

## **IT GOVERNANCE AUDIT AT THE KAMPAR REGENCY LIBRARY AND ARCHIVES DEPARTMENT USING COBIT 2019 AND ITIL 4**

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### **Abstract**

*Information Technology (IT) is a tool that plays an important role in helping improve the effectiveness and efficiency of a company's or organization's business processes. The Kampar Regency Library and Archives Service uses the Integrated Library System (INLIS) Lite to support operational, management, and decision-making functions in the library. However, the use of INLIS Lite has not been fully utilized properly, for this reason it is necessary to carry out an IT governance audit. The audit process aims to determine the extent of IT performance, human resources, and the level of IT maturity in the library. This study uses Control Objective for Information and Related Technology (COBIT) 2019 and Information Technology Infrastructure Library (ITIL) 4 to conduct audits. With the findings of the audit results obtained eight process domains, namely APO02 and APO012 domains are at level 1 (Performed) in the Largely Achieved category, APO09 and BAI08 domains are at level 2 (Managed) in the Largely Achieved category, domains APO013, BAI05 and MEA01 are in the Largely Achieved, and the APO07 domain is at level 4 (Predictable) and in the Fully Achieved category. In addition to the audit, an assessment of the capability level was also carried out using the Servqual Model and Importance Performance Analysis with the results of obtaining 2 criteria in quadrant A, 1 criterion in quadrant B, 2 criteria in quadrant C and 3 criteria in quadrant D. This study also provides recommendations for improvement using SWOT model approach refers to ITIL 4.*

**Keywords:** Audit; COBIT 2019; ITIL 4; IT Governance; Servqual Model and Importance Performance Analysis

## **AUDIT TATA KELOLA TI DI DINAS PERPUSTAKAAN DAN KEARSIPAN KABUPATEN KAMPAR MENGGUNAKAN COBIT 2019 DAN ITIL 4**

### **Abstrak**

Teknologi Informasi (TI) merupakan alat yang memegang peranan penting dalam membantu meningkatkan efektifitas dan efisiensi proses bisnis suatu perusahaan atau organisasi. Dinas Perpustakaan dan Kearsipan Kabupaten Kampar menggunakan *Integrated Library System (INLIS) Lite* untuk mendukung fungsi operasional, pengelolaan, dan pengambilan keputusan di perpustakaan. Akan tetapi, penggunaan INLIS Lite belum sepenuhnya digunakan dengan baik, untuk itu diperlukannya melakukan audit tata kelola TI. Proses audit bertujuan untuk mengetahui sejauh mana kinerja TI, sumber daya manusia, dan tingkat kematangan TI di perpustakaan. Penelitian ini menggunakan *Control Objective for Information and Related Technology (COBIT) 2019* dan *Information Technology Infrastructure Library (ITIL) 4* untuk melakukan audit. Dengan temuan hasil audit didapatkan delapan domain proses yaitu domain APO02 dan APO012 berada pada tingkat 1 (*Performed*) dengan kategori *Largely Achieved*, domain APO09 dan BAI08 berada pada tingkat 2 (*Managed*) dengan kategori *Largely Achieved*, domain APO013, BAI05 dan MEA01 berada pada kategori *Largely Achieved*, dan domain APO07 berada pada level 4 (*Predictable*) dan dalam kategori *Fully Achieved*. Selain audit, juga dilakukan penilaian tingkat kapabilitas menggunakan *Servqual Model* dan *Importance Performance Analysis* dengan hasil mendapatkan 2 kriteria di kuadran A, 1 kriteria di kuadran B, 2 kriteria di kuadran C dan 3 kriteria di kuadran D. Penelitian ini juga memberikan rekomendasi perbaikan dengan menggunakan pendekatan model SWOT mengacu pada ITIL 4.

**Kata kunci:** Audit; COBIT 2019; ITIL 4; Tata Kelola TI; *Servqual Model* dan *Importance Performance Analysis*

## 1. INTRODUCTION

Information Technology (IT) is a tool that plays an essential role in managing information data because it can help improve the effectiveness and efficiency of a company's or organization's business processes [1][2]. The need for IT is related to the library's role as a force in preserving and disseminating scientific information [3]. Law Number 43 of 2007 Article 3 concerning libraries states that the library functions as a vehicle for education, research, information, and recreation to improve, educate, and empower the nation [4].

The National Library of Indonesia makes library application software called Integrated Library System (INLIS) Lite for uniformity between the center and the regions [5][6]. INLIS Lite results from the development of the previous system called Quadra Library System (QALIS). INLIS Lite was built as one-stop software for library managers to implement library automation and assist efforts to develop information and communication technology-based library management and services throughout Indonesia [7].

The Kampar Regency Library and Archives Service has used IT to support operations, management, and decision-making functions. This aims to improve the ability of information systems that can serve the needs of integrated library management. In achieving this, the Kampar Regency Library and Archives Service has been using the INLIS Lite V 3.1 information system since 2014 until now [8]. The use of a supporting information system in supporting services at the Library and Archives Service of Kampar Regency requires a standard framework that will be used as IT governance in managing a better support system servicing users [9]. Therefore, it is necessary to evaluate and assess the level of capability towards the application of IT in libraries [10]. The IT audit is carried out with the aim of knowing the extent of the level of IT performance, human resources, and to determine the maturity level of IT use in the library so that the use of IT in the library can play a maximum role and help optimize performance and achieve the company's vision and mission [11]. In conducting an IT audit, there are various standards that are commonly carried out including COSO, COBIT, ITIL, ISO 9001, ISO 27002, ISO 38500 and COSO ERM [12].

This study uses the COBIT 2019 and ITIL 4 frameworks [13]. COBIT 2019 is a framework used to evaluate IT governance and management [14]. COBIT 2019 plays a role in controlling and maximizing the value of information and technology with the aim of helping companies or organizations achieve risk optimization, realize profits, and achieve resource optimization [15]. COBIT 2019 consists of 5 main domains divided into a total of 40 business processes in IT governance [16]. These domains are Evaluate, Direct, and Monitor (EDM),

Align, Plan and Organize (APO), Build, Acquire and Implement (BAI), Deliver, Service and Support (DSS), and Monitor, Evaluate and Assess (MEA). ITIL 4 is a framework that contains practices regarding IT service management [17]. ITIL 4 is designed to ensure a flexible, coordinated, and integrated system for effective governance and management of IT services [18]. The main components of ITIL 4 are Service Value System (SVS) and Service Value Chain (SVC) [19].

Previous research was conducted by Nachrowi et al. (2020)[20]. Their assessment results are three processes at level 0; six processes at level 1, one process at level 2 and one process at level 3. Following improvements were analyzed using a SWOT matrix to reveal strengths, weaknesses, opportunities, and threats, which were further compiled based on recommendations (fixes) of COBIT 2019 and ITIL 4.

Fryonanda et al. (2019)[21] measure the maturity level of IPB's IT and the level of user satisfaction within IT services. They discovered that for maturity level of IT governance, two processes are at level 0, eight processes are at level 1, and three are at level 2. The level of user satisfaction with IT services is below the expected value. The results are analyzed using a SWOT matrix to see what the strengths, weaknesses, opportunities and threats are. Then a recommendation was made regarding ITIL V3 2011.

Indah et al. (2020)[22] measure service quality at PT. XYZ using COBIT 5 PAM and ITIL V3 2011. Capability assessment is carried out to determine the level of service so that the services of the Information System can run effectively in order to provide benefits for the company. The mapping results using COBIT 5 and ITIL V3 2011 using four processes, namely DSS01, DSS02, DSS03, and DSS06. The capability assessment results of the four processes are obtained on average at level 2 (managed process). The recommendations given for the four processes are to go up to level 3 (established process), i.e. the business goals that have been built must be implemented in a defined manner so that the goals of the process get the intended results. Based on the previous studies described above, auditing information technology governance of local libraries using COBIT 2019 and ITIL 4 is feasible and valuable.

## 2. RESEARCH METHOD

The research was conducted at the Department of Library and Archives of Kampar Regency which is located on JL. IN. Panjaitan No.17 Bangkinang Kota, 28212. On January 1, 2022 to May 31, 2022. The research subject is Integrated Library System (INLIS) Lite V.3.1 and the object of research is IT governance audit.

The stages of the research method carried out include determining the research model, observation

and literature study, mapping, data collection, determining respondents and questionnaires, data processing, data analysis, preparing reports and research recommendations.

The research methodology can be seen in Image 1.

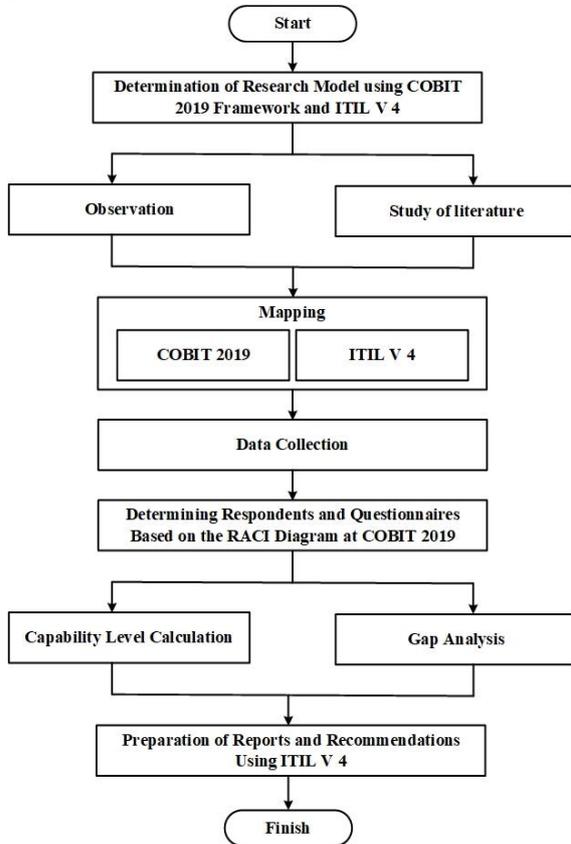


Image 1. Research Methodology

The following is an explanation of the research methodology carried out: (1) Determination of the research model using the COBIT 2019 & ITIL 4 framework, focusing on information technology infrastructure governance and process assessment based on that framework. (2) Observation and literature study, at the observation stage, the researcher made observations related to the agency's governance of information technology infrastructure. the literature study stage studied previous research and books related to the governance of information technology infrastructure and selected the methods used. (3) Mapping of COBIT 2019 & ITIL 4, carried out to determine the concepts and domains that will be used based on problems that occur in the agency. (4) Data collection, this stage aims to obtain evidence of evaluation assessment on the process activities carried out. (5) Determining respondents and questionnaires based on the RACI diagram (Responsible, Accountable, Consulted, Informed) at COBIT 2019, this stage is used to find out the right respondents based on the domains that have been mapped in the previous stage, respondents will be interviewed and fill out a questionnaire that

will be submitted by auditors. The list of questions in each domain was compiled based on the COBIT 2019 and ITIL 4 frameworks. Then the respondents gave an assessment based on facts in the field or actual conditions. The following is the formula for calculating the average percentage of the questionnaire from each answer.

$$C = \frac{H}{JR} \times 100\% \tag{1}$$

Information:

C: Recapitulation of answers to the Capability Levels questionnaire in the form of percentages for each of the answers 0, 1, 2, 3, 4, or 5 in each activity. H: The number of answers to the Capability Levels questionnaire for each answer choice at levels 0, 1, 2, 3, 4, or 5 in each activity. JR: Number of Respondents/ Resource Persons.

The following is a formula for calculating the value and level of capability.

$$NK = ((LP \times Nk)0 + (LP \times Nk)1 + (LP \times Nk)2 + (LP \times Nk)3 + (LP \times Nk)4 + (LP \times Nk)5)/100 \tag{2}$$

Information:

NK: Maturity Value in IT processes. LP: Percentage Level (percentage level in each distribution of questionnaire answers (Capability Level) NK: Maturity value listed in the answer mapping table, weight, and maturity level.

(6) Calculation of capability level and gap analysis. At this stage, the researcher will perform data processing by analyzing the results of the questionnaire after obtaining all the data needed to measure the level of IT governance capability in the Library and Archives Service of Kampar Regency. The next stage is the data analysis stage so that all the data that has been obtained can be interpreted. Data analysis in this study consisted of 2 parts, namely capability level analysis, and gap analysis.

The following Rating Scale can be seen in Table 1.

Table 1. Rating Scale

Scale	Information	Achievement (%)
N	Not Achieved	0-15
P	Partially Achieved	15-50
L	Largely Achieved	50-85
F	Fully Achieved	85-100

The capability level assessment is divided into levels seen in Table 2.

Tabel 2. Capability Level

Level	Keterangan
0 <i>Incomplete</i>	The process has not been implemented or there is no effort to achieve the goal.
1 <i>Performed</i>	Processes are implemented on an ad-hoc basis to achieve process objectives.
2 <i>Managed</i>	The process has been implemented and managed in a planned and monitored manner.
3 <i>Established</i>	The process is implemented in a standardized manner and has been standardized.
4 <i>Predictable</i>	The process is implemented with certain limitations to be consistent in achieving the results that have been set.
5 <i>Optimizing</i>	The process is evaluated and improved continuously.

(7) Compilation of reports and recommendations using ITIL 4. At this stage, the researcher concludes the research results in the form of evaluation results and suggestions that can be given to improve IT governance based on the ITIL 4 framework.

### 3. RESULTS AND DISCUSSION

#### 3.1 Mapping COBIT 2019 and ITIL 4

Mapping COBIT 2019 and ITIL 4 was carried out to obtain framework components, and an analysis of these components was carried out to get relevant details at the Kampar Regency Library and Archives Service. The following can be seen in table 3 mapping using COBIT 2019 and ITIL 4.

Table 3. Mapping COBIT 2019 and ITIL 4

	COBIT 2019	ITIL 4
APO02	APO02.01 Understand enterprise context and direction.	5.3.2 Infrastructure and platform
	APO02.06 Communicate the I&T strategy and direction.	5.2.6 IT asset management
APO07	APO07.01 Acquire and maintain adequate and appropriate staffing	
	APO07.03 Maintain the skills and competencies of personnel.	5.1.14 Workforce and talent managemen
	APO07.04 Assess and recognize/reward employee job performance	5.1.14 Workforce and talent managemen
	APO07.05 Plan and track the usage of IT and business human resources.	5.2.15 Service level management
APO09	APO09.01 Identify I&T services.	5.2.6 IT asset management
APO12	APO12.06 Respond to risk	5.1.10 Risk management
APO13	APO13.01 Establish and maintain an information security management	5.1.3 Information security management

		system (ISMS).
BAI05	BAI05.02 Form an effective implementation team	5.2.3 Capacity and performance management
	BAI05.03 Communicate desired vision.	5.1.9 Relationship management
BAI08	BAI08.02 Organize and contextualize information into knowledge.	5.1.4 Knowledge management
	MEA01.02 Set performance and conformance targets.	5.1.2 Continual improvement
MEA01	MEA01.04 Analyze and report performance.	5.1.5 Measurement and reporting

From the table of mapping results above, the selection of processes is carried out to determine the process requirements needed following the problems in the Library and Archives Service of Kampar Regency. According to the scope of this research, the focus of the research is only on three service lifecycle processes, namely Service Design, Service Transition, and Service Operation. From the mapping results, it was found that there were eight processes in COBIT 2019 with 3 (three) domains, namely the Align, Plan and Organise (APO) domain, the Build, Acquire and Implement (BAI) domain, and the Monitor, Evaluate and Assess (MEA) domain.

#### 3.2 Determining Respondents and Questionnaires Based on the RACI Diagram at COBIT 2019

Next, a list of suitability is compiled based on each domain using the COBIT 2019 framework. One of them is the determination of respondents. The following are the respondents in each of the selected fields, as shown in table 4.

Table 4. RACI chart respondents' identification results

RACI Chart on COBIT 2019	Organizational structure	Domain
<i>Chief Executive Officer</i>	Head of librarian and archives	BAI05,
		MEA01
<i>Chief Operating Officer</i>	Head of service and preservation of library materials	APO07,
		APO09,
<i>Chief Information Officer</i>	Head of general and staffing subdivision	BAI05,
		BAI08,
		MEA01
		APO02,
		APO07,
<i>Chief Technology Officer</i>	Head of library development and construction	APO09,
		APO12,
		APO13,
		BAI05,
		BAI08

<i>Chief Digital Officer</i>	Head of Sub Division of Program Development	APO02, APO07, APO12, BAI05, BAI08
<i>Project Management Office</i>	General functional development	APO02, APO07, APO12, APO13, BAI05
<i>Head Human Resources</i>	Library manager	APO07, BAI05
<i>Head IT Administration</i>	Library administration	APO02, APO07, APO09, APO12, APO13, BAI08, MEA01
<i>Service Manage</i>	Library service section	APO02, APO07, APO09, APO12, APO13, BAI05, BAI08, MEA01
<i>Information Security Manager</i>	librarian	APO02, APO07, APO09, APO12, APO13, BAI05, BAI08

### 3.3 Capability Level Calculation and Gap Analysis

The following are the results of the current capability level (as is) and the expected conditions (to be) from the calculation of the questionnaire in each of the selected domains, as shown in table 5.

Table 5. Capability level assessment

Process	Process Capability Value		GAP	Satisfaction %	Quadrant
	As is	To be			
APO02	6.2	8.12	-1.92	78	A
APO07	6.53	8.2	-1.67	86.58	B
APO09	6.21	7.68	-1.47	80.45	C
APO12	6.08	8.15	-2.07	75.35	A
APO13	6.51	7.66	-1.15	83.05	D
BAI05	6.34	7.84	-1.5	83.76	D
BAI08	6.1	7.78	-1.68	81.75	C
MEA01	6.54	7.75	-1.21	84.58	D
Rata-rata	6.31	7.89			

From the table above, the current average value (as is) is 6.31, while the expected average value (to be) is 7.89. The following is a picture of the

representation of the APO (APO02, APO07, APO09, APO12, APO13), BAI (BAI05, BAI08), and MEA (MEA01) IT governance audits.

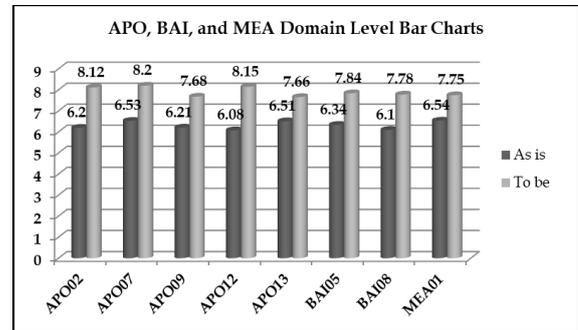


Image 2. APO, BAI, and MEA Domain Level Bar Charts

The results of the capability level assessment in table 5 are then tested using the Servqual Model and Importance Performance Analysis (IPA) methods. servqual model is used to compare the performance value and the expected value. The Servqual model gets the level of gap and the percentage of user satisfaction with IT services. Discounts are also divided into four groups based on IPA and quadrant analysis. The results of the IPA calculation will be mapped into a Cartesian diagram as shown below.

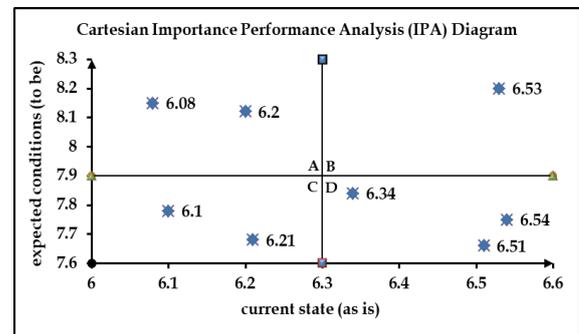


Image 3. Cartesian Importance Performance Analysis (IPA) diagram

The results of attribute A in this diagram reveal the priority variables for improvement. The results of attribute B on the chart show the variables that must be maintained. In terms of high quality, the level of importance or user satisfaction is also high. The results of attribute C in the diagram describe variables that are less prioritized because of their low quality, and diagram D displays variables that can be considered excessive because the quality is deemed to be high, although less expected.

After evaluating each activity in each process domain APO (APO02, APO07, APO09, APO12, APO13), BAI (BAI05, BAI08), and MEA (MEA01), the results of the capability level recapitulation are obtained as follows.

Table 6. Capability Level Recapitulation

Process	Capability Level		GAP	Satisf action %	Le vel	Tar get
	As is	To be				
APO02	6.2	8.12	-1.92	78	1	2
APO07	6.53	8.2	-1.67	86.58	4	5
APO09	6.21	7.68	-1.47	80.45	2	3
APO12	6.08	8.15	-2.07	75.35	1	2
APO13	6.51	7.66	-1.15	83.05	3	4
BAI05	6.34	7.84	-1.5	83.76	3	4
BAI08	6.1	7.78	-1.68	81.75	2	3
MEA01	6.54	7.75	-1.21	84.58	3	4
Average	6.31	7.89	-1.58	81.69		

From the table data above, it can be seen that the results of the APO02 (Managed Strategy) and APO012 (Managed Risk) capability levels are at level 1 (Performed). The APO02 and APO012 document validation results are included in the Largely Achieved category, meaning that in this category, there is evidence of a systematic approach. And significant achievements over the process, although there may still be little weaknesses.

The results of the maturity level APO09 (Managed Service Agreement) and BAI08 (Managed Knowledge) are at level 2 (Managed). The validation results of the APO09 and BAI08 documents are included in the Largely Achieved category, meaning that in this category, there is evidence of a systematic approach and significant achievements in the process. This, although there may still be little weaknesses.

The results of maturity level APO013 (Managed Security), BAI05 (Managed Organizational Change), and MEA01 (Managed Performance and Conformance Monitoring) are at level 3 (Established). The results of document validation APO013, BAI05, and MEA01 are included in the Largely Achieved category, meaning in this category, there is evidence of a systematic approach and significant gains from the process. However, there may be a few weaknesses. The results of the APO07 maturity level (Managed Human Resources) are at level 4 (Predictable), and the results of the validation of the APO07 document are included in the Fully Achieved category, meaning that in this category, there is evidence of a

systematic and complete approach and full achievement of the attributes of the process. There are no weaknesses related to the characteristics of the process.

The following is a spider chart diagram from table 6 recapitulation of capability levels.

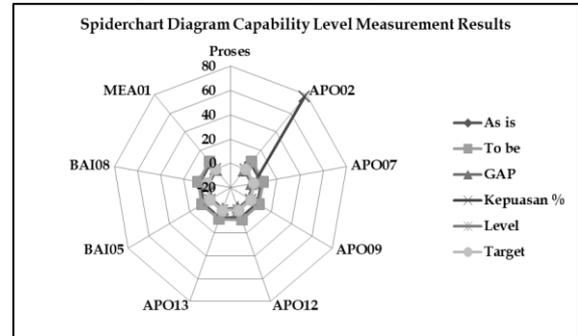


Image 4. Spiderchart Diagram Capability Level Measurement Results

### 3.4 Preparation of Reports and Recommendations Using ITIL V 4

Recommendations for improving the audit of information technology governance at the Library and Archives Service of Kampar Regency are carried out based on ITIL 4. Before making recommendations for improvement, a SWOT analysis is first carried out (Strengths, Weaknesses, Opportunities, Threats). SWOT analysis separates the strengths, weaknesses, opportunities, and threats to IT services. In general, it is obtained as follows:  
 Strengths: (1) User trust in IT services. (2) Several SOPs (Standard Operating Procedures) related to IT services. (3) Efforts to maintain data and information security. Weaknesses: (1) Management of risks, changes, and problems is implicit. (2) Resources have not been fully met for each service. (3) Actions in resource optimization are still few. (4) Insufficient facilities. Opportunities: (1) Achievement of the vision and mission on time. (2) Increase the transparency of each activity. (3) Improving the effectiveness and efficiency of the budget, time, and operational activities. (4) Be consistent with the goals. Threats: (1) Threats to the physical, data, and information security of the organization. (2) Decrease in the quality of performance. (3) Increase in operational costs.  
 The results of the SWOT analysis obtained are then compiled with strategic recommendations concerning the ITIL 4 activity. Requests are accepted as follows: Strengths – Opportunities Strategy: (1) Planning, monitoring, and improving continuously as in the information system services that have been implemented. (2) Ensure that all staff understand the Standard Operating Procedures

(SOP) and policies made. (3) Optimally utilize IT in every data and information exchange activity, such as IT services, to reduce operational costs. (4) Doing documentation on each activity and improvement on each process, such as recording each input, output, and constraint on each activity.

Strategy Opportunities – Weaknesses: (1) Analyze and document all possible problems and risks. (2) Make a change plan for changes in the short, medium, and long term. (3) Document all problems that have occurred, including problem solutions. (4) Manage problems seriously, such as creating a KMS (Knowledge Management System) or SPK (Decision Support System) for problem and risk management. (5) Adding supporting facilities for IT services used by many users.

Strategy Strengths – Threats: (1) Improving the security system internally and externally. (2) Carry out control and supervision of every operational activity. (3) Determine the priority that must be achieved first. (4) Implementing the use of shared infrastructure. (5) Provide information as needed.

Weaknesses – Threats Strategy: (1) Document every security-related activity and change. (2) Define each process and service. (3) Determine the scope, limits, and minimum achievement standards for each operational activity. (4) Evaluate and improve on any changes. (5) Resolve problems correctly and on time.

The recommendations for improvement are based on each process domain APO (APO02, APO07, APO09, APO12, APO13), BAI (BAI05, BAI08), and MEA (MEA01), which are measured as follows:

APO02—Managed Strategy, currently APO02 is at level 1 (Performed) in the Largely Achieved category. The expected value is at target two and has a gap level of -1.92. The following recommendations are given: (1) Identify the IT strategy. (2) Define and define the IT strategy profile. (3) Manage and implement IT strategic actions. (4) Evaluating and improving the IT strategy management. ITIL 4 recommends several activities: (1) Define the scope of the IT strategy. (2) Defining IT strategy challenges.

APO07—Managed Human Resources, currently APO07 is at level 4 (Predictable) in the Fully Achieved category. The expectation value is at target five and has a gap level of -1.67. The following are some of the recommendations given: (1) Manage and improve the competence and capabilities of human resources. (2) Continuously monitoring the performance of human resources. (3)

Evaluating and improving the performance quality of human resources. ITIL 4 recommends several activities: (1) Define minimum limits and controls on human resource performance. (2) Define human resource needs. (3) Establish KPI (Key Performance Indicator) for each human resource performance.

APO09—Managed Service Agreement, currently APO09 is at level 2 (Managed) with the Largely Achieved category. The expected value is at target three and has a gap level of -1.47. The following recommendations are given: (1) Manage the availability of IT services properly. (2) Improve services to the needs of the organization, including identification, specification, design, issuance, approval, and monitoring of IT services, service levels, and performance indicators. ITIL 4 recommends several activities: (1) Identify the service organization to make improvements. (2) Determine the measurement method for IT services and the impact on the improvements made. (3) Processing evaluation data for the improvement of IT performance services. (4) Analyzing data and information on IT services. (5) Implementing improvement results.

APO12—Managed Risk. Currently, APO12 is at level 1 (Performed) in the Largely Achieved category. The expected value is at target two and has a gap level of -2.07. The following are some of the recommendations given: (1) Identifying IT risks. (2) Determine and define the risk profile. (3) Manage and implement risk actions. (4) Evaluating and improving risk management. ITIL 4 recommends several activities: (1) Determine the scope of the risk. (2) Define risk challenges.

APO13—Manage Security. Currently, APO13 is at level 3 (Established) in the Largely Achieved category. The expected value is at target four and has a gap level of -1.15. The following recommendations are given: (1) Identify and define each security activity. (2) Evaluating and improving security activities. ITIL 4 recommends several activities: (1) Establishing an information security system. (2) Define security management activities, methods, and techniques. (3) Report any security activities.

BAI05—Managed Organizational Change currently, BAI05 is at level 3 (Established) in the Largely Achieved category. The expected value is at target four and has a gap level of -1.5. The following recommendations are given: (1) Make a plan for organizational empowerment change. (2) Evaluating the possibility of success in implementing sustainable organizational changes

quickly and reducing risks. ITIL 4 recommends several activities: (1) Define standards for organizational empowerment change. (2) Define every risk that occurs in the organization.

BAI08—Managed Knowledge currently, BAI08 is at level 2 (Managed) with the Largely Achieved category. The expected value is at target three and has a gap level of -1.68. The following recommendations are: (1) Evaluate and improve organizational knowledge. (2) Controlling process activities and facilitating decision making. ITIL 4 recommends several activities: (1) Setting corporate knowledge standards. (2) Define the plan and improvement of the knowledge carried out. (3) Define the model and workflow of knowledge.

MEA01—Managed Performance and Conformance Monitoring. Currently, MEA01 is at level 3 (Established) in the Largely Achieved category. The expected value is at target four and has a gap level of -1.21. The following are some of the recommendations given: (1) Monitoring the performance appraisal in each operational activity. (2) Conduct monitoring and evaluation of supervision and performance audit. ITIL 4 recommends several actions: (1) Define the scope and targets for each service. (2) The resolution of internal and external service problems is carried out consistently. (3) Perform data collection, measurement, and performance analysis consistently.

#### 4. CONCLUSION

Several conclusions can be drawn after conducting an information technology governance audit using the COBIT 2019 and ITIL 4 framework at the Kampar Regency Library and Archives Service. First, the results of the COBIT 2019 and ITIL 4 mapping found eight domain processes, namely APO (APO02, APO07, APO09, APO12, APO13), BAI (BAI05, BAI08), and MEA (MEA01).

The measurement of IT maturity level 2 processes (APO02 and APO012) are at level 1 (Performed) in the Largely Achieved category. Two approaches (APO09 and BAI08) are at level 2 (Managed) in the Largely Achieved category, three processes (APO013, BAI05, and MEA01) are at level 3 (Established) in the Largely Achieved category, one approach (APO07) is at level 4 (Predictable) with the Fully Achieved type.

The three results of the capability level assessment using the Servqual Model and Importance Performance Analysis (IPA) methods get two criteria in quadrant A, 1 criterion in quadrant B, two measures in quadrant C, and three standards in quadrant D. Expected value can be achieved by implementing several improvement strategies. This

study provides recommendations compiled using a SWOT model approach (Strengths, Weaknesses, Opportunities, Threats). The improvement strategy in SWOT refers to ITIL 4.

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