

IT EVALUATION BASED ON COBIT 5 FRAMEWORK AT XYZ EMBASSY**Piyan, Sfenrianto**

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Abstract

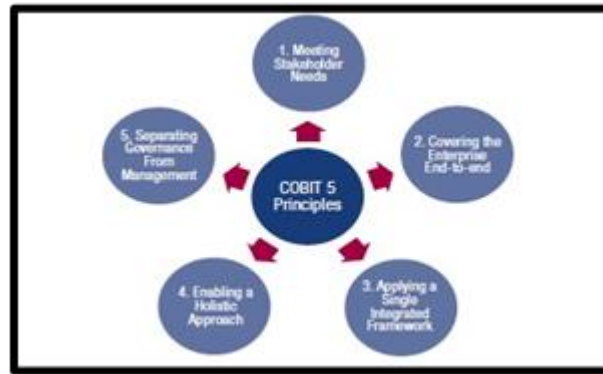
An embassy is a government organization located abroad and is tasked with carrying out diplomacy towards the accredited country where the embassy is domiciled. The XYZ Embassy is located on the African continent and has an organizational structure consisting of the Ambassador and several diplomats and local staff. As is the general condition of XYZ country in all countries, the XYZ Embassy is also experiencing problems especially related to ICT, such as the XYZ Embassy's IT infrastructure is inadequate, the quality of electronic goods is not good, limited ICT resources, poor energy resources, information systems that are not yet integrated and limited ICT procurement and maintenance budgets. The aim of this research is to evaluate ICT governance at the XYZ Embassy using the COBIT 5 framework so that a capability level assessment can be carried out and a Gap Analysis can be obtained and provide recommendations for improving ICT governance at the XYZ Embassy. Some of the benefits of conducting research include assessing the condition of needs in ICT management at the XYZ Embassy, helping to measure the capability level of ICT management, and recommendations in efforts to maximize and optimize the use of ICT using COBIT 5.

Keywords: *ICT Governance, COBIT 5, Government, Embassies***INTRODUCTION**

XYZ Embassy located on the African continent. Its organizational structure includes Ambassadors, Political Functions, Economic Functions, Social Security Officers, Indonesian Citizens-BHI Protection Officers, Consular Function Executors, Acceleration Administrators and Diplomatic Information Institutions. The XYZ Embassy is a working unit under the Ministry of Foreign Affairs. Problems regarding IT, especially the IT division faced by the XYZ Embassy related to ICT governance, include: (1) the IT infrastructure of the XYZ Embassy is inadequate and the quality of electronic equipment is not good due to the difficulty of finding good device components at affordable prices (2) facilities and infrastructure are also poorly managed due to the human resources working at the XYZ Embassy are not many with educational backgrounds IT, currently the IT department is only held by 1 (one) Diplomacy Information Agency / PID and 1 (one) local communication staff, (3) energy resources in the local country are generally very poor. In a day, it is estimated that power outages occur around 5-10 times so that it affects the age of the electronic device itself and causes high maintenance costs, (4) the lack of integration of all information and data

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systems, the availability of data needed comprehensively for all types of data is owned by all Function Implementers(PF) at the XYZ Embassy and (5) the budget determined by the Central Government to the XYZ Embassy, especially the budget for the procurement of data processing and communication equipment is considered very minimal. The relationship between organizations and IT governance can be measured by ICT evaluation using the COBIT 5 framework. Evaluation can also be interpreted as the process of giving value to the impact of a program, object or a series of processes with a predetermined set and requirements (Fajarwati, Sarmini, & Septiana, 2018). IT evaluation and audit aims to evaluate and ensure that the IT processes that have been carried out in the organization are based on the standard operating procedures implemented that are used to maintain and monitor those processes (Andry, 2016; Sarno, 2009). COBIT 5 very complete, provides a basis for effectively integrating frameworks, standards, and other practices that have been used, where the standards reach all scopes of the company/agency (Damayanti & Manuputty, 2019). IT governance is the responsibility of executive management or directors, and is part of *enterprise governance*. Governance is a collection of interrelated and structured processes to direct and control the organization in achieving goals (Prawira & Darmizal, 2016; Purwanto, Sumbaryadi, & Sarmadi, 2018). IT governance focuses on two things, namely how IT efforts provide added value to the business and risk management when they have been implemented. COBIT 5 can be the right IT evaluation method to find out whether XYZ Embassy has carried out good IT management and also COBIT 5 is able to help improve IT governance according to standards and policies in carrying out business processes that are effective (Siregar & Rustamaji, 2017). COBIT 5 is an overarching framework that can assist organizations in achieving their goals for organizational IT governance and management. Another understanding related to COBIT 5 is one of the frameworks in the form of best practices guidance products that present activities in a managed and logical IT organizational structure, compiled by experts in the field of IT governance, and more focused on performance evaluation control (Wulandari, Dewi, Pohan, Sensuse, & Mishbah, 2019). The use of IT in government agencies, especially in the field of cases, is not only used by employees who work in the IT department, but is a must for employees who work in all parts such as administration, finance, criminal, civil and others related to IT (Belegur, Rudianto, & Sitokdana, 2018). COBIT 5 helps companies create optimal value from IT by maintaining a balance between gaining profits and optimizing the level of risk and resource use (Hanif, Giatman, & Hadi, 2020; Ismail & Winarno, 2017) Research using COBIT 5 was conducted to audit IT governance in the domains EDM04, DSS01, APO07 and APO01 (Adriani, Mahardika, & Aryani, 2018). In addition, COBIT 5 is also used for evaluation of IT governance by measuring the level of maturity of Information Systems / IT designs in four domains, namely APO, EDM, BAI and DSS (Putra, Hakim, Pramono, & Tolle, 2017).



Source: *COBIT 5 Governance and Management Key Areas* (ISACA 2012) (Pasquini & Galiè, 2013)

METHODS

The research was used using qualitative and quantitative descriptive approaches. The object of research is the XYZ Embassy located in an African country. The goal is to find out the actual situation in accordance with the problem formulation and identify the problems in the XYZ Embassy. The data analysis method used in this writing is using a qualitative approach. Data collection to measure *the capability model* was carried out by making questionnaires and disseminated to all respondents containing questions used to measure the achievement of the attribute process at Level 1 based on the *Process Capability Assessment Model* (PAM) at COBIT 5 (Murad et al., 2018).

RESULTS AND DISCUSSION

Researchers conduct planning by determining respondents who will be involved in the evaluation process using sampling techniques, which are methods used to select a portion of the larger population with the aim of collecting data or information that represents the entire population. The criteria that will be used in this study are where each *Key Management Practice* in the selected COBIT 5 process has a RACI *chart* that is responsible for the activities in it.

Table 1 process has a RACI chart

RACI <i>chart</i>	Organizational Structure
APO01 (administer IT management framework)	Diplomatic Information Agency
APO06 (manage budgets and costs)	Diplomatic Information Agency
APO12 (manage risk)	Head Accelerator
APO13 (manage security)	Diplomatic Information Agency
BAI04 (manage capacity and inventory)	Accelerator
EDM02 (ensure delivery benefits)	Diplomatic Information Agency

Data Collection Results in the APO Process

Table 2. Process Data Results for APO01, APO06, APO12, and APO13

<i>Key Management Practice</i>	<i>Output</i>
APO01 (<i>Define the management framework for IT</i>)	The realization of effective policies in managing information and the use of information technology. The realization of adequate infrastructure. Creating awareness of roles and responsibilities in maintaining good electronic equipment (skilled human resources).
APO06 (<i>Manage budget and cost</i>)	Transparent and fair financial management, which is related to IT both in terms of business and IT (effectiveness and efficiency of organizational cost allocation).
APO12 (<i>Manage risk</i>)	The creation of a risk management strategy for human resources and energy resources at the XYZ Embassy.
APO13 (<i>Manage security</i>)	Creation of a system security management strategy related to data and IT at XYZ Embassy

Data Collection Results in the BAI04 Process

Table 3. BAI04 Process Data Results

<i>Key Management Practice</i>	<i>Output</i>
BAI04 (<i>manage availability and capacity</i>)	The creation of infrastructure that is in accordance with the needs of the organization, especially in the field of energy resources, as well as the quality of equipment that supports the operational performance of the embassy.

Data Collection Results in the EDM02 Process

Table 4. EDM02 Process Data Results

<i>Key Management Practice</i>	<i>Output</i>
EDM02 (<i>ensure value optimisation</i>)	Creation of optimal IT-supported services. The creation of support for the budget towards the procurement of data processing and communication equipment.

Researchers obtained the results of questionnaire calculations using the Likert scale and received an evaluation of *the capability level assessment*. Researchers validate

data from questionnaires that have been distributed to respondents according to the RACI table.

Table 5. Process Capability Model

Maturity Scale	Capability level	Value	Information
0,00 – 0,50	Level 0	Incomplete process	Processes that have not been implemented or failed to implement.
0,51 – 1,50	Level 1	Perfomed process	The process that determines the achievement of goals.
1,51 – 2,50	Level 2	Managed process	A process that includes planning, monitoring, and adjustments.
2,51 – 3,50	Level 3	Established process	The process that has been built is then implemented to achieve the results of the process.
3,51 – 4,50	Level 4	Predictable process	The process that has been built is then operated with limitations that are able to achieve the expectations of the process.
4,51 – 5,00	Level 5	Optimizing process	Predictable processes are continuously improved to meet business goals and company objectives.

With the capability model process, it is useful to know the level of ongoing and future information technology risk optimization capabilities. Therefore, the results of the questionnaire answers show the level of achievement that is currently running at the XYZ Embassy as follows:

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	APO01.1	Sejauh mana kesadaran pihak manajemen terkait dengan visi dan misi organisasi serta kebijakan yang ada di sebuah perusahaan?	0	0	0	0	94	0	0	0	0	100
2	APO01.2	Sejauh mana kesadaran pihak manajemen untuk mengimplementasikan, memelihara, dan mengelola teknologi informasi yang sudah ada di perusahaan?	0	0	0	74	0	0	0	0	0	74
3	APO01.3	Sejauh mana kesadaran pihak staff manajemen terkait dengan pemeriksaan latar belakang dalam proses perekrutan karyawan?	0	0	64	0	0	0	0	0	64	0
4	APO01.4	Sejauh mana kesadaran pihak manajemen terkait dengan penetapan dan pengaturan sumber daya yang fleksibel?	0	0	0	67	0	0	0	0	0	67
5	APO01.5	Sejauh mana kesadaran pihak manajemen terkait pelatihan untuk staff cadangan demi menciptakan SDM yang berkopeten terhadap pemahaman TI?	0	36	0	0	0	0	0	36	0	0
Status			0	7,2	12,8	28,2	18,8	0	0	7,2	12,8	48,2

Figure 1. APO01 Questionnaire Recapitulation Results

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	APO06.1	Sejauh mana kesadaran pihak manajemen keuangan terhadap pelaporan / pencatatan anggaran secara rutin di perusahaan (setiap pengeluaran)?	0	0	0	81	0	0	0	0	81	
2	APO06.2	Sejauh mana alokasi sumber daya TI yang diprioritaskan berdasarkan kebutuhan perusahaan?	0	36	0	0	0	0	36	0	0	
3	APO06.3	Sejauh mana manajemen keuangan melaporkan secara transparan dan lengkap untuk TI secara akurat sesuai pengeluaran yang direncanakan?	0	0	0	74	0	0	0	0	74	
4	APO06.4	Sejauh mana biaya untuk anggaran dialokasikan secara adil terutama untuk pengadaan peralatan TI?	0	0	64	0	0	0	0	64	0	
5	APO06.5	Sejauh mana anggaran keuangan bisa dibandingkan dengan biaya sebenarnya (pembuktian dan pengecekan)?	0	0	0	81	0	0	0	0	81	
Status			0	7,2	12,8	47,2	0	0	7,2	12,8	47,2	

Figure 2. APO06 Questionnaire Recapitulation Results

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	APO12.1	Sejauh mana manajemen keuangan dalam mengidentifikasi dan melaporkan terkait risiko finansial, keselamatan, keamanan yang mungkin akan dihadapi oleh perusahaan di masa yang akan datang?	0	0	71	0	0	0	0	0	71	0
2	APO12.2	Sejauh mana adanya profil resiko terkini dan lengkap di suatu perusahaan?	0	36	0	0	0	0	0	36	0	0
3	APO12.3	Sejauh mana tindakan manajemen resiko yang signifikan dikelola dan terkendali?	0	0	57	0	0	0	0	0	57	0
4	APO12.4	Sejauh mana tindakan pengelolaan resiko dilaksanakan secara efektif?	0	43	0	0	0	0	0	43	0	0
5	APO12.5	Sejauh mana manajemen pengendali resiko dalam mengumpulkan informasi keuangan dari klien seperti utang, pendapatan, dan aset.?	0	0	0	57	0	0	0	0	0	57
Status			0	15,8	25,6	11,4	0	0	0	15,8	25,6	11,4

Figure 3 Results of APO12 Questionnaire Recapitulation

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	APO13.1	Sejauh mana manajemen terkait keamanan tentang mengidentifikasi ancaman yang dapat menyerang sumber daya informasi perusahaan?	0	0	43	0	0	0	0	0	43	0
2	APO13.2	Sejauh mana rencana keamanan telah ditetapkan, diterima dan dikomunikasikan ke seluruh pihak kedutaan?	0	0	43	0	0	0	0	0	43	0
3	APO13.3	Sejauh mana solusi keamanan informasi diimplementasikan dan dioperasikan secara konsisten ke seluruh pihak kedutaan?	0	36	0	0	0	0	0	36	0	0
4	APO13.4	Sejauh mana pendekatan sistematis untuk mengelola informasi perusahaan yang sensitif agar tetap aman?	0	0	60	0	0	0	0	0	60	0
5	APO13.5	Sejauh mana manajemen terkait keamanan dalam membantu atasan dalam pengambilan keputusan yang cepat dan tepat melalui penyajian/penyediaan informasi?	0	0	43	0	0	0	0	0	43	0
Status			0	7,2	37,8	0	0	0	0	7,2	37,8	0

Figure 4 Results of APO13 Questionnaire Recapitulation

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	BAI04.1	Sejauh mana antisipasi rencana ketersediaan ekspektasi bisnis terhadap keperluan kapasitas krisis	0	0	50	0	0	0	0	0	50	0
2	BAI04.2	Sejauh mana permasalahan ketersediaan, kinerja, dan kapasitas diidentifikasi dan diselesaikan secara rutin mana kedutaan besar membuat daftar layanan yang dilengkapi dengan kebutuhan dimasing-masing layanan?	0	0	0	64	0	0	0	0	0	64
3	BAI04.3	Sejauh mana permasalahan ketersediaan, kinerja, dan kapasitas diidentifikasi dan diselesaikan secara rutin	0	43	0	0	0	0	0	43	0	0
4	BAI04.4	Sejauh mana kedutaan besar melakukan pengecekan terkait ketersediaan sumber daya secara teratur dan melakukan manajemen ketersediaan sumber daya?	0	0	0	64	0	0	0	0	0	64
5	BAI04.5	Sejauh mana kedutaan besar memberikan laporan terkait ketersediaan sumber daya untuk proses penganggaran?	0	0	0	71	0	0	0	0	0	71
Status			0	8,6	10	39,8	0	0	0	8,6	10	39,8

Figure 5 BAI04 Questionnaire Recapitulation Results

No.	Domain	Aktivitas Proses	Kondisi saat ini (as is) dalam presentase					Kondisi yang diharapkan (to be) dalam presentase				
			1	2	3	4	5	1	2	3	4	5
1	EDM02.1	Sejauh mana perusahaan ini memperoleh nilai optimal dari portofolio inisiatif, layanan dan aset yang didukung TI?	0	0	0	67	0	0	0	0	0	67
2	EDM02.2	Sejauh mana nilai optimum berasal dari investasi teknologi informasi melalui praktik pengelolaan nilai efektif di kedutaan?	0	0	0	71	0	0	0	0	0	71
3	EDM02.3	Sejauh mana investasi individu terkait TI memberikan nilai optimal di perusahaan?	0	0	64	0	0	0	0	0	64	0
4	EDM02.4	Sejauh mana optimalisasi manajemen risiko terhadap TI yang digunakan dalam proses bisnis di perusahaan?	0	0	56	0	0	0	0	0	56	0
5	EDM02.5	Sejauh mana optimalisasi sumber daya TI dan SDM yang ada di perusahaan?	0	36	0	0	0	0	0	36	0	0
Status			0	7,2	24	27,6	0	0	0	7,2	24	27,6

Figure 6 EDM02 Questionnaire Recapitulation Results

The following is a representation diagram for capability levels APO01.1, APO01.2, APO01.3, APO01.3, APO01.4, and APO01.5 as follows:

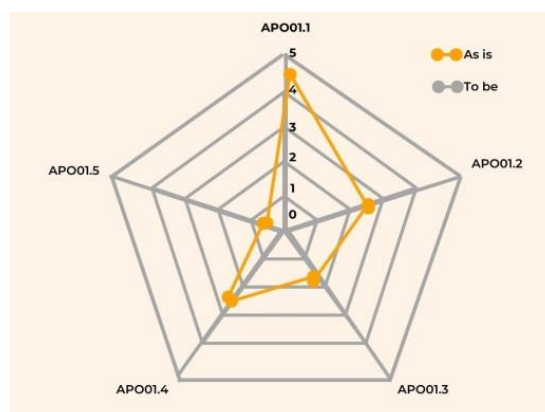


Figure 7 Representation Diagram of APO01 Capability Levels

Meanwhile, the representation diagram for the BAI04 capability level is as follows:

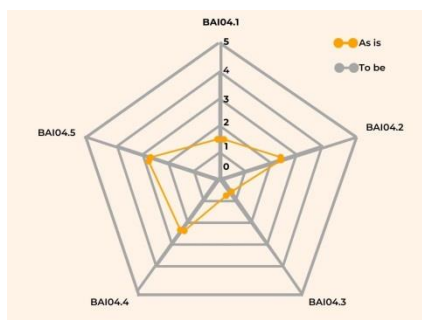


Figure 8 BAI04 Capability Level Representation Diagram

And the representation diagram for the EDM02 capability level is as follows:

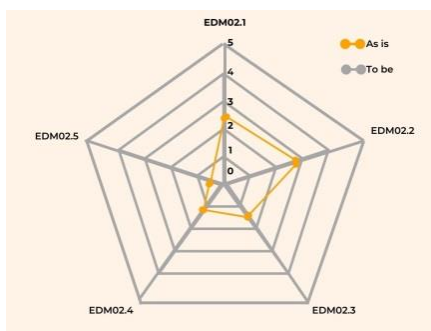


Figure 9 EDM02 Capability Level Representation Diagram

The researcher explains the table of findings, gaps and recommendations needed to be able to improve existing gaps by providing recommendations. This means that gap analysis is used to evaluate businesses within a company based on the gap between current performance and achieved performance (S. Adi, 2015). Determination of recommendations is carried out by providing improvement solutions for each process that has not been maximized to 100% (Putri et al., 2017). It is known that the value for the APO13 (Manage Security) process for the as is condition is 0.80, which is at the highest level compared to the others. The EDM02 (ensure benefite delivery) process value is 1.76 with capability level at level 2.

Table 6 APO Process13

Process	Findings	GAP	Recommendation
APO13	<ul style="list-style-type: none"> XYZ Embassy manages information security, runs technology and business processes that are secure and in line with company management. 	<ul style="list-style-type: none"> There is no documentation for the company, as well as the absence of a special unit within the embassy that aims to handle information security issues. 	<ul style="list-style-type: none"> Establish a special unit that has the task of planning, monitoring, and regulating matters related to information security management. Create a written document regarding an information

Process	Findings	GAP	Recommendation
		assessment, the embassy did not continue the security audit so it is not known whether the improvement effort has gone well or not.	security risk management plan. •Run a security internal audit program.

Table 7 EDM02

Proses	Findings	GAP	Recommendation
EDM02	•XYZ Embassy has IT infrastructure available.	<ul style="list-style-type: none"> •There has not been a periodic review to determine whether the investment spent has provided benefits in the entire process at the embassy. •The weak side of work program planning in seeing the use of IT by embassies. 	<ul style="list-style-type: none"> •first review the value or benefits of procuring IT services regularly to find out how much IT benefits in the overall process within the embassy. •The importance of planning work programs, investment, financing, and risk, to see how the benefits of using IT as a performance support. •Collect relevant, complete and accurate data as performance reports to support decision making related to information technology. •Establish SOPs (<i>Standard Operating Procedures</i>) related to the process of ensuring the delivery of value or benefits (<i>ensure benefit delivery</i>).

CONCLUSION

Based on the results of the analysis described in the previous chapter related to Evaluation of Information Technology Governance Using the COBIT 5 Framework at the XYZ Embassy, in this case, researchers can provide the following conclusions is In the APO13 (manage security) process, the capability is at level 1 with a value of 1.2 with 37.8%. While the expected capability level is 1.72. In other words, to reach the expected level, it must first meet the process capability indicators at level 1 that are still not met. Among them by forming a special unit that has the task of planning, monitoring, and regulating matters related to information security management. Second, create a written document regarding the information security risk management plan. And the third runs a security internal audit program. In the EDM02 process (Evaluate, Direct, and Monitor) the capability is currently at level 2 (Perfomed process) with a capability value of 1.96 (large achieved). While the expected capability level at level 3 has a capability of 2.55. In other words, to achieve the target, it is expected to meet the process capability indicators at that level. At the expected level, embassies need to close these gaps by making guidelines in the form of SOPs, including reviewing the value or benefits of procuring IT services regularly to find out how much IT

benefits in the overall process within the embassy. Second, the importance of planning work programs, investment, financing, and risk, to see how the benefits of using IT as a performance support. Collect relevant, complete and accurate data as performance reports to support decision making related to information technology. Third, Establish SOPs (Standard Operating Procedures) related to the process of ensuring the delivery of value or benefits (ensure benefit delivery).

The discussion of research topics leads to the evaluation of IT governance based on the COBIT 5 framework at the XYZ Embassy. At this stage, researchers get interview results in the form of information about the current condition of the XYZ Embassy and what is expected for the future.

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