

DESIGN OF IT GOVERNANCE MODEL IN XYZ COLLEGE

Rizqi Sukma Kharisma¹, Anggit Dwi Hartanto²

Informatics Engineering, STMIK AMIKOM Yogyakarta, Indonesia

¹sukma@amikom.ac.id, ²anggit@amikom.ac.id

ABSTRACT

This research aims for measuring maturity level of IT governance in XYZ College along with the maturity level recommendation of IT governance over it. The variable limitation of this research is measuring maturity level of IT governance in XYZ college uses COBIT framework on Acquire and Implement (AI) domain. There are two parts in XYZ College which become research objects; they are Innovation Centre and Academic Administration. By doing this research will be obtained existing condition and maturity level of IT governance in XYZ College, as follows: AI1 Maturity Level4, AI4 Maturity Level 3, AI6 Maturity Level 3, and AI7 Maturity Level 4.

Keywords: IT Governance, COBIT, Maturity Level.

1. INTRODUCTION

IT Governance is the executive's responsibility and board of directors, and consists of leadership, organizational structure and process which ensure that IT Company sustains and expands strategy and organizational goals. (Framework Control Objectives Management Guidelines Maturity Models, 2007 : 5)

XYZ College is a educational institutions which creates qualified human resources. In the process, XYZ College uses IT to manage organizational problem and activities. IT needs in XYZ College is built by a section that named Innovation Center; some of them get national and international awards. Moreover Academic Administration is a section that becomes core business in XYZ College.

However IT governance in XYZ College has not been undefined well and the maturity level has not been measured. Then, it is necessary to be conducted an audit for getting the measure of IT maturity level in XYZ College. It is necessary to know how far the application IT governance in XYZ College is and to evaluate for manufacturing IT governance in the future.

2. THEORETICAL BACKGROUND

On the research which is done by author will be done measuring maturity level of IT

governance in process AI1 Identify Automated Solutions, AI4 Acquire and Maintain Application Software, AI6 Manage changes and AI7 Install and Accredited Solutions and Changes with research object XYZ College on COBIT framework.

Control Objectives For Information And Related Technology (COBIT) is a best practices (framework) for Information Technology (IT) management that is created by ISACA and IT Governance Institute (ITGI) in 1996. It gives data to manager, auditor and IT users with step series which generally accepted, indicator, process and best practice to help in maximizing of benefits that is produced through information technology and it develops IT in accordance with the governance and controlling in a company.

COBIT guidelines allow the company to implement IT management effectively and essentially it can be infected in all organization. Particularly, its component which contains a framework response for needs of managements for IT measuring and controlling with providing tools for assessing IT ability of the company. There are 34 processes which are categorized become four main domains: Planning and Organization, Acquisition and Implementation, Delivery and Support, and Monitoring and Evaluation.

COBIT Framework consist of three control objectives levels, it begins from the lowest level: Activities. Activities are a routine activity which has life-cycle concept. Furthermore, Activities Collection is grouped into IT Processes, and then IT Processes which have same problems are grouped into domains.

Structure of COBIT Framework can be explained in the Figure 1 below.

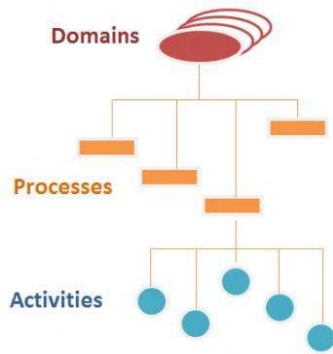


Figure 1. COBIT Framework Structure

COBIT framework identifies 34 IT processes that are grouped into 4 main domains; they're domain Planning-Organization (PO), Planning-Organisation (PO), Acquisition-Implementation (AI), Delivery-Support (DS), and Monitoring-Evaluation (ME).

Every domain has different characteristic. Its role and function is according to cycle structure of the COBIT framework. IT Resources in principle is available in limited amount. For providing information which supports target and business needs, then using IT resources needs to be managed and to be done in according to steps-cycle that be divided into four domains.

In the picture below explains linkages relationship among domains in COBIT Frameworks [5].

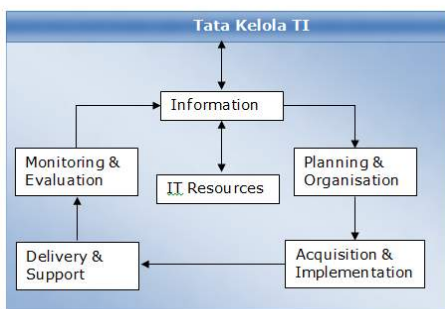


Figure 2. The Relationship among COBIT domain

COBIT has maturity model to control IT process with using Scoring method so that a organization can assess IT process which it has on a scale of 0 to 5. The description from model of maturity level below:

- 0 – Non-existent, is a lowest maturity level, which is a condition where organization feel need the existence of process mechanism of IT governance standard, so that there is no controlling to IT governance which is done by organization.
- 1 – Initial, there have been some several initiatives of planning and monitoring mechanism in number of IT governance which is done, however there is no standard assessment.
- 2 – Repeatable, is a condition where organization has had habit which is patterned to plan and to manage IT governance and it is repeated and reactively, however it has not involved procedure and formal documents.
- 3 – Defined, in this section, organization has had obvious mechanisms and procedures about the procedures and management of IT governance, and they have been communicated and socialized well in management rows.
- 4 – Managed, is condition where management organization has been applied number of measurement indicators of quantitative performance for monitoring the effectiveness of implementation of IT governance management.
- 5 – Optimised, the highest level is given to organization that has been applied the principles IT Governance completely and it is based on best practice. The use of IT to support monitoring, analisys measurement, training and communication.

On the journal, *The COBIT Maturity Model in a Vendor Evaluation Case* that is written by Andrea Pederiva, the calculation of Maturity Level on every statement in COBIT process uses assesment scalar, that be shown in this table 1 below.

Table 1. Value index

Value Index	Statements Compliance Values
Not true at all	0
True enough	0.33
Most of the true	0.66
Ccompletely true	1

The Calculation Formulas of the total value in the COBIT Maturity model are as follow:

$$\begin{aligned} \text{Maturity level compliance value (a)} &= \frac{\text{Sum of statements compliance values}}{\text{Number of Maturity level statements}} \\ \text{Normalized compliance value (b)} &= \frac{\text{Sum of Maturity level compliance value}}{\text{(a)}} \\ \text{Summary Maturity level} &= \text{(b)} * \text{Level of Maturity} \\ \text{Total Maturity Level} &= \text{Sum of Summary Maturity level} \end{aligned}$$

Figure 3. Calculation formula maturity models

3. RESEARCH METHOD

Based on COBIT, this research is done with using some steps which is illustrated in flowchart on Figure 4.

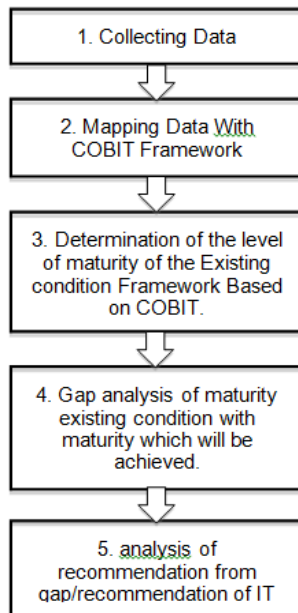


Figure 4. Flowchart of Research Methods

4. RESULT AND DISCUSSION

4.1. Existing Maturity Level Condition

Based on the previous research which was published on Prosiding Information Technology and Multimedia National Seminar, STMIK Amikom Yogyakarta on January 19 2013, ISSN: 2302-3805. An Existing Maturity Level is obtained as follows:

Table 2. Existing Maturity Level

No	Process	Existing Maturity Level	Rounded Existing Maturity Level
1	AI1	2.59	3
2	AI4	2.23	2
3	AI6	1.75	2
4	AI7	3.13	3

4.2. Gap Analysis of the condition of Existing Maturity Level with the maturity that will be achieved

The condition of Existing Maturity Level compared with the target maturity level which is at one level above it.

Table 3. Comparison of Existing Maturity Level and Target Maturity Level

No	Process	Existing Maturity Level	Target Maturity Level
1	AI1	3	4
2	AI4	2	3
3	AI6	2	3
4	AI7	3	4

4.2.1. AI1 Identify Automated Solutions Level 3 Defined

Clear and structured approaches in determining IT solutions exist. The approach to the determination of IT solutions requires the consideration of alternatives evaluated against business or user requirements, technological opportunities, economic feasibility, risk assessments, and other factors. The process for determining IT solutions is applied for some projects based on factors such as the decisions made by the individual staff members involved, the amount of management time committed, and the size and priority of the original business requirement. Structured approaches are used to define requirements and identify IT solutions.

Level 4 Managed and Measurable

An established methodology for identification and assessment of IT solutions exists and is used for most projects. Project documentation is of good quality, and each stage is properly approved. Requirements are well articulated and in accordance with

predefined structures. Solution alternatives are considered, including the analysis of costs and benefits. The methodology is clear, defined, generally understood and measurable. There is a clearly defined interface between IT management and business in the identification and assessment of IT solutions.

4.2.1 AI4 Enable Operation and Use

Level 2 Repeatable But Intuitive

Similar approaches are used to produce procedures and documentation, but they are not based on a structured approach or framework. There is no uniform approach to the development of user and operating procedures. Training materials are produced by individuals or project teams, and quality depends on the individuals involved. Procedures and quality of user support vary from poor to very good, with very little consistency and integration across the organisation. Training programmes for the business and users are provided or facilitated, but there is no overall plan for training rollout or delivery.

Level 3 Defined

There is a clearly defined, accepted and understood framework for user documentation, operations manuals and training materials. Procedures are stored and maintained in a formal library and can be accessed by anyone who needs to know them. Corrections to documentation and procedures are made on a reactive basis. Procedures are available offline and can be accessed and maintained in case of disaster. A process exists that specifies procedure updates and training materials to be an explicit deliverable of a change project. Despite the existence of defined approaches, the actual content varies because there is no control to enforce compliance with standards. Users are informally involved in the process. Automated tools are increasingly used in the generation and distribution of procedures. Business and user training is planned and scheduled.

4.2.2 AI6 Manage Changes

Level 2 Repeatable But Intuitive

There is an informal change management

process in place and most changes follow this approach; however, it is unstructured, rudimentary and prone to error. Configuration documentation accuracy is inconsistent, and only limited planning and impact assessment take place prior to a change.

Level 3 Defined

There is a defined formal change management process in place, including categorisation, prioritisation, emergency procedures, change authorisation and release management, and compliance is emerging. Workarounds take place, and processes are often bypassed. Errors may occur and unauthorised changes occasionally occur. The analysis of the impact of IT changes on business operations is becoming formalised, to support planned rollouts of new applications and technologies

4.2.3 AI7 Install and Accredite Solutions and Changes

Level 3 Defined when

A formal methodology relating to installation, migration, conversion and acceptance is in place. IT installation and accreditation processes are integrated into the system life cycle and automated to some extent. Training, testing and transition to production status and accreditation are likely to vary from the defined process, based on individual decisions. The quality of systems entering production is inconsistent, with new systems often generating a significant level of post-implementation problems.

Level 4 Managed and Measurable

The procedures are formalized and developed to be well organized and practical with defined test environments and accreditation procedures. In practice, all major changes to systems follow this formalized approach. Evaluation of meeting user requirements is standardized and measurable, producing metrics that can be effectively reviewed and analysed by management. The quality of systems entering production is satisfactory to management even with reasonable levels of post-implementation problems. Automation of the process is ad hoc and project-dependent. Management may be satisfied

with the current level of efficiency despite the lack of post-implementation evaluation. The test system adequately reflects the live environment. Stress testing for new systems and regression testing for existing systems are applied for major projects.

4.3. Analysis of Recommendation from Gap/IT Governance Recommendation

4.3.1 Governance recommendation of AI1 Identify Automated Solutions

To improve the maturity of level 3 toward the maturity of level 4 in the IT governance recommendation needs to be done:

- a. Making project documentation standardization and the documentation done with appropriate specified standardization. This prevents errors in the implementation of the project and its development.
- b. Preparation of standard operating procedure (sop) on the implementation of IT in a clear XYZ College, well-defined, easy to understand and structured. This is done to prevent the occurrence of errors in procedure and provide automated solutions of existing problems.

4.3.2 Governance Recommendation of Acquire and Maintain Application Software

To improve the maturity level 2 towards maturity level 3 in the process of AI4, IT governance recommendation needs to be done:

- a. Involving applications user in formal and informal in the manufacturing process, procedures, documentation and manual applications used. Thus. Synchronization occurs between the needs of user applications with the application made by the innovation centre.
- b. Making manual user documentation which can be accessed online as well as offline. So that application users can access the manual user anytime when needed.
- c. There is a standard that defines training material changes that occurred due to project changes. so that changes which is occurred do not interfere application's users and bussiness process that is on-

going.

- d. The manual user stored in the library and can be read by all those who concerned in the application created.

4.3.3 Governance recommendation of AI6 Manage Changes

To improve the maturity level 2 towards the maturity level 3 of AI6 process, the IT governance recommendations have to do are:

- a. Making rules that defines change management process which includes the categorization of changes, priority, emergency procedures, authorization changes, ad compliance to the rule are made.
- b. Making a formal analysis and documented the risks of impacts that occur due to changes in the new technologies.

4.3.4 Governance recommendation of AI7 Install and Accredited Solutions and Changes

To improve the maturity level 3 toward maturity level 4 of AI6 process, the IT governance recommendations have to do are:

- a. There's a formal meeting to evaluate the application users and innovation center, to make a measurement tool of any application made, so that management can do a review and effective analysis.
- b. There is formal training who conducted innovation center to application's users on the changes occur.

4. CONCLUSION

By using the COBIT framework we can determine the condition of IT governance maturity level at the college of XYZ and determine IT target maturity level on it and create a good IT governance model and in line with the business objectives of XYZ College.

5. REFERENCES

- (a) -. 2000. *Control Objectives, COBIT 3 rd Edition*. IT Governance Institute.
- (b) -. 2003. *IT Governance Implementation Guide: "How do I use COBIT to*

implement IT governance?" IT Governance Institute.

- (c) -. 2007. *Panduan Umum Tata Kelola Teknologi Informasi dan Komunikasi Nasional*. Kementrian Komunikasi Dan Informatika.
- (d) Pederiva Andrea. 2007. *The COBIT Maturity Model in a Vendor Evaluation Case*. Illinois : Information Systems Audit and Control Association
- (e) Rolling Meadows. 2007. *Framework Control Objectives Management Guidelines Maturity Models*. IT Governance Institute.

AUTHOR BIOGRAPHIES

Rizqi Sukma Kharisma is a lecturer in Department of Informatics Engineering, STMIK AMIKOM Yogyakarta. He received his Master of Informatics Engineering from STMIK AMIKOM Yogyakarta in 2012. His research interests are in the area of networking multimedia. His email address is <sukma@amikom.ac.id>

Anggit Dwi Hartanto is a lecturer in Department of Informatics Engineering, STMIK AMIKOM Yogyakarta. He received his Master of Informatics Engineering from STMIK AMIKOM Yogyakarta in 2011. His research interests are in the area of database programming. His email address is <anggit@amikom.ac.id>