

Risk Management Assessment in Case Tracing Information System using COBIT 5 Framework

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ABSTRACT

The Yogyakarta District Court is a judicial institution within the general judiciary domiciled in the city of Yogyakarta, the Yogyakarta District Court is a government institution under the coordination of the Supreme Court which is developing in adapting its development in the IT sector. The Supreme Court has developed an IT-based information management system that is implemented in all District Courts in Indonesia called SIPP (System Investigation Information). SIPP aims to make it easier for the public to access information about things that happen in court, especially regarding trial information, trial schedules, executors involved in the trial, as well as presenting data on all cases containing case numbers, registration dates, case classification, Related Parties, Case Status, and others. all of which can be accessed easily via the internet and are more transparent with the intention of not covering anything up. The risk management analysis conducted at the Yogyakarta District Court uses the COBIT 5 framework with the APO12 (Risk Management) process consisting of APO12.01 to APO12.06 and EDM03 (Optimizing risk management) consisting of EDM03.01 to EDM03.02. assessment of the ability level used in the assessment - the process is carried out by collecting observation data, interviews, and distributing questionnaires, analyzing data using the Process Assessment Model so that it can determine the current ability value, expected ability value, gap value analysis, and determine recommendations for each risk. The assessment of the capability level of the APO12 (Managing Risk) calculation process obtained a value of 3.83 which indicates the implementation of the process is at level 4 (Predictable Process) and EDM03 (Ensuring Risk Optimization) obtained a value of 3.51 which indicates the implementation of the process is at level 3 (Established Process) the results of the gap value based on calculations carried out with the APO12 (Manage risk) process found a gap of 1.16 and EDM (Ensuring Risk Optimization) found a gap of 1. The results of gap discovery were used to make recommendations regarding risk management within the company to achieve the Court's objectives which have been set. expected in the future.

Keywords

Information Systems, Risk management, COBIT 5, Process Capability Level

1. INTRODUCTION

In the current era of globalization, the use of Information Technology is an inseparable part of an organization or agency.[1]To support the achievement of the agency's vision, mission, and goals, the application of IT that utilizes supporting media plays a very important role in assisting business processes in achieving their goals. [2] Agencies cannot be separated from the role of IT in managing

information which makes it important to provide services that are quality and can optimize business processes.[3] The Yogyakarta District Court as a government institution under the coordination of the Supreme Court is developing in adapting its development in the IT sector. Over time, the Supreme Court has built several technology-based services such as the Case Investigation Information System (SIPP), Surveillance System (SIWAS), E-Court, and Eratering[3]. From interviews with the head of IT and judges at the Yogyakarta District Court, SIPP is a system used to support business objectives at the Court. Case Investigation Information System (SIPP) Aims to make it easier for the public to access information about things that happen in court, especially regarding court information. involved in the trial, as well as presenting data on all cases containing Case Number, Registration Date, Related Parties, etc[4].

From the results of interviews with the head of the IT department and the jury, there are several problems such as lack of coordination between departments, human error, tools that cannot be executed, and lack of training for users. The risks that occur can be minimized by conducting a Risk Assessment on the Information System Service for Case Tracing at the Yogyakarta District Court. The assessment consists of several stages which include analysis of the level of capability, gap, and risk assessment. From the assessment stage, it will produce recommendations and mitigation strategies that can be used by the Yogyakarta District Court in monitoring and improving the achievement of IT risk management capabilities to minimize risk.

The COBIT method is a set of guidelines and documentation that serves to assist auditors, stakeholders, or users in connecting between the business control model and the IT control model[5]. APO12 (manage risk) aims to identify, assess and reduce IT-related so as not to exceed the tolerance limits set by the organization[6].“Research on Risk Management in Information System Case Tracking using COBIT 5 Framework”.

1.1 Study Literature

1.1.1 Definition of Risk

A risk is an event that occurs in a company that affects the achievement of company goals. Risk management is the ability to face risks with a good effect in helping to realize the company's goals

1.1.2 Definition of IT Risk management

IT Risk Management is a combination of processes used to identify, review, develop prevention strategies and communicate IT risks that have a negative impact and cause harm to the company.[7]

1.1.3 COBIT5

Control Objectives for Information and Related Technology (COBIT 5) is an updated version that incorporates cutting-edge thinking in corporate IT governance and techniques to support activity processes that focus on the strategic value of information technology implementation (IT Strategic Value) and determine IT implementation to support the achievement of the company's vision and mission. COBIT 5 builds on the development of COBIT 4.1 by integrating Val IT and Risk IT from ISACA, ITIL, and relevant ISO standards. The COBIT 5 framework consists of 5 (five) key principles of corporate IT governance and management and is equipped with 7 (Seven) enablers that are provided to optimize technology and information while providing benefits for stakeholders.[8]

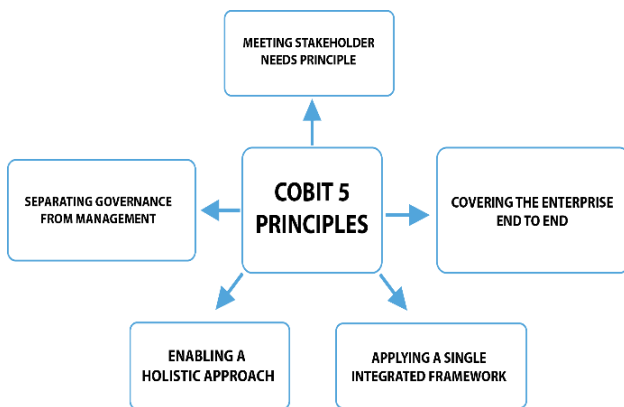
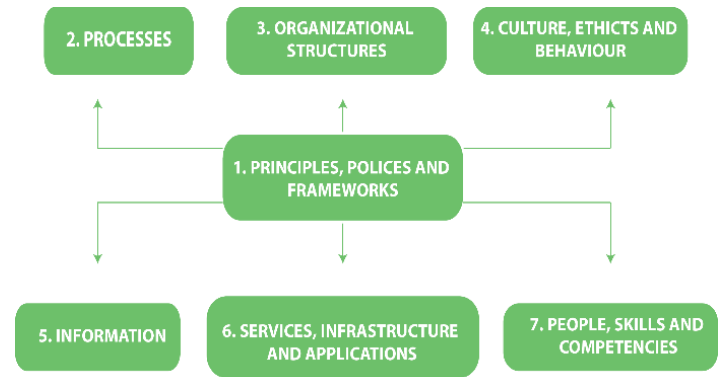


Figure 1. The Five Principle of COBIT 5

Based on Figure 1 there are 5 (five) main principles that must be implemented as follows[9]:

1. Meeting the needs of stakeholders, carrying out all the needs of stakeholders in maintaining a balance to realize benefits and optimize risks
2. Covering End-to-end Enterprise, integrating information technology corporate governance from upstream to downstream.
3. Implementing a Single Integrated Framework, applying a single unified framework to guide a subset of information technology activities.
4. Enabling a Holistic Approach, enabling an efficient and effective holistic approach to corporate governance and management.
5. Separation of Governance from Management, separation of governance from management.[8]

1.1.3.1 Figure 2. Seven Enablers COBIT 5



Based on Figure 2, there are 7 (seven) enablers of COBIT 5 as below[8]:

1. Principles, Policies, and Frameworks, formulating stakeholder needs as guidelines to be used in the company's operational activities in the field of information technology.
2. Process, providing details of activities and activities carried out to achieve company goals.
3. Organizational structure, meeting the needs and objectives of stakeholders on decisions and policies made by the company.
4. Culture, Ethics, and Behavior provide an assessment of the company's habits and goals so that they can be achieved with good corporate habits.
5. Information, companies need information in carrying out business processes to make moves by making decisions and solving problems within the company.
6. Services Infrastructure, and Applications, providing services, infrastructure, and applications for enterprise information technology processes.
7. People, Skills, and Competencies, carry out all activities and make decisions with the right and successful skills and competencies.

1.1.4 Proses Capability Level

In the COBIT 5 framework, there are 6 (six) levels of process capability [10].

1. Level 0 (Incomplete Process), At this level, the process is not implemented or fails to achieve the objectives, no evidence states the achievement of the process.
2. Level 1 (Performed Process), the implementation of the process achieves its goals.
 - a. PA 1.1 process performance, the implemented process achieves its process objectives.
3. Level 2 (Managed Process), processes at level 1 are implemented into process management (planned, monitored, and evaluated) and work products from the process are identified, controlled, and maintained appropriately.
 - a. PA 2.1 Performance Management, measures the extent to which process performance is managed.
 - b. PA 2.2 work product management, measures the extent to which the work products produced by the process are managed appropriately.

4. Level 3 (Established Process), the process is defined and implemented according to existing standards.
 - a. PA 3 Process Definition, measures the extent to which the process is maintained to improve the deployment of the defined process.
 - b. PA 3.2 Process Deployment, measures the extent to which the process is still implemented as a defined process to achieve process results.
5. level 4 (Predictable Process) operates within the specified limits to achieve the process results.
 - a. PA 4.1 Process Measurement, measures the extent to which the measurement results can ensure that the relevant process performance objectives are achieved in support of the defined business objectives.
 - b. PA 4.2 Process Control, measures the extent to which processes are managed quantitatively to produce stable, capable, and predictable processes within defined limits.
6. Level 5 (Optimizing Process), the process is constantly being developed to complement the current conditions that are relevant and lead to business objectives.
 - a. 5.1 Process Innovation, Process innovation, measures the extent to which process changes are identified from process implementation and the innovative approach to process implementation.

PA 5.2 Process Optimization, measures the extent to which changes are defined and effectively manages process execution to support the achievement of process improvement objectives.

1.1.4.1 RACI Chart

The Raci Chart is needed to determine who will be the resource person in this research. Raci stands for Responsible, Accountable, Consulted, and Informed. COBIT 5 explains the RACI chart is the overall activity or decision support authorization that must be taken in an organization by looking at all parties or positions involved[11]. The following are the roles of the RACI Chart, among others:

1. A responsible person who acts as the executor of the task.
2. An accountable person acts as the person in charge of a task and has the authority as a decision-maker.
3. Consulted people who play a role in providing direction, advice, and contributions when needed.
4. Informed people play a role in knowing the results.

1.1.4.1.1 RACI Chart APO12

The RACI graph is used for the APO12 domain so that researchers can map prospective respondents who will fill out questionnaires which will later be used as material data processing. RACI identification is taken based on employees who are directly involved with the running of the business process, the parties in the Yogyakarta District Court individually have been involved as actors from RACI, both actors implementing tasks, Decision Making, giving directions, and roles that must understand the decisions taken,

so it can be concluded that the elements in the Yogyakarta District Court took part in RACI which can be called individuals who have multiple roles. The reasons above are valid if the RACI Chart mapping is based on the person who performs the task of running the business process (responsible) which is used as a reference for selecting respondents

1.1.4.1.2 RACI Chart EDM02

The RACI graph is used for the EDM03 domain so that researchers can map prospective survey respondents to be used for data processing. The work unit can be seen in the EDM03 domain. RACI Chart or also known as Responsible, Accountable, Consulted, and Informed. The person in charge is the person who is responsible for driving the wheels of the business, the person in charge who makes decisions, the consultant who is in charge of providing direction and input on the business process and being informed is the actor who must know the final information of the chosen alternative[12]. RACI identification is based on people who are directly involved in the Installment of Solution Partner Technology business process. The RACI chart above is taken based on the tasks of each individual who is in the Installment of solutions partner Technology. The processes that exist in the EDM03 domain[13]:

- 1 EDM03.01 Evaluating Risk Management This process aims to evaluate and conduct an assessment of the direct impact and long-term impact of the risk of using IT on the organization.
- 2 EDM03.02 Directing Risk Management This process aims to direct the implementation of risk management to ensure that IT risk management must be able to ensure that IT risks do not exceed the risks of organizational growth.

EDM03.03 Risk Management Monitoring This process aims to monitor the objectives and matrix of the risk management process and develop how IT risk issues are identified, tracked, and reported

2. METHODOLOGY

2.1 Research Stage

This research was conducted using the COBIT 5 framework for APO12 (Managing Risk) and EDM03 (Ensuring Risk Optimization).

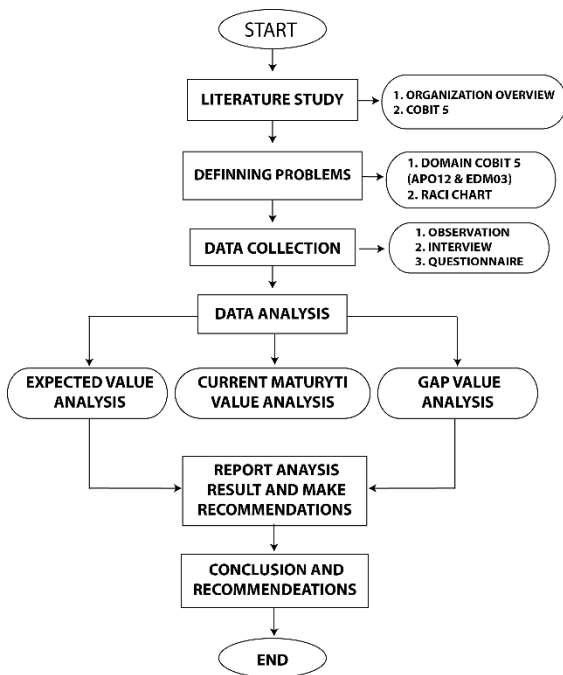


Figure 3. Stages of research

Based on Figure 3, 6 (six) the stages of the research carried out are as below[15]:

1. Literature study is conducted by collecting various information and references regarding the research topic. This is done to support knowledge to manage risk in the Yogyakarta District Court Case Investigation Information System. The literature used is academic books, papers, theses, and journals related to risk management, as well as COBIT 5 standardized framework guidebooks.
2. Define the problem by determining the process domains used, namely APO12 and EDM03 to determine the RACI chart.
3. Collecting the data needed for the evaluation of information technology, by distributing questionnaires, observations, and interviews.
4. Conducting capability level assessment analysis using the APO12 domain, gap analysis, and risk assessment.
5. Reporting research results, after knowing the results of the research analysis in the previous stage, will then be reported to stakeholders and at the same time provide recommendations based on research results to the organization.
6. Make conclusions from all activities carried out in research and suggestions for further research[16].

2.2 Data Collection Method

1. Observations were made to see firsthand the process that occurred by observing the activities carried out by studying the workings of the case tracking Information System at the Yogyakarta District Court to seek information related to risk management from the use of information technology in the company and conducting risk management analysis on the monitoring services used. by the company.[17]
2. Interviews were conducted to collect information and data by conducting direct questions and answers to trusted sources with IT Managers who know the

Case Investigation Information system at the Yogyakarta District Court. Direct interviews were conducted by observing the existing health protocols during the COVID-19 pandemic and if not possible, they could be conducted directly through social media such as WhatsApp.[18]

3. A questionnaire was conducted to collect data by giving a series of questions to respondents designed to determine the level of IT operational management capability that has been running at the Yogyakarta District Court[19]. The questionnaire given to respondents is a written statement, the statement made refers to the COBIT 5 framework, namely APO12 (Managing Risk) and EDM03 (Ensuring Risk Optimization) using the RACI Chart method which directly distinguishes work units based on Stakeholder Job-description, so that the questionnaire will be accepted legally by the person in charge of the Case Tracing Information System service area[20]

2.3 Implementation

2.3.1 Preparation of the Questionnaire

The preparation of the questionnaire has been adjusted to the COBIT 5 framework standard which focuses on the APO12 (Managing Risk) process which consists of APO12.01 to APO12.06 and EDM03 (Ensuring Risk Optimization) which consists of EDM03.01 to EDM03.02.[21] Questionnaires are used to assess the level of process capability in the Yogyakarta District Court Case Investigation Information System service.[22]

2.3.2 Determination of Respondents

Function at the level of the role responsibility process in the organizational structure of a company. The RACI Chart defines a person's authority in an IT-based company[23]. The RACI chart that will be used is guided by the APO12 and EDM03 processes. The RACI Chart method directly distinguishes work units based on Stakeholder Job-Descriptions, so that the questionnaire will be accepted legally by the person in charge of the Case Tracing Information System Service at the Yogyakarta District Court.[24]

Table 1. Result of determination of Respondents RACI Chart APO12

No	Structure of COBIT 5	Organizational Structure	ID
1	Chief Executive Officer, Business Executives	General Manager	R1
2	Strategy Executive Committee	Production Manager	R2
3	Chief Risk Officer, Chief Information Security Officer, Chief Information Officer	IT Manager	R3
4	Head Development	IT Senior	R4
5	Head IT Operations, Head IT Administration	IT Coordinator Dev Ops	R5

Based on Table 1, the determination of respondents using the APO12 domain process following the RACI Chart COBIT 5 obtained 5 respondents. In table 1 respondents and positions in the company.

Table 2. Result of Determination of Respondents RACI Chart EDM03

No	Structure of COBIT 5	Organizational Structure	ID
1	Chief Executive Officer, Business Executives	General Manager	R1
2	Strategy Executive Committee	Production Manager	R2
3	Chief Risk Officer, Chief Information Security Officer, Chief Information Officer	IT Manager	R3

Based on Table 2, the determination of respondents using the EDM03 domain process following the RACI Chart COBIT 5 obtained 3 respondents. In table 2 respondents and positions in the company

2.3.3 Observation and Interview

At the stage of observation and interviews were conducted to obtain relevant data related to the research topic. The interview aims to obtain valid data so that the results of the study can be maintained to completion [13].

The following are the results of interviews conducted by researchers:

1. Overview of Information System services for case tracing at the Yogyakarta District Court
2. Court Profile vision and mission
3. Problems with the case tracking Information System service
4. Risks that may interfere with the assets and activities of the case tracking Information System Service.
5. Duties and Responsibilities of Staff at Information System Services for Case tracing at the Yogyakarta District Court
6. The aims and objectives of the case tracking Information System service.
7. The Yogyakarta District Court wants the level to be achieved, namely 5

2.3.4 Data Analysis

2.3.4.1 Current Level Capability

At this stage, the researcher uses Likert scale calculations to calculate the Current Level Capability value. The calculation result can be seen in table 3.

Table 3 Current Capability APO12

Domain	Process	Current Level
APO12.01	Collecting Data	4.1
APO12.02	Analyzing risk	3.77
APO12.03	Maintaining risk profile	3.85
APO12.04	Articulation of risk	3.96
APO12.05	Determining risk management portfolio	3.26
APO12.06	Responding to risk	3.95

Based on table 3. Calculation of APO12. Domain questionnaire (Managing risk) in table 3 above using a Likert scale calculation, obtained a value of 3.81. this the value is obtained from the calculation of the average current the rate is divided by the number of domain processes, The APO12 score is 3.81 which means at this level it can be said that the application of business processes to students' Installment of credit service technology solution partners has carried out planning, monitoring, and adjustment, as well as the results of his work, have been determined, monitored and properly cared for. Here are the calculation table results using the

EDM03 domain (ensure risk optimization). The table of calculation results can be seen in Table 4.

Table 4. Current Capability EDM03

Domain	Process	Current Level
EDM03.01	Evaluating risk Management	3,46
EDM03.02	Directing risk management	3,56

Based on table 4. The value is 3.51 in the calculation current level. At this level, it can be said that the company already has standard IT processes in scope Court as a whole and has been applied throughout the company

2.3.4.2 Expected Level Capability

Value desired by the Yogyakarta District Court on the Case Tracing Information System service which is at level 5. At this level, the Court already has a good standard IT process within the scope of the court as a whole. This means that they already have applicable process standards.

2.3.4.3 Analysis of GAP Value the GAP

The value obtained in the APO12 (manage risk) domain is 1.16 While the EDM03 domain (make sure risk optimization) is 1.5, which means that the Case Investigation Information System service at the Yogyakarta District Court has not reached the desired level

2.3.5 Assessment Result

In this subsection, known values will be presented. That the results of the calculation of the capability value can be seen in Table 5.

Table 5. Value of GAP Domain APO12

Domain	Current	Expected	Max	Gap
APO12.01	4	5	5	1
APO12.02	4	5	5	1
APO12.03	4	5	5	1
APO12.04	4	5	5	1
APO12.05	3	5	5	2
APO12.06	4	5	5	1
Average	3,83	5	5	1,16

Based on table 5. The Gap value in the APO12 process, the current capability value is 3.83, which is at level 4 (Predictable Process) and the resulting gap value is 1.16 from the calculation of the current capability value with the capability value expected by the Yogyakarta District Court.



Figure 4. Graph of APO12

Based on Figure 4, it is known that the APO12 (Risk Management) process is at the level seen from the capability value, 3.81. At this level, the Case Investigation Information System at the Yogyakarta District Court has implemented Predictable Processes.

Table 6. Value of GAP Domain EDM02

Domain	Current	Expected	Max	Gap
APO12.01	3	5	5	2
APO12.02	4	5	5	1
Average	3,5	5	5	1,5

Based on table 6. The gap value in the EDM03 process, the current capability value is 3 at level 3 (Established Process) and the resulting gap value is 1.5 from the calculation of the current capability value with the capability value expected by the Yogyakarta District Court.

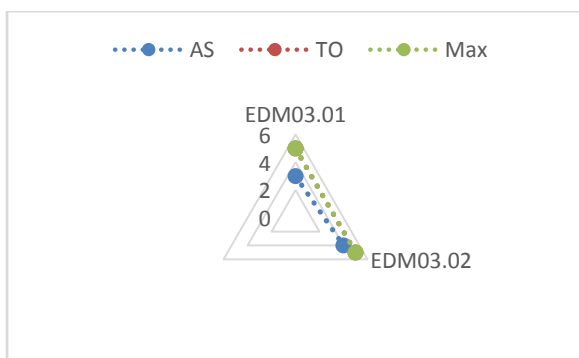


Figure 5. Graph of EDM03

Based on Figure 5, it is known that the EDM03 (Ensuring Risk Optimization) process is at level 3 seen from the value of capability 3. At this level, the case tracing information system at the Yogyakarta District Court has implemented the Established Process.

2.3.6 Recommendations and Reporting Result

Recommendations and Reporting Results In this section, the researcher will describe the recommendations and suggestions that have been obtained from the results of the value gap analysis obtained and will be applied by the Case Investigation Information System service at the Yogyakarta

District Court. The table of recommendations and suggestions can be seen in Table 10.

Table 7. Recommended domains APO12

Domains	Recommended
APO12.01 (Gathering Data)	<ul style="list-style-type: none"> a. A The Case Investigation Information System service must have a regular monthly or yearly schedule regarding this matter. b. The Case Tracing Information System Service must have special staff who can assist in carrying out tasks and distributing job descriptions including in IT management and coordinating with external and internal parties related to IT to conduct joint evaluations. c. Case Tracing Information System Services can improve the utilization of the results of documenting IT risk history. d. The Case Tracing Information System Service must record or document every risk that occurs so that it can be used as evaluation material to avoid the same IT risk from happening again. Documentation is a physical softfile or hard file. e. The Case Tracking Information System Service must prepare a care plan including assessing the IT risks that occur while the ongoing business processes must carry out joint evaluations. f. Case Investigation Information System Services must have staff who are experts in analyzing risks so that new investigations that may arise can be identified and resolved properly.
APO12.02 (Analyzing Risk)	<ul style="list-style-type: none"> a. A The Case Tracking Information System Service must include material discussing both IT and general risks in the employee recruitment document so that those who receive training can understand actions that have the potential to cause asset losses. b. The Case Tracing Information System Service must make improvements to the IT governance sector, including the management of risks related to the use of IT. c. Services must have agreed standards related to IT risks, and need to carry out risk mapping to assist in making further decisions. d. Case Tracing Information System Services must have mutually agreed on benchmarks in identifying IT risk.
APO12.03 (Maintaining)	<ul style="list-style-type: none"> a. Case Tracing Information System Services must have a concept that describes how IT risks will appear

Risk Profile)	<p>in the future, so that when risks arise, they are ready with stakeholders who are responsible for responding to risks and daring to make decisions.</p> <p>b. Case Tracing Information System Services should have indicators of success in achieving a business process related to IT risk.</p> <p>c. Risk management control through a collection of quantitative measurement results that courts use to measure performance to meet objectives</p>
APO12.04 (Articulate Risk)	<p>a. Case Tracing Information System Services should have relations with external parties such as IT staff in addition to being supporting actors but also need to be assessing actors for case tracking information system services including IT performance and risks</p>
APO12.05 (Defining a Portfolio of risk Management)	<p>a. A The Case Tracing Information System Service must have documents that regulate within a reasonable limit the risk that can be tolerated so that the risk does not hinder the running of the company's business processes.</p>
APO12.06 (Responding to Risk)	<p>a. Case Tracing Information System Services must have input and output groupings that cover the entire business process.</p> <p>b. The Case Tracing Information System Service must have by adding a competent person to the IT risk analysis section.</p>

Based on Table 7, the recapitulation of recommendations from the APO12 domain that has been made must be carried out by the Yogyakarta District Court by minimizing[25].

IT Risk Impact, Please note that the findings of the questionnaire were obtained from respondents' answers which were accumulated into one based on the identity of each question from each level and then compared with the results of observations and interviews. The following are the results of the recapitulation of the EDM03 domain recommendations as shown in Table 11.

Table8. EDM03 Domain Suggestions

Domains	Recommended
EDM03.01 (Evaluate Risk Management)	<p>a. A A It is recommended that the Case Tracking Information System service make a decision report to deal with the IT risk limits that will occur to anticipate future risk.</p> <p>b. It is recommended that the Case Tracking Information System service determine the level of risk by activating other services when experiencing disruptions and applying rotation related to certain services to achieve the Court's objectives.</p>

EDM03.02 (Direct Risk Management)	<p>a. A A It is recommended that the Case Tracking Information System service make a report to assess the performance of risk optimization to anticipate future risks.</p> <p>b. The Case Tracing Information System service is recommended to monitor by collecting reports</p> <p>c. It is recommended that the Case Tracking Information System service conducts integration direction between strategy and risk operations with routine cloud data collection so that it can find out the right time to resize and not interfere with operational activities.</p>
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Based on Table 8, the recapitulation of recommendations from the EDM03 domain that has been made must be implemented, by Case Investigation Information System Services at the Yogyakarta District Court to minimize the impact of IT risk.

3. CONCLUSION

Based on the results of the risk assessment analysis carried out in this study with the title "Risk Assessment in Case Tracking Information System Services Using the COBIT 5 Framework" by assessing the level of process capability in the Case Tracing Information System at the Yogyakarta District Court using the COBIT 5 framework method. By using the domain APO12 (Manage Risk) obtained an average value at level 4 (Predictable Process) with a capability value of 3.83 and EDM03 (Ensure Risk Optimization) obtained an average value at level 4 (Established Process) with a capability value of 3.5. The results of the GAP value based on calculations carried out using the APO12 (Manage Risk) domain found a gap of 1.35 and EDM03 (Ensure Risk Optimization) a gap of 1. From the results of the analysis calculations carried out, recommendations were given to the Case Search Information System Service. Improve the existing process at the Yogyakarta District Court.

4. REFERENCES

- [1] I. A. Palalloi, A. Anwar, and Syarifuddin, "Information technology Governance standards on mobile applications for fishing zone-based onCobIT 5 Framework in Majene," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 156, no. 1, 2018, DOI: 10.1088/1755-1315/156/1/012008.
- [2] S. A. Wulandari, A. P. Dewi, M. Rizki Pohan, D. I. Sensus, M. Mishbah, and Syamsudin, "Risk assessment and recommendation strategy based on COBIT 5 for risk: Case study sikh Jikn helpdesk service," *Procedia Comput. Sci.*, vol. 161, pp. 168–177, 2019, DOI: 10.1016/j.procs.2019.11.112.
- [3] I. E. S. Panjaitan, F. Halim, and D. Siallagan, "Evaluation of Information Technology Governance Using the COBIT 5 Framework (Case Study of Integrated Licensing Service Agency Medan City Government)," *Int. J. Res. Rev.*, vol. 8, no. 9, pp. 481–487, 2021, doi: 10.52403/ijrr.20210961.
- [4] P. Arsip, B. Case, and D. I. Pengadilan, "Case Tracking Information System (sipp):," vol. 1, no. 1, 2017.
- [5] E. Ismawan, A. S. Putri, and N. J. Utamaja, "Using

- COBIT 5 for Risk Management Assessment E-Wallet Information Technology in Indonesia,” *Int. J. Progress. Res. Sci. Eng.*, vol. 2, no. 8, pp. 741–745, 2021.
- [6] C. Tjee and K. Christianto, “Evaluating of IT Services on Accurate Application Using COBIT 5 (Case Study: PT. SS Dinamika),” *JuTISI (Jurnal Tek. Inform. dan ...)*, vol. 4, pp. 268–278, 2018, [Online]. Available: <https://journal.maranatha.edu/index.php/jutisi/article/view/1494>
- [7] N. Butarbutar and A. R. Tanaamah, “Risk Management Analysis Using COBIT 5 Domain APO12 (Case Study: Bina Darma Foundation),” vol. 3, no. 3, pp. 352–362, 2021.
- [8] Information Systems Audit and Control Association., *COBIT 5 : a business framework for the governance and management of enterprise IT*. ISACA, 2012.
- [9] “COBIT 5 & COBIT 5 for Risk-An overview,” 2012.
- [10] I. Isaca and C. All, “COBIT 5 & COBIT 5 for Risk – An overview Agenda • Introduction,” 2015.
- [11] P. P. Then, A. F. Wijaya, C. Rudianto, U. Kristen, and S. Wacana, “INFORMATION TECHNOLOGY RISK MANAGEMENT ANALYSIS USING COBIT 5 (CASE STUDY: PT GLOBAL INFOTECH).”
- [12] I. Zafira, “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,” *IJISTECH (International J. Inf. Syst. Technol.)*, vol. 4, no. Vol 4, No 1 (2020): November, pp. 518–525, 2020, [Online]. Available: <http://ijistech.org/ijistech/index.php/ijistech/article/view/91/91>
- [13] A. F. Tamara and I. Riadi, “Analysis of Risk Assessment on Student Credit Services using COBIT 5 Framework,” *Int. J. Comput. Appl.*, vol. 183, no. 42, pp. 50–58, 2021, DOI: 10.5120/ijca2021921826.
- [14] P. Copy and M. N. Fuad, *A Business Framework for the Governance and Management of Enterprise IT*.
- [15] N. D. Setyaningrum and A. Kusyanti, “Evaluation of Information Technology Risk Management Using the COBIT 5 Framework (Case Study: PT. Kimia Farma (Persero) Tbk – Plant Watudakon),” vol. 2, no. 1, pp. 143–152, 2018.
- [16] F. A. Kojongian and M. Ayub, “Risk Management Division of Higher Education Information Systems With COBIT 5 . Framework,” *J. Tek. Inform. dan Sist. Inf.*, vol. 7, no. 1, 2021, doi: 10.28932/jutisi.v7i1.3434.
- [17] D. Khairuna, S. Wibowo, and I. Gamayanto, “Evaluasi Pengelolaan Risiko Teknologi Informasi Menggunakan Framework COBIT 5 Berdasarkan Domain APO12 (Manage Risk) Pada Kantor Pusat BPR Agung Sejahtera,” *JOINS (Journal Inf. Syst.)*, vol. 5, no. 1, pp. 18–26, May 2020, doi: 10.33633/joins.v5i1.3088.
- [18] M. N. Fuad and I. Riadi, “Risk Management Assessment on Human Resource Information Technology Services using COBIT 5,” *Int. J. Comput. Appl.*, vol. 175, no. 23, pp. 12–19, 2020, DOI: 10.5120/ijca2020920756.
- [19] R. D. Arini, “Risk Analysis of Library Management Information System (SIMPUS) Using Octave Allegro Framework Risk Analysis of Library Management Information System (SIMPUS) Using Octave Allegro Framework,” 2020.
- [20] ISACA, *Implementation.USA: IT Governance Institute*. 2012.
- [21] N. Z. Firdaus and Suprpto, “Evaluation of Information Technology Risk Management Using COBIT 5 IT Risk (Case Study: PT. Petrokimia Gresik),” *J. Pengemb. Teknol. Inf. dan Ilmu Komput.*, vol. 2, no. 1, pp. 1–10, 2018.
- [22] *Enabling Processes skills and knowledge through the globally respected Certified Information Systems Auditor ® (CISA ®), Certified Information Security Manager ® (CISM ®), Certified in the Governance of Enterprise IT ® (CGEIT ®), and Certified in Risk and Information Systems Control TM (CRISC TM) designations. ISACA continually updates COBIT ®, which helps IT professionals and enterprise leaders fulfill their IT governance and management responsibilities.* 2012. [Online]. Available: <http://linkd.in/ISACAOOfficial>
- [23] D. Adi Prastiyawan, A. Ambarwati, and E. Setiawan, “Risk Management Analysis Dealer Management System Services Using COBIT 5.”
- [24] Y. Yusuf, E. T. Gunawan, and R. Sarita, “Analysis of Service Maturity Level at PT Telkom Sampit Using COBIT 5 DSS02 and DSS03 Domains,” *J. Inf. Syst. Res.*, vol. 2, no. 4, pp. 283–287, 2021, DOI: 10.47065/josh.v2i4.814.
- [25] I. Degan, M. Framework, C. Dan, and G. N. Sp, “COBIT 4.1 DAN GUIDELINES NIST SP 800-30 (SCASE study: Dr. Slamet General Hospital Garut),” vol. V, no. 1, 2011.