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Implementation Of It Governance In An Automotive Company In Batam City Using Cobit 5 Framework (A Case Study At Pt Xyz)

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Abstract

The governance of Information Technology (IT) plays a crucial role in the success of automotive companies in the current digital era. This thesis aims to analyze and implement IT governance using the COBIT 5 Framework in automotive companies located in Batam City. The research involves a case study to enhance the efficiency, reliability, and security of the company's IT systems. The research methodology involves data collection through interviews with various stakeholders of the company, observation, and analysis of relevant documents. The research results indicate that the implementation of the COBIT 5 Framework can assist automotive companies in identifying and addressing existing IT governance issues. By following the steps outlined in the COBIT 5 Framework, companies can improve the management of IT resources, and risk control, and enhance the quality of IT services provided. The findings of this research provide practical guidance for automotive companies in Batam City and similar enterprises to enhance their IT governance, thereby supporting growth and competitiveness in the highly competitive automotive market.

Keywords: Information Technology Governance, framework COBIT 5, Capability level

Introduction

This research explores the development of information and communication technology as a need for society and companies. This information technology (IT) increases the effectiveness and efficiency of corporate governance (Eryc & Cindy, 2023). IT governance involves effective management, and implementing the COBIT framework can help in IT assessment and management. COBIT or Control Objectives for information and related technologies, is an Asian framework that helps companies achieve a balance between benefits, risks, and use of IT resources. PT. XYZ Automotive serves as a case study, highlighting the importance of good IT governance, particularly in the automotive industry that relies on information technology. Utilizing COBIT 5 as a framework helps measure enterprise system maturity and improve IT governance. This research identified that PT. XYZ has not implemented corporate governance and has not conducted an IT governance audit or evaluation. COBIT is used as a tool to identify a company's needs in managing IT risks, human resources, changes, operations, service requests, incidents, problems, and security services. Previous research at the regional office of the Ministry of Religion of Lampung Province and MBA Consulting showed that each study had varying levels of maturity in IT governance. In this research IT governance at PT. XYZ by implementing IT governance using the COBIT 5 framework which was assessed through interviews. Even though it has not yet reached the optimal level of maturity, this research provides recommendations for improving IT governance management. This research contributes to understanding the implementation of COBIT 5 in automotive companies in Batam City. In conclusion, the use of the COBIT 5 framework can help corporate governance improve IT governance and achieve business goals more effectively. With this measurement, it is hoped that recommendations can be produced that can be used as a benchmark and reference for improving the IT governance management in the company.

Literature Review

The research entitled " Implementation of It Governance In An Automotive Company In Batam City Using Cobit 5 Framework (A Case Study At Pt Xyz)" is based on several previous studies, namely as follows:

According to the study, this study was carried out (Setiati & Sabila Putri, 2022). The study focuses on the implementation of the COBIT 5 framework from PT. MBA Consulting to achieve IT governance. The purpose of this study is to implement information technology governance by obtaining levels of maturity, gaps, and suggestions for IT governance that are in line with business goals. Qualitative and quantitative methodologies were applied to this study. The study findings show that level 4 maturity is achieved by implementing IT governance utilizing the COBIT-5 framework, which is determined by an average score of 3.51 to 4.5 on EDM02, EDM05, APO01, APO02, APO04, APO05, APO06, APO07 , APO08, APO09, APO10, APO11, APO12, APO13, BAI01, BAI02, BAI03, BAI04, BAI05, BAI07, BAI08, DSS01, DSS02, DSS06, MEA01, and MEA02. In terms of IT governance, PT MBA Consulting has reached the manageable and measurable stage.

This study was conducted based on research (Michael Rumere et al., 2020), the study focuses on analyzing the effectiveness of IT governance in Salatiga regional library and archives services by utilizing the COBIT 5 framework. The purpose of this study is to examine the effectiveness of the City Library and Archives Service information system Salatiga. Qualitative

descriptive methods were applied in this study. The study findings claim that MEA01 is at level 5 (optimization methods process), MEA02 is at level 3 (established process), and MEA03 is at level 2 (managed process). This means that managing a number of influencing factors is essential to using IT more effectively and is also responsible for IT's ability to keep up with technological advances.

Another study by (Surjandy et al., 2020). With a case study at bank, which combines information technology governance and data security components, applied together with a qualitative study methodology. The findings of the evaluation study show that management of banking system development still needs to be improved.

Meanwhile (Darwis et al., 2021), conducted another study, namely their study focused on how the regional office of the Ministry of Religion in Lampung Province audited information security governance using the COBIT 5 methodology. The aim was to determine the level of success of the Ministry of Religion of Lampung Province in implementing governance. information security. A qualitative descriptive technique approach was applied in the data collection process. After analyzing the data, it was discovered that although the Ministry of Religion of Lampung Province had followed formal and standard procedures regarding data and information security, it had not yet reached the optimal level in improving information security governance.

This research was conducted based on research (Asnal & Maya Gita, 2020). Their study focuses on the application of the COBIT 5 methodology carried out by the Riau Province Communication and Information Agency in assessing information technology governance, with special emphasis on the MEA domain. Their study intended to require monitoring and assessment to track the development of evaluation procedures. Qualitative methodology is applied to the research process. The study findings claim that the Riau Province Communication, Informatics and Statistics Service has an IT governance maturity level of 3.92 in the MEA02 area for e-government services. This indicates that a number of process achievements were not fully realized, or the desired results were not achieved.

This study applies a literature review of company XYZ in investigating how IT governance is implemented in automotive companies. The process of leading and managing a company in achieving its goals by providing value while considering risks related to IT and procedures in line with the study is known as IT governance, the application of research-based IT governance by utilizing the COBIT 5 framework (Setiati & Sabila Putri, 2022), (Darwis et al., 2021), (Asnal & Maya Gita, 2020). The implementation of research-based IT governance by utilizing the five COBIT domain frameworks is in line with the studies of (Setiati & Sabila Putri, 2022) and (Darwis et al., 2021). The use of qualitative methods is in accordance with research (Setiati & Sabila Putri, 2022), (Michael Rumere et al., 2020), (Surjandy et al., 2020), (Darwis et al., 2021), (Asnal & Maya Gita, 2020). The use of qualitative methods with object observation and interview methods has never carried out the IT governance process in accordance with research (Michael Rumere et al., 2020) and (Surjandy et al., 2020). The research object has never implemented IT governance (Setiati & Sabila Putri, 2022).

A. IT Governance

According to (Liandi & Fitria, 2019) Governance is a combination of processes and structures applied by leadership and executives of an organization to inform, direct,

manage, and monitor organizational activities toward achieving organizational goals. Information technology, on the other hand, is a study involving the design, implementation, development, support, or management of computer-based information systems, particularly hardware and software.

B. COBIT 5

COBIT 5 (Control Objectives for Information and Related Technology 5.0) is a guide for standard practices in information technology management. (Fryonanda et al., 2019). The COBIT 5 standard is issued by the IT Governance Institute, a part of ISACA. COBIT 5 is a framework that includes several new features released by COBIT in 2012. It is an enhancement of its predecessor, COBIT 4.1, equipped with 5 principles and 7 enablers. There are several differences in the version. While COBIT 4.1 was more oriented towards information governance, COBIT 5 is more focused on information governance as a framework in the fields of management and business.

C. COBIT 5 Principles

COBIT 5 is based on five key principles in governing and managing an IT enterprise. (Lenawati et al., 2017). The five principles of COBIT 5 are:

1. The First COBIT 5 Principle: Meeting stakeholder needs
COBIT 5 consists of processes and enablers to support the creation of business value through the implementation of IT. A company can tailor COBIT 5 to its specific organization.
2. The Second COBIT 5 Principle: Covering the enterprise end-to-end
COBIT 5 integrates Its management within the organization's corporate governance. This is possible because COBIT 5 encompasses all functions then processes within the company. COBIT 5 not only focuses on IT functions but treats technology and information as assets related to other assets managed by everyone within a company.
3. The Third COBIT 5 Principle: Applying a single, integrated framework
COBIT 5 aligns with relevant standards that typically guide some IT activities. COBIT 5 is framework that addresses the high-level governance and management aspects of a company's IT.
4. The Fourth COBIT 5 Principle: Enabling a holistic approach
Effective and efficient governance and management of company IT requires a comprehensive approach, considering interacting components.
5. The Fifth COBIT 5 Principle: Separating governance from management
COBIT 5 provides a clear distinction between management and governance. Both involve distinct activities, require different organizational structures, and serve different purposes.

D. DOMAIN COBIT 5

COBIT 5 has several domains. The following are domains within the COBIT 5 framework.

1. Domain EDM (Evaluate, Direct, and Monitor)

The domain focuses on stakeholders' objectives in conducting assessments and optimizing risks and resources, including practices and activities aimed at evaluating strategic choices, providing guidance to IT, and monitoring their outcomes. (Hanif et al., 2020).

2. Domain APO (Align, Plan, and Organize)
 The domain focuses on providing direction for delivering solutions for the BAI domain and offering services and support in the DSS domain (Jasmin et al., 2021)
3. Domain DSS (Deliver, Service, and Support)
 This domain is related to the actual delivery and support of needed services, encompassing service delivery, security management, user support services, operational data, and facility management (Pasha et al., 2020)
4. Domain BAI (Build, Acquire, and Implement)
 The domain focuses on realizing IT strategy, where IT solutions need to be identified, developed or acquired, implemented, and integrated into business processes. (Purwaningrum, 2021)
5. Domain MEA (Monitor, Evaluate, and Asses)
 Focusing on the management area involves assessing the company's needs and whether existing systems meet them, ensuring control design compliance with regulations, and monitoring related to an independent assessment of system effectiveness and the ability to meet business objectives by an independent assessor (Wiraniagara & Wijaya, 2019)

E. Maturity Level

The maturity level is utilized to control information technology processes using the COBIT framework through assessment/scoring methods. The goal is for the company to understand its current information technology maturity level, and to continuously strive to improve and reach the highest level. This ensures the smooth functioning of information technology governance aspects. (Muttaqin et al., 2020). The capability level of IT management on the Maturity level scale is divided into 6 levels, as shown in Table 1 below.

Table 1. Maturity Level

NO	Index Maturity	Level Maturity
1	0 - 0,49	0 - <i>Non-Existent</i>
2	0,50 - 1,49	1 - <i>Initial/Ad Hoc</i>
3	1,50 - 2,49	2 - <i>Repeatable but Intuitive</i>
4	2,50 - 3,49	3 - <i>Defined Process</i>
5	3,50 - 4,49	4 - <i>Manage and Measurable</i>
6	4.50 - 5.0	5 - <i>Optimized</i>

In this study, the research flow used in the research method can be seen in the following image 1 Below.



Image 1. Research Flow

In this research process, a literature review was carried out using references from trusted journals and references related to IT governance using the COBIT 5 framework. Then in the next stage, the researcher will define the problem to identify the problem, after the problem is identified it can be resolved through the governance process IT so that it is in line with the company's vision, mission, and goals.

In the implementation stage, the author will carry out implementation using the COBIT process model and domain in implementing IT governance using the COBIT 5 framework. COBIT 5 includes a process reference model, defining and explaining in detail several governance and management processes. Provides a process reference model that represents all processes in the company related to IT activities, offering a common reference model that can be understood by operational IT and business managers.

in the evaluation section, the author will evaluate the implementation that has been carried out to see whether the company's goals are in line with COBIT 5 IT goals. In evaluating the goals there are primary (P) and secondary (S) goals.

In this research, the author will apply IT governance using the COBIT 5 framework to automotive companies through case studies. Researchers will provide recommendations tailored to company problems, becoming a reference for improving corporate governance and improving IT governance. Data collection includes interviews with company management and

administering questionnaires with numerical answers ranging from 0-5. After obtaining responses, data analysis will then be carried out to assess the current level of maturity, the expected level of maturity, and the level of compliance with COBIT standards using the following formula.

$$\text{Maturity level} = \frac{\text{Number of Answers}}{\text{Number of questions}}$$

Results & Discussion

The IT-related goals of COBIT 5 which are in line with the circumstances and objectives of the automotive company's IT-related goals at PT XYZ are delivery of IT services in line with business requirements and competent and motivated business and IT personnel. Researchers identify IT-related goals in accordance with the vision, mission, goals and strategic objectives of business that develop knowledge, technology and skills through research by paying attention to future scientific developments. This alignment is carried out in accordance with the IT-related goals mapping above. After determining IT-related goals, the next step is to choose a domain that matches the COBIT 5 IT-related goals mapping.

IT-related goals in providing IT services are in accordance with the delivery of IT services in line with business requirements and competent and motivated business and IT personnel, as can be seen from the mapping findings above. The processes include:

1. EDM02 (Ensure Benefit Deliver)

The description of the EDM02 process is used with the aim of optimizing the automotive enterprise value contribution of company XYZ. With the aim of maximizing the contribution of IT value and ensuring that it operates in accordance with the company's vision, mission and goals in order to become a business that is more innovative, superior and quickly adapts to advances in science and technology.

2. MEA01 (Monitor Evaluate and Assess Performance and Conformance)

MEA01 processes are defined as procedures for collecting, verifying, and assessing IT business objectives, procedures, and metrics. Oversee procedures followed in relation to agreed upon performance and conformance metrics, and produce timely and organized reports. With the aim of encouraging the fulfillment of the vision and mission of XYZ company as well as offering transparency and conformity of performance.

At this stage of determining the domain, it is necessary to identify problems and stakeholder needs in order to know the domains that must be evaluated in order to obtain results that are in line with needs and are right on target. The following domains were selected based on the problems to be evaluated:

1. EDM02 (Ensure Benefit Deliver)

- a. EDM02.01 - evaluate value optimization, a portfolio of IT services, availability and IT-enabled assets generated through continuous evaluation, which helps assess the likelihood of achieving business objectives and delivering value at a highly competitive price. Determine each modification and evaluation based on the guidelines that management needs to accept to maximize the achievement of the desired value.

b. EDM02.02 - direct value optimization, namely the concept and guiding procedures of value-based management enabling the extraction of the best value from IT availability during the project.

c. EDM02.03 - monitor value optimization (monitoring value optimization), namely to ensure the extent to which the automotive company PT Apart from recognizing important problems and thinking about corrective steps to get the desired results

2. MEA01 (Monitor Evaluate and Assess Performance and Conformance)

MEA01 involves the collection, validation, and implementation of business assessment processes, target processes, and TOs, according to ISACA (2012). supervise various matters to ensure procedures run in accordance with predetermined performance standards and objectives as well as appropriate measurements, Create timely and organized reports. The goal of this process is to encourage goal achievement and transparency regarding appropriate performance.

a. MEA01.01 - establish a monitoring approach (determine the approach to monitoring). Involves an interest in establishing, maintaining, and monitoring strategies that are useful in determining objectives, parameters, and techniques in assessing the delivery of business solutions and services and how they contribute to organizational goals.

b. MEA01.02 - set performance and conformance targets (set performance and conformance targets). Collaborate with stakeholders to establish a schedule for reviewing, updating, and approving performance and goals in accordance with appropriate performance measurement systems.

c. MEA01.03 - collect and process performance and conformance data (collect and process information according to performance and conformance). Collect and process data accurately and quickly.

d. MEA01.04 - analyze and report performance (analyze and report performance). Use techniques that can provide a clear picture of IT performance in a comprehensive manner and are in line with monitoring systems in carrying out routine reviews and reporting based on performance against targets.

e. MEA01.05 - ensure the implementation of corrective actions (ensure the implementation of actions appropriately). Make it easier for stakeholders to find, initiate and monitor the right steps to overcome abnormalities in business.

Guide for selecting respondents who are the same as the company's conditions, using the RACI chart mapping in COBIT 5. Based on the RACI chart matrix for the EDM02 and MEA0 processes, the researcher found several respondents who fall within the definition in COBIT 5, namely the Chief Executive Officer and Chief Information Officer for the EDM02 process , and Three respondents met the definition of Role and Organizational Structure in COBIT 5 for the MEA01 process, namely Chief Executive Officer, Chief Information Officer, and Business Executive. The Head of the Computer Unit was briefed by the researcher on the current EDM02 and MEA01 procedures. After providing information on how to fill out the questionnaire, the researcher met with the respondents who had been selected in the previous stage to guide them through the process. After evaluating the questionnaire data, the researcher collects the data and applies the attribute level process to achieve reporting the results.

The following are the results of the questionnaire from each COBIT 5 domain. To obtain the results of the questionnaire calculation using a Likert Scale and having received a Capability level assessment evaluation, the researcher validated the data based on the questionnaire that had been distributed to respondents by the RACI table. The results of the questionnaire can be seen in the following image.

MEA01.01 Menetapkan pendekatan pemantauan								
No	Aktifitas	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	Sejauh manakah identifikasi pemangku kepentingan (mis., Manajemen, pemilik proses, dan pengguna).	as is	0.00	66.67	0.00	0.00	33.33	0.00
		to be	0.00	0.00	0.00	33.33	66.67	0.00
2	Sejauh mana pemangku kepentingan dan definisi (mis., glosarium perusahaan, metadata, dan taksonomi), baseline, dan tolok ukur.	as is	0.00	0.00	0.00	66.67	0.00	0.00
		to be	0.00	0.00	0.00	66.67	100	0.00
3	Sejauh mana menyelaraskan dan terus mempertahankan pendekatan pemantauan dan evaluasi dengan pendekatan perusahaan dan alat-alat yang akan digunakan untuk pengumpulan data dan pelaporan perusahaan (mis., aplikasi intelijen bisnis).	as is	0.00	33.33	33.33	0.00	33.33	0.00
		to be	0.00	0.00	33.33	33.33	33.33	0.00
4	Sejauh mana menyetujui tujuan dan metrik (mis., Kesesuaian, kinerja, nilai, risiko), taksonomi (klasifikasi dan hubungan antara tujuan dan metrik) dan retensi data (bukti).	as is	0.00	33.33	33.33	0.00	33.33	0.00
		to be	0.00	0.00	33.33	33.33	33.33	0.00
5	Sejauh mana menyetujui manajemen siklus hidup dan proses kontrol perubahan untuk pemantauan dan pelaporan. Sertakan peluang peningkatan untuk pelaporan, metrik, pendekatan, baselining dan benchmarking.	as is	0.00	66.67	0.00	0.00	33.33	0.00
		to be	0.00	33.33	33.33	0.00	33.33	0.00
6	Sejauh mana meminta, memprioritaskan dan mengalokasikan sumber daya untuk pemantauan (pertimbangkan kesesuaian, efisiensi, efektivitas dan kerahasiaan).	as is	0.00	33.33	33.33	0.00	33.33	0.00
		to be	0.00	0.00	0.00	100	100	100
7	Sejauh mana memvalidasi pendekatan yang digunakan dan mengidentifikasi pemangku kepentingan, persyaratan, dan sumber daya yang baru atau diubah secara berkala.	as is	33.33	0.00	33.33	33.33	100	0.00
		to be	0.00	0.00	33.33	0.00	66.67	0.00
Kondisi Saat ini			0.00	38.09	14.28	14.28	28.56	0.00
Kondisi yang Diharapkan			4.76	29	9.52	80	0.00	0.00

Image 2. Questionnaire Results Domain MEA01.01

MEA01.02 Mengatur kinerja dan target kesesuaian								
No.	Aktifitas	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	tetapkan dan tinjau secara berkala dengan pemangku kepentingan tujuan dan metrik untuk mengidentifikasi item yang hilang yang signifikan dan menentukan kewajaran target dan toleransi.	as is	66.67	0.00	33.33	0.00	0.00	0.00
		to be	0.00	0.00	66.67	0.00	33.33	0.00
2	mengkomunikasikan perubahan yang diusulkan untuk kinerja dan target kesesuaian dan toleransi (terkait dengan metrik) dengan pemangku kepentingan uji tuntas yang utama (mis, hukum, audit, SDM, etika, kepatuhan, keuangan).	as is	0.00	0.00	66.67	0.00	33.33	0.00
		to be	0.00	0.00	66.67	0.00	33.33	0.00
3	publikasikan target yang berubah dan toleransi untuk pengguna informasi ini.	as is	33.33	33.33	66.67	0.00	0.00	0.00
		to be	0.00	0.00	33.33	66.67	66.67	0.00
4	mengevaluasi apakah sasaran dan metrik memadai, yaitu, spesifik, terukur, dapat dicapai, relevan, dan terikat	as is	33.33	66.67	0.00	0.00	0.00	0.00
		to be	0.00	0.00	33.33	0.00	66.67	0.00
Kondisi Saat Ini			00.00	25	27.7	16.66	8.33	0.00
Kondisi yang Diharapkan			00.00	8.33	25	16.66	60	00.00

Image 3. Questionnaire Results Domain MEA01.02

MEA01.03 Kumpulkan dan proses kinerja dan data kesesuaian								
No.	Aktifitas	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	kumpulkan data dari proses yang ditentukan-otomatis, jika memungkinkan.	as is	0.00	33.33	66.67	0.00	0.00	0.00
		to be	0.00	0.00	0.00	66.67	100	0.00
2	Melakukan penilaian yang efisiensi (upaya dalam kaitannya dengan wawasan yang diberikan) dan kesesuaian (kegunaan dan makna) dan memvalidasi integritas (akurasi dan kelengkapan) dari data yang	as is	0.00	0.00	33.33	66.67	0.00	0.00
		to be	0.00	0.00	33.33	33.33	33.33	0.00
3	kumpulan data untuk mendukung pengukuran metrik yang disepakati.	as is	0.00	33.33	0.00	66.67	0.00	0.00
		to be	33.33	33.33	66.67	66.67	66.67	0.00
4	menyelaraskan data agregat dengan pendekatan dan tujuan pelaporan perusahaan.	as is	33.33	0.00	66.67	0.00	0.00	0.00
		to be	0.00	0.00	0.00	100	100	0.00
5	menggunakan alat dan sistem yang sesuai untuk pemrosesan dan format data untuk analisis.	as is	0.00	100	0.00	0.00	0.00	0.00
		to be	0.00	0.00	0.00	66.67	33.33	0.00
Kondisi Saat Ini			0.00	33.33	39.99	53.33	0.00	0.00
Kondisi yang Diharapkan			6.66	0.00	0.00	60	46.66	0.00

Image 4. Questionnaire Results Domain MEA01.03

MEA01.03 Kumpulkan dan proses kinerja dan data kesesuaian								
No	Aktifitas	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	kumpulkan data dari proses yang ditentukan-otomatis, jika memungkinkan.	as is	0.00	33.33	66.67	0.00	0.00	0.00
		to be	0.00	0.00	0.00	66.67	100	0.00
2	Melakukan penilaian yang efisiensi (upaya dalam kaitannya dengan wawasan yang diberikan) dan kesesuaian (kegunaan dan makna) dan memvalidasi integritas (akurasi dan kelengkapan) dari data yang	as is	0.00	0.00	33.33	66.67	0.00	0.00
		to be	0.00	0.00	33.33	33.33	33.33	0.00
3	kumpulan data untuk mendukung pengukuran metrik yang disepakati.	as is	0.00	33.33	0.00	66.67	0.00	0.00
		to be	33.33	33.33	66.67	66.67	66.67	0.00
4	menyelaraskan data agregat dengan pendekatan dan tujuan pelaporan perusahaan.	as is	33.33	0.00	66.67	0.00	0.00	0.00
		to be	0.00	0.00	0.00	100	100	0.00
5	menggunakan alat dan sistem yang sesuai untuk pemrosesan dan format data untuk analisis.	as is	0.00	100	0.00	0.00	0.00	0.00
		to be	0.00	0.00	0.00	66.67	33.33	0.00
Kondisi Saat Ini			0.00	33.33	39.99	53.33	0.00	0.00
Kondisi yang Diharapkan			6.66	0.00	0.00	60	46.66	0.00

Image 5. Questionnaire Results Domain MEA01.04

MEA01.05 Pastikan implementasi tindakan korektif								
No	Aktifitas	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	melakukan kegiatan peninjauan terhadap respons manajemen, opsi, dan rekomendasi untuk mengatasi masalah dan penyimpangan besar	as is	0.00	33.33	33.33	33.33	0.00	0.00
		to be	0.00	0.00	0.00	0.00	66.67	33.33
2	memastikan bahwa penugasan tanggung jawab untuk tindakan korektif dinertakan	as is	33.33	0.00	0.00	66.67	0.00	0.00
		to be	0.00	0.00	0.00	0.00	0.00	100
3	melakukan pemantauan terhadap hasil tindakan yang dilakukan	as is	0.00	66.67	0.00	0.00	33.33	0.00
		to be	0.00	0.00	100	0.00	0.00	0.00
4	laporkan hasilnya kepada kepentingan.	as is	0.00	0.00	0.00	100	0.00	0.00
		to be	0.00	0.00	66.67	33.33	0.00	0.00
Kondisi Saat Ini			8.33	25	8.33	50	8.33	0.00
Kondisi yang Diharapkan			0.00	8.33	25	33.33	41.66	0.00

Image 6. Questionnaire Results Domain MEA01.05

EDM02.01 (Evaluasi Penguatan Nilai)								
No.	Aktivitas proses	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	Sejauh mana pemahaman penyusunan kepentingan, masalah TI strategis, seperti ketanggungan pada TI, serta wawasan dan kapabilitas teknologi terkait signifikansi aktual dan potensial TI untuk strategi perusahaan?	isi	0,00	50	50	0,00	0,00	0,00
		isi	0,00	0,00	0,00	100	0,00	0,00
2	Sejauh mana pemahaman terhadap elemen utama tata keola yang diperlukan untuk penyampaian nilai optimal yang andal, aman, dan hemat biaya dari penggunaan yang ada dan layanan, aset, dan sumber daya TI baru?	isi	0,00	50	50	0,00	0,00	0,00
		isi	0,00	0,00	0	100	0,00	0,00
3	Sejauh mana pemahaman secara teratur mendiskusikan peluang yang dapat muncul dari perubahan perusahaan yang ditunjukkan oleh teknologi saat ini, baru atau yang muncul, dan mengoptimalkan nilai yang tercipta dan peluang tersebut?	isi	0,00	0,00	100	0,00	0,00	0,00
		isi	0,00	0,00	0,00	0,00	100	0,00
4	Sejauh mana pemahaman yang merupakan nilai bagi perusahaan, dan memperibahngkan seberapa baik hal itu dikomunikasikan, dipahami dan diterapkan di seluruh proses perusahaan?	isi	0,00	50	50	0,00	0,00	0,00
		isi	0,00	0,00	0,00	0,00	0,00	0,00
5	Seberapa efektif perusahaan dan strategi TI telah diintegrasikan dan diselaraskan dalam perusahaan dan dengan tujuan perusahaan memberikan nilai?	isi	0,00	50	50	0,00	0,00	0,00
		isi	0,00	0,00	100	0,00	0,00	0,00
6	Seberapa efektif peran, tanggung jawab, akuntabilitas, dan badan pembuat keputusan saat ini dalam memastikan penciptaan nilai investasi, layanan, dan aset yang mendukung TI.	isi	0,00	0,00	100	0,00	0,00	0,00
		isi	0,00	0,00	0,00	0,00	0,00	0,00
7	Sejauh mana pertimbangan dan seberapa baik pengelolaan investasi, layanan, dan aset yang mendukung TI selaras dengan manajemen nilai perusahaan dan keuangan praktik manajemen?	isi	0,00	0,00	0,00	100	0,00	0,00
		isi	0,00	0,00	0,00	100	0,00	0,00
8	Sejauh mana evaluasi pada portofolio investasi, jasa dan aset untuk kesesuaian dengan tujuan strategis perusahaan, nilai perusahaan, baik finansial maupun non-finansial; risiko, baik risiko pengiman maupun risiko manfaat; penyelarasan proses bisnis; efektivitas dalam hal kegunaan, ketersediaan dan daya tanggap; dan efisiensi dalam hal biaya, redundansi dan kesehatan teknis?	isi	0,00	0,00	0,00	100	0,00	0,00
		isi	0,00	0,00	0,00	100	0,00	0,00
Kondisi Saat Ini			0,00	25	62,5	12,5	0,00	0,00
Kondisi Yang Diharapkan			0,00	0,00	12,5	87,5	0,00	0,00

Image 7. Questionnaire Results Domain EDM02.01

EDM02.02 (Optimasi Nilai Langsung)								
No.	Aktivitas proses	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	Tentukan dan komunikasikan jenis portofolio dan investasi, kategori, kriteria dan bobot relatif ke kriteria untuk memungkinkan relatif keseluruhan nilai nilai.	at tt	0.00	0.00	0.00	100	0.00	0.00
		to be	0.00	0.00	0.00	0.00	100	0.00
2	Tentukan persyaratan untuk bergabung/panggung dan tinjauan lain untuk signifikansi investasi bagi perusahaan dan risiko terkait, jadwal program, rencana pendanaan, dan penyampaian kapabilitas dan manfaat utama serta kontribusi berkelanjutan terhadap nilai.	at tt	0.00	0.00	0.00	100	0.00	0.00
		to be	0.00	0.00	0.00	0.00	100	0.00
3	Tentukan manajemen langsung untuk mempertimbangkan potensi penggunaan inovatif dari TI yang memungkinkan perusahaan untuk menanggapi peluang atau tantangan baru, luncurkan bisnis baru, meningkatkan daya saing, atau meningkatkan proses.	at tt	0.00	0.00	0.00	100	0.00	0.00
		to be	0.00	0.00	0.00	0.00	100	0.00
4	Mengarahkan setiap perubahan yang diperlukan dalam pemagaan stabilitas dan tanggung jawab untuk melaksanakan portofolio investasi dan memberikan nilai dari proses dan layanan bisnis	at tt	0.00	0.00	50	50	0.00	0.00
		to be	0.00	0.00	0.00	0.00	100	0.00
5	Tentukan dan komunikasikan tujuan penyampaian nilai tingkat perusahaan dan ukuran hasil untuk memungkinkan pemantauan yang efektif.	at tt	0.00	0.00	50	50	0.00	0.00
		to be	0.00	0.00	0.00	0.00	0.00	0.00
6	Mengarahkan setiap perubahan yang diperlukan pada portofolio investasi dan layanan untuk menyesuaikan dengan tujuan dan / atau kendala perusahaan saat ini dan yang diharapkan.	at tt	0.00	0.00	100	0.00	0.00	0.00
		to be	0.00	0.00	0.00	-50	0.00	0.00
7	Merekomendasikan pertimbangan inovasi potensial, perubahan organisasi atau perbaikan operasional yang dapat mendorong peningkatan nilai bagi perusahaan dan insiatif yang mendukung TI.	at tt	0.00	0.00	0.00	0.00	0.00	0.00
		to be	0.00	0.00	0.00	0.00	50	0.00
Kondisi Saat Ini			0.00	0.00	33.33	66.67	0.00	0.00
Kondisi Yang Diharapkan			0.00	0.00	0.00	0.00	100	0.00

Image 8. Questionnaire Results Domain EDM02.01

EDM02.02 (Optimasi Nilai Langsung)								
No.	Aktivitas proses	Status	Distribusi Jawaban					
			a (%)	b (%)	c (%)	d (%)	e (%)	f (%)
1	Tentukan dan komunikasikan jenis portofolio dan investasi, kategori, kriteria dan bobot relatif ke kriteria untuk memungkirkan relatif kesesuaian nilai nilai.	as is	0,00	0,00	0,00	100	0,00	0,00
		to be	0,00	0,00	0,00	0,00	100	0,00
2	Tentukan persyaratan untuk gerbang panggung dan tujuan lain untuk signifikansi investasi bagi perusahaan dan risiko terkait, jadwal program, rencana pendanaan, dan penyampaian kapabilitas dan manfaat utama serta kontribusi berkelanjutan terhadap nilai.	as is	0,00	0,00	0,00	100	0,00	0,00
		to be	0,00	0,00	0,00	0,00	100	0,00
3	Tentukan manajemen langsung untuk mempertimbangkan potensi penggunaan inovatif dari TI yang memungkirkan perusahaan untuk menanggapi peluang atau tantangan baru, lakukan bisnis baru, meningkatkan daya saing, atau meningkatkan proses.	as is	0,00	0,00	0,00	100	0,00	0,00
		to be	0,00	0,00	0,00	0,00	100	0,00
4	Mengarahkan setiap perubahan yang diperlukan dalam pelaksanaan stabilitas dan tanggung jawab untuk melaksanakan portofolio investasi dan memberikan nilai dari proses dan layanan bisnis	as is	0,00	0,00	50	50	0,00	0,00
		to be	0,00	0,00	0,00	0,00	100	0,00
5	Tentukan dan komunikasikan tujuan penyampaian nilai tingkat perusahaan dan ukuran hasil untuk menyesuaikan penastanaan yang efektif.	as is	0,00	0,00	50	50	0,00	0,00
		to be	0,00	0,00	0,00	0,00	0,00	0,00
6	Mengarahkan setiap perubahan yang diperlukan pada portofolio investasi dan layanan untuk menyesuaikan dengan tujuan dan / atau kendala perusahaan saat ini dan yang diharapkan.	as is	0,00	0,00	100	0,00	0,00	0,00
		to be	0,00	0,00	0,00	50	0,00	0,00
7	Merekendasikan pertimbangan inovasi potensial, perubahan organisasi atau perbaikan operasional yang dapat mendorong peningkatan nilai bagi perusahaan dan inisiatif yang mendukung TI.	as is	0,00	0,00	0,00	0,00	0,00	0,00
		to be	0,00	0,00	0,00	0,00	50	0,00
Kondisi Saat Ini			0,00	0,00	33,33	66,67	0,00	0,00
Kondisi Yang Diharapkan			0,00	0,00	0,00	0,00	100	0,00

Image 9. Questionnaire Results Domain EDM02.03

Here are the attribute level processes and the calculation of capability value for MEA01

1. Capability Value MEA01.01

As is MEA01.01

$$NK = \frac{(0,00 \times 0) + (38,09 \times 1) + (14,28 \times 2) + (14,28 \times 3) + (28,56 \times 4) + (0,00 \times 5)}{100} = 2,44$$

To be MEA01.01

$$NK = \frac{(0,00 \times 0) + (38,09 \times 1) + (14,28 \times 2) + (14,28 \times 3) + (28,56 \times 4) + (0,00 \times 5)}{100} = 2,87$$

2. Capability Value MEA01.02

As is MEA01.02

$$NK = \frac{(0,00 \times 0) + (25 \times 1) + (27,7 \times 2) + (16,66 \times 3) + (8,3 \times 4) + (0,00 \times 5)}{100} = 1,62$$

To be MEA01.02

$$NK = \frac{(0,00 \times 0) + (8,33 \times 1) + (25 \times 2) + (16,66 \times 3) + (60 \times 4) + (0,00 \times 5)}{100} = 3,08$$

3. Capability Value MEA01.03

As is MEA01.03

$$NK = \frac{(3,33 \times 0) + (39,99 \times 1) + (39,33 \times 2) + (0,00 \times 3) + (0,00 \times 4) + (0,00 \times 5)}{100} = 2,73$$

To be MEA01.03

$$NK = \frac{(0,00 \times 0) + (6,66 \times 1) + (13,33 \times 2) + (0,00 \times 3) + (60 \times 4) + (46,66 \times 5)}{100} = 3,75$$

4. Capability Value MEA01.04

As is MEA01.04

$$NK = \frac{(1,66 \times 0) + (27,77 \times 1) + (16,66 \times 2) + (33,33 \times 3) + (5,55 \times 4) + (0,00 \times 5)}{100} = 2,74$$

To be MEA01.04

$$NK = \frac{(5,55 \times 0) + (5,55 \times 1) + (16,66 \times 2) + (22,22 \times 3) + (49,99 \times 4) + (00,00 \times 5)}{100} = 3,05$$

5. Capability Value MEA01.05

As is MEA01.05

$$NK = \frac{(8,33 \times 0) + (25 \times 1) + (8,33 \times 2) + (50 \times 3) + (8,33 \times 4) + (0,00 \times 5)}{100} = 2,24$$

To be MEA01.05

$$NK = \frac{(0,00 \times 0) + (8,33 \times 1) + (25 \times 2) + (33,33 \times 3) + (41,66 \times 4) + (00,00 \times 5)}{100} = 3,25$$

Below is the table explaining the achievement of the MEA01 process at each level:

Table 2. Achievement Results MEA01

<i>Process Name</i>	<i>Level 0</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>		<i>Level 4</i>	<i>Level 5</i>			
MEA01		PA	PA	PA	PA	PA	PA	PA	PA	
		1.1	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2
<i>Rating by</i>		F	F	F	P	L				
<i>Criteria</i>		100%	100%	100%	40%	50%				
<i>Capability</i>		1	2	2	3	3				
<i>Level Achieved</i>										

Legend:

N (Not Achieved, 0-15%) *P* (Partially Achieved, >15%-50%) *L* (Largely Achieved, >50%-85%) *F* (Fully Achieved, >85%-100%)

Based on the achievements explained in the four tables above PA 2.1 Performance management and PA 2.2 Work product management, the achievement score is 100% which is included in the fully achieved category, that the Company has fulfilled the requirements for achieving Level 2 (managed process). PA 3.1 Process definition and PA 3.2 Process Deployment then obtained an achievement score that falls into the Partially achieved category but cannot continue the assessment to Level 4 or later because the conditions that must be met are to reach the largely achieved category. at Level 3 (Established Process).

Here are the attribute level processes and the calculation of capability value for EDM02

1. Capability Value EDM02.01

As is EDM02.01

$$NK = \frac{(0,00 \times 0) + (17,5 \times 1) + (62 \times 2) + (50 \times 3) + (0,00 \times 4) + (0,00 \times 5)}{100} = 2,87$$

To be EDM02.01

$$NK = \frac{(0,00 \times 0) + (0,00 \times 1) + (0,00 \times 2) + (0,00 \times 3) + (12,5 \times 4) + (87,5 \times 5)}{100} = 4,87$$

2. Capability Value EDM02.02

As is EDM02.02

$$NK = \frac{(0,00 \times 0) + (0,00 \times 1) + (3,33 \times 2) + (66,67 \times 3) + (0,00 \times 4) + (0,00 \times 5)}{100} = 2,6$$

To be EDM02.02

$$NK = \frac{(0,00 \times 0) + (0,00 \times 1) + (0,00 \times 2) + (0,00 \times 3) + (100 \times 4) + (0,00 \times 5)}{100} = 4$$

3. Capability Value EDM02.03

As is EDM02.03

$$NK = \frac{(0,00 \times 0) + (0,00 \times 1) + (8,3 \times 2) + (41,67 \times 3) + (50 \times 4) + (0,00 \times 5)}{100} = 2,4$$

To be EDM02.03

$$NK = \frac{(0,00 \times 0) + (0,00 \times 1) + (0,00 \times 2) + (0,00 \times 3) + (100 \times 4) + (0,00 \times 5)}{100} = 4$$

Below is the table explaining the achievement of the EDM02 process at each level:

Table 3. Achievement Result EDM02

<i>Process Name</i>	<i>Level 0</i>	<i>Level 1</i>	<i>Level 2</i>	<i>Level 3</i>		<i>Level 4</i>		<i>Level 5</i>		
EDM02		PA	PA	PA	PA	PA	PA	PA	PA	
		1.1	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2

Criteria	F	F	P	L
Criteria	100%	100%	40%	66,6%
Capability	1	2	3	3
Level				
Achieved				

Legend:

N (Not Achieved, 0-15%) P (Partially Achieved, >15%-50%) L (Largely Achieved, >50%-85%) F (Fully Achieved, >85%-100%)

Based on the achievements explained in the table above PA 2.1, Performance Management and PA 2.2 Work product management, the achievement score is 100% which is included in the fully achieved category, that the Polytechnic has fulfilled the requirements for achieving Level 2 (managed process). PA 2.1 Process definition and PA 2.2 Process Deployment, the achievement score is 100% which is included in the fully achieved category, that the Company has fulfilled the requirements for achieving Level 3 (Established Process), and PA 3.1 Process measurement and PA 3.2 Process Deployment results in an achievement score that falls into the Partially achieved category, but cannot continue with the assessment to Level 4 or Level 5 because the conditions that must be met are to reach the largely achieved category at Level 3.

Conclusions

Based on the analysis outlined in the previous chapter regarding the Implementation of IT Governance in an Automotive Company in Batam City Using the COBIT 5 Framework, the researcher can draw the following conclusions:

1. In the EDM02 process the current capability level is level 3 (Established Process) with a capability value of 2.25% (largely achieved). Meanwhile, the expected capability levels at Level 3 (Established Process) within capability value of only 3.20%. There is a gap of 0.95% between the values in the range from level 2 to level 3.
2. In the MEA01 process (Monitor, Evaluate, Assess Performance and Conformance), the current capability level is level 2 (Manage Process) with a capability value of 2.25% (largely achieved). Meanwhile, the expected capability level is Level 3 (Established Process) with capability value of 3.25%. There is a gap of 1.00% between the values in the range from level 2 to level 3.
3. Recommendations To close the existing gap at Automotive Company PT XYZ TIK Unit, they can create SOPs by the guidelines from COBIT 5 and improve the process level from level 2 to level 3. Additionally, creating documentation reports for all system activities and organizational structures in line with the RACI Chart would enable them to identify and promptly address any system failures.

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