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Information Technology Capability Using COBIT 2019 Framework (Case Study: PT. Emobile Indonesia)

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Information Technology Capability Using COBIT 2019 Framework (Case Study: PT. Emobile Indonesia)

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Abstract— **PT. Emobile Indonesia is an Information Technology company that manages services and supports several sectors of the business industry. This assessment is done because the governance in the company is still not integrated properly. This is indicated by the irregular role and description of tasks within the IT division, to slow down performance when sudden disruptions occur and lack of implementation of IT Risk in the company. To overcome these constraints, an assessment of Information Technology governance with COBIT 2019 method is carried out and assisted by descriptive methods and supported by quantitative data. The initial stages are conducting interviews to employees at PT. Emobile Indonesia for data collection. The domains that are followed up from COBIT 2019 are EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources. The results obtained after measuring IT capabilities in APO01 and APO07 domain companies stopped at level 2 that did not meet the company's target and only EDM03 met the company's target of level 3. The results of the study were used to determine the level of governance of information technology in each domain. As well as helping the company fix the obstacles that occur by providing recommendations to PT. Emobile Indonesia.**

Keywords— Information System Audit, COBIT 2019, IT Governance, IT Risk, Information Technology

I. Introduction

Along with the rapid development of Information Technology in this modern era resulted in the need for information increasingly important [1]. The main reason for using Information Technology is to make the functions of business procedures and technology in the company more advanced [2]. However, there is often a problem when applying Information Technology which is about how to align and integrate technology and business strategies [3]. Good management of Information Technology is important for an organization and a company in order to provide benefits, namely efficiency and effectiveness in the implementation of business processes within the organization [4]. Therefore, in the management of Information Technology is an effort to improve the performance of the company and is the responsibility of the company's leadership and company directors [5].

PT. Emobile Indonesia is an Information Technology company located in Central Jakarta engaged in services for various business industries such as banking, finance, manufacturing, logistics, transportation and also merchants. The company focuses directly on providing security and smoothness for sales for banking and providing services for payments to consumer mobile phones. Therefore, the company handles the relationship between vendor and client and handles transactions made by customers.

In addition, governance in the company is still not well integrated. This can be seen with the irregular role and description of tasks in the IT division, so that it can slow down performance when there is a sudden disruption, the lack of implementation of IT risk in the company that causes the company can not handle clients who want to conduct cyber risk assessment, and there are no procedures and SOP (Standard Operational Procedures) structured in running a project so that many employees violate policies and procedures that should be yes applied. This problem can prevent the company from achieving its vision and goals. The constraints that occur in the company can be identified and processed thoroughly by measuring the governance of Information Technology using the existing framework [6].

Some frameworks that are often used in measuring IT governance capabilities in companies include: ISO/IEC 17799, ITIL (Information Technology Infrastructure Library), COBIT (Control Objectives for Information and Related Technology). In this study using the latest version of COBIT framework, COBIT 2019 [7]. COBIT is an Information Technology management framework developed by ISACA to assist businesses in developing, organizing and implementing strategies around information management and governance [8]. In 2018, ISACA released and updated the COBIT 5 version to COBIT 2019. According to ISACA COBIT 2019 it is designed to continue to evolve with more frequent and

smooth updates [9]. COBIT 2019 was introduced to build a more flexible, collaborative, and addressing new and constantly changing governance strategy [8]. The domain that became the focus of COBIT 2019 consisted of 20 domains and was then re-elected by the IT director of company. Emobile Indonesia becomes 3 domains in accordance with what is a priority of needs and problems often faced by companies consisting of EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, APO07 - Managed Human Resources, and Assess Performance and Conformance.

Therefore, to overcome the problems often faced by companies, it is done measuring IT governance in the company. There has been a lot of research done to measure IT governance in companies using the COBIT 5.0 framework but there is still little research using the COBIT 2019 framework. COBIT 2019 is the latest version that has been updated by ISACA to help it govern the company. COBIT 2019 can be a reference and guide in measuring governance capabilities in PT companies. Emobile Indonesia.

II. LITERATURE REVIEW

A. COBIT 2019

The COBIT 2019 framework is the latest version to be updated after COBIT 5.0 developed by ISACA [10] and contains guidance on IT governance and management within an organization's business processes. Along with the development of information and technology in a company becomes the main reason in supporting the growth of a company. In releasing COBIT 2019, ISACA not only added some new elements to the framework but also updated the existing aspects of COBIT 5.0 to suit the governance needs of information technology in the modern era. Thus, COBIT 2019 can be a reference and guide in managing technology governance because it has been built and integrated for more than 25 years. COBIT 2019 is created through new insights from science and operationalizes those insights as practices [11]. In the COBIT 2019 framework there are aspects that have been updated from the previous version, but the domains owned are still 5 domains and there are still two areas namely the governance area and the management area. The governance area is usually managed by the chairman or executive board of the company consisting of the domain Evaluate, Direct and Monitor (EDM). Meanwhile, the management area run by employees consists of 4 domains, namely Align, Plan and Organize (APO), Build, Acquire and Implement (BAI), Deliver, Service and Support (DSS), and Monitor, Evaluate and Assess (MEA). Within an information technology governance organization is an integrated part of management that serves to organize and manage the company's leadership, organizational structure, and information technology for optimal use [12].

B. Previous Research

The link in the previous study is that there are 4 studies that fit the criteria and related to this thesis. The first previous research was made because the University of Tanjungpura requires proper management and IT strategy in supporting the

organizational objectives and methods used is COBIT 5.0 and the result of the University of Tanjungpura is at level 0 [5]. Next is research created because human resources at the Lombok State Tourism Polytechnic have not been managed properly and the method used is COBIT 5.0 [6]. The problems in managing IT governance had been used framework COBIT 2019 [13]. And the last research made to know the level of capability level in the company and evaluate the governance and management of IT in the company using COBIT 5 [14]. The difference between this research with previous research studies is to use COBIT with the latest version of COBIT 2019. In this study only focuses with domain EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources directly selected by the IT director in the company according to the problems faced by the company. Meanwhile, previous research studies have used different domains in measuring IT governance capabilities in organizations.

III. RESEARCH METHODOLOGIES

The company that will be assessed the governance of information technology is PT. Emobile Indonesia. Pt. Emobile Indonesia or commonly known as Emobile Ltd. is a company founded in June 2000 by a former local IBM &MNC executive with total experience in the IT industry for more than 45 years [15]. Emobile's main location is in Singapore and a subsidiary of Emobile Ltd was established in Indonesia in May 2004 under the name PT. Emobile Indonesia. The establishment of PT. Emobile in Indonesia to assist in the development and support of m-ATM services in Indonesia. The company focuses directly on handling secure systems for banking payments and mobile payment services [16]. Governance in the company is still not well integrated. This can be seen by the irregular role and description of tasks in the IT division, so as to slow down performance when sudden disruptions occur and lack of implementation of IT Risk. This problem can prevent the company from achieving its vision and goals. COBIT 2019 is the latest version that has been updated by ISACA to help it govern the company. Thus, COBIT 2019 can define the focus of a particular area according to the needs of the company.

A. Research Variables

The following are the variables that affect in conducting research as follows:

Independent Variables: The influence of each employee's interview results and understanding of IT governance from each employee's point of view.

Variable Intervening: EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources according to the problems faced by the company.

Dependent Variables: The final result of the study is findings and recommendations.

B. Data Collection Techniques

In the research conducted descriptive analysis with quantitative data because it measures governance within the company. To do this data collection is conducted a library study taken from several official sources. The sources used by the authors are books published by the IT Governance Institute and ISACA on COBIT 2019, as well as e-books related to information technology governance and assessment procedures for a company. Thus, the book becomes a reference and guide in conducting assessment results accurately and in accordance with the standards set by the IT Governance Institute. In carrying out the assessment of information technology governance capabilities at PT. Emobile Indonesia principles used are Six Principles for a Governance System which includes Provide Stakeholder Value, Holistic Approach, Dynamic Governance System, Governance Distinct From Management, Tailored to Enterprise Needs, and End-to-End Governance System.

Interviews will be conducted by several employee representatives at PT. Emobile Indonesia and due to the COVID-19 condition, the interview will be conducted virtually using video conference. In conducting selected interviews, speakers who are familiar with governance at PT. Emobile Indonesia is 4 people who are representatives are as follows: IT Director, General Affair & Human Resource Director, IT Support – IT Departement,and Internal Affair Coordinator – IT Departement.

Each representative of the company will be asked about the domain that will be further researched according to the problems facing the company. For domain EDM03 - Ensured Risk Optimization conducted interviews with IT Support (Mr. Ari) and IT Director (Mr. Hariyanto) in the company, APO01 - Managed I&T Management Framework interview with IT director (Mr. Hariyanto) and Internal Affair Coordinator (Mrs. Chrismawati), and APO07 - Managed Human Resources (Mrs. Mungna) conducted interviews with General Affair & Human Resource Director in PT. Emobile Indonesia.

IV. RESULT AND DISCUSSION

A. Selection of IT Governance Capability Measurement Process

The selection of the process in COBIT 2019 is used to measure the performance of each governance process in PT. Emobile Indonesia and can identify areas that need to be improved performance. This is the initial stage that is done in determining the formulation of problems faced by the company. To provide advice and recommendations in solving problems in the company and know the level of IT governance in the company in accordance with COBIT 2019. COBIT 2019 assists the company in developing the business and implementing governance strategies in the company. The process of determining domains that match constraints is determined together with the IT director in the company. By conducting interviews with IT directors, information and problems from the company are collected well. Interviews conducted with IT directors found problems that are often faced by PT companies. Emobile Indonesia is as follows:

1. The lack of application of IT risk in the company indicated by the company is still not able to handle clients who want to conduct cyber risk assessment because it is still not integrated properly. And there are still obstacles and issues when the client wants to apply Penetration Testing before the Live Project in the company.

2. There are no procedures and SOP (Standard Operational Procedures) that are structured in running a project so that many employees violate the policies and procedures that have been implemented.

3. Irregular management of the company as well as roles and description of tasks within the IT division, so it can slow down performance when sudden interruptions occur.

4. Job description in working on a project has not been organized resulting in lack of discipline and delays in the work of a project.

5. From the results of interviews obtained with IT directors, to help reduce the constraints that occur in the company, the domain EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources in accordance with the problems in the company.

B. Preparing for Data Collection

To collect data and information from companies about the domain EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources conducted interviews of company directors up to employees directly involved in accordance with the domain to be further analyzed in IT governance. Perusahaan PT. Emobile Indonesia has employees and directors of 50-60 people, for samples to be interviewed taken from the determination of RACI Chart and who understand about the governance of Information Technology in the company.

C. Stages of Implementation of IT Governance Capability Measurement

To collect data and information from companies about the The implementation stage of measuring IT governance capabilities is done by managing the overall evidence and interview results directly with representatives in the company. After obtaining the results of the interview with the company conducted an assessment. Below are the calculations of IT governance capability measurement in accordance with COBIT 2019:

From the results of interviews obtained with employees for each domain in PT. Emobile Indonesia with COBIT 2019. Then the next stage that will be done is the calculation in accordance with the reference COBIT 2019. This calculation is done by giving an assessment in accordance with the interview results obtained by representatives of the company. Once given the value, it will be calculated and the percentage of each domain. The final percentage will determine the level

of each domain. In table 1 explains the description in scoring to the company based on the interview results.

TABLE I.   SCORE ASSIGNMENT DESCRIPTION

Rating	Score	Description
N–Not Achieved	0 - 15	The Company does not have any evidence of achievement of attributes owned or none in the process assessed.
P–Partially Achieved	>15 - 50	The company has some evidence of achievement, and several approaches, within the attributes defined according to the assessed process.
L–Largely Achieved	> 50 - 80	The Company has evidence of systematic approaches, significant achievements, and several attributes specified in the assessed process. Some of the drawbacks associated with this attribute still exist in the assessed process.
F—Fully Achieved	> 85 - 100	The Company has evidence of a complete and systematic approach to full achievement in the process, and the attributes defined in the approach are assessed. No significant drawbacks associated with this attribute exist in the assessed process.

The following are the assessment results obtained from interviews with the company as follows:

EDM03 - Ensured Risk Optimization

In the EDM03 process, an interview was conducted with the Director of IT and IT Support.

TABLE II.   EDM03 LEVEL 2 RESULTS

Process	Score
EDM03.01	85.75
EDM03.02	85.37
EDM03.03	85
Score	**85.37 %**

The calculation result of EDM03 Level 2 in Table II shows a result of 85.37 %. Thus, it can be concluded that the EDM03 process can be continued to level 3.

TABLE III.   EDM03 LEVEL 3 RESULTS

Process	Score
EDM03.01	79.67
EDM03.02	79
EDM03.03	78
Score	**78.89%**

From Table III of EDM03 level 3 calculation result with PT company. Emobile Indonesia could not be continued to level 4, because the result was 78.89 %.

APO01 – Managed I&T Management Framework

In the APO01 process, an interview was conducted with the Director of IT and Internal Affair Coordinator.

TABLE IV.   APO01 LEVEL 2 RESULTS

Process	Score
APO01.01	68.1
APO01.02	85
APO01.03	49
APO01.04	69
APO01.05	73.41
APO01.08	49
APO01.10	61.3
Score	64.97%

From Table IV on interview results APO01.01, APO01.02, APO01.03, APO01.04, APO01.05, APO01.08, and APO01.10 level 2 with PT. Emobile Indonesia cannot be continued to level 3, because the result is 64.97 %. Below is the APO01 process that starts from level 3 as follows:

TABLE V.   APO01 LEVEL 3 RESULTS

Process	Score
APO01.06	80.83
APO01.07	80.5
APO01.09	84.5
Score	**81.94%**

In accordance with Table V on the interview results of APO01.06, APO01.07, and APO01.09 starting from level 3 with PT. Emobile Indonesia cannot be continued to level 4, because the result is 81.94 %. Below is the APO01 process that starts from level 4 as follows:

TABLE VI.   APO01 LEVEL 4 RESULTS

Process	Score
APO01.11	53.87
Score	**53.87%**

From the results of interviews and calculations in Table VI on APO01.11 starting from level 4 with PT companies.

Emobile Indonesia cannot be continued to the next level, because the end result is 53.87% which has not reached 85%.

APO07 - Managed Human Resources

In the APO07 process at PT. Emobile Indonesia conducted an interview with HRD Director.

TABLE VII.   APO07 LEVEL 2 RESULTS

Process	Score
APO07.01	85
APO07.02	78
APO07.03	83.75
APO07.04	69.12
APO07.05	49
APO07.06	75
Score	**73.31%**

From Table VII on the results of APO07 level 2 interviews with PT companies. Emobile Indonesia cannot be continued to level 3, because the result is 73.31 %.

D. *Gap Analysis*

After obtaining the calculation results of each process in the company PT. Emobile Indonesia. The next stage is to make a comparison between the interview results, level and assessment in the company at this time with the expected expectations. This expectation was determined by an interview with Mr. Hariyanto as it director at the company. Thus, the target desired by this company can be seen by gap analysis. Gap Analysis in table 8 will help to know the comparison between the target level and the actual level of the company.

TABLE VIII.   GAP ANALYSIS

Process	Target Level	Current Level	GAP
EDM03 *Ensured Risk Optimization*	3	3	0
APO01 *Managed I&T Management Framework,*	3	2	1
APO07 *Managed Human Resources*	3	2	1

From the comparison between the target level and the actual level in Table VIII can be concluded that:

1. The actual level of the EDM03 calculation result is in accordance with the target level set by the company, namely level 3.

2. APO01 has not met the target set by the company, the target level desired by the company in APO01 is level 3, but the interview results and calculations performed stop at level 2. To assist the company in achieving the

desired target level, improvement recommendations is needed.

3. APO07 has not met the target set by the company, the target level desired by the company is level 3, but from the practices performed and calculations stopped at level 2. To assist the company in achieving the desired target level, improvement recommendations is needed.

E. *Findings and Impact of IT Governance Capability Measurement*

From the results of observations conducted directly with the company and interviews conducted in the company in accordance with each process. There are findings and impacts faced by companies from each domain. This finding is useful to look for impacts that become constraints of the company in achieving the company's goals. After conducting an interview with the company, the auditor found some findings from the interview results in table 9 of the APO01 process that must be followed up as follows:

TABLE IX.   FINDINGS AND IMPACT ON THE APOO1 PROCESS

Sub Process	Findings	Impact
APO01. 01 (3)	Has not implemented the COBIT framework in management so it does not achieve cascade COBIT Goals and design factors.	The company cannot specifically determine management objectives, cascade goals and training design factors within IT management.
APO01. 03 (1)	It does not have a reference model for determining IT governance targets.	Difficulties in identifying targets and priorities within the company.
APO01. 04 (1)	It has not identified a decision to achieve its strategy and objectives.	Can't make quick and informed decisions in urgent situations.
APO01. 05 (4)	Do not have a description document & responsibility in recruiting employees regarding compliance with policies and procedures.	New employees don't know what descriptions and policies about compliance should be adhered to within the company.
APO01. 08 (1)	It has not identified the skills and competencies of employees to determine the objectives of IT management in the company.	Appointed employees do not yet understand the purpose of IT management in the company.
APO01. 08 (2)	It has not analyzed the gap between the company's target skills and the capabilities of the current workforce.	Difficulty figuring out the gaps faced by employees.
APO01. 10 (3)	The company has not provided training on the tools to be selected.	Tools selected can be tools that contain many viruses.
APO01. 11 (1)	It does not yet have a framework for implementing IT management in the	It's hard to take appropriate action within IT management when an issue occurs

Sub Process	Findings	Impact
	enterprise.	within a project.

Below are the detailed findings found in the APO07 sub-process described in table 10 that must be followed up as follows:

TABLE X.   FINDINGS AND IMPACT ON THE APOO7 PROCESS

Sub Process	Findings	Impact
APO07. 04 (2)	It has not set SMART methods and individual goals that align with the company's IT goals.	Employees have different goals than IT goals in the company and have not been measured.
APO07. 05 (1)	Do not have specific documents to manage and maintain inventory.	Inventory within the company is unstructured and IT human resources are irregular.

F. Recommendations

After finding the findings, the auditor will provide recommendations for improvement and recommendations on improving the level of each finding that has been found during the assessment of IT governance in the company. There are 10 improvement recommendations and 11 level up recommendations to achieve the desired target.

V. CONCLUSION

After conducting research on measuring the governance capabilities of information technology at PT. Emobile Indonesia using cobit framework 2019 obtained the result that is the conclusion. Domains that suit the problems in the company are EDM03 - Ensured Risk Optimization, APO01 - Managed I&T Management Framework, and APO07 - Managed Human Resources. The research process was conducted by interviewing parties who understand about the governance in the company using RACI Chart. After conducting the interview process and calculation of APO01 domain reached level 2 that has not met the company's target of level 3, the APO07 process also only reached level 2 where the company's target is level 3, and for EDM03 meets the company's target of level 3. The recommendations are used to improve the findings and to increase the level of IT governance in the company in order to achieve the target of IT directors.

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