

IMPLEMENTATION OF IT BALANCED SCORECARD AND COBIT 5 FRAMEWORK IN IT GOVERNANCE MANAGEMENT IN THE LIFE INSURANCE INDUSTRY

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Abstract

There are several methods that can be used in evaluating the management of IT Governance in a business organization. Some of them are able to use the IT Balanced Scorecard and COBIT 5.0 framework. The Information Technology Balanced Scorecard has four perspectives, including corporate contribution, customer orientation, operational excellence and future orientation. With the implementation of the IT Balance Scorecard, the performance of business organizations such as life insurance companies is not only measured by the financial benefits, as has often been done, but also considers internal processes. In addition, the implementation of the COBIT 5.0 framework provides a comprehensive framework that helps companies achieve their goals for IT Governance. The purpose of the results of this study is a strategic recommendation for companies to be able to provide improvements in the governance and management environment of information technology in the company as one of the enablers in achieving business goals during the Covid-19 pandemic. The results of the IT governance design are in the form of a roadmap for the implementation of IT governance along with recommendations for 25 COBIT 5 processes which are the evaluation points based on the prioritization of the combination of impact and urgency.

1.0 INTRODUCTION

The Balanced Scorecard method in evaluating IT Governance is obtained from the description of the information technology balanced scorecard and the balanced scorecard for the company's board [1]. A sufficient analysis of the various factors that influence the formation of a strategic planning system or information technology that is adaptable and aligned or one goals with business strategy [2]. Financial services, such as in life insurance companies, always go hand in hand with the support of reliable technology. Therefore, a balance is needed between the results of the evaluation of the COBIT 5 framework and the BSC Board to improve the performance of IT Governance in a life insurance company [3]. The IT Balanced Scorecard method is used to analyze the relevance of the performance measurement indicators set with the vision, mission and strategic goals in a business organization [4]. The implications of this can be applied in the research plan that will be carried out so that it can evaluate whether the company's vision, mission and strategic goals are

correlated and have an influence on the IT enabler goals in the company. Balanced Scorecard is a potential framework for analyzing IT infrastructure [5]. Information and communication technology development has increased to meet organizational processes. It needs to be structured to create clean, competent, clear and responsible government and quality and reliable civil service [6]. The implementation of COBIT 5 in the evaluation of the System of Electronic-Based Government System (SPBE) has not yet reached the optimal capability level so that the function and optimization of the system runs well to support the company's business operations [7]. Drawing on the COBIT 5 framework, this study presents the results of an analysis that IT governance and process management is utilized in practice to address two key global IT management issues: alignment and security [8].

1.2 Problem Formulation

The research is expected to be able to answer the question of how to understand and evaluate the process of aligning the Balanced Scorecard and IT Balanced Scorecard perspectives on the implementation of IT Governance in life insurance companies. In addition, the research is also expected to provide an assessment of how companies can assess IT Governance by implementing the COBIT 5 Framework and how businesses can design IT governance through the implementation of the COBIT 5 framework.

1.3 Objective and Benefits of Research

This research is intended to find out how companies can align the concept of the Balanced Scorecard perspective on the IT Balanced Scorecard with an evaluation based on aspects of the company's contribution, operational excellence, user orientation and future orientation. This research also makes it easier for companies to assess IT Governance in accordance with the COBIT 5 Framework. We can also conclude that this research will bring benefits so that businesses can design IT governance in accordance with the rules of the COBIT 5 Framework method.

2.0 THEORETICAL

2.1. IT Balanced Scorecard

The IT Balance Scorecard has four perspectives, including corporate contribution, customer orientation, operational excellence and future orientation [9]. With the implementation of the IT Balanced Scorecard, the performance of higher education institutions is not only measured by the financial benefits, as is often done, but also considers internal processes and satisfaction and performance improvement for each employee [10]. Thus, it can be ensured that good performance is not only in the present but also in the future. Measuring the level of IT governance performance using the IT Balanced Scorecard will allow organizations/institutions to take full advantage of the information they have, thereby maximizing benefits, capitalizing on opportunities and gaining competitive advantage [11]. IT governance also identifies control weaknesses and ensures the implementation of measurable improvements in an effective and efficient manner. IT Balanced Scorecard is a modification or alignment of the traditional Balanced Scorecard [12]. Where along with the intensive use of IT in the organization, the IT unit that has the task of internal company needs must actually implement systems and technologies that support the achievement of the company's business strategy [13]. Other impact of IT Balance Scorecard is sustainability Balance Scorecard should be employed, but it needs to be integrated to reach maximum benefit using the strategic management tool, to provide company with a way to overcome the limits of the tool and to contribute to it success [14]. Balance Scorecard is effective methods to evaluate corporate performance in order to improve business and development efficiency [15].

2.2. Control Objective for Information and Related Technology (COBIT)

Control Objectives for Information and Related Technology (COBIT) is an IT governance framework and set of tools that support and enable managers to bridge the gap between control requirements, technical issues and business risks [16]. COBIT 5 provides a comprehensive framework that assists companies in achieving their goals for enterprise IT governance and management [17]. In simple terms, it helps companies create optimal value from IT by striking a balance between realizing benefits and optimizing risk levels and resource use. COBIT 5 enables IT to be organized and managed holistically for the entire enterprise, engaging end-to-end business and IT functional areas and responsibilities, keeping in mind the related interests of internal and external IT stakeholders [18]. COBIT 5 is generic and useful for companies of all sizes, commercial, non-profit or in the public sector. COBIT 5 provides a holistic and systematic view of governance and management in enterprise IT based on a number of enablers [19].

COBIT 5 is a framework to measure capability maturity model integration [20]. COBIT 5 Framework make easier to evaluate IT Governance in a company [21]. For example if a company wants to manage outside environment from company like suppliers, it can be evaluated by assessment tools in COBIT 5 Framework [22]. There are five important principles in the analysis using the COBIT 5 Framework with previous refinements described in the figure below:

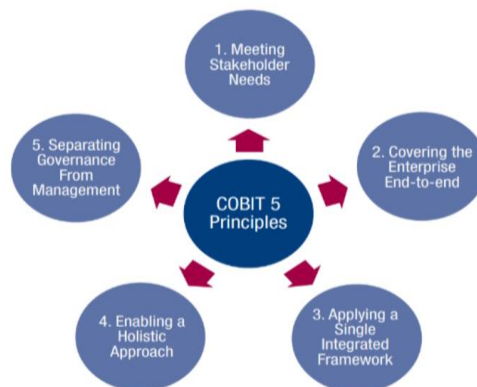


Figure 1. The Five Principles of COBIT 5 (Source: COBIT 5 Executive Overview)

3.0 METHODOLOGY

The following are the steps involved in this research process :

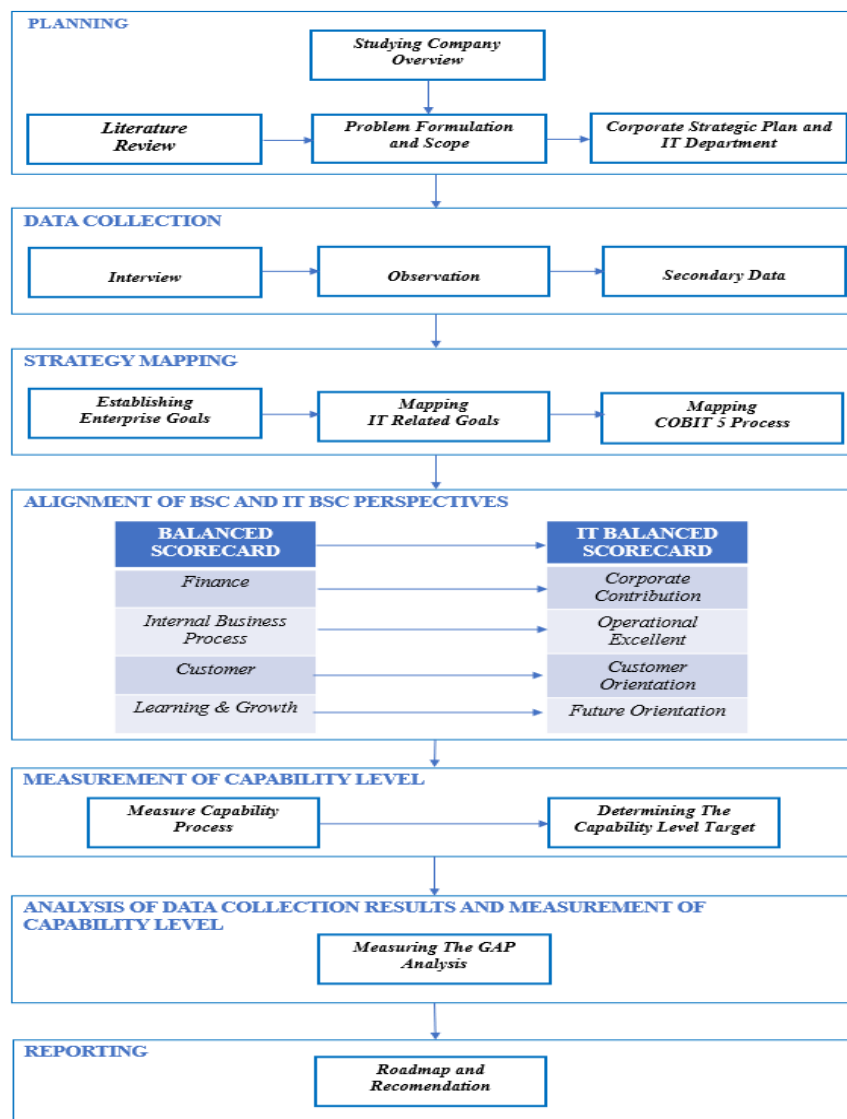


Figure 2. Research Flow Diagram

4.0 RESULTANTS AND DISCUSSION

4.1 Strategy Mapping (Identification of Enterprise Goals and IT-Related Goals)

At this stage the researcher identifies the strategic plan that has been formulated by the insurance company. Then this strategic plan will be mapped against the COBIT 5 Enterprise Goals, where the results of the mapping will be mapped again against the COBIT 5 IT-Related Goals.



Figure 3. Process of Determining Scope of Assessment

The life insurance company strategic plan mapping against COBIT 5 Enterprise Goals can be seen in the image below :

Table 1. Mapping the Strategic Plan of Life Insurance Companies with COBIT 5 Enterprise Goals

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

Table 2. Company's Goals

Number	Strategic Goals	Strategic target	Performance References
1	To become the nation's leading insurance company with financial transparency.	Provide the best service as a life insurance company that focuses on customer satisfaction and good contribution as a trusted financial service in Indonesia	Providing life insurance services to the public, especially in Indonesia, in a transparent and trustworthy manner with the best service.
2	Providing good decision for future planning and trusted protection with excellent service to stakeholders with all the conveniences through continuous innovation	Improving the quality of the quality control system by implementing the company's values, such as: focus on customer, adaptive to change and act quickly to innovate, provide the best solutions and services to stakeholders, trustworthy and committed to upholding integrity and making synergy as the main priority to achieve destination.	Good internal control in the company's operations. Continuously improve employee productivity and capabilities. Synergize with digital literacy in customer services and company operations. Develop insurance business with mainstay products and increase profit and satisfaction of customers and company stakeholders.

The results of Enterprise mapping against IT-Related Goals which means it is premier in supporting the achievement of values against the COBIT 5 enterprise goal, while the mapping results are summarized in the table below:

Table 3. Mapping of Enterprise Goals to IT-Related Goals

Number	Enterprise Goals	IT-Related Goals
1	Financial Transparency	Transparency of IT costs, benefits and risk
2	Information-based strategic decision making	Alignment of IT and business strategy
		Availability of reliable and useful information for decision making
3	Operational Staff & Productivity	Adequate use of applications, information and technology solutions
		Competent and motivated business and IT personnel
4	Skilled and Motivated People	Competent and motivated business and IT personnel

The results of mapping IT-Related Goals to the COBIT 5 process resulted in 25 processes that became the evaluation point in this study using a "P" scale, which means it is premiere in supporting the achievement of values for IT-related goals COBIT 5. The results of the mapping are as follows:

Table 4. Mapping IT Related Goals on COBIT 5 Process

Enterprise Goals	IT-Related Goals	Process
Financial transparency	Transparency of IT costs, benefits and risk	EDM02, EDM03, EDM05, APO06, APO12, APO13, BAI09
Information-based strategic decision making	Alignment of IT and business strategy	EDM01, EDM02, APO01, APO02, APO03, APO05, APO07, APO08, BAI01, BAI02
	Availability of reliable and useful information for decision making	APO09, APO13, BAI04, BAI10, DSS03, DSS04
Operational and staff productivity	Adequate use of applications, information and technology solutions	APO04, BAI05, BAI07
	Competent and motivated business and IT personnel	EDM04, APO01, APO07
Skilled and motivated people	Competent and motivated business and IT personnel	EDM04, APO01, APO07

4.2 Alignment of BSC and IT BSC Perspective

The following is a strategy to synergize the balanced scorecard perspective with the IT balanced scorecard:

Table 5. Alignment Strategy of BSC and IT BSC Perspective

IT BSC Perspective	KEY ANALYSIS	MISSION	MEASUREMENT ANALYSIS		STRATEGIC INITIATIVES
			RESULT IN INSURANCE COMPANY	INDICATOR	
Corporate Contribution	How should the performance of the IT department in front of the executive committee and the board of directors be considered as an element of supporting the company's success ?	The company's contribution perspective aims to open up opportunities and play a role in strategic business achievements through the effective application of methods and information technology	IT alignment has not been an enabler in achieving results in all functional areas in life insurance companies because there is a perception that IT is only part of support.	Business / IT Alignment	By building and managing an IT organization with characteristics of a particular archetype and verifying the different attributes that define the archetype are in alignment.
			The delivery process is still adjusted to the capabilities of human resources, even though the level of delivery must be adjusted to an adequate operational SLA	Value Delivery	Value delivery is closely associated with performance measurement in business like competitive advantage, elapse time for order, service fulfillment, customer satisfaction and profitability.

IT BSC Perspective	KEY ANALYSIS	MISSION	MEASUREMENT ANALYSIS		STRATEGIC INITIATIVES
			RESULT IN INSURANCE COMPANY	INDICATOR	
			On cost management, it is still focused on IT operational financing, which has not taken into account cost management for the short and long term in the development of corporate IT governance and IT Project	Cost Management	IT Cost management in project management is the process of planning, estimating, budgeting, and controlling project costs. Cost management processes are in place to help project teams plan and control budgets during the project life cycle.
			Risk analysis on corporate IT governance has not been carried out comprehensively, so there is still the possibility of risks in IT management that have an impact on the company's business	Risk Management	The company should have "information security risk management," consists of the policies, procedures, and technologies that a company uses to mitigate threats from malicious actors and reduce information technology vulnerabilities that negatively impact data confidentiality, integrity, and availability.
Operational Excellent	Where should IT services and processes be located to satisfy stakeholders and users?	To deliver IT services in a timely and effective manner in accordance with service level targets and costs	There is no integration in development process performance with respect to IT ICN management, IT expenditures versus IT planning, and IT support for employees per end-user.	Development Process Performance	We recommend that in planning Development Process Performance pay attention to the Percentage of projects on time, on budget, on spec. Average issue handle time. IT ROI. IT spending vs. plans. IT support employees per end user. Mean time between failures (MTBF). Mean time to repair/recovery (MTTR). Recovery point objectives (RPO).
			There is no synergy between various IT supporting operational function and the ability to produce greater output together	Operational Process Performance	The key to having good all-round of IT performance is five performance objectives: quality, speed, dependability, flexibility and cost.
			It was very the consistency, reliability and resilience of the IT infrastructure, as well as the way it's managed and maintained	Process Maturity	The company should have a Process Maturity Assessment in IT Operational to evaluate the attributes of a IT processes to determine the process' ability to consistently and continuously contribute to achieving organizational objectives.
			Life insurance companies do not have long-term Enterprise	Enterprise Architecture Management	Development EAM involves reviewing and consolidating detailed architecture decisions and migration plans to identify efficiencies,

IT BSC Perspective	KEY ANALYSIS	MISSION	MEASUREMENT ANALYSIS		STRATEGIC INITIATIVES
			RESULT IN INSURANCE COMPANY	INDICATOR	
			Architecture Management plans		advance standardization, and align business and IT priorities.
Customer Orientation	How should IT perform according to users in service to customers ?	Become a provider for all customers service information both directly and indirectly through digital systems	Customer satisfaction cannot be measured consistently and comprehensively, so there is still the possibility that customers will turn to products offered by competitors	Customer Satisfaction	Development integrated IT Customer Management System. Because technology can track and measure the customer's 'online footprints' that highlight precious insights into what the customer wants, what motivates them and the sort of products/services they're interested in.
			When the application development process in customer service, the IT team is often constrained by aspects of system requirements that are not detailed enough, the IT project management process is not committed and the possibility of cost overruns in the service performance application development process.	Development Services Performance	IT Team Development should get a consolidated view of software development KPIs, like cycle time and code quality. Set goals to improve software productivity metrics & use retros to track where you are. Beside that, IT Team Development should involve end users who are company customers to be involved in the application testing process and provide comprehensive feedback regarding Development Services Performance.
			In operational management, service performance is sometimes still beyond the specified service level agreement target and this will have an impact on customer satisfaction with the services provided by the company with operational IT support.	Operational Services Performance	Operational performance can be best explained as the synergy between various company units and the ability to produce greater output together. In other words, it is the level where all business departments collaborate to accomplish specific business goals. The performance objectives are quality, speed, dependability, flexibility and cost.
Future Orientation	How does IT develop the ability to achieve company vision and IT goals ?	To develop internal abilities to learn and innovate and to take advantage of future opportunities	It is necessary to pay attention to the continuous training of human resources in the IT department due to the development of network hardware software technology and data management continues to develop in the	Human Resource Management	Develop a thorough understanding of your company's objectives. Evaluate your HR capability. Analyze your current HR capacity in light of your goals. Estimate your company's future HR requirements. Determine the tools required for employees to complete the job.

IT BSC Perspective	KEY ANALYSIS	MISSION	MEASUREMENT ANALYSIS		STRATEGIC INITIATIVES
			RESULT IN INSURANCE COMPANY	INDICATOR	
			current digitalization era.		
			It is always necessary to analyze employee satisfaction in developing IT support in life insurance service companies, both in terms of welfare, capacity building and skills provision as well as career path clarity.	Employee Satisfaction	There are so many ways to maintain employee satisfaction such as : Offer a competitive salary. Ask for employees' suggestions. Be transparent. Get creative with benefits. Listen to employee concerns. Celebrate successes. Prioritize mental and physical well-being. Invest in employees' future.
			Lack of good knowledge management in the company related to the capabilities and daily operations of employees	Knowledge Management	An effective knowledge management strategy should : Contribute to overall organizational goals. Balance people, processes, and technology. Build timely organizational capabilities. Use common processes and technology to encourage collaboration. Transform the perception of KM by creating tangible results.

4.3 Measurement of Capability Level

Based on the calculation results of 25 COBIT 5 processes which are the evaluation points, the next step is to determine the target capability level of each process which is the evaluation point. The determination of this capability level target is set to reach level 2 in the Fully Achieved rating, with the reason that it will be easier to make improvements related to achieving level 3 if all activities at level 1 and Work Product Management & Performance Management at level 2 have been fulfilled.

Table 6. Determining the Capability Level Target

Index	Process Description	Capability Level		GAP
		As-is	Target	
EDM01	Ensure Governance Framework Setting and Maintenance	1	2	1
EDM02	Ensure Benefits Delivery	1	2	1
EDM03	Ensure Risk Optimisation	0	2	2
EDM04	Ensure Resource Optimisation	1	2	1
EDM05	Ensure Stakeholders Transparency	1	2	1
APO01	Manage the IT Management Framework	1	2	1
APO02	Manage Strategy	0	2	2
APO03	Manage Enterprise Architecture	0	2	2
APO04	Manage Innovation	0	2	2
APO05	Manage Portfolio	0	2	2

Index	Process Description	Capability Level		GAP
		As-is	Target	
APO06	Manage Budget & Cost	1	2	1
APO07	Manage Human Resources	1	2	1
APO08	Manage Relationships	0	2	2
APO09	Manage Service Agreements	0	2	2
APO12	Manage Risk	0	2	2
APO13	Manage Security	0	2	2
BAI01	Manage Programmes and Projects	1	2	1
BAI02	Manage Requirements Definition	0	2	2
BAI04	Manage Availability and Capacity	0	2	2
BAI05	Manage Organisational Change Enablement	1	2	1
BAI07	Manage Change Acceptance and Transitioning	1	2	1
BAI09	Manage Assets	1	2	1
BAI10	Manage Configuration	0	2	2
DSS03	Manage Problems	0	2	2
DSS04	Manage Continuity	0	2	2

4.3 Measuring the GAP Analysis

The design of the roadmap for the implementation of IT governance in life insurance companies is divided into 2 stages, namely short-term improvements and long-term improvements. Short-term improvements will be made by prioritizing quick-wins based on the results of the COBIT 5 process as the evaluation point. Quick-win identification is based on the COBIT 5 process, which appears more than once in the cascading results of mapped IT-related goals. Here are 5 quick-win COBIT 5 processes:

- EDM02 – Ensure Benefit Delivery;
- EDM04 – Ensure Resource Optimisation;
- APO01 – Manage IT Management Framework;
- APO07 – Manage Human Resources; dan
- APO13 – Manage Security.

The other 20 COBIT 5 processes will be included in the long-term list of improvements. In prioritizing the improvement roadmap and implementing short-term and long-term improvements, the researcher will do a categorization using a matrix that combines impact & urgency. The following is an explanation of prioritization in the impact category :

Table 7. Impact Prioritization

Weight	Impact	Description
3	High	The process contributes to the achievement of the company's vision and mission and IT's vision and mission.
2	Medium	The process contributes to the achievement of the IT vision and mission, but the process does not directly contribute to the achievement of the company's vision and mission.
1	Low	The process contributes little to the achievement of the company's vision and mission or IT's vision and mission.

The following is an explanation of prioritization in the urgency category:

Table 8. Urgency Prioritization

Weight	Urgency	Description
3	High	This process is urgent and requires immediate improvement.
2	Medium	This process is not urgent, but needs special attention for improvement
1	Low	This process is not urgent for improvement

The form of the matrix used is as follows:

Impact		
3	2	1
High	Medium	Low

Urgency	3	High	<i>Priority 1</i>	<i>Priority 2</i>	<i>Priority 3</i>
	2	Medium	<i>Priority 2</i>	<i>Priority 3</i>	<i>Priority 4</i>
	1	Low	<i>Priority 3</i>	<i>Priority 4</i>	<i>Priority 5</i>

Figure 4. Roadmap Priority Matrix

The following is an explanation of the results of the merger between impact and urgency aspect based on COBIT 5 analysis process:

Table 9. Prioritization of Implementation & Process Improvement

Priority	Description
Priority 1	The improvement and implementation process will be carried out in the second quarter of 2022
Priority 2	The improvement and implementation process will be carried out in the second quarter of 2022 and third of 2023
Priority 3	The improvement and implementation process will be carried out in the third quarter of 2022
Priority 4	The improvement and implementation process will be carried out in the third quarter of 2022 and the fourth of 2023
Priority 5	The improvement and implementation process will be carried out in the first quarter of 2023

The following are the results of the prioritization assessment process related to the roadmap for the implementation and improvement of IT governance:

Table 10. Implementation Prioritization Assessment Process and Process Improvement

Index	Process Description	Impact	Urgency	Priority
EDM01	<i>Ensure Governance Framework Setting and Maintenance</i>	1	1	<i>Priority 5</i>
EDM02	<i>Ensure Benefits Delivery</i>	3	3	<i>Priority 1</i>
EDM03	<i>Ensure Risk Optimisation</i>	3	2	<i>Priority 2</i>
EDM04	<i>Ensure Resource Optimisation</i>	3	3	<i>Priority 1</i>
EDM05	<i>Ensure Stakeholders Transparency</i>	2	1	<i>Priority 4</i>
APO01	<i>Manage the IT Management Framework</i>	3	3	<i>Priority 1</i>
APO02	<i>Manage Strategy</i>	3	2	<i>Priority 2</i>
APO03	<i>Manage Enterprise Architecture</i>	3	2	<i>Priority 2</i>
APO04	<i>Manage Innovation</i>	3	2	<i>Priority 2</i>
APO05	<i>Manage Portfolio</i>	1	2	<i>Priority 4</i>
APO06	<i>Manage Budget & Cost</i>	1	2	<i>Priority 4</i>
APO07	<i>Manage Human Resources</i>	3	3	<i>Priority 1</i>
APO08	<i>Manage Relationships</i>	2	3	<i>Priority 2</i>
APO09	<i>Manage Service Agreements</i>	2	3	<i>Priority 2</i>
APO12	<i>Manage Risk</i>	2	2	<i>Priority 3</i>
APO13	<i>Manage Security</i>	3	3	<i>Priority 1</i>
BAI01	<i>Manage Programmes and Projects</i>	1	2	<i>Priority 4</i>
BAI02	<i>Manage Requirements Definition</i>	3	1	<i>Priority 3</i>
BAI04	<i>Manage Availability and Capacity</i>	3	1	<i>Priority 3</i>
BAI05	<i>Manage Organisational Change Enablement</i>	2	1	<i>Priority 4</i>
BAI07	<i>Manage Change Acceptance and Transitioning</i>	1	1	<i>Priority 5</i>
BAI09	<i>Manage Assets</i>	1	2	<i>Priority 4</i>
BAI10	<i>Manage Configuration</i>	1	3	<i>Priority 3</i>
DSS03	<i>Manage Problems</i>	2	2	<i>Priority 3</i>
DSS04	<i>Manage Continuity</i>	2	2	<i>Priority 3</i>

The following is a summary of the results of prioritizing the implementation and improvement of the above processes :

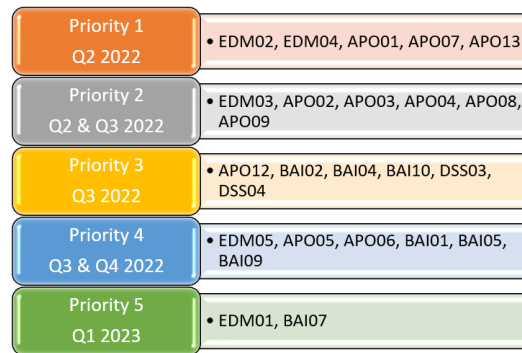


Figure 5. Results of Mapping Prioritization of Process Improvement and Implementation

5.0 CONCLUSION

The results of the evaluation of IT governance using the COBIT 5 capability level approach, show that there are 14 processes at level 0 (incomplete process), namely the EDM03, APO02, APO03, APO04, APO05, APO08, APO09, APO12, APO13, BAI02, BAI04, BAI10 processes. , DSS03 and DSS04; then 8 processes are at level 1 (process performance) with largely achieved ratings, namely the EDM02, EDM05, APO01, APO06, APO07, BAI01, BAI05 and BAI09 processes; and 3 processes are at level 1 (process performance) with a fully achieved rating, namely the EDM01, EDM04 and BAI07 processes. To achieve capability level 2 with a fully achieved rating, based on the results of the evaluation of IT governance using the COBIT 5 capability level approach, it shows that there is a gap of 1 to 11 processes, namely processes EDM01, EDM02, EDM04, EDM05, APO01, APO06, APO07, BAI01, BAI05, BAI07 and BAI09; and there is a gap of 2 against 14 processes, namely the EDM03, APO02, APO03, APO04, APO05, APO08, APO09, APO12, APO13, BAI02, BAI04, BAI10, DSS03 and DSS04 processes. The results of the IT governance design are in the form of a roadmap for the implementation of IT governance along with recommendations for 25 COBIT 5 processes which are the evaluation points based on prioritization of the combination of impact and urgency.

We can conclude that the COBIT 5 Framework is useful in evaluating so that companies can maintain security risks at the authorized level and protect information against unauthorized or unauthorized people to make modifications that can cause chaos. In addition, COBIT 5 also has a role to ensure that services and systems can be continuously used by internal and external stakeholders and for further research it would be better to improve evaluation analysis on all COBIT domains in the COBIT 5 framework.

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