

COBIT 5.0: IT Governance Measurement on Reputable Bank in Indonesia

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Abstract— PT X is required to ensure that IT governance runs well. The maturity level of IT governance needs to be measured to determine what factors each company can improve on. The purpose of this study is to assess the level of capability of PT X, which will be measured using the COBIT 5.0 framework from ISACA, as well as to provide recommendations regarding governance and management of information technology that can build PT X. Measurements were carried out on BAI09 (Manage Assets) and DSS03 (Manage Problems). The results obtained are the BAI09 process and the DSS03 process both stop at Level 4 (Predictable Process), with an average value of 81.30% for the BAI09 process and an average value of 81.84% for the DSS03 process.

Index Terms—COBIT 5.0, Maturity Level, Measurement of IT Governance.

I. INTRODUCTION

Information technology governance is rife at this time. Companies must take measurements to determine their governance's maturity [1]. However, information technology governance is not only the focus of companies. Profit, nonprofit, education, and government can also measure IT governance [2]. The banking industry gives the highest concentration compared to other sectors regarding IT governance because it is closely related to their business processes [3]-[8]. PT X is a financial institution (bank) established in 1955.

Currently, PT X is the fourth largest bank in Indonesia in terms of assets and is recognized for its achievements and excellence in customer service and management development. This achievement requires PT X to ensure that IT governance runs well. The maturity level of IT governance needs to be measured to determine what factors can be improved by each

company [8]. In addition, the results of the maturity measurement can also get recommendations for improvement to the company [5]. There are various kinds of IT governance maturity measurement tools, such as ITIL, TOGAF, COBIT, and so on [3]-[8].

COBIT, or Control Objective for Information Technologies, is a standard guide to information technology management practices issued by ITGI (IT Governance Institute), which is part of ISACA [9],[10]. COBIT has given various versions to measure IT governance in a company [11]. The most commonly used version by companies is COBIT 5.0, although the latest version of COBIT 2019 has emerged [11].

The purpose of this study is to determine the level of capability of PT X, which will be measured using the COBIT 5.0 framework from ISACA, as well as to provide recommendations on governance and management of information technology that can build PT X.

II. THEORETICAL BASIS

A. IT Governance

IT governance is the responsibility of the board and senior management. It's an integral part of running a business. It consists of leadership and organizational structures and processes that ensure that IT maintains and extends its strategies and goals [12].

B. COBIT 5.0 (Control Objective for Information and Related Technology)

COBIT is a collection of documentation and guides that lead to IT governance that can help assessors, management, and users to bridge the gap between business risks, control requirements, and technical problems in organizations or companies [13].

COBIT 5.0 has five principles: meeting stakeholder needs, covering the enterprise end-to-end, applying a single integrated framework, enabling a holistic

approach, and separating governance from management, following the principles of COBIT 5.0 [9]-[11], [13].

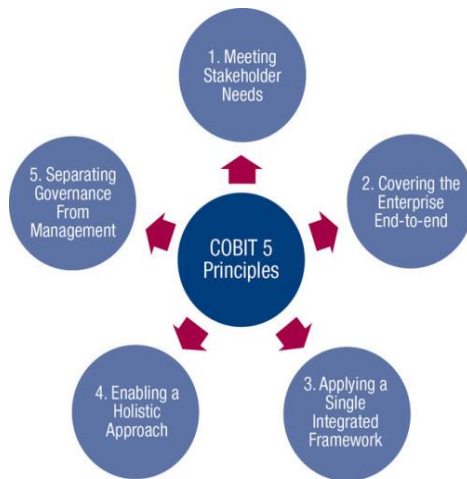


Fig. 1 COBIT 5.0 Principles [13]

1. **Meeting Stakeholder Needs**
The company creates value for its stakeholders by balancing profit realization and risk optimization and using existing resources to follow company goals. Stakeholder needs are translated into Goals Cascade into more specific, actionable, and customized goals in the context of Company goals (Enterprise Goals), IT-related Goals (IT-related Goals), and Goals to be achieved by the enabler (Enabler Goals). That way, the company can adjust COBIT 5.0 to suit the company's goals and needs according to the company's context.
2. **Covering the Enterprise End-to-end**
This second principle covers all the functions and processes needed to manage and manage enterprise IT wherever information is processed. This second principle is also helpful in integrating corporate IT governance into corporate governance. The IT governance system carried by COBIT 5.0 can be combined with the corporate governance system properly. Within the enterprise, COBIT 5.0 handles all internal and external IT services and internal and external business processes.
3. **Applying a Single Integrated Framework**
This principle enables enterprises to use COBIT 5.0 as a comprehensive and integrated IT governance and management framework. This principle also unifies all knowledge previously scattered in various ISACA frameworks (COBIT, Val IT, Risk IT, BMIS, ITAF, etc.).

4. **Enabling a Holistic Approach**
COBIT 5.0 defines a set of enablers to support the implementation of a comprehensive corporate IT governance and management system. COBIT 5.0 views that each enabler is interconnected with the other and can determine whether the performance of COBIT 5.0 will be successful.
5. **Separating Governance from Management**
COBIT 5.0 provides a clear separation between management and governance. They involve different activities, require other organizational structures, and serve different purposes.

III. METHOD

A. Object of Research

PT X was founded in 1955, 26 September 1955 to be exact as a national private financial institution. Once formed, building core values and employee professionalism is the company's main concern in the banking sector. As a result, PT X is widely recognized as a trusted provider of quality products and services. In 1969, when the private sector in Indonesia was hit by a crisis, PT X was able to survive and was entitled to obtain a guarantee from Bank Indonesia. PT X then revised its business plan in 1974, and changed to a commercial bank in order to meet customer needs.

In 1976 PT X launched the Professional Credit Program, namely loans for professionals such as engineers, doctors, and so on. Furthermore, from 1981 to 1982, PT X became the first bank in Indonesia to implement an online banking system and a branch office network system. The next step taken by PT X was to form a network of official foreign exchange business units in a number of branch offices in 1985 along with a variety of new products.

In 1987, PT X distinguished itself from its competitors in the domestic market by being the first financial institution to offer banking services through ATM machines in Indonesia. This achievement is widely recognized as Indonesia's entry into the world of modern banking. PT X became a public company on the Jakarta Stock Exchange and Surabaya Stock Exchange (now the Indonesia Stock Exchange/IDX) in 1989.

PT X began providing services for middle class and upper class customers in 1998, in order to increase the number of customers. Commerce Asset Holdings Berhad (CAHB), which is now widely known as X Group Holdings Berhad, acquired shares of PT X in 2002. In 2007, all share ownership moved to X Group as part of an internal reorganization to consolidate the activities of all X Group subsidiaries. In May 2008, PT X officially changed its name. In order to comply with the Single Presence Policy (SPP) set by Bank Indonesia, Khazanah Nasional Berhad as the majority

shareholder of Lippo Bank and also the controlling shareholder of PT X (through X Group), officially merged the two banks on November 1 2008 which was followed by the introduction of the logo to the wider community.

B. COBIT 5.0

In this study, there are stages of measurement using COBIT 5.0. the following are the steps carried out:

1. Determine the goals and problems that exist in the company
2. Analyze the issues that exist in the company
3. Choose the process priority of the 37 processes from COBIT 5.0 that the company wants to measure
4. Conduct an assessment for each process that has been selected
5. Determine the level of capability of each process
6. Determine the target level of ability desired by the company
7. Provide recommendations under the findings and the resulting impacts

C. Stages of Evaluation

The stages of measuring IT governance have four steps [14]-[16]:

1. Planning. Determining the object to be measured and determining the purpose of the measurement, as well as identifying existing business processes in the company
2. Preparation. The preparations made are to collect data for processing. The first thing to do is to give Enterprise Goals to the company to be sorted from the most important to the least important. The second is to map IT-related Goals according to the company's goals, vision, and mission; the last is to map the COBIT 5.0 process.
3. Measurement. Collect and evaluate evidence and data through interviews and provide questionnaires to the company's IT. Data collection uses qualitative data collection methods by conducting environmental observations and observing documents owned by companies that have become standards or provisions of COBIT 5.0, as well as by conducting interviews and giving questionnaires to the company's IT division so that evidence and company data will be obtained, and can It is known that the level of corporate information technology governance capability is at what level.

Reporting. In the last stage, all data and evidence obtained will be processed and made into a report containing the results of evaluation activities and recommendations for the company. The information will later be given to the company to be a reference so it can develop even better.

IV. RESULT AND DISCUSSION

A. Planning

The object of this research is PT X, a bank that managed to survive when the crisis hit Indonesia in 1969. PT X was established on September 26, 1955, as a national private financial institution. To meet the needs of its customer's customers, PT X has an IT division that will manage and make the IT infrastructure at PT X always run well so that all PT X operational activities can run well without any obstacles.

Therefore, the role of the IT division in a company is significant because, in modern times, most companies and people use technology in their daily lives. If the IT division experiences disturbances in its operational activities, all of the company's operating activities will be disrupted, starting from the slow service to customers or PT X customers, not recording tickets or logs of problems that occur, thus disrupting operational management activities.

This makes it necessary for PT X to measure the level of IT governance at PT X, with the hope that this research can increase the level of IT governance at PT X to help PT X improve the existing system at PT X to improve services. To customers or customers of PT X. In measuring the level of IT governance, this study focuses on the Build, Acquire, and Implement 09 (BAI09) process on asset management and Deliver, Service, and Support 03 (DSS03) on problem management.

B. Preparation

The steps to prepare for the evaluation are to determine the company's chosen processes. For this reason, this study determines the goals of PT X first. Then the company analyzes the IT Related Goals of COBIT 5.0, which are following the goals and vision, and mission of PT X. After completing an analysis of the IT Related Goals, the company chooses which process is very much needed by the company so that the IT system at PT X can develop and become even better, here are 37 techniques that are in the COBIT 5.0 framework.

Table 1 Process on COBIT 5.0

#	Process	Description
1	EDM01	Ensure Governance Framework Setting and Maintenance
2	EDM02	Ensure Benefits Delivery

#	Process	Description
3	EDM03	Ensure Risk Optimisation
4	EDM04	Ensure Resource Optimisation
5	EDM05	Ensure Stakeholder Transparency
6	APO01	Manage the IT Management Framework
7	APO02	Manage Strategy
8	APO03	Manage Enterprise Architecture
9	APO04	Manage Innovation
10	APO05	Manage Portfolio
11	APO06	Manage Budget and Costs
12	APO07	Manage Human Resources
13	APO08	Manage Relationships
14	APO09	Manage Service Agreements
15	APO10	Manage Suppliers
16	APO11	Manage Quality
17	APO12	Manage Risk
18	APO13	Manage Security
19	BAI01	Manage Programmes and Projects
20	BAI02	Manage Requirements Definition
21	BAI03	Manage Solutions Identification and Build
22	BAI04	Manage Availability and Capacity
23	BAI05	Manage Organisational Change Enablement
24	BAI06	Manage Changes
25	BAI07	Manage Change Acceptance and Transitioning
26	BAI08	Manage Knowledge
27	BAI09	Manage Assets
28	BAI10	Manage Configuration
29	DSS01	Manage Operations
30	DSS02	Manage Service Request and Incidents
31	DSS03	Manage Problems
32	DSS04	Manage Continuity
33	DSS05	Manage Security Services
34	DSS06	Manage Business Process Controls
35	MEA01	Monitor, Evaluate, and Assess Performance and Conformance
36	MEA02	Monitor, Evaluate, and Assess the System of Internal Control
37	MEA03	Monitor, Evaluate, and Assess Compliance With External Requirements

In the end, PT X, through the IT leadership of BHOSD chose the BAI09 (Manage Assets) and DSS03 (Manage Problems) processes because there were several shortcomings regarding asset recording and problem management at PT X. Then, this study compiled a questionnaire and interview questions for PT X, who are part of the audit steps. Questions and questionnaire statements refer to the process chosen by PT X and based on the guidelines from COBIT 5.0.

C. Measurement

The audit implementation uses an evaluation of interview data and questionnaires given to the company. Interviews were conducted with leaders or heads of the IT Division, while questionnaires were given to all three members of the IT Division. Then to support the audit results, observations were made, both environmental comments and document observations.

The following explains the company's observations, interviews, and questionnaires.

1. Observation

Environmental observations were carried out when observing the IT BHOSD room, namely the IT Division room at PT X. At the time of keeping the IT Division workspace which was located on the 2nd Floor, the workspace looked neat, organized, organized, calm, and has enough privacy to make members or employees who become part of the IT Division can work well and comfortably. PT X also made security for the IT Division's workspace quite tight, namely by using two (2) types of protection, namely with employee cards that have been installed with barcodes and also by entering a combination of PINs that have been registered in the security system that has been created. This is intended so that not all and not just anyone can access and enter the IT Division's workspace at PT X. Meanwhile, and document observation is done by asking the company whether PT X, especially the IT Division, has the required documents and is required to be owned by the company. PT X or not. This refers to the Process Assessment Model (PAM) document in COBIT 5.0. The following is a list of documents that must be owned by PT X based on the PAM documents on COBIT 5.0 and documents that are already owned by PT X:

Table 2 List of Documents

#	Documents of COBIT5
BAI09 (Manage Assets)	
1	Update to asset inventory
2	Configuration repository
3	Asset register
4	Result of physical inventory checks
5	Result of fit-for-purpose reviews
6	Communication of planned maintenance downtime
7	Maintenance agreements
8	Approved asset procurement requests
9	Updated asset register
10	Authorized asset retirements
11	Results of cost optimization reviews
12	Opportunities to reduce asset costs or increase value
13	Register of software licenses
14	Results of installed license audits
DSS03 (Manage Problems)	
1	Risk-relate root causes
2	Criteria for problem registration
3	Problem log
4	Incident resolutions
5	Closed service requests and incidents
6	Problem classification scheme
7	Problem status report
8	Problem register
9	Root causes of problems
10	Problem resolution reports
11	Known-error records

#	Documents of COBIT5
12	Proposed solutions to known errors
13	Closed problem records
14	Communication of knowledge learned
15	Problem resolution monitoring reports
16	Identified sustainable solutions

From the list of documents in Table 2, PT X has all the documents required by COBIT 5.0 so that the IT governance capability at PT X can develop better in the future. This is supported by the existence of a document that lists the assets owned by PT X, the purpose for which these assets are held, and the assets' lifetime. In addition, there is a document containing a report on what assets are being updated or rejuvenated for these assets so that all purchases used at PT X are always in the best performance.

2. Interview

Interviews were conducted directly at the company's location in Gajah Mada, Central Jakarta. On this occasion, the opportunity to work an interview with the IT Leader of BHOSD as the IT Division at PT X. The interview questions posed to PT X related to the two processes that had been selected, namely BAI09 on how to manage company assets and DSS03 on how to address problems that exist in the company. The questions asked were nine items with an interview time of about 10 to 15 minutes. From

the results of the interviews that have been carried out, several conclusions can be drawn as follows:

- a. There are no unused or unused assets if assets such as computers have been ordered according to needs.
- b. There are no expired or expired assets that are still being used.
- c. There is no benchmarking process at PT X. PT X already has its standards.
- d. PT X pays several licenses to support PT X's operational activities.
- e. Any problems that exist will be recorded at the service desk. Then the service desk will provide a ticket so that the problem (problem) can be recorded, and
- f. There are rarely problems that are proactive in management activities.

3. Questionnaire

The questionnaire given contains statements and questions that are per the two COBIT 5.0 processes that have been selected by PT X, namely BAI09 (Manage Assets) and DSS03 (Manage Problems). The questionnaire given to the company consists of 5 levels, where level 1 contains specific statements, while level 2 to level 5 has general questions. To advance to the next level, the average score on the questionnaire must reach a minimum of 85%. However, if it is less than 85%, the questionnaire stops at that level, which is the level of capability of PT X towards the COBIT 5.0 process that PT X has chosen.

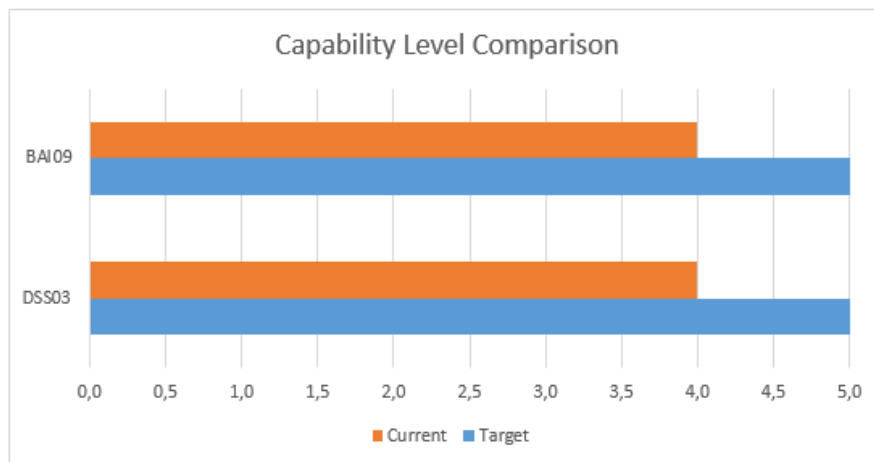


Fig 1 Comparison Chart

Figure 2 shows a graph of the achievement of the capability level of IT governance that has been achieved by PT X and the targets to be performed by PT X. It can be seen that the orange-colored graph shows the level of capability of IT governance at PT X, which reached

Level 4, while the chart The blue color target for the desired level of IT governance capability from PT X is Level 5. This is quite good because the level of IT governance capability and the target chosen by PT X are only one level different. So this research is

considered good enough because PT X only needs to develop and improve some things that are considered lacking so that the level of governance capability of PT X can reach Level 5. Then several findings are produced, which are crucial for the company if not handled quickly and appropriately. Here are the results:

1. Lack of information processing required for asset management and problem management processes
2. Lack of review or analysis of asset valuation and measurement data
3. Lack of identification and establishment of procedures and frequency of assessments by the objectives of problem management
4. Lack of anticipation or corrective action in case of special conditions regarding problem management

V. CONCLUSION

Based on the results of the evaluation of the measurement of the level of IT governance capability in the IT Division of PT X using the COBIT 5.0 framework and using the BAI09 (Manage Assets) process and the DSS03 (Manage Problems) process, the results obtained are that the BAI09 process and the DSS03 process both stop. At Level 4 (Predictable Process) with an average value of 81.30% for the BAI09 process and 81.84% for the DSS03 process.

The recommendation given to the shortcomings that exist in PT X is to make a schedule in terms of conducting a review of the valuation of existing assets at PT X so that every support in PT X can be appropriately recorded for its useful life so that there are no assets that are not used even though they have a useful life. Has not been exhausted. Then control the party who analyzes the assessment data so that the data can be used if special conditions occur at PT X. and determine the objectives of problem management properly so that all kinds of information needed can be adequately provided so that problem management activities can run smoothly. and take corrective actions that must be taken if special conditions occur in PT X.

The advice to PT X is to process other processes that exist in COBIT 5.0 so that governance development can be even better, and make improvements or developments per the recommendations that have been given..

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