RESOURCE GOVERNANCE EVALUATION TO ENHANCE COMPETITIVE ADVANTAGE IN BANKING: A COBIT 5 APPROACH

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Abstract

Bank XYZ is a bank that has been standing for more than 40 years and is engaged in giving the best of financial services. The company has been improving the use of IS/IT within the company for the past few years to support and elevate their business process to the next level and gaining competitive advantages in the banking sector. Within the development of there IS/IT services, the company stumbled on a few problems regarding IT resources used in the company. For this reason, in this study, the researcher took measurements of the levels of capability in IT Resource governance using the COBIT 5 framework as a standard framework for IT governance. The result of this research showed that the average enterprise capability is still at level 1 (performed) where the company's target is level 3 (established).

Keywords: Resource Management, IT Evaluation, IT Governance, COBIT 5, Capability Level

1. INTRODUCING

Information Technology as we all know is an essential part of our daily lives, not only for the people living in the big cities but also for the people in undeveloped areas around the world, as the availability of information technology not only provide people with convenience for their daily activities but also as an important foundation for the development of an area or even a country. Most organization assumes that information and technology that supports well represent that the organization have a beneficial asset value. Development of technology that grows rapidly must be supported by continuous management of the people that owned the technology for them to work properly and aligned with the company or organization goals. Since the development of technology grows rapidly and become more competitive, the management have high hopes that the use of information technology to be a supportive asset for the organization performance. The use of information technology must be supported with continuous management by the organization for the information technology to work properly and aligned with the organization goals. The "productivity paradox" comes from the use of information technology (IT) that does not always meet expectations, such as when increased IT investment is not accompanied by increased support for the attainment of organizational goals and strategies [1]. The availability and capability of IT resources is also a crucial matter in order to attain a certain level of productivity across all section within an enterprise, and to be able to provide resources that will be able to support that productivity, a structured and integrated IT management program is needed to ensure that IT can support the achievement of organizational goals [2]. Basically, information technology governance aims to deliver value to the organization which is driven by the alignment of the IT strategy with the organization's strategy and risk reduction efforts that are driven by the accountability inherent in the organization.

Within the company, the use of IT resources is always present in any business process and therefore to be able to deliver the best of service to the customer, it is a must for the company to provide the best facilitation for their staff to be able to

accomplish this mission [3]. Bank XYZ is a bank based in Jakarta, Indonesia that until now keeps improving the use of IT/IS within the company to support the company's business processes.

Table 1. Resource Problems in Mid 2021

Complaints	Number of Complaints
Unavailability of Data	71
Unsupported IT Hardware for the System	124
System Crash	105
Long Duration of Downtime Maintenance	63
Lack of User Training	68

Based on the data shown in Table 1, various problems regarding IT resource within the Bank XYZ exceeds 50 complaints and the company sees this as problems that is needed to be fix whether from the management perspective or from the strategic perspective. So, based on these problems, a governance evaluation will be conducted for such problems may not arise anymore within the company. The evaluation will be using the COBIT 5 framework in accordance with the standard issued by the Financial Services Authority in Indonesia for IT governance in banking sector.

One of the frameworks used in IT governance is the Control Objectives for Information and Related Technology which usually known as COBIT. COBIT was designed by members of the Information System Audit and Control Foundation (ISACF), which has been renamed the IT Governance Institute (ITGI) and the Information Systems Audit and Control Association (ISACA) since 1999 [4]. COBIT 5 is currently available as a continuation of COBIT 4.1, and it can be used to lead information technology governance in a business.

On this study, a process capability assessment will be carried out of a couple of COBIT 5 processes which are the processes that is related to the activity of resource governing and management. This process capability assessment is conducted to gain the information of the current capability level of the processes in the enterprise and to determine the gaps of IT capabilities that are present within the company.

2. LITERATURE REVIEW

2.1 IT Governance

As a part of the corporate governance, IT governance encompasses decision-making and accountability rights, allowing the IT sector to promote desirable behaviors as it is the responsibility of the top management to be able to achieve such feat [5]. IT governance attempts to ensure that technology investments aid organizations in achieving their objectives, therefore bringing more value to the company's bottom line [6]. For da Silva [7], IT governance is a subordinate of corporate governance, and corporate governance plays a critical role in its development. IT governance is focused on the development of processes that ensure the achievement of organizational goals and strategies; it must be overseen by the company's top management team and cannot be left only to the IT department.

2.2 Resource Management

Resource plays a huge role in a company that strives to achieve their ultimate goals. The resources and capabilities of the company acts as the anchor to achieve a competitive advantage [8]. According to Masroor [9], resource management works as basis of effective and efficient deployment of an organization's resources. Resources within the company may include the inventory, human resources, financial resources, production resources and information technology resources [10].

2.3 COBIT 5

The COBIT-5 framework works with comprehensive approach that can assist company in achieving their vision and mission for IT governance and management in a corporation. Simply put, COBIT-5 will help companies create optimal value from IT by maintaining a balance between profit and optimizing risk and utilization [11].

The COBIT-5 is a standardize framework and very useful for any type of company size, be it the commercial sector, the non-profit sector or in the government or public sector. COBIT-5 is based on five key principles for the corporate IT governance and management. These five principles support companies to build an effective governance and management framework, which could optimize IT investment and use of IT for the benefit of stakeholders [12]. COBIT 5 has a total of 37 governance and management processes. The list of COBIT 5 processes can be seen in the following Figure 1.
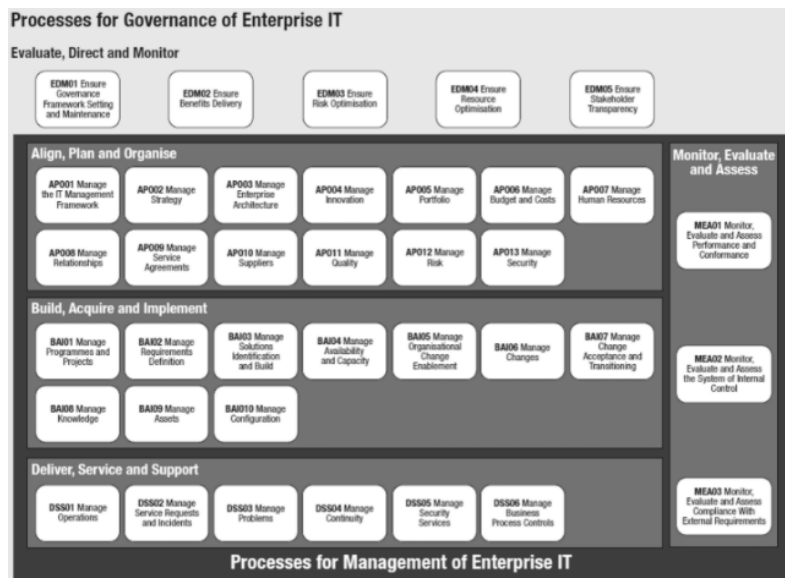

Figure 1. Processes for Governance of Enterprise IT [13]

2.4 Process Assessment Model COBIT 5

The process capability assessment model in COBIT 5 is a model based on the ISO/IEC 15504 which is a standard on Software Engineering and Process Assessment. This particular model assesses the capabilities of the governance process (EDM-based) or management process (PBRM based), and can identify areas that need to be improved. An overview of the model can be seen in Figure 3. Process capability refers to a process's ability to meet current or future business objectives. The purpose of a process capability assessment is to ascertain a specific degree of process capability and then determine the next measures to improve it [14]. Capability measurement will be based on process attribute (PA). Each attribute defines a specific aspect of the process capability. The combination of achieving these process attributes will determine the level of process capability.
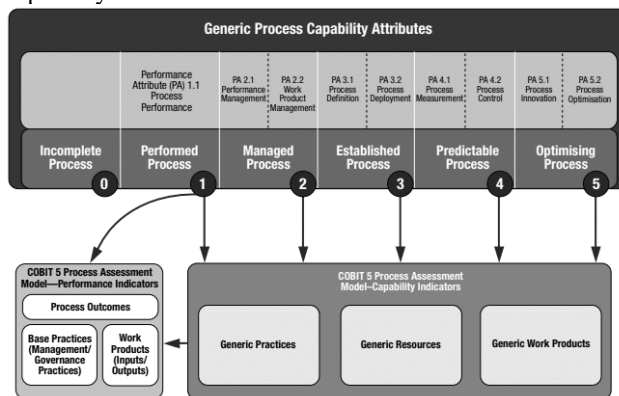

Figure 2. Process Capability Attributes

From Figure 2., it is known that COBIT 5 will be able to determine the level of capability into levels ranging from Level 0 to Level 5 which have a set of requirements needed to be achieved before the process could ascend to the next level [15].

Every level attribute of COBIT 5 has its own assessment standard which is divided into 4 categories and in this case in order for a process to be assessed to the next level, the rating scale of the attribute that is currently being evaluated must exceed the score of 85%. These rating scales can be seen on Table 2.

Table 2. Rating Scale

Levels	Description	Achievement %
N	*Not Achieved*	0-15%
P	*Partially Achieved*	>15% - 50%
L	*Largely Achieved*	>50% - 85%
F	*Fully Achieved*	>85%

3. METHODOLOGY

3.1 Data Collection Methods

In this step, data collection is being done by various methods used by the researcher such as observation, literature reviews, interviews and questionnaire in order to gain information regarding the goals, vision and mission of the company issued but the stakeholders and the IT vision and mission. The information will be used as a base information for mapping the enterprise goals according to the COBIT 5 framework.

3.2 Mapping Enterprise Goals

The enterprise goals based on COBIT 5 is gained by mapping the company's goals, vision and mission to the business goals template from the COBIT 5 framework. The enterprise goals have different dimension based on the BSC which will help on the process of mapping the company's goals with the enterprise goals provided by COBIT 5. The mapping results will be the base information to gain the IT goals of the enterprise.

3.3 Identify IT-related Goals

IT goals of the enterprise is gained through mapping the identified Enterprise Goals with the provided IT-related goals by COBIT 5. The mapping process is being done by selecting the IT-related goals that are aligned with the identified enterprise goals and having a primary connection which is indicated by the letter P in the template provided by the COBIT 5: Enabling Process guidelines.

3.4 Identify COBIT Process

COBIT 5 IT processes are chosen according to the identified IT-related goals from the previous steps.

The processes that are aligned with the identified IT-related goals will be a potential process that will be evaluated and will be filtered further on with accordance to the scope of the research which is resource management. The process that has the function as evaluation point for resource management is stated within the COBIT 5: Enabling Process guidelines.

3.5 Measure Capability Level

The processes that have been chosen and filtered to match the research scope will be evaluated to rate the level of capability of each process with the guidelines provided by the COBIT 5: Enabling Process and COBIT 5: Process Assessment Model. The measurement will be conducted by calculating the score of the questionnaire that will be filled by the responsible personnel within the company. The level of each process capability will be determine using the rating scale as stated in the previous section. The formula to calculate the capability level is stated as follows according to [16]:

$$\frac{(0 * y0) + (1 * y1) + \cdots + (5 * y5)}{z}$$

Yn= The number of processes at the level N

Z= Total number of assessed COBIT-5 processes

3.6 Gap Analysis

The gap analysis is conducted to calculate the gaps from the current capability level of the process with the target capability level of the company. The analysis results will be a valuable information which will provide base knowledge of the company current condition and the expected condition that is achievable by following the recommendation provided by the COBIT 5 framework.

4. RESULT AND DISCUSSIONS

4.1 Identify COBIT 5 Process

From the result of identifying the Enterprise goals and IT-related goals, only the ones worth primary "P" is selected. Afterwards, the results of mapping the IT-related goals with the COBIT 5 process, there are only five COBIT 5 process that are chosen as the process that will be assessed on their capability level in accordance with the research scope and the problems faced by the company, namely:

Table 3. Identified COBIT 5 Key Practices

Code	Key Governance Practices
EDM04	**Ensure Resources Optimisation**
04.01	Evaluate Resource Management
04.02	Direct Resource Management
04.03	Monitor Resource Management
APO07	**Manage Human Resources**
07.01	Maintain Adequate and Appropriate Staffing
07.04	Evaluate employee job performance
07.05	Plan And Track the Usage of IT And Business Human Resources
BAI04	**Manage Availability and Capacity**
04.01	Assess Current Availability, Performance and Capacity and Create a Baseline
04.03	Plan For New or Changed Service Requirements
BAI09	**Manage Assets**
09.01	Identify And Record Current Assets
09.02	Manage Critical Assets
MEA01	**Monitor, Evaluate and Assess Performance and Conformance**
01.01	Establish a Monitoring Approach
01.02	Set Performance and Conformance Targets
01.03	Collect and Process Performance and Conformance Data
01.04	Analyse and Report Performance

The table above shows the selected COBIT 5 processes with the chosen sub processes that matches the condition of the company and the expected results of the research. After the processes are identified, then the measurement will be done

by spreading the questionnaire created with the COBIT 5 guidelines to the relevant respondent to acquire the best answer for the research.

4.2 Process Capability Assessment

The process assessment is conducted by reviewing the results of the questionnaire that has been filled by 10 respondents with roles ranging from IT Division Head to Unit Manager and will depict the score of the COBIT 5 processes that are being evaluated. The following tables shows the results of each processes capability score based on the answers provided by the respondents. The following Table 3. shows the rating and capability level of each assessed process.

Table 4. Process Assessment Result for Level 1

COBIT 5 Process	Key Practices	Key Practice Score	Average Score
EDM 04	EDM 04.01	80%	80%
	EDM 04.02	90%	
	EDM 04.03	70%	
APO 07	APO 07.01	70%	66,7%
	APO 07.04	63,4%	
	APO 07.05	66,7%	
BAI 04	BAI 04.01	90%	80%
	BAI 04.03	70%	
BAI 09	BAI 09.01	80%	90%
	BAI 09.02	100%	
MEA 01	MEA 01.01	80%	85%
	MEA 01.02	80%	
	MEA 01.03	90%	
	MEA 01.04	90%	

From Table. 3 it is known that processes BAI09 (Manage Assets) and MEA01 (Monitor, Evaluate and Assess Performance and Conformance) acquire the minimum score of 85% to be assessed on to the next level. Below are the results of the Level 2 assessment for BAI09 and MEA01.

Table 5. Performance Management Assessment Result (Level 2)

2.1 Performance Management			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
Objectives for the performance for the process are identified	BAI09	√	100%
	MEA01	√	100%
Performance of the process is planned and monitored	BAI09	√	100%
	MEA01	√	100%
Performance of the process is adjusted to meet plans	BAI09	√	100%
	MEA01	√	100%
Responsibilities and authorities for performing the process are defined, assigned, and communicated	BAI09	√	100%
	MEA01	√	100%
Resources and information necessary for performing the process are identified, made available, allocated and used	BAI09	√	100%

	MEA01	√	100%
Interfaces between involved parties are managed to ensure effective communication and clear assignment of responsibility	BAI09	√	100%
	MEA01	√	100%

Table 6. Work Product Management Assessment Result (Level 2)

2.2 Work Product Management			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
Requirements for the work products of the process are defined	BAI09	√	100%
	MEA01	√	100%
Requirements for documentation and control of the work products are defined	BAI09	√	100%
	MEA01	√	100%
Work products are appropriately identified, documented, and controlled	BAI09	√	100%
	MEA01	√	100%
Work products are reviewed in accordance with planned arrangements and adjusted as necessary to meet requirements	BAI09	√	100%
	MEA01	√	100%

With the assessment result of Level 2 reaching the score of 100% for both BAI09 and MEA01, the process is going to be assessed into Level 3, below are the assessment result for Level 3 for process BAI09 and MEA01:

Table 7. Process Definition Assessment Result BAI09

3.1 Process Definition			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
A standard process, including appropriate tailoring guidelines, is defined that describes the fundamental elements that must be incorporated into a defined process	BAI09	√	100%
The sequence and interaction of the standard process with other processes are determined	BAI09	√	100%
Required competencies and roles for performing a process are identified as part of the standard process	BAI09	√	100%
Required infrastructure and work environment for performing a process are identified as part of the standard process	BAI09	√	100%
Suitable methods for monitoring the effectiveness and suitability of the process are determined	BAI09	√	100%
Suitable methods for monitoring the effectiveness and suitability of the process are determined	BAI09	√	100%

Table 8. Process Deployment Assessment Result BAI09

3.2 Process Deployment			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
A defined process is deployed based on an appropriately selected and/or tailored standard process	BAI09	√	100%
Required roles, responsibilities and authorities for performing the defined process are assigned and communicated	BAI09	√	100%
Personnel performing the defined process are competent on the basis of appropriate education, training and experience	BAI09	√	100%
Required resources and information necessary for performing the defined process are made available, allocated and used	BAI09	√	100%
Required infrastructure and work environment for performing the defined process are made available, managed and maintained	BAI09	√	100%
Appropriate data are collected and analyzed as a basis for understanding the behaviour of the process, to demonstrate its suitability and effectiveness, and to evaluate where continuous improvement of the process can be made	BAI09	√	100%

Table 9. Process Definition Assessment Result MEA01

3.1 Process Definition			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
A standard process, including appropriate tailoring guidelines, is defined that describes the fundamental elements that must be incorporated into a defined process	MEA01	√	100%
The sequence and interaction of the standard process with other processes are determined	MEA01	√	100%
Required competencies and roles for performing a process are identified as part of the standard process	MEA01	√	100%
Required infrastructure and work environment for performing a process are identified as part of the standard process	MEA01	√	100%
Suitable methods for monitoring the effectiveness and suitability of the process are determined	MEA01	√	100%
Suitable methods for monitoring the effectiveness and suitability of the process are determined	MEA01	√	100%

Table 10. Process Deployment Assessment Result MEA01

3.2 Process Deployment			
Result of Full Achievement of the Attribute	**Process Name**	**Exist**	**Score**
A defined process is deployed based on an appropriately selected and/or tailored standard process	MEA01	√	100%
Required roles, responsibilities and authorities for performing the defined process are assigned and communicated	MEA01	√	100%
Personnel performing the defined process are competent on the basis of appropriate education, training and experience	MEA01	√	100%
Required resources and information necessary for performing the defined process are made available, allocated and used	MEA01	√	100%

Required infrastructure and work environment for performing the defined process are made available, managed and maintained	MEA01	√	100%
Appropriate data are collected and analyzed as a basis for understanding the behaviour of the process, to demonstrate its suitability and effectiveness, and to evaluate where continuous improvement of the process can be made	MEA01	√	100%

From those results stated on the previous tables, processes BAI09 and MEA01 has successfully achieved capability level 3 and are in accordance with Bank XYZ targets. It can be concluded that the overall capability score of Bank XYZ in performing resource management are:

$$N = \frac{(1*3) + (3*2)}{5}$$
$$N = 1,8$$

From the results of the process measurement, it can be concluded that the processes average capability level that are evaluated is still below the expected capability level of the company.

4.3 Gap Analysis

Based on the gap analysis described by Table 4, it can be seen that the gap in 8 processes that are assessed on average is at between level 1 and level 2, which means this still does not meet the expected level by the company which is level 3, and for the purpose of increasing the capability level it is necessary to complete the work product provided by the COBIT 5 guidelines in all areas of the company so that the company's capability level may achieve the target level.

Table 11. Capability Gaps Overview

COBIT 5 Process	Capability Level	Expected Level	Gap
EDM 04	1	3	2
APO 07	1	3	2
BAI 04	1	3	2
BAI 09	3	3	-
MEA 01	3	3	-

4.4 Solution to Increase Capability Level

To close the gap between the current capability level and the expected capability level is by applying and optimizing all the output that is provided by the guidelines of COBIT 5 to the company's operations in accordance to the process that have been evaluated. The company must strive to get a score of at least 85% on every level in order for the process to be able to be evaluated further and increase the capability level of the company as a whole.

5. CONCLUSION

Based on this research, even though Bank XYZ is a huge enterprise, the capability of the company to manage their resources according to the assessment following the COBIT 5 is still under leveled in comparison to the specified level the company expecting to get. This will serve as a valuable knowledge for Bank XYZ to further improve their capabilities of managing their resource to gain competitive advantages in the market. This research will also become an information for many organizations to start looking out for their organization resource if they want to keep following the digital innovation that rapidly changes.

This study shows that the current resource management capability of the Bank XYZ is still below the expected level of the company with the capability measurement of the processes related with resource management namely EDM04, APO07, BAI04, BAI09, and MEA01. The average level of the process capability is 1,8 so there is still a gap of 1,2 with the expected level of 3.

To increase the capability level in accordance with the specified target of level 3, the company should improve the documentation as stated in the work product of each process provided by the COBIT 5 Enabling Process and Process

Assessment Model document, which can be in the form of creation of new documents or SOPs in the IT division. The advice given by the author for future research are:

1. The process of EDM04, APO07, BAI04, BAI09, and MEA01 can be used to measure the capability level in processes related to resource management.
2. To get the maximum capability results, validation is required related to the aspects of the company that are going to be assessed because each company has different conditions from others.

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