Capability Level Assessment of IT Governance in PTP Mitra Ogan

COBIT 5 Framework for BAI 04 Process

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***Abstract*— It is very necessary to implement information technology governance in government corporate organization. Nowadays, information technology investments and IT-enabler must be effectively manage, especially in governance institution. This research is an assessment of IT Governance model for government corporate in Indonesia. This paper shows and describes the result of COBIT 5.0 framework (IT Governance framework) implementation in PTP Mitra Ogan. In this paper, implementation of COBIT 5.0 framework scope is applied especially in the domain of build, acquire, and implementation (process ID number 04), from the area of management. Purpose of this case study is to get the result of COBIT 5.0 framework implementation, describe step-by-step procedures or processes to improve IT Governance implementation, and finally give recommendations for governing IT of PTP Mitra Ogan in the future.**

Keywords—IT Governance, COBIT 5, Government Corporates

I. INTRODUCTION

Information is a main resource for every enterprise. The information technology (IT) has an important role to support the operational of an enterprise. Information technology is getting ahead and has become a part of enterprise, social environment, society and business world. Successful companies have recognized that boards of directors and executives need to embrace IT as important part of doing business. IT Governance is a growing concept in the private sectors to manage and govern an enterprise. Not only that, IT Governance must also been implemented in government organizations with the growing use of IT by them.

The role of IT Governance is no doubt in achieving the goals of an enterprise. In previous research IT Governance already adopts in a higher education institution (Adikara, 2013). IT Governance is essentially the activity of managing the use of IT in order to produce maximum output in the organization, helping the decision-making process and assist the problem-solving process (Adikara, 2012).

Every company need to align their organization goals with IT goals to get maximum support from their developed information system (Adikara, 2016) (Sandfreni, 2016). In previous research, the use of efficient requirements engineering process can result a cloud system for university as a part of IT governance process, especially using RACI to define system requirements (Sandfreni, 2015). From previous work, we can conclude that COBIT 5 provides a comprehensive framework that helps enterprise achieve their enterprise and IT governance goals.

PTP. Mitra Ogan's goal to face 2017 is "With High Discipline & Sense of Responsibility We Increase Productivity & Efficiency To Achieve Best Performance", in order to evaluate the performance of the year 2016. This paper will assess PTP. Mitra Ogan IT Governance. By doing this assessment, the expected information system applied in PTP. Mitra Ogan can be more effective and efficient in accordance with the COBIT 5 guidelines. COBIT 5 helps enterprise to create optimum value from IT by maintained a balance between realizing benefits and optimizing risk and resource usage.

COBIT 5 is a business framework for IT governance framework, as well as a suite of tools that support managers to bridge the gap between control requirements, technical issues and business risks Business risk) (Furqan Al-Fadhli, 2014). COBIT 5 is divided into 5 domains including Evaluate, Direct and Monitor (EDM), Align, Plan and Organize (APO), Build, Acquire and Implementation (BAI), Deliver, Service and Support (DSS) and Monitor, Evaluate and Assess (MEA) (ISACA, 2012).The domains of COBIT 5 being used in this paper are Build, Acquire and Implementation (BAI) domain, and focusing on BAI 04 process.

This paper is organized as follows. In section 2, the paper starts with the overview about some related works. In the next section, we explain the research methodology in our research. We discuss the result and discussion in section 4, and finally the conclusion in section 5.

II. RELATED WORK

A. Performance Assessment

The assessment process involves establishing an ISO-defined capability rating for each process. It involves using the standard rating scale to assess the process attributes (based on the attribute indicators) that apply to each of the six capability

levels (all of which are defined in ISO/IEC 15504–2). The capability of each assessed process is expressed as a capability level from 0 to 5, and each process capability level is aligned with a process situation.(British Standard, 2003)

1. ***Incomplete process***
   The process is not implemented, or fails to achieve its process purpose. At this level, there is little or no evidence of any systematic achievement of the process purpose.
2. ***Performed process***
   The implemented process achieves its process purpose.
3. ***Managed process***
   Performed process is now implemented in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained.
4. ***Established process***
   Managed process is now implemented as a defined process that is capable of achieving its process outcomes.
5. ***Predictable process***
   Established process now operates within defined limits to achieve its process outcomes, as a measured and controlled process.
6. ***Optimizing process***
   Predictable process is continuously improved to meet relevant, current and projected business goals, incorporating process innovation and optimization.

Assessment indicators are used to assess whether process attributes have been achieved. There are two types of assessment indicators:

1. Process capability attribute indicators, which apply to capability levels 1 to 5, The process capability attribute indicators used in the COBIT 5 process capability assessment are:
   - Generic practice (GP)
   - Generic work product (GWP)

2. Process performance indicators, which apply exclusively to capability level 1
   In performing the measurements, each attribute at each level should also be rated on the following scale (ISACA, 2013):
   - Not Achieved, for achievement 0-15%
   - Partially Achieved, for achievement of 15-50%
   - Largely Achieved, for achievement of 50-85%
   - Fully Achieved, for achievement 85-100%

   A process can be declared to reach the level of capability of course if all attributes that exist at that level have a rating of "Fully Achieved" or "Largely Achieved", with all attributes at the level below have a "Fully Achieved" rating.

B. Build, Acquire and Implementation 04 (BAI 04): Manage. Availability and Capacity

BAI 04 Process: balance current and future needs for availability, performance and capacity with cost-effective service provision. Include assessment of current capabilities, forecasting of future needs based on business requirements, analysis of business impacts, and assessment of risk to plan and implement actions to meet the identified requirements. The purpose of this process is Maintain service availability, efficient management of resources, and optimization of system performance through prediction of future performance and capacity requirements.

III. RESEARCH METHODOLOGY

The research methodology is constructed by using the definition of the COBIT 5 framework, especially in the management area of Build, Acquire, and Implementation number 04 process. The BAI 04 process use to assess PTP Mitra Ogan current IT Governance condition. This process, managing the availability and capacity of an enterprise that focuses on balancing the current needs. The assessment used to conform the IT governance gap that will be enforced in the PTP. Mitra Ogan.

The data will be collected by questionnaire and analysed it using capability level of COBIT 5 framework. Given the initial conditions, several steps are applied to improve the performance of IT governance in PTP Mitra Ogan. The recommendation will be used to creating an information system and becoming standard operation procedures to manage the IT governance in PTP Mitra Ogan. The results of this research will be summarized based on assessment of the performance and capability level analysis. After that we propose the recomendation that can be used to improve IT Governance in PTP Mitra Ogan based on the COBIT 5 framework.

IV. RESULT AND DISCUSSION

PT Perkebunan Mitra Ogan (PTP MO) domiciled in Palembang city of South Sumatra, was established on December 19, 1988. PTP MO is a joint venture between PT RNI and PTPN III engaged in oil palm and rubber plantation and processing of palm oil into oil Crude palm oil (CPO) and palm kernel (PK) core. Initially PTP Mitra Ogan only cultivated a 12,000-hectare Palm Garden and 1,000 Ha Rubber Garden, but until 2012 PTP MO has succeeded in developing itself so that the area of the garden is 39,000 Ha and 2 Palm Oil processing factories with a capacity of 90 tons per hour. The next long-term plan is the addition of the area so it is expected that the total area can reach 100,000 ha and the construction of one PKS with a capacity of 30 tons per hour located in Musi Banyuasin Regency.

PT Perkebunan Mitra Ogan (PTP MO) has 2 (two) palm oil factories with capacity of 90 tons of fresh fruit bunches per hour. Main products include Palm Oil (CPO), Palm Oil Core (PK) and latex. The Company's activities include cultivation and processing of oil palm and rubber crops. PTP. Mitra Ogan has a vision to become a company in the field of reliable industrial agro, based on productivity, product quality and

excellent service with its own ability. And mission is to be the best performing business in the field of agribusiness, which is managed professionally and innovatively with the orientation of maintaining the quality of Crude Palm Oil (CPO), Palm Kernel (PK), and Dry Rubber, to grow and develop to compete competitively, So as to meet the expectations and satisfy the parties concerned.

A. Questionnaire

Questionnaires were made based on process performance indicator and process capability indicator from PAM COBIT 5. Questionnaires were divided into 2 parts, namely questionnaire level 1 (using base practices and output work product) and questionnaire level 2-3 (using criteria on self-assessment template). Questionnaires are only up to level 3 because the target capability level to be achieved is level 3.

TABLE I. QUESTIONNAIRE LEVEL 0 CAPABILITY

Questionnaire Level 0 Capability		
The process is not implemented or fails to achieve the process objectives		
No.	**Question**	**Grade(1/0)**
1	Does PTP.Mitra Ogan has an information system?	

TABLE II. QUESTIONNAIRE LEVEL 1 CAPABILITY

Questionnaire Level 1 Capability		
PA 1.1 Performed Process		
No	**Base Practices (BPs)**	
	Question	**Grade (1/0)**
1	Is there an assessment of current availability, performance and capacity and create a baseline?	
2	Is there an assessment of business impact?	
3	Is there a plan fro new or changed service requirements?	
4	Is there a monitoring and reviewing of availability and capacity?	
5	Is there an investigation and addressing of performance and capacity issues?	
Work Product Outputs		
6	Is there an availability, performance and capacity baselines?	
7	Are there evaluations against SLAs (*Service Level Agreement*)?	
8	Are there prioritized improvements?	
9	Is there a result of performance and capacity plans?	
10	Is there a result of availability, performance and capacity monitoring reviews reports?	
11	Is there a result of performance and capacity gaps?	
12	Are there corrective actions?	
13	Is there a plan of emergency escalation procedure?	
14	Are there results of availability, performance and capacity scenarios?	
15	Are there results of availability, performance and capacity business impact assessments?	

TABLE III. QUESTIONNAIRE LEVEL 2 CAPABILITY

Questionnaire Level 2 Capability		
PA 2.1 Performance Management		
No	**Question**	**Grade (0/1)**
1	Have the objectives for the performance of the process is identified?	
2	Has the performance of the process is planned and monitored?	
3	Has the performance of the process is adjusted to meet plans?	
4	Have the responsibilities and authorities for performing the process are defined, assigned and communicated?	
5	Have the resources and information necessary for performing the processes are identified, made available, allocated and used?	
6	Is there an interface between the involved parties are managed to ensure effective communication and clear assignment of responsibility?	
PA 2.2 Work Product Management		
No	**Question**	**Grade (0/1)**
1	Are the requirements for the work products of the process are defined?	
2	Are the requirements for documentation and control of the work products of the process are defined?	
3	Is the work products are appropriately identified, documented and controlled?	
4	Is the work products are reviewed in accordance with planned arrangements and adjusted as necessary to meet requirements?	

TABLE IV. QUESTIONNAIRE LEVEL 3 CAPABILITY

Questionnaire Level 3 Capability		
PA 3.1 Process Definition		
No	**Question**	**Grade (0/1)**
1	Has a standard process, including appropriate tailoring guidelines, is defined that describes the fundamental elements that must be incorporated into a defined process?	
2	Has a sequence and interaction of the standard process with other processes is determined?	
3	Has a required competency and roles for performing a process are identified as part of the standard process?	
4	Has a required infrastructure and work environment for performing a process are identified as part of the standard process?	
5	Are the suitable methods for monitoring the effectiveness and suitability of the process is determined?	
PA 3.2 Process Development		
No	**Question**	**Grade (0/1)**
1	A defined process is deployed based on an appropriately selected and/or tailored standard process?	
2	Required roles, responsibilities and authorities for performing the defined process are assigned and communicated?	
3	Personnel performing the defined process are competent on the basis of appropriate education, training and experience?	
4	Required resources and information necessary for performing the defined process are made available, allocated and used?	
5	Required infrastructure and work environment for performing the defined process are made available, managed and maintained.	
6	Appropriate data are collected and analyzed as a basis for understanding the behavior of the process, to demonstrate its suitability and effectiveness, and to evaluate where continuous improvement of the process can be made	

B. Assessment Result

In table V we can see the results of the recapitulation of the questionnaire answers that for the process of BAI04 on PTP. Mitra Ogan lies in level 2 but most of the process has been implemented. Therefore, it needs an improvement on IT Governance to achieve level 3 capability in accordance with the desired target.

TABLE V. RECAPITULATION OF CAPABILITY LEVEL ASSESSMENT

BAI04	**Level 0**	**Level 1**	**Level 2**		**Level 3**		**Level 4**		**Level 5**	
Process Attribute		PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2	PA 5.1	PA 5.2
Rating by criteria	**100 %**	**86.7 %**	**88.9 %**	**83.3 %**	**86.7 %**	**61.1 %**				
	F	**F**	**F**	**L**	**F**	**L**				
Capability Level Achieved				**2**						

The percentages contained in table V are obtained using a simple formula:

Percentage = (Total points in all respondents can be / Total points maximal all respondents) * 100%

The results, which is obtained based on "self-assessment" assessment instrument with the speaker is the Head of Internal Audit Unit (SPI) PTP.Mitra Ogan, Mr. Ir. Alwi Sirajuddin are processed to obtain the assessment results in each level of process capability BAI04, which is Manage the availability and capacity. Through that process, it is analyzed that the management of availability and capacity in the PTP. Mitra Ogan which are lied in level 1, level 2, level 3 can be improved to achieve level 3 capability by utilizing information system. The gap analysis is based on Table VI

TABLE VI. RECAP OF CAPABILITY ASSESSMENT RESULT

No	***Gap Analysis***	**Recommendations**
1	The absence of a corrective action plan.	Planning corrective action on the management of performance availability.
2	Absence of emergency escalation procedure plan.	Plan for emergency escalation procedures.
3	Responsibilities and authority to carry out the process have been defined, assigned and communicated accordingly and regularly but sometimes errors occur.	Fulfilling responsibilities for each process is determined, both in SOP, duties and authority of position, as well as the assignment not written by the leader.
4	There is an interface for the parties involved to manage to ensure effective communication and clarity of assignment responsibilities in a timely and orderly fashion but occasionally errors occur.	Determine the relationship with other parties in carrying out the process either in the SOP, or not written in writing by colleagues or superiors to ensure effective communication and clarity of assignment of responsibility.
5	The work product has been correctly identified, documented and controlled in an appropriate and orderly fashion but occasionally errors occur.	Identify, document and control the product accordingly and regularly.
6	Work products are reviewed in accordance with planned arrangements and adjusted as necessary to meet requirements but sometimes errors occur.	Reviewing the work product in accordance with the planned SOPs and adjusted as necessary to meet the requirements.
7	The required infrastructure and work environment for the process are identified as part of the standard process accordingly and are regularly but occasionally mistaken.	Adjust the required infrastructure and work environment to perform the process identified as part of the SOP process.
8	Resources and information required to carry out the process have been identified, made available, allocated and used accordingly and regularly but occasionally errors occur.	Identify, allocate and use the resources and information necessary to carry out the process in accordance with the SOP.
9	A defined process has been deployed incompatible with that based on the exact standard process selected and / or adjusted.	Adjust the defined process and deployed by its standard process.
10	The necessary roles, responsibilities and authority to undertake the defined processes are assigned and communicated are appropriate and regular but occasionally errors occur.	Defining, assigning and communicating the necessary roles, responsibilities and authority to carry out the process in accordance with the SOP.
11	The necessary resources and information needed to carry out the defined processes that are made available, allocated and used are appropriate and regular but occasional errors.	Define, allocate and use the necessary resources and information in accordance with the standards for carrying out its processes.
12	Required infrastructure and work environment for defined processes are made available, managed and maintained accordingly and regularly but occasionally errors occur.	Defining, managing and maintaining the required infrastructure and work environment in accordance with the standards and rules for carrying out its processes.
13	Appropriate data are collected and analyzed as a basis for understanding process behavior, to demonstrate suitability and effectiveness, and to evaluate the continuous improvement of processes that can be made accordingly and regularly but occasionally errors occur.	Collect, analyze data in accordance with SOPs as a basis for understanding process behavior, to demonstrate suitability and effectiveness, and to evaluate the continuous improvement of processes that can be made.

V. CONCLUSION

In brief, for manage availability and capacity, the company already has one guide with SOP Change Management and SOP Database Monitoring which includes Assessing business impact, Plan for new or altered service needs, Monitoring and reviewing availability and capacity.

SOP Change Management discusses:

- The necessity to analyze what services are most important to the company,
- Conditions where changes are to be planned properly.
- SOP Database Monitoring specifies that the database should be monitored on a continuous basis every day.

However, there is no SOP that discusses current assessment of availability and capacitance whether it is appropriate and capable of supporting SLA or not. Although there are already SOPs for database monitoring, it is not continued until the need to investigate and address capacity and availability issues.

From the capability level assessment result, Manage Availability and Capacity process has reached level 2 for BAI04 process. To achieve level 3, corrective steps should be taken to improve information technology governance in the BAI04 process. These improvement steps are made for the achievement of each level, starting from level 1 to level 3, it must be done consistently so that the level of capability can reach a certain level with attribute rating reach "Fully Achieved".

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