COBIT 5 Goals Cascade

1. Stakeholder drivers influence stakeholder needs

   Determining the needs of stakeholders can be influenced by several driving factors, including changes in the company's business strategy, changes in the business environment, changes in applicable rules and policies, and the emergence of new technology to replace old technology.

2. Stakeholder needs cascade to enterprise goals

   After the needs of the stakeholders are obtained, the next step will be to map these needs into several general goals for the company. There are 17 general goals in the company provided by COBIT 5.

3. Enterprise goals cascade to IT-related goals

   After the company's goals are obtained based on the mapping carried out, these goals will be mapped into IT-related goals. There are 17 IT-related goals provided by COBIT 5.

4. IT-related goals cascade to enabler goals

   The final stage to be carried out is to re-make the IT-related goals obtained previously to become one of the enablers. The enabler in question is the IT process. There are 37 IT processes divided into five domains and two areas.

D. RACI Chart

RACI chart is an acronym for Responsible, Accountable, Consulted, and Informed chart, a matrix describing the activities and powers of an organization or company in making decisions [19].

E. Capability Levels

The capability level is adapted from ISO/IEC 15504 - 2 and is a substitute for the maturity level used in the assessment process. This assessment process is based on the organization's ability to carry out the functions specified in the assessment model [20]. This capability model consists of 6 levels or levels, and four scales are used to assess each stage to advance to the next step or level [21].

F. Gap Analysis

Gap analysis is done by comparing the current situation with the expectations or targets of a company. To get the results of this gap, there is a formula used as shown in Figure 2 below:

$$Gap\ Analysis = expected\ value - current\ value$$

Figure 2. Gap Analysis Formula.

III. METHOD

The research method used to measure this information technology's governance and management capabilities of this information technology is the COBIT 5 method, with the research object being PT Andalan Bunda Bijak. In addition, this study uses the audit stages of Gallegos [17], namely:

A. Planning

The first stage in conducting an information technology audit is planning. Planning, in this case, is related to determining the object of research to be audited, which in this case is PT Andalan Bunda Bijak, as well as conducting initial communication

with the company to analyze the company's vision, mission, goals, and strategic plans in the future (this is done by running pre-interview with Mr. Joko as the leader of PT Andalan Bunda Bijak) to later be mapped based on the stages of the COBIT 5 method to determine the selected process. Once selected, each process will produce a RACI chart and respective audit documents as a guide for conducting more detailed and in-depth interviews regarding information technology governance.

B. Field Work

The second stage in conducting an information technology audit is conducting fieldwork. Field works are carried out to collect all necessary information in the audit process. In this study, information collection can be done by conducting observations and interviews with resource persons from PT Andalan Bunda Bijak. Observations are carried out by monitoring the MySoft system used at PT Andalan Bunda Bijak and every document that is made and adhered to, such as SOPs, policies, and so on, as well as monitoring the company's environmental conditions. The interview technique is carried out by asking questions to the informants based on the guidelines from COBIT 5 to get answers or more detailed and in-depth explanations as the basis and evidence for conducting an assessment later for each selected COBIT 5 process.

C. Reporting

The third stage in conducting an information technology audit is reporting. All data collected through observations and interviews will be analyzed, and the capability level will be calculated. After the capability level is obtained, the next step is to analyze the gap between the current actual situation in each COBIT 5 process and the expectations or targets of PT Andalan Bunda Bijak. After the capability level and gap analysis results are obtained, it will be continued by making an audit report containing an assessment and capability level, gap level, and recommendations for improvement to increase the expectations of PT Andalan Bunda Bijak.

D. Follow Up

The last or fourth stage in conducting an information technology audit is to follow up. The follow-up, in this case, is a continuation of the previous step, namely reporting where the completed report will be given to the company for re-evaluation. Furthermore, all recommendations for improvement are entirely the company's responsibility, whether existing enhancements will be implemented or become a reference for future improvements.

Then, measuring the value of the capability level of governance and information technology management is carried out by carrying out some stages/flows from COBIT 5, namely, determining company goals which will then be used for mapping with COBIT 5 enterprise goals. The next step is mapping Enterprise Goals to IT Goals. Whose results are used for mapping to the COBIT process.

The scoring will be based on the criteria in the capability level. The levels of capability level can be seen in Table 2 [21]:

Table 2. Capability Levels

Capability Levels
5 – Optimising Process
4 – Predictable Process
3 – Established Process
2 – Managed Process
1 – Performed Process
0 – Incomplete Process

The capability level has six levels, starting with level 0, then the highest level weighing 5. The achievement technique at the capability level is mature, which means the company needs to meet the low level to reach the next level. Companies must get a score of 85% to continue the assessment to the next level. The assessment category in using the capability level can be seen in Table 3 [21]:

Table 3. Assessment Category

Category	**Score**
N (Not Achieved)	0% - 15%
P (Partially Achieved)	> 15% - 50%
L (Largely Achieved)	> 50% - 85%
F (Fully Achieved)	> 85% - 100%

IV. Result and Discussion

The following are the results of the analysis and discussion of research following the stages of the Gallegos audit [17]:

A. Planning

In the planning stage, five things must be done. The first is to determine the object of research. The object of research to be studied is PT Andalan Bunda Bijak. Next was to conduct a pre-interview with Mr. Joko, the director of PT Andalan Bunda Bijak. Pre-interviews were performed two times via zoom. The first pre-interview discusses the general picture of the company,

while the second pre-interview discusses the problems faced by PT Andalan Bunda Bijak.

The third step is to determine the selected IT process. The determination of the established IT process begins with deciding enterprise goals. Enterprise goals were set based on an analysis of the vision, mission, goals, and business strategies of PT Andalan Bunda Bijak. The results of the selected enterprise goals can be seen in Table 4 below:

Table 4. Selected Enterprise Goals

Code	Enterprise Goals
01	Stakeholder value of business investment
07	Business service continuity and availability
11	Optimisation of business process functionality
14	Operational and staff productivity
16	Skilled and motivated people
17	Product and business innovation culture

After the enterprise goals are selected, the next step is determining IT-related goals. Mapping enterprise goals do determination of IT-related goals into IT-related goals. The results of the selected IT-related goals can be seen in Table 5 below:

Table 5. Selected IT-Related Goals

Code	IT-Related Goals
01	Alignment of IT and business strategy
03	Commitment of executive management fot making IT-related decisions
04	Managed IT-related business risk
05	Realised benefits from IT-enabled investment and services portfolio
07	Delivery of IT services in line with business requirements
08	Adequate use of applications, information, and technology solutions
09	IT agility
10	Security of information, processing infrastructure, and applications
11	Optimisation of IT assets, resources, and capabilities
12	Enablement and support of business process by integrating applications and technology into business processes
13	Delivery of programmes delivering benefits, on time, on budget, and meeting requirements and quality standards
14	Availability of reliable and useful information for decision making
16	Competent and motivated business and IT personnel
17	Knowledge, expertise, and initiatives for business innovation

After selecting IT-related goals, the next step is determining the IT process. Determination of IT processes is done by mapping IT-related goals into IT processes. The results of the selected IT processes can be seen in Table 6 below:

Table 6. Selected IT Processes

IT Processes	Process Purpose Statement
EDM03 (*Ensure Risk Optimization*)	Ensure that IT-related enterprise risk does not exceed risk appetite and risk tolerance, the impact of IT risk to enterprise value is identified and managed, and the potential for compliance failures is minimised
APO12 (*Manage Risk*)	Integrate the management of IT-related enterprise risk with overall ERM and balance the costs and benefits of managing IT-related enterprise risk
APO13 (*Manage Security*)	Keep the impact and occurrence of information security incidents within the enterprise's risk appetite levels
DSS05 (*Manage Security Services*)	Minimise the business impact of operational information security vulnerabilities and incidents

The fourth step taken at the planning stage is to make a RACI Chart of each selected IT process which can be seen in Figures 3, 4, 5, and 6 below:

EDM03 RACI *Chart* (*Ensure Risk Optimization*)

Key Governance Practice	Commissioner	Director	Operational Manager	Sales Manager	Admin Sales	Invoice Admin	Tax Team	Head of Warehouse	Sales Coordinator	MD and SPG team	Sales Team	Programmer
EDM03.01 (*Evaluate risk management*)	A/I	R	C	C								C
EDM03.02 (*Direct risk management*)	A/I	R	C	C								C
EDM03.03 (*Monitor risk management*)	A/I	R	C	C								C

Figure 3. RACI Chart EDM03

APO12 RACI *Chart* (*Manage Risk*)

Key Governance Practice	Commissioner	Director	Operational Manager	Sales Manager	Admin Sales	Invoice Admin	Tax Team	Head of Warehouse	Sales Coordinator	MD and SPG team	Sales Team	Programmer
APO12.01 (*Collect data*)	I	A/I	R	C	C	C						C
APO12.02 (*Analyse risk*)	I	A/I	R	C	C	C						C
APO12.03 (*Maintain a risk profile*)	I	A/I	R	C	C	C						C
APO12.04 (*Articulate risk*)	I	A/I	R	C	C	C						C
APO12.05 (*Define a risk management action portfolio*)	I	A/I	R	C	C	C						C
APO12.06 (*Respond to risk*)	I	A/I	R	C	C	C						C

Figure 4. RACI Chart APO12

APO13 RACI *Chart* (*Manage Security*)

Key Governance Practice	Commissioner	Director	Operational Manager	Sales Manager	Admin Sales	Invoice Admin	Tax Team	Head of Warehouse	Sales Coordinator	MD and SPG team	Sales Team	Programmer
APO13.01 (*Establish and maintain an ISMS*)	I	A/I	R	C	C	C						C
APO13.02 (*Define and manage an information security risk treatment plan*)	I	A/I	R	C	C	C						C
APO13.03 (*Monitor and review the ISMS*)	I	A/I	R	C	C	C						C

Figure 5. RACI Chart APO13

DSS05 RACI *Chart* (*Manage Security Services*)													
Key Governance Practice	Commissioner	Director	Operational Manager	Sales Manager	Admin Sales	Invoice Admin	Tax Team	Head of Warehouse	Sales Coordinator	MD and SPG team	Sales Team	Programmer
DSS05.01 (*Protect against malware*)	I	A/I	R	C	C	C						C
DSS05.02 (*Manage network and connectivity security*)	I	A/I	R	C	C	C						C
DSS05.03 (*Manage endpoint security*)	I	A/I	R	C	C	C						C
DSS05.04 (*Manage user identity and logical access*)	I	A/I	R	C	C	C						C
DSS05.05 (*Manage physical access to IT assets*)	I	A/I	R	C	C	C						C
DSS05.06 (*Manage sensitive documents and output devices*)	I	A/I	R	C	C	C						C
DSS05.07 (*Monitor the infrastructure for security-related events*)	I	A/I	R	C	C	C						C

Figure 6. RACI Chart DSS05

The last step in the planning stage is to create an audit document. The audit document will contain questions from the COBIT 5 guide for each selected IT process. Every question must be answered, and an assessment will be made based on the answers given to get the value of the capability of the company's current state.

B. Field Work

At this stage, information collection is carried out by collecting data which is applied in 2 methods, namely interviews and observations, which will then produce audit evidence regarding PT Andalan Bunda Bijak. Observation activities are carried out online and have several scopes, namely system observations, document observations, and observations of the company's current environment.

1. System observations

   The observation results obtained on the system used by the company today is that the system can only be accessed with the appropriate user username and password. So far, the system used rarely has a significant problem, where the issues that arise are usually related to differences in the amount of stock and an inaccessible system (error). The frequency of occurrence of this problem is also infrequent (2-3 months) based on information from the system developer. In addition to problems, the system still has several shortcomings, especially those related to security and preventing potential risks. The system used in the company does not have a reminder or alarm that detects an intruder in the system. In addition, the company's system cannot see multiple users with the same account. The lack of this company system can raise several potential threats, such as data theft and personal and corporate identity, that hackers and company insiders can carry out.

2. Document observations

   Observation of company documents is carried out by analyzing the contents of company regulatory documents. The company's regulatory documents have entirely and in detail explained the general provisions, rights, obligations, and rules that apply to each employee. However, unfortunately, the document does not contain conditions governing security, access rights, and risk management for obstacles or problems faced by the company.

3. Company environmental observation

   The company's environmental observations revealed that the company had completed physical security by implementing 10 CCTVs spread over several points of the company. In addition to implementing CCTV, critical company data safety is better maintained when the company has a special cupboard permanently locked in the Operations Manager's room. To access the company or the room, every employee must use an identity card (id card), while company employees must accompany guests or outsiders. The company's room and access door will be locked after office hours and guarded by shophouse security guards. Currently, the company owns 7.

In conducting interviews, the sources to be interviewed are determined based on the results of the RACI chart indicated by the letter R. Based on the results of the existing RACI chart, and there are two sources to be interviewed, namely directors and operational managers. The interviews are based on questions taken and summarized from the ISACA COBIT 5 guide.

C. Reporting

At this stage, three activities will be carried out, namely measuring the level of capability, conducting a gap analysis, and making recommendations for improvement where these three activities will be combined in the form of an audit report to be submitted later to the company.

The first activity carried out is to calculate the level of capability. The calculation of the level of capability is based on an assessment of the answers presented by the interviewees at the time of the interview. The first step in this calculation is to calculate the average value of IT activity to get a value for each existing IT sub-process. After getting the score for each IT sub-process, the next step is calculating the average return for each current IT sub-process value to get the value for each selected IT process. Calculations for each selected IT process can be seen in Figures 7, 8, 9, and 10 below:

$$average\ value\ of\ EDM03\ process = \frac{86{,}67\% + 72{,}50\% + 86{,}75\%}{3}$$

$$average\ value\ of\ EDM03\ process = \frac{245{,}92\%}{3}$$

$$average\ value\ of\ EDM03\ process = 81{,}97\%$$

Figure 7. Average Value EDM03

$$average\ value\ of\ APO12\ process = \frac{36{,}43\% + 64{,}29\% + 57{,}14\% + 56{,}60\% + 60{,}00\% + 80{,}75\%}{6}$$

$$average\ value\ of\ APO12\ process = \frac{355{,}21\%}{6}$$

$$average\ value\ of\ APO12\ process = 59{,}20\%$$

Figure 8. Average Value APO12

$$average\ value\ of\ APO13\ process = \frac{95{,}71\% + 47{,}14\% + 12{,}00\%}{3}$$

$$average\ value\ of\ APO13\ process = \frac{154{,}85\%}{3}$$

$$average\ value\ of\ APO13\ process = 51{,}62\%$$

Figure 9. Average Value APO13

$$average\ value\ of\ DSS05\ process = \frac{68{,}33\% + 38{,}89\% + 85{,}00\% + 96{,}63\% + 71{,}43\% + 92{,}00\% + 72{,}00\%}{7}$$

$$average\ value\ of\ DSS05\ process = \frac{524{,}28\%}{7}$$

$$average\ value\ of\ DSS05\ process = 74{,}90\%$$

Figure 10. Average Value DSS05

The capability levels from PT Andalan Bunda Bijak in all IT processes are measured to stop at level 1, namely the performed process (PT Andalan Bunda Bijak has succeeded in carrying out the IT process and achieving the expected goals). Table 7 below contains conclusions from all measured IT processes:

Table 7. Conclusion of all IT processes

TI Processes	Score	Conclusion
EDM03	81,97%	Stop at level 1
APO12	59,20%	Stop at level 1
APO13	51,62%	Stop at level 1
DSS05	74,90%	Stop at level 1

The second activity carried out is conducting a gap analysis. The calculation of the gap analysis is carried out to find the differences between the current condition and the conditions expected by PT Andalan Bunda Bijak and what efforts must be made for recommendations for improvement. This analysis is carried out by comparing the current capability levels (as-is) and the expected capability levels (to-be). Here is Figure 11, which is a radar chart gap analysis that occurred at PT Andalan Bunda Bijak:

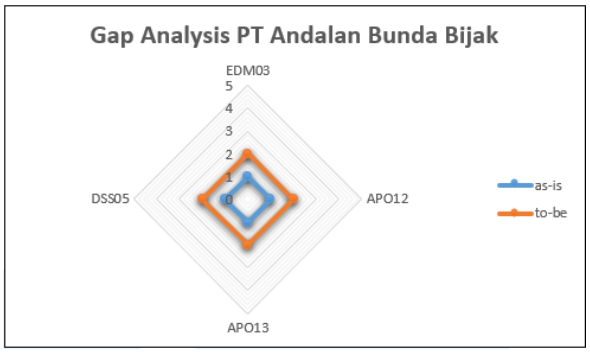

Figure 11. Radar Chart Gap Analysis

The third activity carried out is making recommendations for improvement. Making recommendations for improvement is based on each action that has not been maximized in its application to the company. Determination of activities that have not been maximized is done by comparing the values obtained from each activity in the IT process based on answers from sources with the average value of the IT process. Recommendations for improvement for the four selected IT processes at PT Andalan Bunda Bijak can be seen in Table 8 below:

Table 8. Recommendations

Recommendations
EDM03
- Improve the alignment between the IT risk strategy and the company's risk strategy by minimizing errors in the current system to switching to a new system. - Disseminate information about IT risks and their impacts on each employee. - Carry out monitoring of risks as often as possible (once a week) and expand the scope of monitoring to the existing IT side.
APO12
- Make notes with excel that contain descriptions of events, categories of IT risk levels, factors causing IT risk, impacts that arise, and how to solve problems. - Carry out risk control so that later it can compare the results of implementing these controls with an acceptable level of risk tolerance and determine the best response to risk. - Analyze the recording of risks that occur to discover indications of a risk occurrence. - Make a classification of the existing risk action plans based on the level of the risk. - It was reporting on the description of the risks that occur in the company to stakeholders. - Provide socialization to every person in the company regarding the risks that exist or occur so

that later these employees can monitor the movement of risks.
APO13
- Making a cooperation proposal with the condition of the information security risk management plan requires new parties in its implementation. - Provide input to the person in charge of design, development of management practices, and solutions of information security risk management plans. - Conduct information security training for all company employees. - Planning the internal audit of the information security management system (ISMS) implementation by applying the ISO 27001 standard. - Conduct regular information security system (ISMS) management reviews to ensure that the scope remains adequate and that improvements can be identified. - Provide input to the person in charge of maintaining the information security plan by looking at the findings and existing recording documents. - Create documentation regarding events that can affect the performance of the implementation of an information security management system (ISMS) in the company.
Recommendations
DSS05
- Apply email inbox filters to Gmail and also apply filters to downloads via some software, such as NetWorx. - Conduct training on malware for every employee of the company. - Create policies that govern connectivity security. - Create policies that regulate access restrictions to the company's network. - It installs firewall software on every computer in the company. One example of firewall software that can be used is SolarWinds. - It installs file encryption software on every computer in the company. One of the software that can be installed is AxCrypt. - Conduct penetration testing internally or request assistance from third parties regarding the company's internet network to ensure the adequacy of network protection. - Perform system security tests to ensure the adequacy of system protection. - It installs firewall software on every computer in the company. One example of firewall software that can be used is SolarWinds. - Create documentation related to access to the computing room.
- Conduct training on the importance of physical security for every employee in the company to form awareness among employees. - Define and disseminate information about the types and characteristics of each security threat.

D. Follow Up

The auditor provides the audit report to the company. The entirety of the audit report submitted contains the results of measuring the level of capability, the results of the gap analysis, and recommendations for improvement that the company needs in each of its IT processes.

V. Conclusion

Based on the results of the research on measuring the level of capability using the COBIT 5 framework at PT Andalan Bunda Bijak, the following conclusions can be drawn:

1. There are 4 IT processes selected from COBIT 5, namely EDM03, APO12, APO13, and DSS05. EDM03 got a score of 81.97%, APO12 got a score of 59.20%, APO13 got a score of 51.62%, and DSS05 got a score of 74.90%. The entire IT process stops at level 1 capability level, namely the performed process, which means PT Andalan Bunda Bijak has succeeded in carrying out the IT process and achieving the expected goals.
2. There is a gap of 1 level between the current capability level, which stops at level 1, and the expected capability level of PT Andalan Bunda Bijak, which is at level 2.
3. There are 28 recommendations given to PT Andalan Bunda Bijak. Three recommendations for the EDM03 process, six for the APO12 process, seven for the APO13 process, and 12 for the DSS05 process. Of the 28 recommendations, 19 offers can be implemented, and nine cannot be implemented. All recommendations that can be implemented have received approval from the company and will be carried out when the company already has adequate human resources.

Based on the results of the research on measuring the level of capability using the COBIT 5 framework at PT Andalan Bunda Bijak, there are suggestions that the company can consider. The suggestions are:

1. Designing applications that help the company's business processes by having system security in the form of detection or alarm when an unauthorized user login into the system and detects multiple users logging into the same account.

Measure the level of capability using the COBIT 5 framework on the same object and focus in this research to measure the effectiveness of implementing the recommendations given and ensure that the company has achieved the desired expectations, namely level 2.

REFERENCES

[1] K. Devanti, W. G. S. Parwita, and I. K. B. Sandika, "Audit Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 5 Pada PT. Bisma Tunas Jaya Sentral," *Jurnal Sistem Informasi dan Komputer Terapan Indonesia (JSIKTI)*, vol. 2, no. 2, pp. 65–76, 2019, doi: 10.33173/jsikti.59.

[2] E. Ekowansyah, Y. H. Chrisnanto, Puspita, and N. Sabrina, "Audit Sistem Informasi Akademik Menggunakan COBIT 5 di Universitas Jenderal Achmad Yani," *Prosiding Seminar Nasional Komputer dan Informatika (SENASKI)*, pp. 201–206, 2017.

[3] R. G. N. G. Pasyha and E. B. Wagiu, "Analisa Tata Kelola Sistem Informasi Universitas Advent Indonesia menggunakan Framework COBIT 5 (Domain EDM)," *Seminar Nasional Informatika*, pp. 321–330, 2020.

[4] K. Christianto, L. Davinci, T. Z. Ivgantius, Y. P. Setiawan, and T. J. Andreas, "Audit Aplikasi Develop Internal Dengan COBIT 4.1 (Studi Kasus: PT Central Mega Kencana)," *JBASE - Journal of Business and Audit Information Systems*, vol. 2, no. 2, pp. 22–30, Aug. 2019, doi: 10.30813/jbase.v2i2.1729.

[5] A. Suprapto and M. Prabowo, "Audit Process Capability Level Information Technology Governance (ITG) di Perguruan Tinggi Keagamaan Islam Menggunakan Framework Cobit 5 (Studi Kasus: IAIN Salatiga)," *Jurnal Telematika*, vol. 15, no. 1, pp. 7–12, 2020.

[6] S. F. Bayastura, S. Krisdina, and A. P. Widodo, "Analisis dan Perancangan Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 2019 pada PT XYZ," *JIKO (Jurnal Informatika dan Komputer)*, vol. 4, no. 1, pp. 68–75, 2021, doi: 10.33387/jiko.

[7] A. K. Setiawan and J. F. Andry, "Pengukuran Performa Tata Kelola Teknologi Informasi pada Perpustakaan Nasional Menggunakan Framework COBIT 5," *JUTEI*, vol. 3, no. 1, pp. 53–63, 2019, doi: 10.21460/jutei.2018.31.132.

[8] K. Budiarta, A. P. S. Iskandar, and M. Sudarma, "Audit Information System Development using COBIT 5 Framework (case Study: STMIK STIKOM Bali)," *International Journal of Engineering and Emerging Technology*, vol. 1, no. 1, pp. 1–5, 2016.

[9] L. D. Fitrani and R. V. H. Ginardi, "Analysis Improvement of Helpdesk System Services Based on Framework COBIT 5 and ITIL 3rd Version (Case Study: DSIK Airlangga University)," *Postgraduate Program Institut Teknologi Sepuluh Nopember*, pp. 28–31, 2018.

[10] M. A. Putri, I. Aknuranda, and W. F. Mahmudy, "Maturity Evaluation of Information Technology Governance in PT DEF Using Cobit 5 Framework," *Journal of Information Technology and Computer Science*, vol. 2, no. 1, pp. 19–27, 2017, [Online]. Available: www.jitecs.ub.ac.id

[11] A. M. Syuhada, "Kajian Perbandingan COBIT 5 dengan COBIT 2019 sebagai Framework Audit Tata Kelola Teknologi Informasi," *Jurnal Ilmiah Indonesia*, vol. 6, no. 1, pp. 30–39, Jan. 2021.

[12] H. Agung and J. Andry, "Audit Sistem Informasi Akademik Menggunakan Kerangka Kerja COBIT 5 pada Domain EDM di Universitas XYZ," *Journal of Business and Audit Information Systems*, vol. 1, no. 1, pp. 40–51, 2018, [Online]. Available: https://journal.ubm.ac.id/index.php/jbase

[13] C. Tjee and K. Christianto, "Evaluating of IT Services on Accurate Application Using COBIT 5 (Case Study : PT. SS Dinamika)," *Jurnal Teknik Informatika dan Sistem Informasi*, vol. 4, no. 2, pp. 268–278, 2018, doi: 10.28932/jutisi.v4i2.781.

[14] Z. Munawar, "Audit Tata Kelola Teknologi Informasi dengan Framework Cobit 5 di PT. Best Stamp Indonesia," *TEMATIK - Jurnal Teknologi Informasi Dan Komunikasi*, vol. 2, no. 1, pp. 35–43, 2014.

[15] D. G. Putra and R. Rahayu, "Peranan Implementasi Tata Kelola Teknologi Informasi (IT Governance) sebagai Faktor Penting dalam Meningkatkan Kinerja Perusahaan," *Jurnal Inovasi Pendidikan Ekonomi*, vol. 10, no. 1, pp. 1–7, 2020, doi: 10.24036/0110770.

[16] M. A. R. Katami, E. Darwiyanto, and Y. A. Firdaus, "Audit of IT Governance in Communication and Informatics Office of Serang Using COBIT 5," *IND. Journal on Computing*, vol. 5, no. 3, pp. 37–46, 2020, doi: 10.34818/indojc.2021.5.3.518.

[17] S. A. Sirapanji and Wella, "Evaluasi Tata Kelola Teknologi Informasi Universitas Multimedia Nusantara Periode 2016," *ULTIMA InfoSys*, vol. VII, no. 2, pp. 60–64, 2016.

[18] Information Systems Audit and Control Association., *COBIT 5 : a business framework for the governance and management of enterprise IT*. ISACA, 2012.

[19] S. A. Noya, A. D. Cahyono, and A. F. Wijaya, "Evaluasi Kinerja Tata Kelola Teknologi Informasi pada Dinas Perindustrian dan Tenaga Kerja Kota Salatiga Menggunakan COBIT 5," 2018. [Online]. Available: http://devinfokerja.kemnaker.go.id

[20] Tristiyanto and C. Octaria, "IT Governance Audit at Lampung University Using COBIT 5 Framework Focus on EDM Domain," *Journal of Physics: Conference Series*, vol. 1338, no. 1, pp. 1–13, Oct. 2019, doi: 10.1088/1742-6596/1338/1/012060.

[21] G. Braga, "How COBIT 5 Improves the Work Process Capability of Auditors, Assurance Professionals and Assessors," *ISACA*, Jan. 01, 2016