GUG COBIT DJOKO

by Rita Ambarwati

AUDIT CONFORMITY FOR HIGHER EDUCATION USING GOOD UNIVERSITY GOVERNANCE (GUG) PRINCIPLE

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Abstract: The objective of this study is to obtain IT process that related to the GUG principles (accountability, transparency, nonprofit, quality assurance and effectiveness & efficiency) and expected level for each GUG principles. This paper is a theoretical exploration based on a literature review, expert judgement that has experience with COBIT 5 and also lecturer in higher education. This research focusing on finding the IT Process in COBIT 5 that has relation with the GUG Principles and the expected level for each GUG Principles. The limit in here is only focusing on GUG Principle based on Law in Indonesia (Law no. 12 year 2012) because case study for this research was one of polytechnic in Indonesia. With this research there would be model for audit in higher education with GUG principles that based on law in Indonesia (Law no. 12 year 2012). Until now there is no research that has a list of IT process in COBIT 5 that related to the GUG principles and the expected level for each GUG principles. The application of GUG is important because of the need for conformity with government regulations and preparing models for future research about audit based on GUG Principles.

1 INTRODUCTION

Business strategies are policies and guidelines that define how a company competes in an industry (Craig & Grant, 1993). The most frequent problem in organizations is the inappropriateness of IT implementation with organizational goals (Johnson, Kavanagh, & Mattson, 2003). With such incompatibilities, the IT that should provide benefits, didn't give any benefit, it can even be a burden to the organization (such as: expenses and maintenance costs of IT). Therefore every organization needs a good IT governance. With the existence of good governance, then IT will be able to provide maximum benefits and also in accordance with organizational goa

Good University Governance (GUG) is a derivative concept of Good Governance that focuses on higher education (university) governance. The university as the organizer of higher education and as the center of science and technology development is expected to increase its role in promoting and accelerating national development. Today almost all organizations use IT to support their business processes, as well as higher education. The two main IT Governance issues are: how IT can deliver sufficient value to the business and how existing and emerging risks of IT existence can be managed (Manual, 2010). This is the underlying need for governance in college.

For universities, IT is an important aspect for supporting higher education in educational, research, administrative, and community service processes (Yanosky & Caruso, 2008). Based on this, the Government in Indonesia has a law that regulates high education, namely Law No. 12 of year 2012 (Indonesia, 2012). This law regulate policies for public or private universities. The governance in higher education is different from the corporation, this is because the core values in terms of academic and social, both of these values value must be preserved in higher education (Nugroho & Surendro, 2005).

The objective of this study is to obtain IT process that related to the GUG principles (accountability, transparency, nonprofit, effectiveness & efficiency, and quality assurance) and to determine the expected condition that needed based on the GUG principles.

2 LITERATURE REVIEW

2.1 Good University Governance (GUG)

One of the most important elements to be the focus of higher education reform in the world is university governance, or often called Good University Governance (GUG) for its best practices. The first understanding of GUG is found by Clark (1983) which emphasizes how to define goals, implement them, manage institutions, and monitor achievement universities and higher education systems. The broader and often used definition of university governance begins with an interesting attraction between the three main elements of governance: the state, the business community, and civil society (Ben-David & Clark, 1984). In Indonesia the basic concept of GUG is arranged in law No. 12 year 2012. From this law there is 5 principle that is accountability, transparency, nonprofit, effectiveness & efficiency, and quality assurance (Indonesia, 2012).

2.2 Control Objective for Information & Related Technology (COBIT 5)

COBIT 5 is a framework created with 5 principles as the basis discussed with the details and a very broad view of the start part of governance (governance) to the management (management) to manage Information Technology (IT) organization / institution. COBIT 5 can help organizations to achieve business goals in governance and IT management. It can help the organization to create an optimum profit of IT. Organizations get this optimum profit by keeping up an harmony in the middle of understanding benefits, an minimizing risk levels and utilizing existing assets. COBIT 5 made IT to organized and holistically managed by the entire company, using full end-to-end business, is responsible for IT functional areas, and takes into account the relevant IT interests both internal and external stakeholders. COBIT 5 is generic and useful for organizations of all sizes whether for commercial, non-profit business or the public sector (ISACA, 2012b).

3 METHODS

The flow diagram of this research is show at Figure 1. For more details, here is an explanation of each section:

3.1 Research Methodology

Research methodology is done by searching knowledge about Good University Governance (GUG), COBIT 5 which is used as tools in this research. Learn how to mapping using COBIT 5 and find the right reasons to use the COBIT 5 framework as a system performance assessment tool. Then associate COBIT 5 with Good university governance based on Law No. 12 of year 2012. From here researchers begin to do a literature review about COBIT that has mapping about the principle in GUG.

3.2 Data Processing & Analysis

Here the process is divided by 2, first was Mapping GUG Principle with COBIT 5. The mapping start from the results of the literature review, then each GUG principle get the IT process that have a relationship with principle. The second one was Analysis of Expected Conditions (To-Be) In accordance with GUG Principles. The second one here is to determine the level of each GUG principle which is adjusted to the level present in COBIT 5. To determine the proses in here researcher using an expert views that has some experience with the COBIT 5.

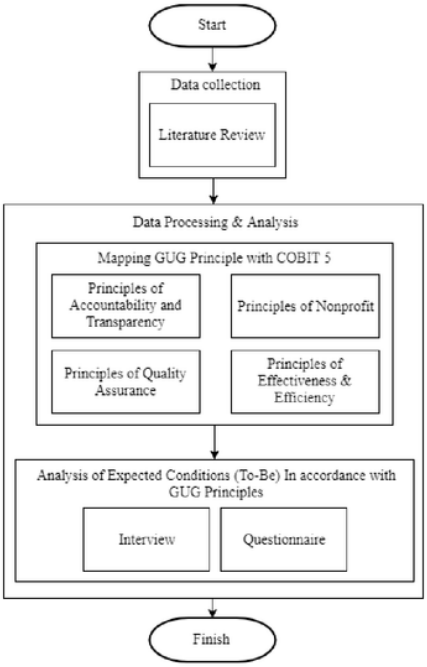

Figure 1: Flow Diagram of Research

4 RESULTS AND DISCUSSION

The result in here is divided by 2, that is the result of Mapping GUG principle and the result of Expected Conditions (To-Be) In accordance with GUG Principles. The first one would be the result of IT Process that need assessment to know the level of the GUG Principles. The second one was the expected level of each GUG Principles that need to be achieved.

4.1 Mapping GUG Principle with COBIT 5

Mapping here is a process to find out the implementation form of Good University Governance (GUG) principles with higher education IT management. The process of mapping is done by searching for a journal or research that has been done before that have the same or close understanding of each principle that exists, this is because the literature for mapping each principle of GUG on COBIT 5 does not exist. So on the mapping here the researchers used 4 studies as a basis. For the principle of accountability and transparency will use GCG research made by Dharmawan (Dharmawan et. al, 2016). Then for the nonprofit principle uses Grembergen research (Grembergen, Haes, & Brempt, 2007). Then the principle of quality assurance uses research from Huang (Huang, Shen, Yen, & Chou, 2011). Finally the principle of effectiveness and efficiency uses Bartens's research (Bartens, Haes, Schulte, & Voss, 2015). Here are the results of each studies.

4.1.1 Principles of Accountability & Transparency

For the principle of accountability and transparency, researcher using the mapping of research conducted Dharmawan (Dharmawan et. al, 2016). For the understanding of each principle is almost the same as understanding the principle of GUG based on Law no. 12 of 2012. Here is the understanding of each of these principles.

- Accountability

The organization must have the ability to account for its performance in a transparent and sensible way. For that the company must be managed properly, measurable and in accordance with the interests of the company by still taking into account the interests of shareholders and other stakeholders. Accountability is a fundamental prerequisite for achieving reasonable performance (Dharmawan et. al, 2016).

- Transparency

To maintain objectivity in running a business, an organization must furnish material and relevant information in a way that is easily accessible and understood by stakeholders. The organization must take the initiative to disclose not only the issues required by legislation, but also important for decision-making by shareholders, creditors and other stakeholders (Dharmawan et. al, 2016).

To conduct the principle mapping with COBIT 5 in this study conducted a discussion with one of the experts who is also a lecturer at the Institute of Technology Sepuluh Nopember Surabaya (ITS), namely Dr. Eng. Febriliyan Samopa, Skom., Mkom. The intermediate mapping process is carried out using a sample metric as the basis for mapping.

The next stage is to mapping the principles with existing IT processes based on COBIT 5. This process is the last stage of the whole series of principle mapping process and COBIT 5. The principle mapping activity with the IT Process on COBIT 5 uses the results of the mapping of principles with the Enterprise Goal as the basis of reference. Results from mapping with Enterprise Goal to IT processes are shown in Table 1 (at the appendix).

4.1.2 Principles of Nonprofit

For this nonprofit principle uses a mapping of research conducted by Grembergen (Grembergen et al., 2007). For the purpose of this study is the same as the non-profit GUG principle in Law no. 12 in 2012. Here is the purpose of the study.

- Grembergen research

How to spend less time developing technology and spending more time developing a sense of community work where information technology is intended and used (Grembergen et al., 2007).

This research explain about result of IT process taken using 3 stage questionnaire to 38 expert. In these 3 stages the expert's answer decreases with the following explanation, 38 complete answers in the first stage, then 30 answers in the second stage and 22 in the third stage [6]. The result in Grembergen research was IT Process from COBIT 4.1 so researchers in here then make adjustment with COBIT 5 used as reference framework in this research, for the adjustment here is using COBIT 5: Process Reference Guide (ISACA, 2012a). The list of IT processes taken is shown in Table 2.

Table 2: IT Process For Non-Profit

GUG principle	Selected IT Process COBIT 5	
Non-Profit	EDM02	*Ensure Benefits Delivery*
	APO01	*Manage the IT Management Framework*
	APO02	*Manage Strategy*
	APO05	*Manage Portfolio*
	APO06	*Manage Budget and Costs*
	APO07	*Manage Human Resources*
	APO11	*Manage Quality*
	BAI01	*Manage Programmes and Projects*
	BAI04	*Manage Availability and Capacity*
	BAI05	*Manage Organisational Change Enablement*
	BAI06	*Manage Changes*
	BAI08	*Manage Knowledge*
	BAI09	*Manage Assets*
	DSS01	*Manage Operations*
	DSS03	*Manage Problems*
	DSS04	*Manage Continuity*
	MEA01	*Monitor, Evaluate and Assess Performance and Conformance*

4.1.3 Principles of Quality Assurance

For quality assurance principle is use mapping from research conducted by Huang (Huang et al., 2011). For the purpose of this study is almost the same as the principle of quality assurance GUG based on Law no. 12 in 2012. Here is the purpose of the Huang's research.

- Huang's research objectives

Structural assurance ensures that web business can be conducted in a secure and comfortable environment designed to protect consumers from financial loss or privacy gains by building protective structures and technologies (Huang et al., 2011).

For mapping with COBIT 5 in Huang's research was using questionnaires answered by 8 experts who have experience on COBIT. All control objectives are assessed using a Likert scale made with 3 choices of answers, that is value 1 is very important, value 2 is important but there is no linkage and 3 is not important (Huang et al., 2011). The result in Huang's research was IT Process from COBIT 4.1 so researchers in here then make adjustment with COBIT 5 used as reference framework in this research, for the adjustment here is using COBIT 5: Process Reference Guide (ISACA, 2012a). The list of IT processes taken is shown in Table 3.

Table 3: IT Process For Quality Assurance

GUG principle	Selected IT Process COBIT 5	
Quality Assurance	EDM 01	Ensure Governance Framework Setting and Maintenance
	EDM 02	Ensure Benefits Delivery
	EDM 03	Ensure Risk Optimisation
	EDM 04	Ensure Resource Optimisation
	APO 01	Manage the IT Management Framework
	APO 02	Manage Strategy
	APO 05	Manage Portfolio
	APO 10	Manage Suppliers
	APO 11	Manage Quality
	APO 12	Manage Risk
	APO 13	Manage Security
	BAI 03	Manage Solutions Identification and Build
	BAI 06	Manage Changes
	DSS 01	Manage Operations
	DSS 02	Manage Service Requests and Incidents
	DSS 03	Manage Problems
	DSS 04	Manage Continuity
	DSS 05	Manage Security Services
	MEA 01	Monitor, Evaluate and Assess Performance and Conformance
	MEA 02	Monitor, Evaluate and Assess the System of Internal Control
	MEA 03	Monitor, Evaluate and Assess Compliance With External Requirements

4.1.4 Principles of Effectiveness & Efficiency

For principle of effectiveness & efficiency here was use the mapping of the research conducted by Bartens (Bartens et al., 2015). For understanding the effectiveness of this research is almost equal to the principle of effectiveness & efficiency GUG based on Law no. 12 of 2012. Here is the understanding of the study.

- Bartens research objectives (2015)

The effectiveness of the COBIT process 5 is defined as the extent to which the process contributes to the realization of IT-related business objectives and targets relative to different forms (Bartens et al., 2015).

For the mapping with COBIT 5 in Bartens research was using questionnaires answered by experts which is an the Information Technology Alignment and Governance (ITAG) Research Institute member that arrangement at group LikedIn namely "ISACA Belgium. There are 15 experts who are willing to follow this research process. Then from here the remaining 9 experts who follow the process from beginning to end. Then from the results of the questionnaire is then made a list of the most effective

IT process (Bartens et al., 2015). The list of IT processes taken is shown in Table 4.

Table 4: IT Process For Quality Assurance

GUG principle	Selected IT Process COBIT 5	
Effectiveness & Efficiency	APO02	Manage Strategy
	BAI02	Manage Requirements Definition
	BAI01	Manage Programmes and Projects
	APO05	Manage Portfolio
	BAI05	Manage Organisational Change Enablement
	EDM02	Ensure Benefits Delivery
	EDM01	Ensure Governance Framework Setting and Maintenance
	MEA01	Monitor, Evaluate and Assess Performance and Conformance
	EDM03	Ensure Risk Optimisation
	BAI03	Manage Solutions Identification and Build

4.2 Analysis of Expected Conditions (To-Be) In accordance with GUG Principles

The level of capability that is desired to be achieved in the future (to-be) in this research is determined from the review documents of Law No. 12 of 2012 which is basis of the concept of GUG. The law is the highest law in Indonesia and is used for the basis of issuing PP (Government Regulation) or PERMEN (Ministerial Regulation). To determine the level of capability expected in the future here used the similarity method, which is looking for similar understanding of each level of capability level in COBIT 5 with explanation and target of each principle that existed in Law No. 12 of 2012 that used by expert views. From the result of the deepening it was found that each GUG principle has a different level of capability. To determine the expected level, researcher conduct interview and discussion with the expert. From the results from interview and discussion with expert, each GUG principle has a different level of capability.

4.2.1 Accountability

In Law No. 12 of 2012 paragraph 2 of article 78 stated that "Accountability of Higher Education as intended in paragraph (1) must be realized with the fulfillment of National Standard of Higher Education". This corresponds to level 3 on COBIT 5 which is "at this level the organization already has processes that are standardized within the organization". This is in accordance with the National Standards of Higher Education which are used as the standard of organization.

4.2.2 Transparency

In Law No. 12 of 2012 letter b paragraph 2 of Article 56, it states that "Government, to make arrangements, planning, supervision, monitoring and evaluation as well as coaching and coordinating the Study Program and Higher Education". This is related to transparency because the notion of transparency based on Law No. 12 of 2012 is information disclosure. In this section according to level 2 on COBIT 5 that is "At this stage the company manages the implementation of well-managed process including planning process, evaluation, and adjustment to the better direction". This is because of the management and evaluation of the government for universities in Indonesia.

4.2.3 Non-Profit

In Law No. 12 of 2012 paragraph 4 of Article 73 states that "Higher Education keeps the Equalization between the greatest number about understudies on each study system and the limit capacity for infrastructure, Lecturers and educational staff, as well as services and other educational resources". This is related to nonprofit because the not-for-profit understanding based on Law No. 12 of 2012 is not focusing on profit-seeking but on capacity building. In this section corresponds to level 4 on COBIT 5 that is "At the company level has been running the IT process within the definite limits, that was defining the limit to achieve the results of the process". This is because for the balance of the number and capacity of infrastructure and educational resources should have measurements to know the boundaries in order to achieve balance.

4.2.4 Quality assurance

In Law No. 12 of 2012 paragraph 1 article 51 states that "Quality assurance in Higher Education is a systemic activity to enhance the quality of Higher Education in a planned and reasonable way". This is in accordance with level 4 on COBIT 5 which is "At the company level has been running the IT process within the definite limits, that was defining the limit to achieve the results of the process". This process was level 4 because in its explanation quality assurance is a systemic activity for continuous and sustainable quality improvement which means there

is planning and measurement to know what the future will be like.

4.2.5 Effectiveness & Efficiency

In Law No. 12 of 2012 letter j, article 6 states that "Empowerment of all components of the Society through participation in the implementation and quality control of Higher Education services". This is related to effectiveness & efficiency because the effectiveness & efficiency understanding based on Law No. 12 of 2012 is utilizing resources in the implementation of Higher Education to be on target and does not occur waste. This section corresponds to level 4 of COBIT 5: " At the company level has been running the IT process within the definite limits, that was defining the limit to achieve the results of the process". This is because community participation means there is feedback from the community that would be measured the process to know Which process that has been optimized.

5 CONCLUSIONS

The Results here would be the list of IT Process that need assessment and the expected level of GUG based on the law No. 12 Year 2012 made by Indonesia government. The result would be applied to polytechnics that used as a case study. If from the result the implementation level is still small and has a gap between assessment and the expected level then it needs an improvement or addition to improve the level of implementation of GUG.

In this research, there are still some shortcomings of research that has conducted. one of it is the need to do gap analysis to find out the recommendations of each existing IT process based on COBIT framework 5. With the gap analysis, the researcher can make some recommendations to improve the existing IT processes in higher education. If the level of capability of the IT process increases then this will also improve the level of GUG implementation.

From this research also found there is research gap from some research which have been done by other researcher before. the gap is there is no methods to give priority to the overall recommendations given, so for the implementation of the recommendations are still unknown priority level. If there is no priority level then this will complicate the organization that will run the recommendations, because it is not possible to run all recommendation at the same time.

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APPENDIX

Table 1: IT Process For Accountability & Transparency

GUG principle	Selected IT Process COBIT 5	
Accountability & Transparency	EDM 1	Ensure Governance Framework setting and
	EDM 2	Ensure Benefits Delivery
	EDM 3	Ensure Risk Optimisation
	EDM 4	Ensure Resource Optimisation
	EDM 5	Ensure Stakeholder Transparency
	APO 1	Manage the IT Management Framework
	APO 2	Manage Strategy
	APO 3	Manage Enterprise Architecture
	APO 4	Manage Innovation
	APO 5	Manage Portofolio
	APO 6	Manage Budget and Costs
	APO 7	Manage Human Resources
	APO 8	Manage Relationships
	APO 9	Manage Service Agreements
	APO 10	Manage Suplliers
	APO 11	Manage Quality
	APO 12	Manage Risk
	APO 13	Manage Security
	BAI 1	Manage Programmes and Projects
	BAI 2	Manage Requirements Define
	BAI 3	Manage Solutions Identification and Build
	BAI 4	Manage Availability and Capacity
	BAI 5	Manage Organisational Change Enablement
	BAI 6	Manage Changes
	BAI 7	Manage Change Acceptance & Transitioning
	BAI 8	Manage Knowledge
	BAI 9	Manage Assets
	BAI 10	Manage Configuration
	DSS 1	Manage Operations
	DSS 2	Manage Service Requests and Incidents
	DSS 3	Manage Problems
	DSS 4	Manage Continuity
	DSS 5	Manage Security Services
	DSS 6	Manage Business Process Controls
	MEA 1	Monitor, Evaluate and Assess Performance and Conformance
	MEA 2	Monitor, Evaluate and Assess the System of Internal Control
	MEA 3	Monitor, Evaluate and Assess Compliance with External Requirements

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