Assessment of Information Technology Governance Implementation Based on COBIT Framework 5 Focus on DSS 02 Subdomain of Deliver, Service, and Support: Case Study on at a Branch of the XXX Bank Company

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Abstract

Most of companies and organizations have used information technology to improve the effectiveness and efficiency of business performance. In consequence it is necessary to have good information technology governance so that the desired goals are achieved. Bank XXX Branch X always strives to provide the best, provide excellent service and work optimally. Despite using reliable information technology, when the implementation there are still some obstacles that is accumulation of service requests in the IT division of Bank XXX Branch X. In this study, an assessment of information technology governance was carried out based on the COBIT 5 framework focusing on DSS02 subdomain. Data collection methods consist of problem formulation, literature study, observation, interviews and questionnaires. The data analysis method is carried out by calculating the results of the questionnaire answers using a Likert measurement scale to get the current capability model level, expected capability model level and risk value, calculate the gap and provide recommendations for improvement. The results of this study show that the value of the current capability model in DSS02 sub domain is 4.22, the expected capability model is 4.47 and 14 recommendations for improvement are obtained.

Keywords: *COBIT 5, IT governance assessment, capability model, subdomain*

I. INTRODUCTION

Most companies and organizations have used information technology to improve the effectiveness and efficiency of business performance. In order for the effectiveness and efficiency of the use of information technology to be achieved, good governance is needed for good information technology and so that the implementation of information technology can assist in supporting an organization to achieve the desired goals [1].

In facing competition with other companies in similar sectors, Bank XXX Branch X always strives to provide fast, practical services and utilize reliable and future ready information technology to its customers.

Despite using reliable information technology, in the implementation in the field there are still some obstacles that cannot be avoided. Especially in the IT division of Bank XXX Branch X, there are obstacles, namely the accumulation of service requests. At Bank XXX Branch X, the IT division focuses on supporting operational activities, namely controlling and handling technical problems related to the use of information technology devices that occur directly in the field. At Bank XXX Branch X itself, there are 11 work unit offices under it. Therefore, in addition to dealing with problems that occur at branch offices, the IT division is also directly responsible for handling technical problems that occur in the work unit offices. The main cause of the accumulation of requests for handling technical problems related to information technology equipment is the limited Human Resources (HR) in the IT division at Bank XXX Branch X. If this continues, it is feared that it could hamper the information technology management process, which has an impact on internal control and business value [2].

COBIT (Control Objectives for Information and Related Technologies) is a framework used to manage IT Governance in an organization. COBIT provides guidelines for organizations to monitor and manage information security more effectively [3]. Information technology governance assessment using COBIT not only provides an assessment of the evaluation results, but also provides input or suggestions that can be used as improvements and business alignment with IT strategies to improve information technology governance in the future. [4].

Therefore, the authors conducted research on the evaluation of information technology governance using the COBIT 5 framework with a focus on the DSS 02 subdomain on the management of service requests and incidents at Bank XXX Branch X. By doing this research, it is expected to provide recommendations on the results of the information technology governance assessment in accordance with company business goals.

Auditing is a systematic process used to objectively evaluate and obtain evidence regarding assertions about related economic actions and activities to ensure the degree of conformity between the statements and established criteria, and report the results of the audit to interested parties [5].

Information technology is a device that is used to assist human work such as processing, organizing data to be delivered to the intended object [6]. Information technology is related to the process (use as a tool), manipulation, and management of information sources in the form of data that describes the reality of a phenomenon [7].

The basic understanding of IT governance is the decision-making process in the field of information technology investment, starting from decision making to measuring and monitoring the results of information technology governance. [8]. IT Governance is the responsibility of the executive board and board of directors consisting of leadership, organizational structure and processes that can ensure the use of information technology within an organization can support and expand information goals and strategies [9].

COBIT 5 is the COBIT ISACA framework that provides a comprehensive framework to assist companies in achieving corporate goals in the field of corporate information technology governance and management. [10]. In COBIT 5 there is a process reference model that is used to describe in detail the governance and management processes. The process reference model in COBIT 5 divides the process domain into two main process domains, namely governance and management of corporate information technology.

The DSS (Deliver, Service and Support) domain is an extension of the DS (Deliver and Support) domain in COBIT 4.1. The DSS domain focuses on IT operational activities, IT service processes and IT support on the technical implementation of an activity, continuous use of IT, security management, and business process control management. [10]. Here is the following DSS domain consists of six control objectives:

1. DSS01 Manage Operations
2. DSS02 Manage Service Requests and Incidents
3. DSS03 Manage Problems
4. DSS04 Manage Continuity
5. DSS05 Manage Security Services
6. DSS06 Manage Business Process Controls

The RACI chart is a matrix that describes the assignments and responsibilities of a role in the organization. In the RACI chart there are four levels of responsibility, namely Responsible, Accountable, Confirmed, and Informed [10].

The COBIT 5 process capability model provides a means to measure the performance of governance and management processes, and makes it possible to identify areas of improvement. In Figure 1 are the six levels of the capability model that can be achieved by a process [11].
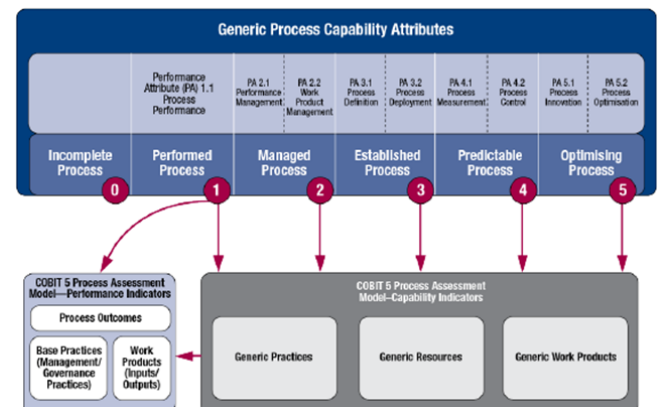

Figure 1. Process Capability Model COBIT 5 [10]

Likert scale is a scale used to measure individual attitudes. The Likert scale is considered easier to apply, besides that respondent can also provide their opinions and assessments with the right choice, so that the answers given vary [12].

II. MATERIALS AND METHODS

The following research stages determine the steps of the research carried out, for more details can be seen in Figure 2.
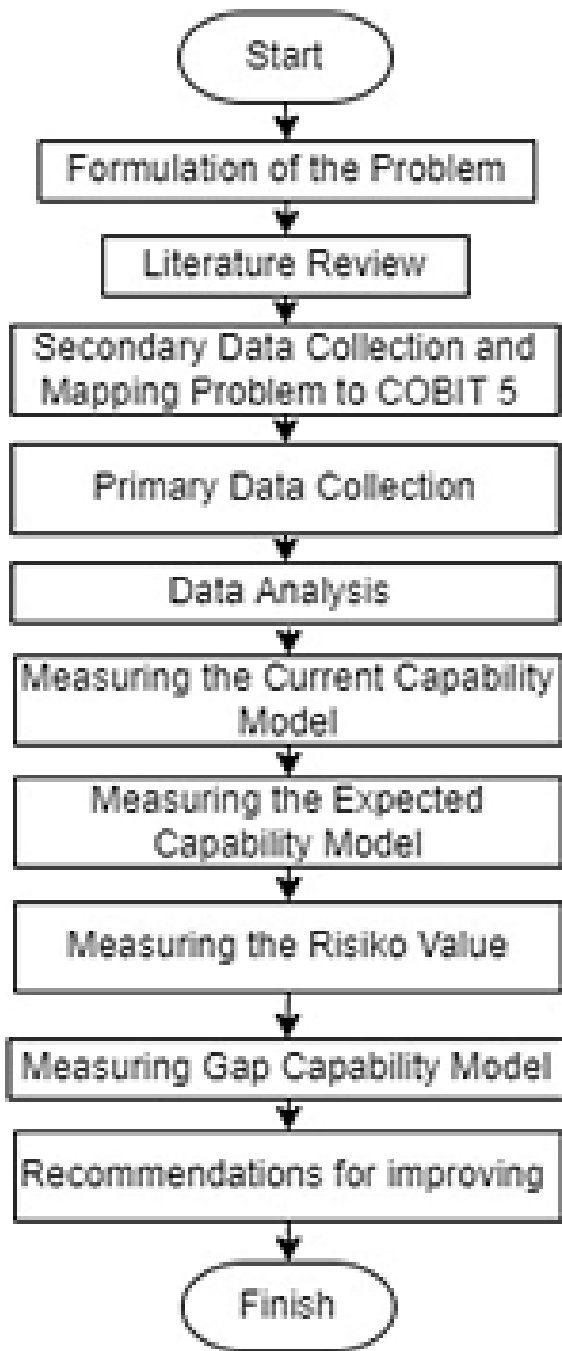
Figure 2. Reasearch Framework

Table 1. Mapping Vision and Mission in to Cobit 5

Enterprise Goals	IT Related Goal	COBIT 5 Process
Customer-oriented service culture	Delivery of IT services in line with business requirements	EDM01, EDM02, EDM05
		APO02, APO08, APO09, APO10, APO11
		BAI02, BAI03, BAI04, BAI06
		DSS01, DSS02, DSS03, DSS04, DSS06
		MEA01

From the results of the mapping process in Table 1. it focuses more on the sub domains that focus on managing the constraints faced by the IT division [15]. Here is the mapping process in Table 2.

Table 2. Mapping Sub Domain DSS02

Enterprise Goals	IT Related Goal	COBIT 5 Process	IT Process DSS02
Customer-oriented service culture	Delivery of IT services in line with business requirements	DSS02 Manage Service Requests and Incidents	DSS02.01
			DSS02.02
			DSS02.03
			DSS02.04
			DSS02.05
			DSS02.06
			DSS02.07

Secondary data collected is information about the general description of the organization (organizational structure, vision, mission of Bank XXX Branch X). The mapping process is carried out using the existing mapping process in the COBIT 5 document [13] The mapping process begins with an evaluation of the vision, mission into company goals, IT-related goals, and sub-domain focus in COBIT 5 [14].

Primary data collection was done by using interview, observation and questionnaire methods. In the observation and interview methods, conducted by direct observation to Bank XXX Branch X and interviewing sources related to the implementation and governance of information technology. The list of questions in the questionnaire was selected based on the domain activity in the COBIT 5 doc [16]. Primary data were analyzed using a Likert measurement scale with a capability model. From the measurement results using a Likert scale, it will then be converted into a capability model using the equation [17].

$$\text{Capability Level} = \frac{(0*y_0)+(1*y_1)+...+(5*y_5)}{z} \quad (1)$$

Where Yn(y0…y5) is number of processes at level n and z is number of evaluated process.

III. RESULTS AND DISCUSSIONS

The questionnaire contains 24 questions selected based on the DSS02 activity domain to determine the value of the current capability model, expected capability and risk value. Questionnaires were distributed to six respondents. Respondents are determined based on the RACI chart DSS02 which is adjusted to the position in Bank XXX Branch X, the following is a list of respondents:

Table 3. Respondents List

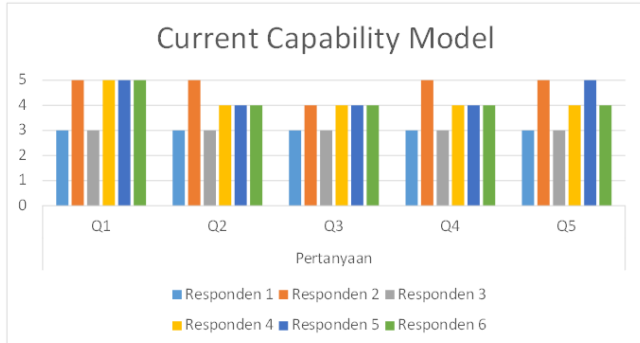| No	Kode	Respondent
1	R1	Head of Branch
2	R2	Assistant Service Operations Manager
3	R3	Operational Support Supervisor
4	R4	IT officer
5	R5	IT officer
6	R6	IT officer

Figure 3. Recapitulation of Questionnaire Answers on DSS 02.01

Each respondent's answer in Fig. 3 will be calculated using equation (1) as follows.

$$\text{Capability Level R1} = \frac{(3*5)}{5} \quad (2)$$

$$\text{Capability Level R1} = 3 \quad (3)$$

After calculating each respondent's answer, it is continued by calculating the average value of the respondent's ability to get the current ability score on DSS02.01. Similarly, in calculating the expected capability value and risk value, the following are:

Table 4. Comparison Current Capability with Expected Capability

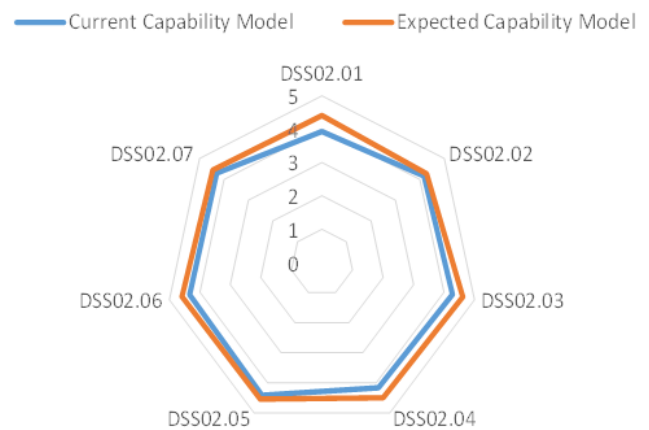| IT Proses	Current Capability Model	Expected Capability Model	Gap	Risk Value
DSS02.01	3,93	4,4	0,47	4
DSS02.02	4,16	4,27	0,11	3,72
DSS02.03	4,27	4,61	0,34	4,1
DSS02.04	4,16	4,5	0,34	4,2
DSS02.05	4,41	4,54	0,13	4,16
DSS02.06	4,33	4,58	0,25	4,25
DSS02.07	4,3	4,45	0,15	4,16
Average	4,22	4,47	0,25	4,08

Figure 4. Gap between CCM and ECM

Based on Table 6 it is known that the current capability of the DSS02 model is at a predictable process level of 4.22 and the expected capability of the DSS02 model is at a predictable process level of 4.47. On Fig. 4, there is still a gap between the value of the current capability model and the expected capability model. So, it is necessary to improve the IT process in order to achieve the desired expected capability model value.

In addition, recommendations for improvement can be in the form of improving the implementation of existing responsibilities in the organizational structure with the RACI COBIT 5 diagram to emphasize the roles that have been determined [18]. The following are recommendations for improvement to overcome the difference in capability values as follow:

1. Things that can be done to improve the suitability between the results of the questionnaires from

parties R (Responsible) and A (Accountable), as well as the RACI chart on IT activities DSS02.01 is to make improvements by appointing the IT Officer as the responsible party and the Operations Supervisor as the accountable party.

2. Appoint the IT Officer as an accountable party on IT activities DSS02.02

3. Apppoint the Head of Branch and IT Officer as the responsible party and the Assistant Service Operations Manager as the accountable party on IT activities DSS02.03.

4. Appoint the Head of Branch and IT Officers as responsible parties and Assistant Service Operations Managers as accountable parties on IT activities DSS02.04.

5. Appoint the IT Officers as responsible parties and Assistant Service Operations Managers as accountable parties on IT activities DSS02.05.

6. Appoint the IT Officers as responsible and accountable parties on IT activities DSS02.06.

7. Appoint the IT Officer as the accountable party and the Assistant Service Operations Manager as the responsible party on IT activities DSS02.07.

8. To improve the DSS02.01 process, determine the scheme and model for the classification of service requests and incidents that are already running, are to be more specific in determining the categories, criteria and characteristics of each incident level from minor incidents to major incidents.

9. To improve the DSS02.02 process, the classification of service requests that are already running with defined and controlled limits, is to classify and prioritize more specific service requests so that the services provided can support the business objectives of Bank XXX Branch X.

10. To improve the DSS02.03 process, handling services based on procedures, namely by communicating procedures related to service requests and incidents to employees and users, either through official training activities or informal activ.

11. To improve the DSS02.04 process, inspection, diagnosis and incident allocation is the availability of experts in each regional office to support time efficiency in fulfilling the handling of large incident service requests.

12. To improve the DSS02.05 process, settlement and recovery of post-incident conditions are by always documenting on a regular basis alternative solution that can support the efficiency of handling incident service requests.

13. To improve the DSS02.06 process, service request and incident approach are to request feedback on the handling of service requests directly from service requesters and review the results of the feedback to improve the quality-of-service request handling in the future.

14. To improve the DSS02.07 process, tracking status and making reports are routinely documenting and conducting a more in-depth analysis of the pattern of problems and handling each incident that occurs.

The current capability model of Bank XXX Branch X in the DSS02 sub domain is at the predictable process level which has an average value of 4.22 with the lowest current capability model value being in the IT process DSS02.01 which is 3.93 and the value is 3.93 The highest current capability model is in the IT process DSS02.05, which is 4.41. To solve this problem, the recommendations in point 8. The expected capability model of Bank XXX Branch X in the DSS02 sub domain is at the predictable process level which has an average value of 4.47 with the lowest expected capability model value being in the IT process DSS02.02 which is 4.27 and the highest expected capability model value is on the IT process DSS02.03 which is 4.61. To solve this problem, recommendations in points 9 and 10 can be made.

IV. CONCLUSIONS

The level of risk owned by Bank XXX Branch X in the DSS02 sub domain has an average value of 4.08 with the lowest risk value being in the IT process DSS02.02 which is 3.72 and the highest risk value being in the IT process DSS02.06 which is 4, 25. To solve this problem, recommendations in points 11 and 13 can be made. Based on the results of questionnaires, interviews and observations, 14 recommendations were obtained from the assessment of information technology governance at Bank XXX Branch X.

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