

Audit Information Technology Based on COSO ERM Framework

(Case Study: Dikpora of XYZ City)

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Abstract—Information Technology utilization as support of the achievement of the goal and objectives of the organization must be balanced with the effectiveness and efficiency of its management. Thus the audit of IT must be done to maintain the security of information systems as the assets of the organization to maintain the integrity of the information stored and processed and of course to improve the effectiveness of the use of information technology and supports the efficiency in the environment of the organization. This research goal to perform the mapping of IT audit stage along with the controls and then applied on an organization, namely Dikpora of XYZ City to view the performance of existing IT. The framework is used as a reference is COSO ERM. The audit event is done by using the phases that exist on the wizard on the COSO ERM which is divided into several components. The results of the evaluation or done analysis of root cause so we can get a recommendation for a better IT management again.

Keywords—Audit; Information Technology; COSO ERM; Instance.

I. INTRODUCTION (HEADING 1)

Fulfilling the needs of information technology for all government agencies, effect to growth of information system so quickly. So also with the growth of the sector ministry of education on Dikpora of Bima City. Information Technology is an absolute need for education services especially regarding the quality of education that can provide ease in the administration of the institution that apply. With the existence of Information Technology and other information system on Dikpora of Bima City, not only the ministry of education units that become better but also all parties related to the education process that is like staff Administration. The role of Information Technology that is significant is of course must be balanced with the right management and settings so that their losses that may occur can be avoided. The intended loss can be in the form of information that is not accurate caused by processing data is one that can affect the decision making that one again. The security of its assets is one of the data is not in the wake of the integrity of the data could not be maintained, these are things that can affect the effectiveness and efficiency in the achievement of the purpose and strategy of the organization.

With regard to the reasons required the existence of a control mechanism for the management of information technology. The problems that often arise on Dikpora of Bima City is the existence of the case of data loss, error in decision-making, leakage data, the misuse of the computer and the value it investigation that high but not balanced with the return the appropriate values. Starting from here then required a control mechanism or audit of Information Systems or Information Technology audit. The Audit/IT policies in the framework of COSO ERM more often called with the term IT Assurance is not only can provide the evaluation of the state of governance in Information Technology in the Education City of Bima but can also provide input that can be used for the improvement of its management in the future will come.

Issues that must be considered is regarding the use of information technology to improve the effectiveness and efficiency of the performance and security of Information Technology in securing the assets as well as data on Dikpora of Bima City. The meaning of this audit is to evaluate the extent of IT management in the Education City of Bima applied, as well as the findings and recommendations for the improvement and development of the IT system that currently exists that can be seen from the COSO ERM as audit framework. Based on the results of which will be obtained, expected can be used as a reference to assess the level of the use of it in the process of solving the problem on Dikpora of Bima City based on COSO ERM standards.

II. LITERATURE REVIEW

A. Dikpora of XYZ City

XYZ City geographically located in the eastern part of the Island of Sumbawa in the position 11841'00"-11848'00" Longitude East and 820'00"-830'00" Bars South. The level of average rainfall 132,58 mm with rainy days: The average 10.08 day/month. While the sun shines heat throughout the season with an average of intensity of the highest flashes on October, with temperature 19.5C to 30,8C. The city of XYZ has a land area: paddy fields area of 1.923 hectares (94,90 persen is paddy field irrigation), the forest area of 13.154 ha, gardens area of 3.632 ha, fields and abundant area of 1.225 ha and coastal areas throughout 26 km. the town of XYZ itself

adjacent to Ambalawi Sub-district on the North, West Side of the Gulf of XYZ. The east border with Wawo Subdistrict, while South of the border with Palibelo sub-district, XYZ [1].

To realize the strategic goals the development of education in the town of Bima formulated strategic targets as follows:

1. The actualization of quality education for all, competitive and Non discriminatory.
2. The actualization of the character education that promotes the progress and peace in pluralism;
3. The realization of reliable education innovation;
4. The realization of synergy education with the needs of development;
5. The actualization of the capacity of the youth and sports-quality, competitive and cultured;
6. The actualization of education services, youth and sports accountable and cultured.

In figure 1 shown about the structure of organization Dikpora of Bima City.

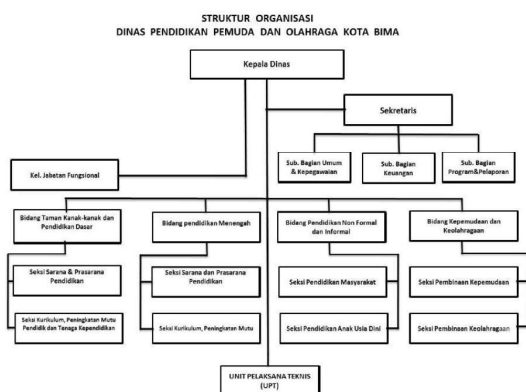


Fig. 1. Structure of Organization

The vision of Dikpora of Bima City is realize public services that E=Nak (Efficient/Effective, normative and accountable). While its mission is to implement effective and efficient services (free), perform the services of the normative (Procedural), and implement innovative Service (based on needs).

B. Audit of Technology Information

Audit of IT on the same principle with the audit in general. Include planning phase, which produces an audit program that is designed in such a way that its implementation will be running effectively and efficiently and carried out by the competent and can be completed in time according to the agreed. In this planning phase is very important to assess the internal aspect control, which can provide input to the aspects of risk, which in the end will determine the extent of the examination that will be seen on the program audit. Next is a

collection of evidence evidence), documenting the evidence and discuss with the auditor about) when if found problems that need improvement from the actions of the auditor.

In implementation, IT auditor gathered evidence that adequate through various techniques including the survey interview, observation and review of the documentation could be evidence taken by the audit the auditor includes evidence of vote electronically (data in the form of soft copy files). In the process of the collection of evidence is there are several ways that often used namely, audit around computer, audits thought computer and audit with computer. If the level of TI high then the dominant audit audit is used with computer or commonly called with computer assisted audit techniques or use the London-based Computer Aided Auditing namely with) [2].

C. COSO ERM

COSO is abbreviation of Committee of Sponsoring Organization of the Treadway Commission, where is an initiative of the private sector that formed in 1985. The main goal is to identify the factors that cause wiping financial reports and make recommendations to reduce the event. COSO has to draw up a general definition for the control of the standard and internal criteria that can be used for companies to assess their control system. This commission sponsored by 5 professional association: AICPA, AAA, FEL, 2a, IMA. The purpose of this commission is to do research on fraud in financial reporting (fraudulent on financial reporting and make recommendations that associated with it to a public company, independent auditor, SEC, and education institution [3]. Although sponsored by the same 5 professional association, but basically this independent Commission and the sitting in it comes from diverse: industry, public accountant, a Securities Exchange and investors.

The goal of this framework in the improvement of the integrated surveillance system for the control of the company/organization in several steps. This is directed to provide the policy holders in the organization can perform the internal supervision of the implementation of the task to the direction so that they can manage the risk [4]. In figure 2 shown general description about COSO ERM.

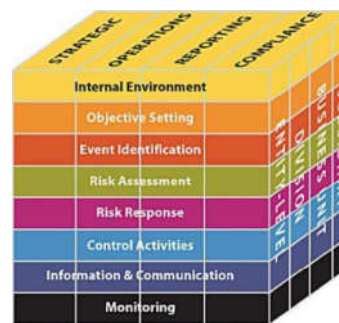


Fig. 2. General Description about COSO ERM

D. Component of COSO ERM

In 2004, COSO issued a report 'Enterprise Risk Management - Integrated Framework', as development COSO framework previously. Explained there are 8 components in the Enterprise Risk Management, namely [4] :

1. Internal Environment
2. Objective Setting
3. Event Identification
4. Risk Assessment
5. Risk Response
6. Control Activities
7. Information and Communication
8. Monitoring

E. Measurement of Maturity Level

The maturity model is a method to measure the level of management development process, which means is to measure the extent to which the management capabilities. How the development or management capabilities depending on the achievement of the objectives of COSO ERM that. As an example is that there are some process and the system that requires security management that is more strict than the process and other systems that are not so critical. On the other hand, degrees and satisfaction of the control needed to be applied in a process is pushed on the Enterprise risk appetite and the needs of compliance is applied.

The implementation of that right on IT governance in an environment agency depending on the achievement of a number of aspects to improve the quantity of process that can be expected to the quality and encourage cost efficiency associated with the use of IT resources.

Maturity model can be used to map :

1. The Status of IT management company at that time.
2. Industry standard status in the field when it is (as comparison)
3. The status of international standards in the field of the current IT (as comparison)
4. Corporate IT management strategy (expectation company to the position of IT management company)

In COSO ERM Framework has been assigned the calculation or determination of the level as shown in table 1.

TABLE I. DETERMINATION OF LEVEL

Level	Information	Description
1	Very Low	Almost Never
2	Low	Unlikely
3	Medium	Possible
4	High	Likely
5	Extreme	Almost Certain

III. METHODOLOGY

The research done in the environment of Dikpora of Bima City which is focused on the main purpose of Information Technology Audit where the results of this audit will be made reference to the development of information technology in the Dikpora of XYZ City.

A. The Place of Research

Dikpora of Bima City is in the way Duku No.1 Bima City. Research focuses on the information technology audit, in this case on the field of Dikmen, Dikdas, PFNI, and means infrastructure.

B. Data Source

In this research using primary and secondary data. The primary data obtained directly from the observation on the research by doing interviews through Phone and took the questioner from respondents IT Team and Operational Section using Google Form. while the secondary data obtained from the source - the source of the reference in the literature for the audit in this research.

C. Data Collection Method

Data collection method in this research is the interview, questioner, observation and literature review.

1. Interview done for several speakers who in this responsible in the use of information system, including interviews with part of it and Styler of Computer.
2. Questioner a recent study of two main focus as regulated in the Standard COSO ERM, namely that first on the Internal category Environment control is expected to be able to provide guidance on the mapping of the Company, Information Technology Mapping, user mapping, as well as the determination of the second IT partner against the Objective control settings is expected to be able to analyze it needs and planning of IT, to three event Identification control ni is expected to be able to analyze the condition of IT infrastructure issues and problems agencies, to four Risk Assessment control is expected to analyze the possibility of the use of Cloud Computing to five Control Activities control is expected to be able to analyze the activity of the control of the response to the risk of six information and communication control is expected to analyze the socialization and training and change management. The last Monitoring control is expected to be able to analyze the process and documentation of security is the technique is done by searching for the questioner level value of standard and guidelines from the COSO ERM.
3. Literature Review, in the conduct of the understanding in the subject and object as well as the means for the activity audit or research, of course does not escape from the various sources that are relevant to use, besides document - supporting documents related to Audit Information System of the City of Bima is very important in the process of this research.

D. The Determination of Level and Component Selection

To get the value of the top level the answers from the respondents on the questions that are then need to be determined by the level, the following is a table of the level of a level there are 5 answer choice for respondents from 1 - 5, then your average will be taken from the weight of the value provided by the answers of respondents. For the determination of the level shown in table 1.

From 8 components that are provided from the COSO ERM, will only used 7 components. The components used in this research is :

1. Internal Environment,
2. Objective Setting,
3. Event Identification,
4. Risk Assessment,
5. Control Activities,
6. Information and Communication,
7. Monitoring

From each of the components used, have sub components.

1. Internal Environment have sub components such as Mapping Company, Mapping Technology Information (Hardware, Software, Data Communication Lines), Mapping User, Support System and Procedures, IT Partner.
2. Objective Setting have sub component such as Analysis IT, Forecast and IT Planning.
3. Event Identification have sub component, IT Infrastructure Condition.
4. Risk Assessment have sub component, Application Cloud Computing.
5. Control Activities have sub component, Control Activities and Risk.
6. Information and Communication have sub component, Socialization and Training Management.
7. Monitoring have sub component, Monitoring Document.

IV. ANALYSIS AND RESULT

A. Analysis

In questioner as data collection method, needed questions which are able to describe the intent and purpose of the researcher, and should be able to help the respondents in answering the questions that are not out too far from the scope of which has been assigned. The questions would have been adjusted with the components used in the framework COSO ERM.

After the audit the results obtained from each questioner respondents. In table 2 will be displayed one of the results of the questioner from respondents.

The results are shown in table 2 can be described with a diagram and can be seen in figure 3.

After the recapitulation of the entire questioner, obtained the result that there are a few components that already meet the standard COSO ERM, and there are some who have not meet the standard COSO ERM, so that obtained the gap in table 3.

The results are shown in table 3 can be described with a diagram and can be seen in figure 4.

TABLE II. SAMPLE RESULT OF QUESTIONER

No	Process Of IT	Maturity Index
1	Mapping Company	3
2	Mapping IT	3
3	Mapping User	3
4	Support System and Procedure	3
5	IT Partner	4
6	IT Analysis	2
7	Forecast and IT Planning	3
8	IT Infrastructure	3
9	Problem	2
10	Application Cloud Computing	3
11	Control Activities	3
12	Socialization and Training Management	4
13	Monitoring	4



Fig. 3. Maturity Index

TABLE III. THE GAP RESULT

No	Process of IT	Level		
		Now	Expectation	Gap
1	Mapping Company	3	4	1.00
2	Mapping IT	3	4	1.00
3	Mapping User	3	4	1.00
4	Support System and Procedure	3	4	1.00
5	IT Partner	4	4	0.00
6	IT Analysis	2	4	2.00
7	Forecast and IT Planning	3	4	1.00
8	IT Infrastructure	3	4	1.00
9	Problem	2	4	2.00
10	Application Cloud Computing	3	4	1.00
11	Control Activities	3	4	1.00
12	Socialization and Training Management	4	4	0.00

13	Monitoring	4	4	0.00
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Fig. 4. The Gap Result

B. Result

After the audit process, through interview method, observation, questioner who constituted the source and literature that are relevant to the audit can result as follows :

1. Internal Environment
 - A. The awareness of the institution in a user IT has been good
 - B. For some good Infrastructure Hardware and software needs to the development
 - C. Cooperation with other parties already very good
2. Objective Setting
 - A. Already have a Master Plan of the development of IT
 - B. Design IT infrastructure has not so provide benefits in some areas in the institution is
 - C. already IT needs analysis on Government Agencies
3. Event Identification
 - A. IT infrastructure in this hardware is still using a old PC specification
 - B. Computer Network Security is still very vulnerable because it does not use any Protection System.
 - C. The problem is most crucial System Backup and restoration of data if a problem occurs.
 - D. Already working with a trusted IT Partner
4. Risk Assessment
 - A. System built not meet the resources concentrated

- B. in general government agencies have not yet been able to Implement System Cloud Computing
 - C. Implementation of IT Has Not Been presentation for troubleshooting.
5. Control Activities
 - A. IT role in dealing with the configuration and the problem has not been fully done.
 - B. The process of it in the process of overcoming these escalation an incident has not started
6. Information and Communication
 - A. Already Doing IT Training of human resources in the government agencies
 - B. have already done the identification and learning that is needed in the implementation of Training IT
 - C. It is done to evaluate the training
7. Monitoring
 - A. Have been doing the Monitoring of the device IT is in the government agencies
 - B. Have been doing Inventory all IT infrastructure that is in the institution.

V. CONCLUSION

From the results of research and the design of the actual Based Information System audit in the Bima City. It can be concluded that the The results of the interview and the spread of the questioner that done, there is a part that is already in the process of improving the quality and has been applied and already there is a policy that is created. And Audit results from 7 components and 13 process that is owned by the COSO ERM, has recommended some of the problems that must be increased in order to support the performance of the apparatus of speeding IT on the agencies.

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