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Audit of IT Governance in the Field of Resource Management at the North Sumatra Investment and Licensing Service Office Based on the COBIT 5 Framework

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Abstract

At present, information technology is an important part for companies to meet their needs and support the achievement of strategic plans for the company. Providing competitive advantage, increasing effectiveness, time, and reducing expenses is the role of information technology that is very vital in today's business trade. By researching information technology governance using the COBIT 5 Framework in a company, it can be seen whether the company has met the requirements of the C indicators. In this study, we discussed resource management audits at the North Sumatra One-Stop Integrated Investment and Licensing Service Office to find out these capability indicators and have obtained results by conducting interviews using questionnaires distributed online to employees at the Service. With this research, we found that some indicators do not meet the capability of a company.

Keyword: *COBIT 5, IT Governance, Investment, Licensing, Service*

1. Introduction

The Office of Investment and One-Stop Integrated Licensing Service of North Sumatra Province(DISPMPPTSP) is a Regional Apparatus Organization which was formed based Regional the Regional Regulation of North Sumatra Province number 6 of 2016 concerning the Formation and Regional of Regional Apparatus of North Sumatra Province Chapter II article 3 points 18 where DISPMPPTSP of North Sumatera is A Regional Apparatus Organization that organizes government affairs in the field of investment, licensing and non-licensing services. Based on the problems described, it is use to use the evaluation of information using governance using the COBIT framework in accordance with the needs of the North Sumatra Industry and Trade Office, which has problems that do not focus on just one aspect. In addition, using COBIT has advantages that other frameworks do not have. Therefore, the researcher uses COBIT version 2 COBIT 5 because the process is more holistic, complete and covers end-to-end business and IT activities. IT governance is a branch of corporate governance that focuses on information technology (IT) systems and their performance and risk management to meet current and future business needs, both from an internal business perspective and an external business perspective. [9] Governance is the responsibility of the board of directors and executive management, which consists of leadership, organizational structure and processes that ensure that the company's information technology supports and expands the company's strategy and goals [5]. COBIT 5 is a framework created by The Information Systems Audit and Control Association (ISACA) to maximize the management of its company, predict risks, and its security and guarantee public recognition. [1] Using COBIT 5 enables IT to be managed and managed in a holistic manner for the entire company, by taking full end-to-end business and IT functional areas of responsibility, keeping in mind the interests relating to internal and external IT stakeholders. [10] COBIT 5 has original information criteria, namely: Efficiency,

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Effectiveness, Confidentiality, Integrity, Availability, Compliance and Reliability [3].

2. Research Methodology

The following is a flow chart of the methodology used in this study.

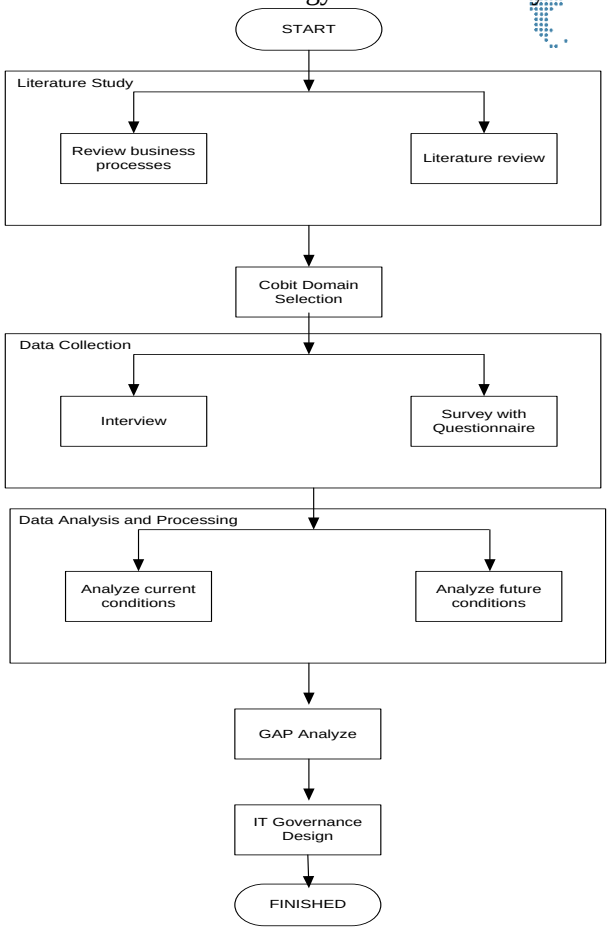

Figure 1. Research Flowchart

In this study, process selection was carried out to focus the research to be carried out. Process selection refers to the data-management process at COBIT as well as the processes associated with controlling the process. The data collection process carried out in this study was through interviews and filling out questionnaires by related parties in the company.

3. Result and Discussion

This information technology governance audit is used to determine whether a company / related institution has met the requirements of the capability indicators. The employee / person in command of the section in the company will be given a questionnaire which will then get the calculation results from the questionnaire.

The selection of the COBIT domain was carried out by studying the business documents of the North Sumatra Provincial Investment Service and One-Stop Integrated Licensing Service and interviewing the parties concerned. Based on the analysis of business documents and the results of interviews, one general objective of the company was chosen in accordance with the company's business objectives, namely general objective number 16. Skilled and Motivated People.

Table 1. COBIT 5 Company Goals

Figure 5—COBIT 5 Enterprise Goals				
BSC Dimension	Enterprise Goal	Relation to Governance Objectives		
		Benefits Realisation	Risk Optimisation	Resource Optimisation
Financial	1. Stakeholder value of business investments	P		S
	2. Portfolio of competitive products and services	P	P	S
	3. Managed business risk (safeguarding of assets)		P	S
	4. Compliance with external laws and regulations		P	
	5. Financial transparency	P	S	S
Customer	6. Customer-oriented service culture	P		S
	7. Business service continuity and availability		P	
	8. Agile responses to a changing business environment	P		S
	9. Information-based strategic decision making	P	P	P
	10. Optimisation of service delivery costs	P		P
Internal	11. Optimisation of business process functionality	P		P
	12. Optimisation of business process costs	P		P
	13. Managed business change programmes	P	P	S
	14. Operational and staff productivity	P		P
	15. Compliance with internal policies		P	
Learning and Growth	16. Skilled and motivated people	S	P	P
	17. Product and business innovation culture	P		

From company goals, the next step is to map company goals with corporate IT goals. In the mapping table of company objectives with corporate IT objectives, only IT objectives that have a P (primary) relationship with operational and staff productivity are taken. The P relationship means that both have an important relationship, while S is optional. Furthermore, based on the business objectives that we have set, we will determine IT goals that will be aligned with business goals no. 16 through the matrix above. So get IT goals that are aligned with No. business goals. 16 is IT goal no. 16 also, namely, competend and motivated business and IT personnel. From this IT objective, a domain that is in line with or in accordance with the general (business) goals and IT objectives of the Investment Service and One-Stop Integrated Licensing Service of North Sumatra Province will be determined.

Table 2. COBIT 5 IT Goals

Figure 22—Mapping COBIT 5 Enterprise Goals to IT-related Goals

		IT-related Goal	Enterprise Goal: Stakeholder value of business investments (1.)	Portfolio of competitive products and services (2.)	Managed business risk (safeguarding of assets) (3.)	Compliance with external laws and regulations (4.)	Financial transparency (5.)	Customer-oriented service culture (6.)	Business service continuity and availability (7.)	Agile responses to a changing business environment (8.)	Information-based strategic decision making (9.)	Optimisation of service delivery costs (10.)	Optimisation of business process functionality (11.)	Optimisation of business process costs (12.)	Managed business change programmes (13.)	Operational and staff productivity (14.)	Compliance with internal policies (15.)	Skilled and motivated people (16.)	Product and business innovation culture (17.)
			Financial					Customer					Internal					Learning and Growth	
Financial	01	Alignment of IT and business strategy	P	P	S			P	S	P	P	S	P	S	P			S	S
	02	IT compliance and support for business compliance with external laws and regulations			S	P											P		
	03	Commitment of executive management for making IT-related decisions	P	S	S					S	S		S		P			S	S
	04	Managed IT-related business risk			P	S			P	S		P			S		S	S	
	05	Realised benefits from IT-enabled investments and services portfolio	P	P				S		S		S	S	P		S			S
	06	Transparency of IT costs, benefits and risk	S		S		P				S	P		P					
Customer	07	Delivery of IT services in line with business requirements	P	P	S	S		P	S	P	S		P	S	S			S	S
	08	Adequate use of applications, information and technology solutions	S	S	S			S	S		S	S	P	S		P		S	S

Internal	09	IT agility	S	P	S			S		P			P		S	S			S	P
	10	Security of information, processing infrastructure and applications			P	P			P								P			
	11	Optimisation of IT assets, resources and capabilities	P	S						S		P	S	P	S	S				S
	12	Enablement and support of business processes by integrating applications and technology into business processes	S	P	S			S		S		S	P	S	S	S				S
	13	Delivery of programmes delivering benefits, on time, on budget, and meeting requirements and quality standards	P	S	S			S				S		S	P					
	14	Availability of reliable and useful information for decision making	S	S	S	S			P		P		S							
	15	IT compliance with internal policies			S	S											P			
Learning and Growth	16	Competent and motivated business and IT personnel	S	S	P			S		S						P		P	S	
	17	Knowledge, expertise and initiatives for business innovation	S	P				S		P	S		S		S			S	P	

Table 3. COBIT 5 Domain

Figure 23—Mapping COBIT 5 IT-related Goals to Processes

		IT-related Goal	Alignment of IT and business strategy	IT compliance and support for business compliance with external laws and regulations	Commitment of executive management for making IT-related decisions	Managed IT-related business risk	Realised benefits from IT-enabled investments and services portfolio	Transparency of IT costs, benefits and risk	Delivery of IT services in line with business requirements	Adequate use of applications, information and technology solutions	IT agility	Security of information, processing infrastructure and applications	Optimisation of IT assets, resources and capabilities	Enablement and support of business processes by integrating applications and technology into business processes	Delivery of programmes delivering benefits, on time, on budget, and meeting requirements and quality standards	Availability of reliable and useful information for decision making	IT compliance with internal policies	Competent and motivated business and IT personnel	Knowledge, expertise and initiatives for business innovation
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
	COBIT 5 Process		Financial						Customer		Internal							Learning and Growth	
Evaluate, Direct and Monitor	EDM01	Ensure Governance Framework Setting and Maintenance	P	S	P	S	S	S	P		S	S	S	S	S	S	S	S	S
	EDM02	Ensure Benefits Delivery	P		S		P	P	P	S			S	S	S	S		S	P
	EDM03	Ensure Risk Optimisation	S	S	S	P		P	S	S		P			S	S	P	S	S
	EDM04	Ensure Resource Optimisation	S		S	S	S	S	S	S	P		P		S			P	S
	EDM05	Ensure Stakeholder Transparency	S	S	P			P	P						S	S	S		S
Align, Plan and Organise	AP001	Manage the IT Management Framework	P	P	S	S			S		P	S	P	S	S	S	P	P	P
	AP002	Manage Strategy	P		S	S	S		P	S	S		S	S	S	S	S	S	P
	AP003	Manage Enterprise Architecture	P		S	S	S	S	S	S	P	S	P	S		S			S
	AP004	Manage Innovation	S			S	P			P	P		P	S		S			P
	AP005	Manage Portfolio	P		S	S	P	S	S	S	S		S		P				S
	AP006	Manage Budget and Costs	S		S	S	P	P	S	S			S		S				
	AP007	Manage Human Resources	P	S	S	S			S		S	S	P		P		S	P	P
	AP008	Manage Relationships	P		S	S	S	S	P	S			S	P	S		S	S	P
	AP009	Manage Service Agreements	S			S	S	S	P	S	S	S	S		S	P	S		
	AP010	Manage Suppliers		S		P	S	S	P	S	P	S	S		S	S	S		S
	AP011	Manage Quality	S	S		S	P		P	S	S		S		P	S	S	S	S
	AP012	Manage Risk		P		P		P	S	S	S	P			P	S	S	S	S
	AP013	Manage Security		P		P		P	S	S		P				P			

Table 4. COBIT 5 Domain

Figure 23—Mapping COBIT 5 IT-related Goals to Processes *(cont.)*

		IT-related Goal	Alignment of IT and business strategy	IT compliance and support for business compliance with external laws and regulations	Commitment of executive management for making IT-related decisions	Managed IT-related business risk	Realised benefits from IT-enabled investments and services portfolio	Transparency of IT costs, benefits and risk	Delivery of IT services in line with business requirements	Adequate use of applications, information and technology solutions	IT agility	Security of information, processing infrastructure and applications	Optimisation of IT assets, resources and capabilities	Enablement and support of business processes by integrating applications and technology into business processes	Delivery of programmes delivering benefits, on time, on budget, and meeting requirements and quality standards	Availability of reliable and useful information for decision making	IT compliance with internal policies	Competent and motivated business and IT personnel	Knowledge, expertise and initiatives for business innovation
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
	COBIT 5 Process		Financial						Customer		Internal							Learning and Growth	
Build, Acquire and Implement	BAI01	Manage Programmes and Projects	P		S	P	P	S	S	S			S		P			S	S
	BAI02	Manage Requirements Definition	P	S	S	S	S		P	S	S	S	S	P	S	S			S
	BAI03	Manage Solutions Identification and Build	S			S	S		P	S			S	S	S	S			S
	BAI04	Manage Availability and Capacity				S	S		P	S	S		P		S	P			S
	BAI05	Manage Organisational Change Enablement	S		S		S		S	P	S		S	S	P				P
	BAI06	Manage Changes			S	P	S		P	S	S	P	S	S	S	S	S		S
	BAI07	Manage Change Acceptance and Transitioning				S	S		S	P	S			P	S	S	S		S
	BAI08	Manage Knowledge	S				S		S	S	P	S	S			S		S	P
	BAI09	Manage Assets		S		S		P	S		S	S	P			S	S		
	BAI10	Manage Configuration		P		S		S		S	S	S	P			P	S		

Deliver, Service and Support	DSS01	Manage Operations		S		P	S		P	S	S	S	P			S	S	S	S
	DSS02	Manage Service Requests and Incidents				P			P	S		S				S	S		S
	DSS03	Manage Problems		S		P	S		P	S	S		P	S		P	S		S
	DSS04	Manage Continuity	S	S		P	S		P	S	S	S	S	S		P	S	S	S
	DSS05	Manage Security Services	S	P		P			S	S		P	S	S		S	S		
	DSS06	Manage Business Process Controls		S		P			P	S		S	S	S		S	S	S	S
Monitor, Evaluate and Assess	MEA01	Monitor, Evaluate and Assess Performance and Conformance	S	S	S	P	S	S	P	S	S	S	P		S	S	P	S	S
	MEA02	Monitor, Evaluate and Assess the System of Internal Control		P		P		S	S	S		S				S	P		S
	MEA03	Monitor, Evaluate and Assess Compliance With External Requirements		P		P	S		S			S					S		S

Based on the table above, three suitable domains have been found, namely EDM04: Ensure Resource Optimization, APO01: Manage The IT Management Framework, and APO07: Manage Human Resources.

3.1. Data Processing

Table 5. Capability Level

No	Sub Proses	Capability Value		Capability Level	
		As Is	To be	As Is	To be
1	EDM04.01	2,12	4,24	2	4
2	EDM04.02	1,72	3,56	2	4
3	EDM04.03	2,73	3,594	3	4
	Average	2,19	3,798	2	4

3.2. GAP Analyze

To be able to find out how big the gap is between the company's target capability level and the current capability level the company has achieved, it can be seen in the following representation diagram.

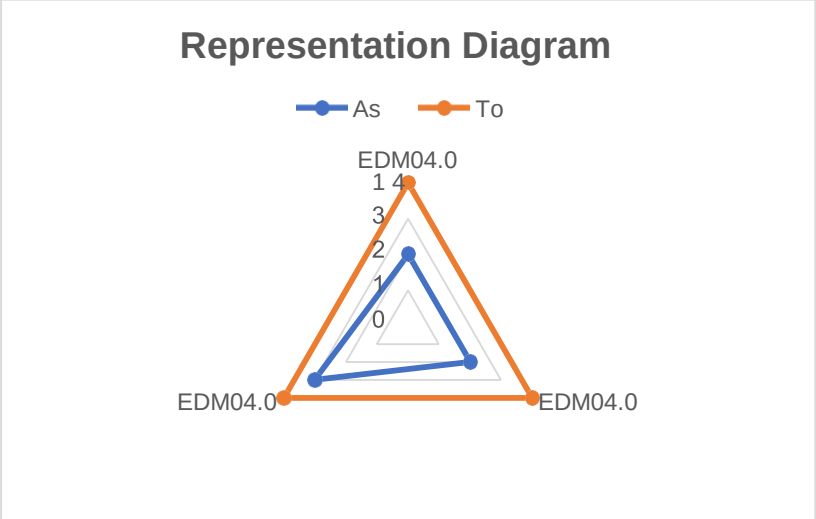

Figure 2. Representation Diagram

Table 6. Level Capability

EDM04	Level 0	Level 1	Level 2		Level 3		Level 4		Level 5	
		PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2	PA 5.1	PA 5.2
Rating by Criteria	F	P	P	L	P	P	N	N	N	N
Capability level Achieved										

Table 7. Rating of company work

EDM04 – Ensure Resource Optimization		Rating
Governance Practice	**Work Product**	
EDM04.01 Evaluating resource management	The safeguard principle for allocation of resources and capabilities	25%
	Guiding principles for corporate architecture	30%
	Approved resource plan	45%
EDM04.02 Direct resource management	Resource strategy communication	30%
	Responsibilities assigned to resource management	55%
	Principles for protecting resources	65%
EDM04.03 Monitor resource management	Feedback on the allocation and effectiveness of resources and capabilities	22%
	Remedial action to address resource management lapses	34%

PA 2.1 Performance Management = Ensure Resource Optimisation	
Generic Practices	**Rating**
The performance objectives of the EDM04 process were identified	69%
Process performance is planned and monitored	78%
Responsibility and authority for process performance is defined (clearly), assigned, and communicated.	65%
The resources and information needed to run the processes are defined, provided, and used.	60%
The parties involved are well managed to ensure effective communication and clear tasks.	56%
Average	**65,6%**
PA 2.2 Work Product Management = Ensure Resource Optimisation	
Generik Practices	**Rating**
Requirements for the work output of the EDM04 process are specified	43%
Requirements for documentation and control of work results are determined	55%
Work results are well identified, documented and controlled	60%
The work results are reviewed back as planned and adjusted to the needs to achieve the Requirements	40%
Average	**49,5%**

Table 8 Findings, GAP, and Recommendations

EDM04.01 – Evaluating resource management		
Value Capability Level 2 = 2,12		
Findings	**Gap**	**Recommendation**
There are guiding principles for allocating resources contained in the SOP in DPMPPTSP.	The SOP guidelines owned by DPMPPTSP are incomplete because there is no financial SP regulating procedures for the use and management of finances.	DPMPPTSP is recommended to complement the SOP. Because the existence of financial SOPs will be a source of reference for companies in financial budgeting procedures.

4. Conclusion

Based on the analysis described in the previous chapter on the evaluation of information technology governance at the North Sumatra One Stop Investment Service and Integrated Licensing Service, the following conclusions were drawn:

a) In the sub domain EDM04.01 (evaluating resource management), the capability value is 2.12 for the current state. This can be interpreted that the sub domain EDM04.01 (evaluating resource management) is at capability level 2, which means that generally the process has been managed periodically, including resource management. Meanwhile, for the condition to be (expected), the capability value is 4.24. This can be interpreted in the sub domain EDM04.01. The One-Stop Investment Service and Integrated Licensing Service expect to reach a value of 4, which means that the process that has been implemented is expected to achieve the results previously targeted. Between capability range 2 and capability range 4, there is a gap value of 2.12. This means that the Investment Agency and One-Stop Integrated Licensing Service must meet the requirements of the unmet capability indicators.

b) In the sub domain EDM04.02 (direct resource management), the capability value is 1.72 for the current state. This means that the sub domain EDM04.02 (direct resource management) is at capability level 2, which means that generally the process has been managed regularly. Meanwhile, for the condition to be (expected), the capability value is 3.56. This can be interpreted that the One-Stop Investment Service and Integrated Licensing Service expect to reach a value of 4, which means that the implemented process is expected to achieve the results previously targeted. Between capability range 2 and capability range 4, there is a gap value of 1.72. This means that the Investment Agency and One-Stop Integrated Licensing Service must meet the requirements of the unmet capability indicators.

c) In the sub domain EDM04.03 (monitoring resource management), the capability value is 2.73 for the current state. This can be interpreted that the sub domain EDM04.01 (evaluating resource management) is at capability level 3, which means that in general the process has been managed periodically including resource management. Meanwhile, for the condition to be (expected), the capability value is 3.594. This can be interpreted in the sub domain EDM04.01. The One-Stop Investment Service and Integrated Licensing Service expect to reach a value of 4, which means that the process that has been implemented is expected to achieve the results previously targeted. Between capability range 3 and capability range 4, there is a gap value of 2.73. This means that the Investment Agency and One-Stop Integrated Licensing Service must meet the requirements of the capability's indicators that have not been met.

References

[1] Astuti, H. M., Muqtadiroh, F. A., Darmaningrat, E. W., & Putri, C. U. (2017). *Risks Assessment of Information Technology Processes Based on COBIT 5 Framework : A Case Study of ITS Service Desk.* Bali: Procedia Computer Science.

[2] Beddu, M. (2017). Evaluasi Belajar Peserta Didik (Siswa). *Jurnal Idaarah.*

[3] Chi, M., Zhao, J., George, J. F., Li, Y., & Zhai, S. (2017). The influence of interfirm IT governance strategis on relational performance: The moderation effect of information technology ambidexterity. *International Journal of Information Mangement.*

[4] Cynthia Octaria. (2017). *Audit Tata Kelola Teknologi Informasi di Universitas Lampung Menggunakan Framework COBIT 5 Fokus Domain EDM (Evaluate, Direct and Monitor.* Lampung: Universitas Lampung.

[5] Damanik, A. (2017). *Evaluasi Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 5 (Studi kasus: Pusat Data dan Sistem Informasi (Pusdatin) Kementrian Pertanian RI).* Jakarta: UIN Syarif Hidayatullah Jakarta.

[6] ISACA. 2012. *COBIT 5: A Business Framework for the Governance and Management of*

Enterprose IT, United State of America.
[7] ISACA. 2012. *COBIT 5: Enabling Processes*, United State of America.
[8] ISACA, 2012. *Prcess Assessment Model (PAM): Using COBIT 5.* USA: IT Governance Institute.
[9] Miranti Alfia. 2019. *Evaluasi Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 5.* Jakarta: UIN Syarif Hidayatullah Jakarta
[10] Nugroho, H. (2014). *Conceptual Model of IT Governance for Higher Education Based on COBIT 5 Framework.* Bandung: Journal of Theoretical and Applied Information Technology.
[11] Saeidi, P., Saeidi, S. P., Sofian, S., Sacidi, S. P., Nilashi, M., & Mardani, a. (2018). The Impact of Enterprise Risk Management on Competitive Advantage by Moderating Role of Information Technology. *Computer Standards & Interfaces.*

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