Information Technology Governance in Al Kautsar Islamic Elementary School Using COBIT 5 Framework

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Abstract. This study aims to assess the level of maturity of the use of information technology and obtain a gap value which is then analyzed to achieve the expected maturity value. Management of information technology today is very important, not only focused on profit organizations or companies. With good management of information technology, information within an institution can be achieved optimally, so that institutional goals can be achieved in accordance with the established vision and mission. With reference to COBIT 5 Enabling Process on Enterprise Goals and reality in the field after initial research conducted at Al Kautsar Islamic Elementary School, the scope of the framework for developing Information Technology management models focused on operational and staff productivity in the Balanced Scorecard included in the internal section. The focus of this research was chosen because at Al Kautsar Islamic Elementary School the Information Technology process is still in the development stage. From enterprise goals, IT-related goals can be generated, namely 8 applications, information and adequate information technology solutions and 16 competent and highly motivated IT staff. After collecting and processing data, the results of calculations for each process contained in the customer perspective that determine the achievement value of 2 of the targets set, it is expected that the management can meet these targets. Based on the analysis of audit findings using the COBIT 5 framework, for the six IT processes related to previous goals, the operator staff and the system used at Al Kautsar Islamic Elementary School are still largely in the reactive stage. This means that the application of information technology is still based on current needs, without first doing a careful IT governance planning.

1. Introduction
It has become a necessity in an institution to implement Information Technology [1] and of course the institution must prepare everything in the application of information technology, especially in terms of sizable procurement costs and the risk of failure [2] from applying the technology. But on the other hand the use of information technology brings considerable benefits for an institution [3] namely to seize opportunities in increasing business productivity [2] which is currently running. The application of information technology certainly provides benefits [4] in the context of the development process and business competition. Nowadays the development of big data is very rapid, where academics and practitioners have considered strategies to combine
technology for business competition. The management of information technology today is not only within the scope of companies or organizations [5]. With a mature information technology management process, the information in a company can be used optimally [1] so that company goals can be achieved in accordance with the established vision and mission. Therefore IT governance can be applied and developed in educational institutions.

Al Kautsar Islamic Elementary School is an educational institution that has the task of educating the nation's children from the world and the hereafter. The main activity of an Educational Institution is in accordance with its function, namely as an education provider providing academic services. The academic service process needs to be supported by the use of information technology that can support the speed, convenience and comfort in academic services, so that the quality of academic services can be provided to students. Al Kautsar Islamic Elementary School organizes education using information technology to: 1) support information technology-based learning, which provides education based on information technology and computer based competencies. 2) support the Institute’s business processes, namely the use of information technology as a facilities and infrastructure to provide services to students, teachers and all staff and to assist the implementation of activities in all work units such as the administration, new admissions, and procurement.

Information technology has not been maximally applied in the learning process, such as the use of computer labs for computer learning practicums, there are still many computers that cannot function properly, there are still PC defects that are not handled quickly so students are not maximized in the learning process using computer applications. Likewise, the maintenance of information technology equipment in the administration and financial department has not been done periodically. Supporting facilities such as internet networks, school website management, and maintenance of other information technology equipment.

In the process of managing information technology at Al Kautsar Islamic Elementary School, a framework model is needed [2]. Information technology management [6] which can be used as a reference, in accordance with the strategies and objectives of the institution and can be used to overcome problems that occur in institutions such as COBIT [1] and ITIL. Control Objectives of Information and related Technology (COBIT) is an IT framework published by the Information System Audit and Control Association (ISACA) [7]. COBIT 5 is the latest version of the previous COBIT published by ISACA. COBIT 5 provides principles, practices, analytical tools, and models that are globally acceptable and are designed to help maximize the trust of business and IT leaders about the value of information and corporate technology assets [8].

Referring to COBIT 5 Enabling Process on Enterprise Goals and reality in the field after initial research conducted at Al Kautsar Islamic Elementary School, the scope of the Information Technology management model development framework focused on operational and staff productivity which included in the Balanced Scorecard included in the internal section. The focus of this research was chosen because at Al Kautsar Islamic Elementary School the Information Technology process is still in the development stage.

With the support of the Al Kautsar Islamic Elementary School Foundation and based on the COBIT 5 framework reference which is able to be an appropriate IT evaluation method to find out whether Al Kautsar Islamic Elementary School has been managing IT well and COBIT 5 is able to help Al Kautsar Islamic Elementary School in managing IT governance in accordance with policy standards in carrying out effective and efficient business processes, especially in the operations and capabilities of its IT staff, an analysis and assessment of the maturity of IT management at the Al Kautsar Islamic Elementary School was conducted using the COBIT 5 framework. The COBIT framework describes several IT controls and security processes that an organization can use to improve an organization’s business objectives and improve internal control. The focus of the COBIT control framework is on IT management and
control. In the COBIT 5 framework, there are 5 high level control objectives that are divided into 5 domains, 1 domain is in the "governance" area (Evaluate, Direct, Monitor) EDM and 4 domains in the "management" area are: (Align, Plan, Organize) APO, (Build, Support) DSS, (Monitor, Evaluate, Assess) MEA. In each domain there are specific processes that must be carried out by the organization to achieve specific IT control objectives.

![COBIT 5 IT process diagram](image)

**Figure 1.** The IT process in COBIT 5

### 2. Methods

In this study the type of data used is qualitative data in the form of primary data. The objects used as primary data are those related to IT management at Al Kautsar Islamic Elementary School. While the data collection methods used are questionnaires. The questionnaire was filled in through interviews with stakeholders to reduce misunderstanding of the contents of the questionnaire.

**2.1. Audit Methodology**

This research uses descriptive method by giving a description of the real situation and using a qualitative approach. The analysis tools used in this study are COBIT 5 standard procedures published by ISACA with audit lists according to scope, namely APO04 (Manage Innovation), BAI05 (Manage Organizational Change Enablement), BAI07 (Manage Change Acceptance and Transitioning), EDM04 (Manage Change Acceptance and Transitioning) Ensure Resource Optimization), APO01 (Manage the IT Management Framework), APO07 (Manage Human Resources). The stages of the audit conducted by researchers are:

(i) Observe directly the organizations in SD Islam Al Kautsar and IT governance which are the target of research.

(ii) Conducting interviews with 2 representatives of school management and 1 IT management staff about managing information technology in Al Kautsar Islamic Elementary School.

(iii) Make a questionnaire that contains a list of questions about the process of control objectives in each domain area and then the questionnaire is given to 3 IT Management staff, 2 administrative sections, 2 teacher representatives who can determine policies and implementation in the work area.

(iv) Make a maturity model (Assessment Scoring) tabulation based on the results of the questionnaire. The results of this tabulation are achievements in the level of ongoing IT management. The results of this assessment use the scoring method.

(v) Provide recommendations for improvements regarding internal controls that should be done.
2.2. **Analysis Method**

(i) Process Oriented. The COBIT framework provides a process reference model for observing and managing all IT activities, as well as a framework for measuring and monitoring the performance of IT systems.

(ii) Maturity Model. Maturity Model is used as a tool for benchmarking and evaluating information technology management more efficiently from level 0 (non-existent) to level 5 (optimized).

3. **Results And Discussion**

From the survey results obtained from 7 respondents, then the level of maturity of each IT process contained in the APO, BAI, EDM, DSS, MEA domains was calculated. From the results of the calculation of the next level of maturity are sorted by the highest to lowest maturity values.

From the results of calculating the maturity level of IT Governance the highest value is taken as many as 6 domains.

| Domain | IT Process                                               | Maturity | Target | GAP  |
|--------|----------------------------------------------------------|----------|--------|------|
| EDM04  | Ensure the chosen resources are right                    | 2.9      | 4      | 1.1  |
| BAI05  | Manage Empowerment of Organizational Change              | 2.8      | 4      | 1.2  |
| APO04  | Manage Innovation                                        | 2.7      | 4      | 1.3  |
| BAI07  | Manage Acceptance of Changes and Transition Periods of Change | 2.7      | 4      | 1.3  |
| APO01  | Manage Management Frameworks                            | 2.6      | 4      | 1.4  |
| APO07  | Manage Human Resources                                   | 2.6      | 4      | 1.4  |

**Table 1. Maturity Level Calculation Results**

![Figure 2. Gaps in Each Process](image)

Based on the data in the gap table above there are 6 COBIT 5 processes that have not been in accordance with the target of 4.0. of the six processes, there has not been a single process included in the category. Analysis of 6 domains shows that:

1. EDM05 – Ensure Resources Optimisation
The Ensure Resources Optimization process is at level 2. Monitoring of resources must be routinely carried out so that the performance of resources can be done to the maximum to support the company’s goals effectively with optimal costs. In implementing the IT process, IT resources have not fully implemented it well. There needs to be more in-depth planning by the organization to achieve the company’s strategic goals.

2. APO01 – Manage the IT Management Framework

The Manage the IT Management Framework process is at level 2. This process focuses on managing the vision and mission of the IT department by implementing and maintaining mechanisms and authorities to manage information and use of IT to fit the goals, principles, and policies. Management of information and use of IT must be done maximally, policies in the use of IT resources must be strictly implemented.

3. APO04 – Manage Innovation

The Manage Innovation process is at level 2. This process focuses on maintaining awareness of trends about IT and similar services, identifying innovation opportunities, and planning how to get benefit from innovation in relation to business needs. In IT management there needs to be innovation and careful planning so that it will generate profits to support the company’s business needs.

4. APO07 – Manage Human Resources

The Manage Human Resources process is at level 2. This process focuses on ensuring optimal human resource management, placement, decisions and skills. This includes communicating roles and responsibilities, learning and development plans, and performance expectations supported by competent and motivated staff. Structured IT management is needed, all IT process activities are well communicated, each role and responsibility is focused on one staff, so that the IT process runs in accordance with the company’s strategic objectives.

5. BAI05 – Manage Organizational Change Enablement

The Manage Organizational Change Enablement process is at level 2, where this process focuses on maximizing success in implementing sustainable organizational change quickly and with reduced risk, including complete life cycle changes and all relevant stakeholders in business and IT. IT performance management needs to be improved in terms of changes both in terms of hardware and software.

6. BAI07 – Manage Change Acceptance and Transitioning

The Manage Change Acceptance and Transitioning process is at level 2, where this process focuses on formally accepting and operating new solutions, including implementation and planning, system and data conversion, UAT, communication, preparation for release, entering new business processes or changing business processes and IT services to the production environment, early support, and review after implementation.

4. Conclusion

From the results of the discussion found things that need attention from management, IT operator staff and information technology equipment used in Al Kautsar Islamic Elementary School are mostly still in the reactive stage. The process of implementing IT is still done impromptu in accordance with the needs of the time. So in this study, the authors try to use the COBIT 5 framework to compile and establish an information technology audit model with the aim of providing recommendations or improvements for management in order to improve the process of managing information technology in the future. In this study, researchers only conduct research on the management of hardware, software, and networks, not yet conducting audits for school information systems. Further research will be conducted an audit of the Al Kautsar Islamic Elementary School information system.
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