

# INFORMATION TECHNOLOGY GOVERNANCE USING COBIT 4.0 DOMAIN DELIVERY SUPPORT AND MONITORING EVALUATION

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## ABSTRACT

Information Technology (IT) has rounded into a technology which hardly assist even determine level of performance a company. For the agenda of increasing performance, Bina Sarana Informatika (BSI) has been supported by information technology. Constructively IT (Information Technology), Business process or job activity process happened in university can be put across and efficient. But other side, the purpose of business, applying of IT needs cost money high investment at risk to big enough failure. Therefore required a mechanism Arrange IT Management (IT Governance) which totally and structural from starting planning untill the observation. This research is to give a model proposal arrange IT Management for Bina Sarana Informatika (BSI) by relating COBIT (Control Objective for Information and Related Technology) Version of 4.0. This research is focused on two main domain COBIT, that is Delivery Support (DS) and Monitoring Evaluation (ME) and this research is continuation from other researcher that is Evi, Rahmawati, the researcher who focuses on domain DS and ME. Methodologies are done through analysis whereas from vision identification, mission and purpose of organization and also mission and vision from part of Biro Teknologi Informasi (BTI). Here in after identifying by management awareness to IT asset function which have him (it in supporting the of reaching company mission and vision through questioner. From both the data hence is determinable of maturity goals (expected maturity level) appropriate for Bina Sarana Informatika (BSI). Then continued by doing assessment of current maturity level through questioner and interview to related and relevant responder of management of titanium. The expected data and current maturity levels of each IT process are analyzed to look at the gap, and then determined gradually; Steps that must be taken to overcome the gap.

**Keywords:** *Arrange IT Management, COBIT Process, TI, Maturity*

## 1. INTRODUCTION

The college is an institution that provides services to the community to set up a Human Resources (HR) future quality and efficient as one task in hand. In the process, the college requires sophisticated resources and always current.

The study, the authors do here is research on one of the private universities, namely Bina Sarana Informatika (BSI) which is located at Jl. Dewi Sartika No. 77 East Jakarta. Bina Sarana Informatika (BSI) as one of the educational institutions in providing services to students, faculty, staff and the general public, implement the

use of the latest information technology to speed up the flow of information needs. Along with the development of Bina Sarana Informatika (BSI) which was established 21 years ago, since 2003 has implemented a paperless system for all existing services. The system is supported by the development of computer applications, either desktop applications or web-based applications are all built by Bina Sarana Informatika (BSI) through a unit of work that the Bureau of Information Technology Bina Sarana Informatika (BTI BSI).

COBIT accommodates the drawing itself by providing process models across four domains: Plan

and Organize (PO), Acquire and Implementation (AI), Delivery and Support (DS) and Monitoring and Evaluation (ME).

The fourth domain has the processes, all of which amounted to 34, which serves to monitor every segment of the IT elements. Every IT processes (IT process) having a high-level control objective and a number of detailed control objectives. At each IT process, maturity models included her, so that management can determine the condition of current organizational performance and determine the improvement target.

In this study the authors assess IT governance at Bina Sarana Informatika using COBIT as procurement framework to limit this to the domain Delivery and Support (DS), and Monitoring and Evaluation (ME), due to the complexity of the business areas, thus requiring conformity between control models business processes to control the IT process models. The other thing which is the base of the use of COBIT is a need for tools that control information and IT risks in the form of a structured management of the domains that are relevant to the environment Bina Sarana Informatika (BSI) Jakarta.

The process of management information system within Bina Sarana Informatika (BSI) has been integrated into the academic faculty information system and has evolved into an academic lecturers information system that uses and evaluates the performance of the systems and employees involved in academic information systems. The integrated system is built to meet:

- a. Needs the desired information. In the management of information technology required a careful planning tailored to the vision and mission of the institution. To obtain good IT governance requires a customized business purpose reference from the organization or company.
- b. Academic Information System Lecturer of Bina Sarana Informatika (BSI) is one of the information system that serves as a web-based information system used for academic services for faculty and management staff. IT management research recommendations are limited to Delivery and Support (DS) and Monitoring and Evaluation (ME) domains.

## 2. LITERARY REVIEW

To optimize IT governance academic information systems, The lecturers of Bina Sarana Informatika (BSI), Jakarta, and knowing its alignment with the strategy and objectives of the institution that has been established it is necessary to do an analysis of the application of information

systems academic lecturers. From the above it can be formulated the problem as follows:

- a. How to evaluate the implementation of IT governance in Bina Sarana Informatika (BSI), Jakarta today?
- b. What level of maturity (maturity level) IT governance is conducted in Bina Sarana Informatika (BSI), Jakarta?
- c. How can IT governance improvements in Bina Sarana Informatika (BSI), Jakarta?

### A. Understanding IT Governance

According to O'Brien (2002), the system is a set of components that are interconnected and work together to achieve a common goal, to receive input and produce output through an organized process of transformation.

According to Williams and Sawyer (2003) in that Information Technology is a technology that combines computers with communication lines that carry data, voice and video. Information technology is a subsystem of the information system, especially in a review from the viewpoint of the technology.

According to the Information Technology Governance Institute (ITGI, 2000), there are five areas of vital importance for IT governance, namely the alignment of business strategy and IT strategy, IT value delivery, risk management, performance measurement and management of IT resources.

- a. There are several key issues that determine the direction of IT governance, namely: strategic alignment, application of IT should support the achievement of the company's mission. IT Strategy should really support the company's business strategy.
- b. Value Delivery, implementation of IT must provide added value for achieving the company's mission.
- c. Risk Management, IT application must be accompanied by the identification of IT risks, so as to overcome the impact caused by it. Resource Management, IT application must be supported by adequate resources and optimal use of resources.
- d. Performance Measurement, IT implementation should be measured and evaluated on a regular basis, to ensure that investment and IT performance according to the business needs of the company.

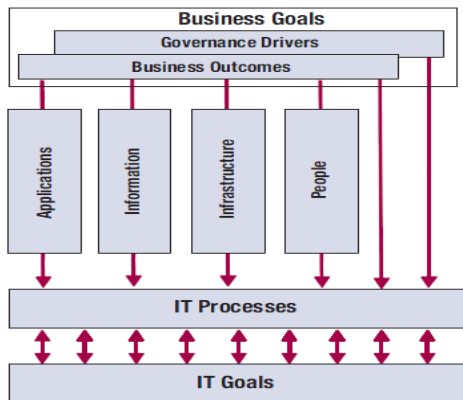


Source: Authors own findings

Figure 1: Focus areas of IT Governance (ITGI, 2005)

To achieve these objectives, there are several things that must be done as follows:

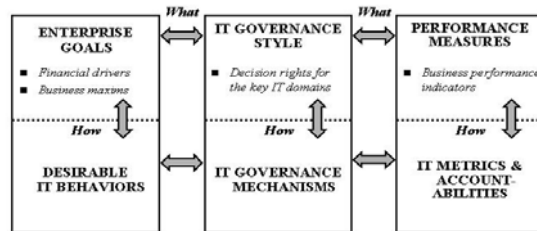
1. The management of the organization should align business strategy with the organization's IT strategy, upgrading strategies and objectives in the organization and translate it into action for all employees at every level of management.
2. The management of the organization should be able to align IT with business organizations, stressed the shared responsibility for the success of IT projects that will ultimately result in better business value.
3. Management should ensure that risk analysis is an integral part of the overall process, and focuses on IT infrastructure and calculating the value of invisible assets (intangible assets) to the security and operational risks, and the risk of IT project failure.
4. Management should implement a performance measurement based on the strategy and objectives that have been set.
5. The management should be actively involved so that all of these stages can be carried out.



Source: Authors own findings

Figure 2 Managing IT Resources to Deliver IT Goals (ITGI, 2005)

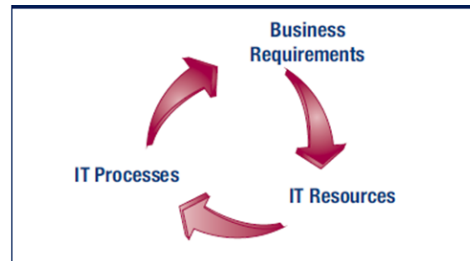
Implementation of good and effective IT governance requires harmonious management structures, as well as in accordance with the desired business objectives and performance. Harmonization is done vertically and horizontally with the following Figure 3:



Source: Authors own findings

Figure 3: Harmonization of "What" and "How" in IT Governance [ITGI, 2005]

The framework for IT governance shown in Figure 3 illustrates the governance process that begins with the company's objective IT determination, which provides the initial direction, a series of IT activities performed, then measured the results of the measurements compared with the objective, which will influence the direction which has been given to the IT activity and the necessary objective changes.



Source: Authors own findings

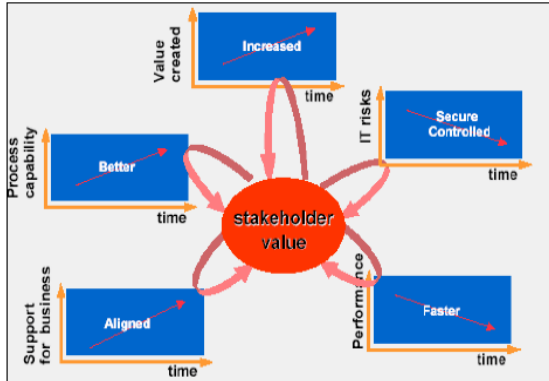
Figure 4: IT Governance Framework [ITGI, 2005]

IT governance has the tasks that are the main responsibility in the management, namely:

1. Ensure that stakeholder interests have been incorporated in the preparation of corporate strategy.
2. Provide direction to the processes that implement the company's strategy.
3. Ensure that these processes produce measurable outputs.
4. Ensure information about the results obtained and how they are measured.
5. Ensure that the results of the implementation of the company's strategy are in line with the company's expectations.

While the purpose of the implementation of IT governance in an organization is as follows:

1. Short-term Objectives, ie IT governance, are used to reduce IT operational costs by optimizing the operations within them through control over every IT resource use process and risk handling associated with IT usage.
2. Long-term Objectives: IT governance helps companies stay focused on the strategic value of IT implementation (IT Strategic Value) and ensure that IT implementation can support the achievement of corporate goals.



Source: Authors own findings

Figure 5: The Purpose of IT Governance [ITGI, 2005]

**B. COBIT Framework**

COBIT is one methodology that provides a basic framework in creating an appropriate information technology to organizational needs by taking into account other factors that affect. Orientation process Activities of IT, in COBIT are defined into process models are generic and are grouped into 4 (four) domains: Planning and Organization (PO), Acquisition and Implementation (AI), Delivery and Support (DS), and the Monitoring and Evaluate (ME) with explanation as follows:

1. Planning and Organization (PO)
 

This domain includes identifying the problem the best way IT to provide the maximum contribution to the achievement of the business objectives of the organization. High-level control objectives contained in this domain are as follows:

  - PO1 - Define a strategic IT plan
  - PO2 - Define the information architecture
  - PO3 - Determine technological direction
  - PO4 - Define the IT Organisations and relationship
  - PO5 - Manage the IT investment
  - PO6 - Communicate management aims and direction

- PO7 - Manage human resources
  - PO8 - Ensure compliance with external requirements
  - PO9 - Assess risk
  - PO10 - Manage projects
  - PO11 - Manage quality
2. Acquisition and Implementation (AI)
 

This domain focuses on the electoral process, procurement and IT application used. Implementation of the strategy that has been established must be accompanied by IT solutions are appropriate, and the solution was held, implemented and integrated into the organization's business processes. This domain comprises seven control objectives, namely:

    - AI1 - Identify automated solution
    - AI2 - Acquire and maintain application software
    - AI3 - Acquire and maintain technology infrastructure
    - AI4 - Develop and maintain procedures
    - AI5 - Install and accredit systems
    - AI6 - Manage changes
    - AI7 - Install and accredit solutions and changes.
  3. Delivery and Support (DS)
 

This domain focuses on the technical-technical support to the IT service process.

    - DS1 - Define and manage service levels
    - DS2 - Manage Third-party services
    - DS3 - Manage performance and capacity
    - DS4 - Ensure continues service
    - DS5 - Ensure systems security
    - DS6 - Identify and allocate costs
    - DS7 - Educate and train users
    - DS8 - Assist and advice customers
    - DS9 - Manage the configuration
    - DS10 - Manage problems and incidents
    - DS11 - Manage Data
    - DS12 - Manage facilities
    - DS13 - Manage operations
  4. Monitoring and Evaluation (ME)
 

This domain has concentrated on monitoring and evaluation of the application of IT.

    - ME1 - Monitor and Evaluate IT Performance
    - ME2 - Monitor and Evaluate internal control
    - ME3 - Monitor and Evaluate Ensure regulatory compliance
    - ME4 - Monitor and Evaluate provide IT Governance

COBIT is one of the methodologies that provides a basic framework in creating an information technology that suits the needs of the organization while keeping in mind other influential factors. COBIT is basically developed to

help meet various management needs for information by bridging the gap between business risk, control and engineering issues. COBIT provides a practical step through domains and frameworks that describe IT activities in an adjustable structure and process. In COBIT there is a management manual that contains a framework response for management needs for IT measurement and control by providing tools to assess and measure enterprise IT capabilities for 34 IT processes.

The basic concept of the COBIT framework is that the determination of control in IT is based on the information needed to support business objectives and information resulting from the combined implementation of the IT process and related resources.

Overall COBIT framework can be divided into

3 points of view, namely:

1. Information criteria
2. IT resources
3. IT process

This is because the use of COBIT in support of IT governance, will be able to provide a framework to ensure that:

1. IT is in harmony with business
2. IT enables businesses and maximizes benefits
3. IT resources are used with responsibility
4. IT risk is managed appropriately.

COBIT integrates good practices on IT and provides a framework for IT governance, which can help understand and manage risk and gain IT-related benefits. Thus implementing COBIT as an IT governance framework will provide benefits:

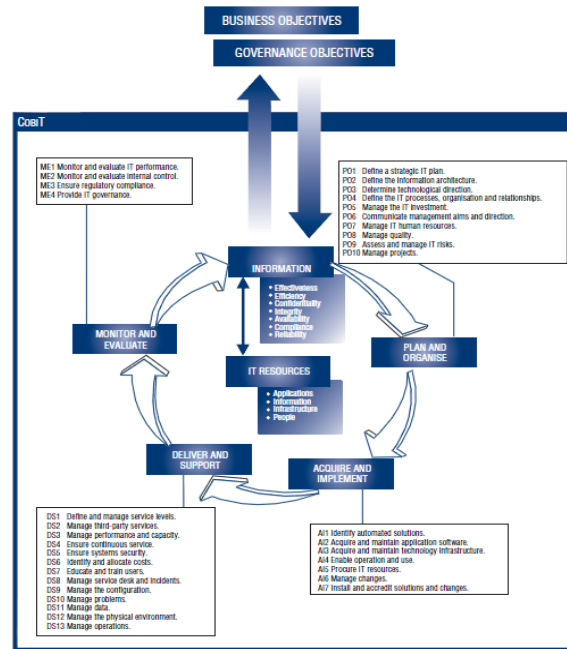
1. Better alignment, based on the focus of binsis.
2. A view, can be understood by management about what IT does.
3. Clear responsibilities and ownership are based on process orientation
4. It is generally accepted with third parties and regulators
5. Share understanding among interested parties, based on a common language.
6. Meet the needs of the COSO (Committee of Sponsoring Organizations of the Treadway Commission) for the IT control environment.

In understanding the COBIT framework, it is important to know the main characteristics in which the COBIT framework is created, as well as the underlying principle. The main characteristics of the COBIT framework are business-focused, process oriented, control based and measurement-driven, while the underlying principles are:

"To provide the organization with the necessary information to achieve its objectives, the

organization needs to manage and control IT resources by using a set of structured processes to deliver the necessary information services".

The entire COBIT framework can be seen in the figure below.



Source: Authors own findings

Figure 6: COBIT Framework [ITGI, 2005]

### C. Related Research

Several studies related to the evaluation of IT governance with the COBIT framework (version 3 or version 4) have been conducted, including research conducted by the BUDIYONO brothers. This study discusses the evaluation of information technology governance with COBIT framework in the application of academic management information system at PT PLN (Persero). The study was conducted to evaluate IT governance with COBIT framework especially in Delivery and Support (DS) domain by calculating the maturity level of the domain.

IT processes on the DS domain are basically required to be applicable. This is demonstrated by the results of a high assessment of the choice of 4 (important) and 5 (very important) in each IT process. The study indicates that there is a GAP present in the ongoing IT process (DS11), ie the maturity level of the current condition 2 and the expected level of maturity condition 4, requiring a gradual improvement effort in each maturity attribute. The stage is the achievement of maturity level 3 first, and then the achievement of maturity level 4.



Based on the existing GAP, the DS11 process improvement target is determined, which is done in the following 2 (two) stages:

- (a) The first target of improvement towards level maturity.
- (b) Both improvement targets towards level 4 maturity.

Another research that has been done is by LA ODE RIZAL ADIKRISHNA. This study discusses the evaluation of information technology governance with COBIT framework in the application of management information system in PT SURVEYOR INDONESIA. The study was conducted to evaluate IT governance with COBIT framework especially on Delivery and Support (DS) and Monitoring (M) domains by calculating the maturity level of the domain.

Management Awareness Analysis is conducted to know expectations and opinions from the management of PT SURVEYOR INDONESIA to the level of requirement of each IT COBIT process towards the achievement of PT SURVEYOR INDONESIA's objectives and the party responsible for the process. Identification of Awareness Management is done by proposing questionnaires to all levels of management outside the Information Technology Unit based on the level of involvement in the information system planning that has been done. Based on the results of the questionnaire analysis it can be seen that the whole process (17 processes) in Domain Delivery & Support (DS) and Monitoring (M) is declared necessary in IT management of PT SURVEYOR INDONESIA and most process (11 processes) should be handled by PT SURVEYOR INDONESIA.

Another research that has been done is by DIANA EFFENDI. This study discusses the design of information technology governance with COBIT framework in the application of academic information systems in UNIKOM. The study was conducted to provide recommendations of IT governance with COBIT framework especially on Delivery and Support (DS) and Monitoring and Evaluation (ME) domains by calculating priority scale measurement of interest by using AHP (Analytical Hierarchy Process) method.

From the priority scale, we selected the control process with the highest priority scale value, which according to both respondents the highest priority scale from the control process of the DS and ME domains of DS7, DS11 and ME1, then made a mapping model to know the current position of IT managers using the maturity model. The questionnaire was based on the Key Goal Indicator and Key Performance Indicator of each control

process based on the management guidelines at COBIT.

With IT management accompanied by the planning and sizing of the first done will result in an efficient and effective management that supports the achievement of vision, mission and business goals of UNIKOM.

The new assessment is limited to an IT process, contained in the DS and ME domains. While in the domain there are still other IT processes that can be done assessment. In this study the authors try to conduct research Evaluation of Information Technology Governance Using COBIT 4.0 Domain Delivery and Support (DS) and Monitoring and Evaluation (ME), Case Study: Bina Sarana Informatika (BSI) Jakarta, this research emphasizes on service delivery process which is desirable and overseeing and evaluating the IT process.

Assessment of other IT processes can proceed, as has been done. Thus efforts to improve IT processes can run continuously and continuously.

### 3. RESEARCH METHODOLOGY

Research methods that the authors created among others:

#### A. Measurement-Driven

Organizations need to know it's an IT system, in order to decide the level of management and control should be given. COBIT classifies IT resources need to be managed, namely:

1. Organizations - People: The expertise of every staff, awareness and productivity of the plan, arrangement, procurement, delivery, support, and monitoring of information systems.
2. Application: An explanation of the procedures program
3. Technology: Hardware, operating system, database management system, networking, multimedia.
4. Facilities: Facilities that support information systems.
5. Data: external and internal data, graphics, sound  
In the application of IT management control, there are two models, namely
  - a) Model of IT control In order for the company to benefit it should be noted and understood the limitations of IT and risk management at all levels in order to achieve an effective direction and control accordingly.
  - b) Full Model Business Organizations need to restructure the company's operations and use of IT to improve competitiveness with other organizations.



IT Governance provides a structure associated with IT processes, IT resources and information for the strategic planning and corporate objectives to support business needs maturity Models Maturity Model (Maturity Model) for the management and control of IT processes based on the method of evaluation of the organization, so that it can evaluate themselves from a non-existent (0) to optimized (5). This approach is derived from the Software Engineering Institute maturity model that defines it for software development capabilities. Maturity models intended to determine the existence of the problems that exist and how to determine the priority of improving. Maturity levels are designed as profiles of IT processes. The use of maturity models developed for every 34 IT processes, enabling management can identify:

1. Actual performance of the company, where the condition of the company now.
  2. The present condition of the industry as a comparison.
  3. Target increase in the company, where the desired condition of the company.
- Maturity Models that exist in COBIT can be seen in the following table:

**Table 1: Generic Maturity Model**

<b>0 – Existent</b>	The company does not care about the importance of information technology to be managed by the management
<b>1 Initial</b>	Companies reactively perform application and implementation of information technology in accordance with the requirements of a sudden, without preceded by prior planning.
<b>2 Repeatable</b>	The Company has a pattern that is repeatedly done in performing activities related to the management of information technology governance, but its existence has not been well defined and that is still happening formal inconsistency.
<b>3 Define</b>	The Company has had a formal and written standard operating procedures that have been socialized to all levels of management and employees to comply and worked in daily activities.
<b>4 Manage</b>	The company has had a number of indicators or quantitative measures that serve as targets and objective performance of any application of information technology applications.
<b>5 Optimised</b>	The Company has implemented information technology governance, which refers to the "best practice"

Source: Authors own findings

With the maturity level models, then the organization can know the position of the maturity of information technology governance. Maturity

models are built starting from the generic qualitative model, where the principle of the following attributes are added by way of multilevel:

1. Awareness and Communication
2. Policies, Standards and Procedures
3. Tools and Automation
4. Skills and Expertise
5. Responsibility and Accountability  
Goal Setting and Measurement

In measuring the maturity of the process, you first need clarity about the purpose of the measurement itself. Understanding clearly, what is being measured and what will be done at the time of measurement, is required measurement Performance Goal and matrices are defined in COBIT there are several levels:

1. IT Goal and size that defines what is expected of the IT business (what business would use to measure IT)
2. Process Goal and size that defines what process should be given to support the IT onyektif (how IT process owners will be measured).

Size Process Performance (for measuring how well the process is done to show if the goal is most likely met). COBIT uses two types of sizes: the goal indicators and performance indicators. Goal Indicator on the lower level into Performance Indicators at a higher level. COBIT Framework Model COBIT Framework, tying the business requirements for information and governance, the objective function of IT services. COBIT process model enables IT activities and resources that support managed and controlled appropriately based on COBIT's control objectives, and aligned and monitored using COBIT's KGI and KPI metrics.

Overview Research Object Higher education is a continuation of secondary education is organized to prepare students to be members of the community who have the academic ability to implement, develop and create science and technology or the arts.

The service provided is all the information relating to the academic faculty include personal (edit data, salaries of teaching and webmail), final (Schedule exam MHS, schedule test, MHS guidance D3 & D1 and exam results TA), teaching (schedule of teaching, master MHS D3, D1 and search master MHS student grades).

For the management information system of academic lecturers conducted by the Bureau of Information Technology (BTI) Bina Sarana Informatika (BSI), with academic information systems lecturer was very makes it easy for faculty to obtain all the necessary information related to



academic lecturers. In addition, teachers can register siding students through the Faculty's academic information systems, to include the value of duty and absent students. The current condition does not mean not to have flaws, problems are still encountered today is at the time of academic information systems lecturer is currently in a state of traffic is congested, at which time the enrollment period exam TA students entering grades assignments and attendance, this condition may still be the shortcomings of the system, which for the connection to the web is still hampered by difficulties likes to koneksinya. Sistem web-based Academic Information Lecturer Bina Sarana Informatika (BSI).

The concept of processing is made by the method of client/server, with the intended use together (muti-user) can be done in an integrated manner. However, Lecturer Academic Information System is built with a web-based platform programming language PHP, Java Script and Ajax and the MySQL database support dab Apache Web server (Open Source) Information Technology Infrastructure Technology Infrastructure Information in Bina Sarana Informatika (BSI), herein include network infrastructure, hardware, software that is generally available. Basically there are similarities Complete infrastructure support at each campus. All campus has a network, in this case the LAN (local area network), with multiple servers and workstations (PCs) equipped with supporting software applications or to support existing business processes in their respective campuses. Relationship data communication with other campuses, conducted over a WAN (wide area network). All campuses are already connected to the network WAN. Population and Sample Population Places the population in this study are managers, developers and users of Bina Sarana Informatika (BSI) is the administrator and user. The amount population of each section are:

**Table 2: Population Respondents**

No.	Population	Amount
1	Bureau of Information Technology (BTI)	33
2	Administrative Bureau of Academic and Student Affairs (BAAK)	40
3	Departement	27
<b>Amount</b>		100

Source: Authors own findings

**B. Samples**

Respondents or samples taken from the management information system that the user is the user Administrator and Academic Information System Bina Sarana Informatika (BSI).The number of respondents in this study amounted to 5 persons,

consisting of 3 persons from the bureau of information technology (BTI), 1 person of academic and student administration bureau (BAAK) and one person from the department. Sample Selection Methods Sampling method in this research is purposive sampling technique. Through this technique, the sampling is done based on the purpose of research and certain considerations. That consideration is:

1. The selected sample is a sample that understand academic information systems lecturer Bina Sarana Informatika (BSI) Jakarta.
2. Samples have been a manager and developer of academic information systems lecturer Bina Sarana Informatika (BSI) Jakarta.

Method of collecting data the collection of data is the most important part in a study. Data availability will determine the subsequent processing and analysis. The data collected in this study are primary and secondary data obtained from various sources. Mechanical its collection is done through several steps namely:

1. The primary data obtained through interviews with personnel involved in the research object and filling out the questionnaire.
2. Secondary Data obtained through literature or literature to support the understanding of the concepts that are directly related to the research.

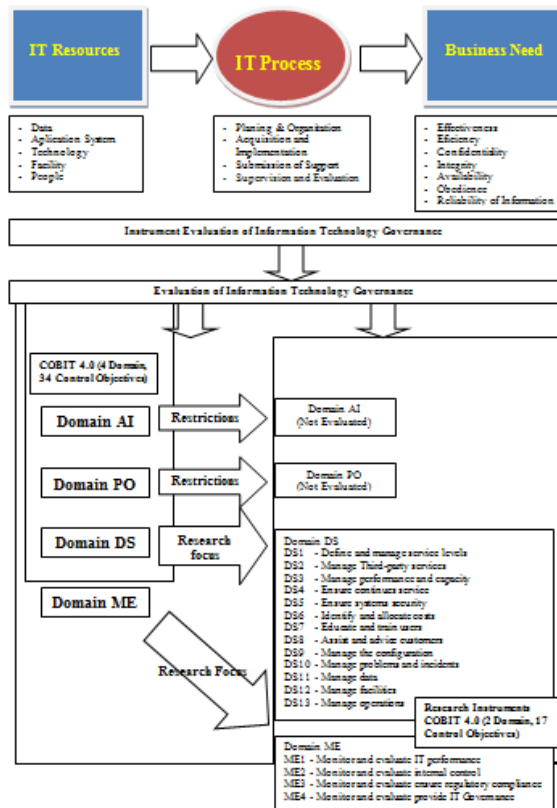
Mechanical its collection is done through several steps namely:

1. A literature study related to the evaluation and IT governance instruments.
2. Early studies in the BTI BSI.
3. Designing questionnaires/research instruments.
4. The data collection (observation and interviews).

**C. Conceptual Framework of Thought**

Information technology has the resources that need to be processed. These processes include Planning and Organization (PO), Acquisition and Implementation (AI), Delivery and Support (DS) and Monitoring and Evaluation (ME), in which the four processes need to be evaluated, to evaluate those processes , an evaluation instrument is needed, in this study the authors use the COBIT framework, to evaluate these processes, within the COBIT framework consisting of 4 domains and 34 processes, but for this study, it is restricted to only evaluate the processes contained in domain Delivery and Support (DS) and Monitoring and Evaluation (ME). The number of processes in both domains is 17 pieces. By evaluating the IT governance, we can know the value of the level of maturity in the company.





Source: Authors own findings

Figure 7: Conceptual Framework of Thought

4. RESULT AND DISCUSSION

Research tool used for this research process refers to the literature in COBIT 4.0 (ITGI, 2005), with a focus on DS domain (Delivery Support) and ME (Monitoring Evaluation) with each control objectivenya. Some underlying the use of research tools, among others:

- Questionnaires become one of the tools to support survey research approach.
- The population of respondents were involved in this study were parties engaged in academic information systems lecturer Bina Sarana Informatika (BSI).
- Filling the questionnaire by respondents was conducted by providing guidance and direction so hopefully the results will be more accurate and describe the population as a whole.
- Interviews were conducted in person to get a detailed description according to the respective control objectives that exist in the DS domain (Delivery Support) and ME (Monitoring Evaluation).

This study uses a questionnaire created using Guttman scale. By using Guttman scale is to form a one-dimensional continuum for a measurement concepts. Expected a set of items or statements that

respondents who disagreed with certain statements in the list will also agree with all the previous statements. Respondents can easily answer the questionnaire and the data from the questionnaire that can be quickly analyzed statistically, and the same statement can be repeated easily. The design of the questionnaire is done by giving a few questions for each level in the domain of the DS and ME on COBIT 4.0, which each control objectives on the DS and ME domain consists of 5 levels starting from 0-5. Where each level has some questions as in Table III below:

Table 3: Details Questionnaire DS & ME

Domain	Process	Number of Questions
DS1	Defining and Managing the Service Level Service	32
DS2	Managing Services from Third Parties	31
DS3	Setting the Performance and Capacity	33
DS4	Assuring Continuity Services	40
DS5	Ensure Security System	49
DS6	Identify and Allocate Costs	32
DS7	Providing User Training and Training on	34
DS8	Managing the Service Desk and Incident iden	32
DS9	Adjusting Configuration	25
DS10	Adjusting Problems	29
DS11	Organize Data	35
DS12	Set the Physical Environment	35
DS13	Adjusting Operations	37
ME1	Supervise and Evaluate IT Performance	33
ME2	Supervising and Evaluating Internal Controls	32
ME3	Ensuring Regulatory Compliance	26
ME4	Provide IT Governance	44
<b>Amount</b>		<b>579</b>

Source: Authors own findings

This questionnaire is presented in narrative form statements that need to be filled by each respondent. As for the overall statement as many as 579 pieces. To find out the details of the questionnaires statement is presented in Appendix 2 and 3. From the results of the questionnaire will then be converted to the value of any response from the respondent. Conversion is done by using a value of 0 for no answer (T) and a value of 1 for yes (Y). From the result of the conversion and then be normalized by dividing the total value of the conversion with the number of questions that exist at every level. Then after normalization is done the arithmetic average by dividing the total value by the number of respondent answers. Data analysis technique Here we will express the rationale and the selection of control measures used in this

objective the establishment of IT governance model, particularly from the DS (Delivery Support) and ME (Monitoring Evaluation). This research uses descriptive data analysis techniques-quantitative. Design-quantitative descriptive commonly used is Descriptive Questionnaire design, this is done by taking a sample of the population as research subjects. The results of this field will describe the variables studied. Here are 5 respondents selected from the population that will fill a statement that there were 579 pieces for later analysis-quantitative descriptive data of each variable and the characteristics of the sample.

Maturity level analysis was conducted to determine the level of maturity of IT governance IT governance based on the condition of the institution is currently obtained through the questionnaire, interview and observation in accordance with the standards set by COBIT. Maturity level analysis done by processing the results of the questionnaire respondents maturity models. The design of the questionnaire is done by providing a number of questions for each level control objectives that exist in Domain DS and ME.

A. Respondent's Data

The number of respondents in this study involves 5 people, including 3 staff bureau of information technology, 1 academic and student administration staff and 1 staff majoring. Selection of respondents is determined by using purposive sampling method, where the selected sample is the people who understand academic information system lecturer Bina Sarana Informatika (BSI) Jakarta. The details of respondent data can be seen in the following table:

Table 4: List of Respondents

No.	Population	Amount
1	Biro Teknologi Informasi (BTI)	3
2	Biro Administrasi Akademik dan Kemahasiswaan (BAAK)	1
3	Jurusan	1
<b>Total</b>		<b>5</b>

Source: Authors own findings

Of all the shared questionnaires, receive completely and no questionnaires are not returned.

B. Maturity Level Analysis

This is done to measure the level of maturity (level of IT governance) on the existing IT processes that exist in Bina Sarana Informatiksk (BSI). IT processes that will be assessed are IT processes that

are in the domain of Delivery & Support (DS) and Monitoring and Evaluate (M).

The IT processes covered by the Delivery and Support domain include the following:

- DS1 - Define and manage service levels
- DS2 - Manage Third-party services
- DS3 - Manage performance and capacity
- DS4 - Ensure continues service
- DS5 - Ensure systems security
- DS6 - Identify and allocate costs
- DS7 - Educate and train users
- DS8 - Assist and advice customers
- DS9 - Manage the configuration
- DS10 - Manage problems and incidents
- DS11 - Manage data
- DS12 - Manage facilities
- DS13 - Manage operations

While the IT processes covered in the Monitoring domain are as follows:

- ME1 - Monitor and evaluate IT performance
- ME2 - Monitor and evaluate internal control
- ME3 - Monitor and evaluate ensure regulatory compliance
- ME4-Monitor and evaluate provide IT Governance

To know the level of maturity of IT governance currently used questionnaire cobit maturity model (Appendix3). The questionnaire is based on the maturity criteria set out in COBIT 4.0 for each process contained in the DS and ME domains. The questionnaire uses the Likert scale with weights for each question set 0 and 1. The question with answer Yes (Y) will be converted to value 1, otherwise for answer No (T) will be converted at value 0.

From the measurement of the maturity level of IT governance is in addition will be known assessment of current conditions can also be known conditions of IT governance is expected. The calculation results of cobit maturity model can be seen in appendix 4 & 5. Recapitulation of the calculation results can be seen in the following table:

C. Recapitulation of Results of Questionnaire of COBIT Maturity Model

Table 5: List of Respondents

Domain	Proses	Jumlah Pertanyaan	Index	Maturity Level
DS1	Define and manage service levels	32	2,819	3
DS2	Manage Third Party Services	31	2,817	3
DS3	Manage performance and Capacity	33	2,721	3
DS4	Ensure continous service	40	2,696	3
DS5	Ensure systems security	49	2,846	3
DS6	Identify and allocate cost	32	4,096	4
DS7	Educate and train user	34	2,536	3
DS8	Assist and advice customer	32	2,810	3
DS9	Manage the configuration	25	2,537	3
DS10	Manage problems and incidents	29	2,882	3
DS11	Manage data	35	2,799	3
DS12	Manage facilities	35	2,742	3
DS13	Manage operations	37	2,479	2
ME1	Monitor and evaluate IT performance	33	2,693	3
ME2	Monitor and evaluate internal control	32	2,553	3
ME3	Monitor and evaluate ensure regulatory compliance	26	2,709	3
ME4	Monitor and evaluate provide IT Governance	44	2,597	3
	<b>Total</b>	<b>579</b>		

Source: Authors own findings

Assessment of the maturity level of each IT process refers to the COBIT maturity model version 4 management guidelines that can be seen in detail in Appendix 4. With the criteria of assessment index as follows:

Table 6: Management Guidelines Cobit

0 – 0.50	Non-Exixtent
0.51 – 1.50	Initial/Ad Hoc
1.51 – 2.50	Repeatable But Invinitive
2.51 – 3.50	Defined Process
3.51 – 4.50	Managed and Measurable
4.51 – 5.00	Optimesed

Source: Authors own findings

## 5. CONCLUSION

From the review of the literature that has been described in previous chapters known that the importance of this research is that we can see the maturity level system of IT governance at Bina Sarana Informatika (BSI), Jakarta by assessing the current maturity through questionnaires and interviews with respondents associated with the management TI, so that we can benefit from this research by analyzing and recognizing the existing gAP, and further determined steps should be taken to overcome these gaps. Respondents who have come from Bina Sarana Informatika, Jl. Dewi Sartika 77 Cawang, East Jakarta, with the number of respondents amounted to 5 people consisting of managers, developers and users of information systems employees and Academic Information System. Sampling method in this research is using purposive sampling technique. Through this technique, the sampling is done based on the purpose of research and certain considerations. As consideration is a selected sample is a sample that understand academic information systems lecturer Bina Sarana Informatika (BSI), Jakarta and the managers, developers and direct users of academic information systems lecturer Bina Sarana Informatika (BSI), Jakarta is. Thus this thesis proposal submitted hoping to be accepted and approved, as well as the implementation of the research can be done according to the schedule that has been planned.

## REFERENCES:

- [1] Guldentops, Eric. "Maturity Measurement- First the purpose then the methods", USA, (2003).
- [2] IT Governance Institute. "Management Guidelines & Audit Guidelines, Control Objectives", COBIT 3<sup>rd</sup> ed. USA:ICASA, (2000).
- [3] IT Governance Institute. "IT Governance implementation guide".(2003).
- [4] IT Governance Institute. *Board Brifieng on IT Governance, 2<sup>nd</sup> Edition*, IT Governance Instiutute.(2003).
- [5] IT Governance Institute. *COBIT 4.0 : Control Objectives, Management Guidelines, Maturity Models*, IT Governance Institute.(2005).
- [6] IT Governance Institute and the Office of Commerce. *Aligning COBIT, ITIL and ISO 17799 for Business Benefit*, IT Governance

- Institute and the Office of Government Commerce.(2005).
- [7] Pederiva, A. The COBIT Maturity Model in a Vendor Evaluation Case, *Information System Control Journal Volume 3, 2003*, Information System Audit and Control Association.(2003).
- [8] Reingold, S. Refining IT Processes Using COBIT, *Information System Control Journal Volume 3, 2003*, Information System Audit and Control Association.(2005).
- [9] Sekaran, Uma. "Research Methods for Business, a skill-building approach", 3th ed., John Wiley & Sons Inc.2000.
- [10] The COBIT Steering Commite and the IT Governance Institute. COBIT (3<sup>rd</sup> Edition) *Implementarion Tools Set*, IT Governance Institute.2000.
- [11] Van Grembergen, W., De Haes, S., Guldentops, E. Structures, Processes and Relational Mechanism for IT Governance, dalam *Strategis for Information Technology Governance*, Van Grembergen, W, Editor Idea Group Inc.2004.
- [12] Weber, Ron. *Information System Control and Audit*. Prentice Hall.1998.