The Governance Measurement Of Information System Using Framework Cobit 5 In State-Owned Enterprises Insurance Company

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Abstract.

Utilizing better Information Technology (IT) management facilities (good governance) is necessary to enhance the efficiency and effectiveness of information technology in a state-owned social insurance company, aligning with the business strategy and complying with the applicable Ministry of State-Owned Enterprises regulations. Therefore, a periodic assessment of IT governance using the COBIT 5 framework is essential. The assessment is conducted on five processes, which involve identifying company objectives, enterprise goals, IT-related goals, and conducting self-assessment. Based on the conducted assessment, the DSS 01 process obtained a final score of 90.22% and achieved a capability level of 4.51. The DSS 02 process obtained a final score of 91.70% and achieved a capability level of 4.59. The DSS 03 process obtained a final score of 90.30% and achieved a capability level of 4.52. The DSS 04 process obtained a final score of 34.15% and achieved a capability level of 1.71. The DSS 06 process obtained a final score of 91.36% and achieved a capability level of 4.58. In the DSS 01 process, three activity findings were identified, and nine improvement recommendations were provided. In the DSS 02 process, one activity finding was identified, and two improvement recommendations were provided. In the DSS 03 process, two activity findings were identified, and four improvement recommendations were provided. Regarding the DSS 04 process, the relevant division is currently conducting internal discussions to improve the control procedures for information availability management for IT service needs.

Keywords: *Capabilty Level, COBIT 5, and IT Governance.*

I. INTRODUCTION

The implementation of Information Technology (IT) in a company can run efficiently and effectively by synchronizing the business needs of the company with the existing IT ecosystem[1]. The utilization of IT in improving individual performance is crucial for company management to ensure that the technology in place can control the performance of human resources [2]. To achieve improved outcomes from IT utilization, the company also needs to carefully design an IT utilization strategy [3].In designing the IT utilization strategy, the company needs to consider strategic factors in the current IT utilization conditions, including the mission, strategy, policies, and future goals of the company [4]. Additionally, aligning IT strategy with business strategy is crucial, as the increasing role of IT leads to a growing need for the value-added that IT utilization can bring to ongoing business operations in the company. Therefore, an assessment of IT governance processes is required [5].IT governance is a structured activity aimed at evaluating the components of the information system and ensuring that the utilization of IT complies with organizational policies [6]. Furthermore, the assessment of IT governance focuses on evaluating the suitability of IT processes with applicable standards and regulations (compliance test) concerning procedures and human resources involved. The company will implement an IT governance assessment plan using the COBIT 5 Framework [7].

The COBIT 5 Framework, designed by the Information Systems Audit and Control Association (ISACA), is used to assess the effectiveness of IT utilization in company management [8]. The COBIT 5 Framework provides assessment guidelines that focus on assessing IT governance management practices, which can be used as a reference for assessing company activities in predetermined aspects [9]. The assessment of IT governance in Business Affairs and IT Strategy, which falls under the Information Technology and Communication Division, requires regular assessments to comply with the regulations stated in the Ministry of State-Owned Enterprises Regulation number PER-02/MBU/02/2018 regarding the Principles of IT Governance for State-Owned Enterprises.To fulfill this requirement, the identification of

objectives is conducted for the analyzed object, ranking of enterprise goals determined by the head of business affairs and IT strategy in the company, determination of IT-related goals based on the ranking of enterprise goals, and the generation of several processes that can be used as references for process selection.

II. METHODS

The stages of assessing company activities in IT governance management using the COBIT 5 Framework, which is a framework that provides tools to help companies achieve business objectives by creating optimal value from IT utilization and analyzing the level of risk associated with resource utilization. It also analyzes potential gaps, issues, and business risks that may arise from technology utilization within an organization, aiming to achieve alignment between business objectives and IT utilization objectives [10].The research flow conducted in Figure 1 for assessing IT governance using the COBIT 5 Framework consists of several stages that need to be carried out. It begins with understanding the objectives and goals of the company in implementing information technology through mapping Enterprise Goals, IT-Related Goals, and selecting the domains to be assessed [11]. There is a list of 17 standard companies within the COBIT 5 Framework, and the goal mapping is done by selecting priorities based on the company's objectives to be achieved [12].

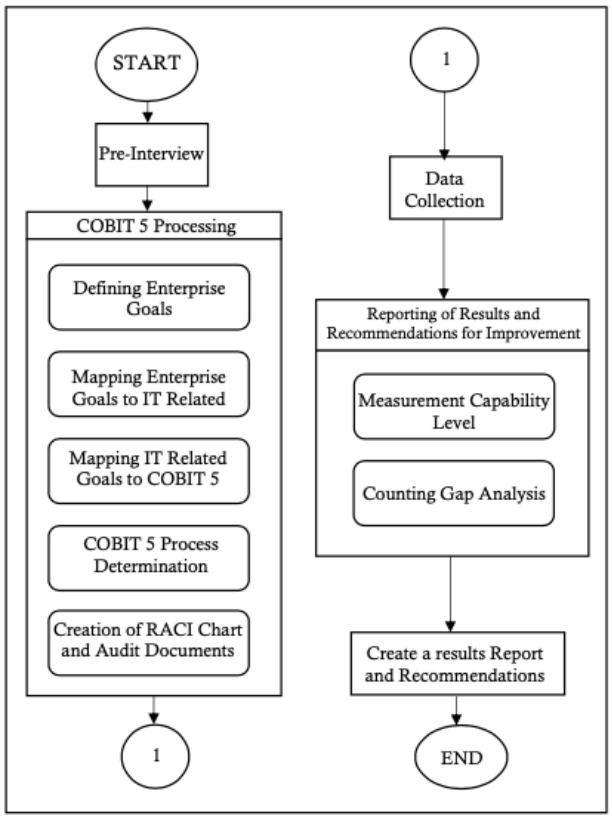

Fig 1. Research Workflow

Mapping and analyzing the company's objectives are determined by selecting the appropriate ranking as Enterprise Goals [13]. The mapping is done by analyzing the previously given company objectives and matching them with the available Enterprise Goals in the COBIT 5 Framework [14].In this stage, the previously selected Enterprise Goals are mapped, and the corresponding IT-Related Goals are determined [15]. The process involves mapping and analyzing the IT-Related Goals into COBIT 5 domains and processes based on the Process Reference Model. In this stage, the results of the previous mapping of IT-Related Goals are reanalyzed and used to determine which domains and processes will be assessed in IT governance using the COBIT 5 Framework. Interviews with authorized personnel from the company are conducted to gather the necessary information regarding the company's activities. The company personnel will be asked to provide descriptive answers regarding relevant activities based on the available activity statements, which are derived from the COBIT 5 Process Reference Model.

The obtained information is analyzed and assessed for its alignment with the stated activities. The analysis of the answers is conducted by comparing them with the activities listed in COBIT 5, as well as the documents owned by the company, to identify any issues arising from the misalignment between the company's activities and the COBIT 5 standards stated in the Process Reference Model.he analysis of the answers is performed by comparing the given answers and supporting documents provided by the company with the activities listed in COBIT 5. If any issues are identified, they need to be recorded in the Description Table, Cause and Effect Analysis, and Improvement Plan in the audit document that has been prepared. Next, the process determines whether the final score of a process meets the criteria to proceed to the next level or not. If a process does not meet the criteria, it cannot proceed to the next process and will be used as a basis for improvement recommendations [16].

COBIT 5 Process Capability Attribute

Assigning scores to each process is done using four scales that represent the assessment percentage for each subprocess and process. The assessment scales for activities and processes in COBIT 5 use a four-category scale approach. After conducting the assessment using the scale, it is necessary to rank the scores using the Process Capability Levels, which serve as a determinant of whether the final assessment of the process has been effective or further activity improvement is needed [17].

III. RESULT AND DISCUSSION

Identification of company objectives based on information from the Business Affairs and IT Strategy in the IT division is to manage the business and IT strategy in the company by establishing standard operating procedures to monitor activities continuously, ensuring smooth operational tasks, and coordinating risk management processes.

Mapping Enterprise Goals and IT-Related Goals

After obtaining the results of the company objective identification, the Head of Business Affairs and IT Strategy in the IT Division is also asked to prioritize the Enterprise Goals in COBIT 5. The results of the prioritization of Enabler Goals will then be used to map the IT-Related Goals. The selection is based on the Enterprise Goals prioritized by the company for IT governance assessment.

Table 1. Mapping Results of Enterprise Goals and IT-Related Goals.

Enterprise Goals COBIT 5		Priority	IT Related Goals
Customer	Customer-oriented service culture	1	Alignment of Business and IT Strategy
			Utilization of IT services is aligned with business needs.

In table 1, the mapping results of Enterprise Goals are presented. The company prioritizes the main goal in the BSC Dimension Customer, with the Enterprise Goal of "customer-oriented service culture" selected as the first priority. The mapping of IT-Related Goals has been done based on the Enterprise Goals in the Business Affairs and IT Strategy in the IT Division.

Determining Domains and Processes

The results of the previous mapping of IT-Related Goals will be used to map the Domains and Processes that will undergo assessment using the COBIT 5 Frame.

Table 3. Results of COBIT 5 Domain and Process Selection.

Process	Process Description	Assessment Aspects
DSS01	Manage Operation	Readiness of utilizing information technology in company operations.
DSS02	Manage Service Request and Incident	Company's approach to handling user requests and incidents.
DSS03	Manage Problems	Company's methods to minimize potential issues, considering service availability, cost efficiency, and improving user system satisfaction.
DSS04	Manage Continuity	Company's utilization of information to support current business operations and aid in future business decision-making.
DSS06	Manage Business Process Controls	Company's provision and maintenance of information security resulting from IT utilization.

In table 3, the results consider the list of eligible processes for assessment by the company, as well as the mapping results of the previously conducted questionnaire for domains and processes. Therefore, the company agrees to assess 5 processes in the Deliver, Service, Support (DSS) domain.

COBIT 5 Process Capability Measurement

Based on the mapping results of COBIT 5 processes, a process capability measurement will be conducted for each selected process. To perform the measurement, a questionnaire will be provided to respondents, consisting of statements related to each COBIT 5 process, which will then be compared to the activities performed by the company.

Table 4. Capability Assessment in Process DSS01

Process Name	**Level**									
	0	1	2		3		4		5	
DSS01		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	F	F	F	F	F	F	F	F	F	F
Rating by Percentage	100 %	85.83%	94 %	90 %	92 %	94 %	89 %	88.80%	90.8 %	91.67%
Capability Level Achieved										5

In table 4, the assessment result for the DSS 01 process is Level 5 (Optimizing) with a score of 91.23%, meeting the criteria of F (Fully Achieved). Thus, the DSS 01 process successfully achieves a final assessment of IT governance at Level 5 (Optimizing).

Table 5. Capability Assessment in Process DSS02

Process Name	**Level**									
	0	1	2		3		4		5	
DSS02		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	F	F	F	F	F	F				
Rating by Percentage	100 %	92 %	95 %	95 %	93 %	93.17%	88 %	87.6 %	89.6 %	91.3%
Capability Level Achieved										5

In table 5, the results of the PA 5.1 questionnaire process obtained a percentage score of 89.6%, and PA 5.2 obtained a percentage score of 91.33%. Based on these two questionnaire assessment results, it can be concluded that the final assessment score for the DSS 02 process is Level 5 (Optimizing) with a score of 90.45%, meeting the criteria of F (Fully Achieved). Therefore, the DSS 02 process successfully achieves an overall assessment of IT governance at Level 5 (Optimizing).

Table 6. Capability Assessment in Process DSS03

Process Name	**Level**									
	0	1	2		3		4		5	
DSS02		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	F	F	F	F	F	F	F	F	F	F
Rating by Percentage	100 %	85.13%	93 %	95 %	93 %	93 %	88,6 %	88,2 %	90 %	90,67%
Capability Level Achieved										5

In table 6, the results of the PA 5.1 questionnaire process obtained a percentage score of 90%, and PA 5.2 obtained a percentage score of 90.67%. Based on these two questionnaire assessment results, it can be concluded that the final assessment score for the DSS 03 process is Level 5 (Optimizing) with a score of 90.3%, meeting the criteria of F (Fully Achieved). Therefore, the DSS 03 process successfully achieves an overall assessment of IT governance at Level 5 (Optimizing).

Table 7. Capability Assessment in Process DSS04

Process Name	Level									
	0	1	2		3		4		5	
DSS02		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	F	F	L	L						
Rating by Percentage	100 %	90 %	82 %	78 %						
Capability Level Achieved				2						

In table 7, the PA 2.1 questionnaire process obtained a percentage score of 82.5%, and PA 2.2 obtained a percentage score of 78.75%. Based on these two questionnaire assessment results, it can be concluded that the final assessment score for the DSS 02 process is Level 2 (Managed) with a score of 80.65%, meeting the criteria of L (Largely Achieved). Therefore, the assessment process should stop at Level 2 (Managed).

Table 8. Capability Assessment in Process DSS06

Process Name	Level									
	0	1	2		3		4		5	
DSS02		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	F	F	F	F	F	F	F	F	F	F
Rating by Percentage	100 %	88,7 %	93,8 %	93,7 %	92 %	95 %	90,6 %	89,6 %	91,2 %	90%
Capability Level Achieved				2						

In table 8, the PA 5.1 questionnaire process obtained a percentage score of 91.2%, and PA 5.2 obtained a percentage score of 90%. Based on these two questionnaire assessment results, it can be concluded that the final assessment score for the DSS 04 process is Level 5 (Optimizing) with a score of 90.6%, meeting the criteria of F (Fully Achieved). Therefore, the DSS 04 process successfully achieves an overall assessment of IT governance at Level 5 (Optimizing).

Gap Analysis

The assessment results will undergo a gap analysis to identify whether the obtained assessment results have reached the target at Level 5 (Optimizing) that has been determined together with the IT Division in the company.

Tabel 9. Gap analysis in the IT Division of the company

Process	Level		Gap Analysis
	Assessed	Target	
DSS01	5	5	
DSS02	5	5	
DSS03	5	5	
DSS04	2	5	3
DSS06	5	5	

Table 9 shows the 4 processes that have successfully met the target at the predetermined Level 5 with the IT Division, namely DSS 01, DSS 02, DSS 03, and DSS 06. There is 1 process that can only reach Level 2, which is the DSS 04 process. This is because there is still a need for internal work control improvement in information availability management and IT service management.

Recommendations for Improvement

Based on the measurement of capability levels and gap analysis, COBIT 5 recommendations are provided to improve and enhance the level of the DSS 04 process. The following table 10 provides a reference for improvement within the IT Division:

Tabel 10. Recommendations for Improvement in the DSS 04 Process

No	Recommendations for Improvement
1	Identify standard processes in service request management and incident management that have been defined, which describe the fundamental elements of the specified process.
2	Determine the sequence of interaction between standard processes and other processes to ensure

No	Recommendations for Improvement
	that service request management and incident management are aligned with improvement goals and established standards.
3	Identify the parts of the standard process that include the competencies and roles required to perform service request management and incident management in the company.
4	Identify the parts of the standard process that include the infrastructure and working environment required to plan the strategy of service request management and incident management in the company.
5	Identify suitable methods for monitoring the effectiveness and suitability of the previously designed service request management and incident management planning.
6	Implement the previously established standard processes in service request management and incident management.
7	Ensure that available human resources are aware of and fulfill the roles, responsibilities, and authorities required in service request management and incident management.
8	Ensure that available human resources have the competence and abilities in service request management and incident management.
9	Ability to provide, allocate, and utilize available resources in service request management and incident management.
10	Ability to provide, manage, and maintain the required infrastructure and working environment in service request management and incident management.
11	Evaluate work results periodically to determine the effectiveness of service request management and incident management and identify processes that require improvement.

IV. CONCLUSION

Conducting an evaluation of the measurement levels of IT services, especially those related to Business and IT Strategy, is essential to identify the causes of issues and analyze the desired future conditions using a gap analysis approach. Based on the identification of enterprise goals, enabler goals, IT-related goals, and problem scope, five processes have been selected and agreed upon: DSS 01 (Manage Operations), DSS 02 (Manage Service Request and Incident), DSS 03 (Manage Problem), and DSS 06 (Manage Business Process Control). These four processes have successfully met the company's target of reaching Level 5 (Optimizing). However, Process DSS 04 (Manage Continuity) is currently halted at Level 2, as internal work control improvements are still required in information availability management and IT service management. It should undergo improvements based on COBIT 5 recommendations to elevate it to Level 3.

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