Measurement of the IT Helpdesk Capability Level Using the COBIT 5 Framework

F Muttaqin¹, M Idhom¹, F A Akbar¹, M H P Swari¹, E D Putri¹

¹Informatics Engineering, Faculty of Computer Science, University of Pembangunan Nasional “Veteran” Jawa Timur, Raya Rungkut Madya Gunung Anyar, Surabaya, East Java, Indonesia 60294
E-mail: faisalmuttaqin.if@upnjatim.ac.id

Abstract. Directorate Information System of Airlangga University (Direktorat Sistem Informasi Universitas Airlangga, DSI) is a unit of Airlangga University as an IT service for all stakeholders. DSI using helpdesk as an IT service to manage service request and incident. The aims of capability level measurement is to improve IT helpdesk to reach a target score. This research using COBIT 5 framework began by mapping domains through several stages. Those several stages are: stakeholder needs analysis, enterprise goals identification, IT goals identification and domain process COBIT 5 identification. The result of the mapping domain obtained DSS 02 manage service request and incident. The next stages are measure current condition capability level, determine expected level, determine gap. The results of this research using DSS 02 domain process showed a level 1 capability level percentage of 97.23% which is a fully achieved rating level and so is rated to level 1 and go to the next level assessment. Level 2 PA 2.1 capability level percentage of 80% which is a largely achieved rating level and PA 2.2 capability level percentage of 60% which is a largely achieved rating level. So, current capability level rated to level 2. The expected level is at level 3. Hence to achieve a level 3 an improvement is required by applying base practices and fulfilment work products of level 2 and 3.

Keywords. Capability Level, COBIT 5, DSS 02

1. Introduction
The function of directorate in Airlangga University is to support element whose function is to assist the chancellor in carrying out management and administration in accordance with their duties and functions. The Directorate which assists in information technology is Directorate of Information System which is help supporting element as IT services to help launch the business process of Airlangga University which is in duty of planning, developing, fostering, managing, providing information systems and technology within Airlangga University and have a functions of managing network systems, implementation of informatics branding, implementation of data security systems and implementation of system integration and development [1]. The role of information technology (IT) in an organization or education sector is very important because it can provide benefits related to the achievement of business processes [2]. Good governance planning will help the organization or company in achieving its objectives. With good governance control, the organization or company will more easily coordinate existing information technology and provide benefits to the organization or company [3]. According to research conducted by [4] the basis of efficient and effective information technology governance is to align the use of Information Technology and organization's business goals.

In the field of information technology, the most important issue today is related to information technology governance, and has been the subject of discussion in most organizations and companies [5]. There are several framework models that can help IT governance in an organization become better, such
as Cobit, ITIL and ISO 17799. Of the three frameworks, Cobit is one of the most comprehensive in providing an overview of information technology management [6]. In Cobit 5 there are a number of processes governance and management of IT activities that are easily understood by IT operations and business managers. The existing process model is quite complete and comprehensive [7]. Based on interview, helpdesk of Directorate of Information System Airlangga University annually has a score target for their performance. At 2018 score target is a 3.5 from scale 4 but they only got 3.4 [8].

This score performance is form users by using feedback’s form on the helpdesk’s application to give a score about their satisfaction. Hence to reach target score DSI need to make an improvement. This research goals to support IT process optimization of IT Helpdesk Airlangga University using COBIT 5 framework for IT governance which can help to give a directives and controls the organization in achieving its goals. IT helpdesk need to be measured using capability level in cobit 5. The aims of capability level measurement is to improve IT helpdesk to reach a target score.

2. Literature Review

According to [9] to produce good information technology governance there are several approaches, namely, the first to observe the basic requirements of IT governance in considering the main methods available. Then the second step is to design an approach that integrates requirements and combines available management principles. The third step is to make a typical illustration that aims to illustrate the approach process. The three steps of the approach can later be used as a tool to assess IT governance within a company or organization that aims to provide a better development direction. Based on research conducted by [10] an organization that pays little attention to IT governance will experience a lack of good corporate governance, resulting in the organization having difficulty connecting its IT benefits with organizational goals.

According to [11] measurement of information technology is needed in almost every scope that aims to identify how optimal IT governance exists in an organization or educational institution.

2.1. Information Technology Governance (IT Governance)

IT Governance is a process or activity to determine decisions and accountability frameworks that encourage organizations to use Information Technology [12]. Meanwhile, the IT Governance Institute explains that IT governance is the responsibility of the leadership and executive management which is an integral part of organizational governance which consists of the role of the leader and organizational structure, which can ensure that the application of Information Technology support can be aligned with the objectives and organizational strategy [13]. In an organization the application of IT governance needs to be controlled properly because it requires a fairly expensive investment, but it also can pose a risk of failure of IT in the organization's services if not controlled properly [14].

2.2. COBIT 5

Cobit 5 is a framework developed by the IT Governance Institute and published by ISACA in 2012. Cobit 5 provides a framework that can help an organization, agency or company to align IT with business [15]. In Cobit 5 there are five main principles including the first is stakeholder meeting needs, the second is covering the enterprise end-to-end, the third is applying a single integrated framework, the fourth is enabling a holistic approach, and the fifth is separating governance from management [16].

2.3. Capability Level Measurement

In Figure 1 we can see that it consists of 2 dimensions of the model, the first being the process dimension and the second is the capability dimension. In the process dimension, all processes are classified according to the process category. While on the capability dimension, a collection of process attributes are grouped into capability levels [17].
2.4. Rating Scale
The ISO / IEC 15504 standard has a rating scale related to the rating for each attribute to be assessed, for the explanation which is as follows [18].

2.4.1. N (Not reached) with achievements of 0 to 15%
There is little or no evidence of the achievement of the attributes defined in the assessment process.

2.4.2. P (Partially achieved) with achievements > 15% to 50%
There is some evidence of the approach and achievement of the attributes specified in the assessment process, and there are aspects of the achievement of attributes that cannot be predicted.

2.4.3. L (Largely achieved) with achievements > 50% to 85%
There is evidence of a systematic approach and significant achievements of the attributes defined in the assessment process, but there are also some weaknesses related to the attributes being assessed.

2.4.4. F (Fully achieved) with achievements > 85% to 100%
There is evidence of a complete and systematic approach to the attributes specified in the assessment process, and there are no significant weaknesses related to the attribute being assessed.

In determining the capability level of a process can be determined by looking at the achievement of the evaluation of each attribute that is valued, if the assessment is in accordance with a predetermined value then these attributes will continue to rise to the highest level, namely Fully achieved.

3. Research Methodology
The following are the stages of research carried out at DSI Airlangga University

3.1. Determine Case Study
IT Helpdesk Directorate of Information System Airlangga University is the object of research because there is a problems that have been explained in the introduction.

3.2. Study Literature COBIT 5
At this stage of the study of literature the researcher will gather several supporting documents such as from journals, books, internet and other references that can help solve the problems we examine.

3.3. Analysis Stakeholder Needs
Analyzing stakeholder needs is the first step in the goal cascade [19] which explains how to find out more specifically about the needs of stakeholders, carried out by interviewing to those who know the condition of IT governance in the Directorate of Information Systems at Airlangga University.

3.4. Mapping Domain Process
At this stage the researcher will do the problem mapping process that starts from stakeholder needs then continued with enterprise goals, IT related goals and continued with the existing IT Process domain on Cobit 5 [20].

3.5. Current Capability Level Measurement
Level 1 assessment process by ensuring the process has been achieved an outcomes. Level 1 assessment specific for each process. Assessment process for level 1 capabilities for all processes consider to the level rating level to determine its achievement. At level 1 assessment based on base practice (BPs), Work Products (WPs), and activity on the domain that has been selected, at level 1 the domain must achieved percentage value of 50% to 85% to be able to categorized as level 1 and percentage of 85% to 100% in rating fully achieved to get level 1 and can go up to the next level. The assessment process for level 2 to level 5 is in the same way because the assessment process is generic with the criteria for each process. At level 2 to 5 the capability level questionnaire based on generic practices (GPs) and generic work products (GWPs). To go up level, it must reach fully achieved, with a percentage value of 85% up to 100%, but if it only reaches 50 up to 85% then stop at that level.

3.6. Determine Expected Capability Level
Based on the self assessment process, determine expected capability level is a step to do by interview to IT management manager who aims to specify the condition of information technology governance expected based on cobit 5.

3.7. Determine Gap
Gap is the result of the difference in achievement of the capability level current condition (as is) and the capability level of the expected condition (to be). Value gap (gap) is used to provide conditions to make an improvement IT governance with current conditions.

3.8. Summarize Research Result
The research results obtained after self assessment process determine a condition of IT governance at Directorate of Information System Airlangga University when measured by COBIT 5. Self assessment process which is an assessment based on process attribute (PA) with base practices (BPs), work products (WPs), activities, generic practices (GPs), generic work products (GWPs).

4. Result and Discussion
Based on the problems and the results of interviews with DSI Unair and mapping from the enterprise goals, IT Related Goal, the Domain Process used in this study is DSS 02 (Manage Service Requests and Incidents). After the process domain is obtained, the next step is to conduct a questionnaire to the head of informatic branding responsible for IT Helpdesk and the results can be seen in table 1 where the results have reached level 1.

Table 1. Questionnaires Recapitulation DSS 02 level 1

| DSS 02   | “Yes” Result | Total question | %   |
|----------|--------------|----------------|-----|
| Outcomes | 3            | 3              | 100%|
| Base Practices | 22          | 24             | 91.67% |
| Work Products | 14          | 14             | 100% |
| Average |              |                | 97.23% |

Based on the results from table 3 we can see getting a value of 97.23% so that the categorization of level 1 is fully achieved and can be continued to the results of the next interview that is level 2 in table 2 below.

Table 2. Questionnaires Recapitulation DSS 02 level 2

| DSS 02 | Category | “Yes” Result | Total question | % | Average |
|--------|----------|--------------|----------------|---|---------|

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Based on the results from table 4 for recapitulation of level 2 questionnaires, the average value for PA 2.1 is 80% and PA 2.2 is 60%. These results indicate that for the assessment process stops at level 2 because to continue the next level must get a value of 85% to 100%.

### Table 3. Current Level and Expected Level

| No. | Process Domain | Current level | Expected level |
|-----|----------------|---------------|----------------|
| 1.  | DSS 02         | 2             | 3              |

Based on table 3 we can see for the value of the current conditions that are at level 2 and the expected conditions are at level 3. As for the results of the gap analysis, see table 4.

### Table 4. Gap Value

| No. | Process Domain | Current Level | Expected Level | Gap |
|-----|----------------|---------------|----------------|-----|
| 1.  | DSS 02         | 2             | 3              | 1   |

### 5. Conclusion

From the results of research conducted at the Directorate of Information Systems airlangga university for the DSS 02 domain to get a level 2 value which means that the conditions under which the process has been carried out have been implemented regularly well managed from planning, monitoring and adapted to company conditions. at the level 2 value therein is the value of PA 2.1 getting 80% and sub domain PA 2.2 getting a value of 60%. As for the expected level conditions, namely at level 3.

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