

## **Digging Companies Crucial Aspect Measurement: Risk Maturity Level, Assessment of XYZ Bank**

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### **Abstract**

Risk management is an important aspect to be owned by companies and measured through risk maturity level to utilize the opportunity and minimize losses in processes with uncertainty or potential for two or more possibilities. This research aims to measure one of the banking state-owned corporations' risk maturity levels to measure the Implementation, readiness, maturity, and application of risk management according to Indonesia's regulations from Otoritas Jasa Keuangan, Kementerian BUMN, and Bank Indonesia regarding risk management in the banking industry. The main framework used is risk maturity level from ISO 31000:2018, with five indicating levels: initial, managed, defined, quantitatively managed, and optimized. This study uses a mixed method in data collection. To get the company's risk maturity level, criteria from each level according to ISO 31000:2018 must be fulfilled. For the weighting aspect, measurement categories are divided into five, which include all of the attributes based on ISO 31000:2018 framework elements; meanwhile, for risk maturity criteria, assessment is based on criteria mentioned for each level in ISO 31000:2018.

**Keywords:** bank; risk management; risk maturity level

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### **A. INTRODUCTION**

Emerging eras and expanding businesses give new uncertainty, opportunities, and threats. Therefore, significant cooperation from the internal company is needed to reach objectives and avoid losses since risk has a significant relationship with company elements, especially for the banking industry, which is very high-risk due to its trust-based financial business model and its responsibilities related to money from many parties. Their failures and loss possibly bring a crisis to themselves and, worse, for businesses.

In Indonesia, Risk Management is being encouraged to be prioritized by banking and state-owned industry, as mentioned in PER-2/MBU/03/2023 about State-Owned Corporation Guidance of Good Corporate Governance and Significant Corporation; PER-5/MBU/09/2022 about Risk Management in State-Owned Corporation; Regulation of BI 8/14/2006 about Good Corporate Governance Implementation; and Regulation of OJK 18/POJK.03/2016. One of the assessment tools is Risk Maturity Level, based on Framework from ISO 31000:2018.

Before starting the research, it is important to determine the basics of this research. With the new ministry regulation stated in PER-2/MBU/03/2023 and PER-5/MBU/09/2022, the primary purpose of the regulation is to be state-owned companies' foundation on risk management implementation based on their internal and external processes. Therefore, this research aims to prove the Implementation of risk management through research in one of the state-owned companies in Indonesia through risk maturity level with levels 1 to 5 based on ISO 31000:2018, which are from initial, managed, defined, managed, and optimizing.

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## B. RESEARCH METHOD

Quantitative research is the technique that aims to analyze many elements through data processing numerically to be patterned by data collection with minimum data fulfillment based on the population amount, which will be analyzed to give knowledge regarding its averages, patterns, hypotheses testing, and results that will be representative for all populations. In this study, the data is collected by open-ended and yes-or-no questionnaire with minimum data of 326 respondents and a 95% confidence level, based on the Isaac-Michael table for 6,000 populations. The sampling will be taken with probability sampling from all population members with no additional specific criteria and target all levels of employees.

**Table 1: Isaac and Michael Table for 2,800 – 10,000 Populations**

N	S		
	1%	5%	10%
<b>2800</b>	537	310	247
<b>3000</b>	543	312	248
<b>3500</b>	558	317	251
<b>4000</b>	569	320	254
<b>4500</b>	578	323	255
<b>5000</b>	586	326	257
<b>6000</b>	598	329	259
<b>7000</b>	606	332	261
<b>8000</b>	613	334	263
<b>9000</b>	618	335	263
<b>10000</b>	622	336	263

Source: research data, 2023

Qualitative research is the technique that focuses on words, interpretations, and shared approaches instead of numerical amounts of data. This will be depth supporting data for quantitative results. The data will be collected through structured interviews with non-random respondents from divisions planning and implementing the company's risk management systems and strategy. In this study, the interviewees are the head of the Risk Management Division and the staff of the Corporate University Division.

Secondary data is collecting required data from sources, both from the primary and secondary collection, which are from internal and external sources of the company. Focusing on risk maturity assessment, the documents needed are all related to risk management strategy and Implementation for each step of processes. Weighting is a method to solve the imbalance of probabilities and adjustment for populations in the research (Elliot, 2020) to sort priority in forms of weight percentage in each aspect (Agresti, 1990). The percentage will be used to calculate the final score from all categories. In detail, subjective weighting (Liu, 2021) is used since all calculations are based on discussions with stakeholders in the company.

The validity test aims to give the most suitable measurement that must be used for research. The higher its validity, the higher the accuracy level of the research results with expectations. In order to be considered valid, all data needs to be capable of measuring the targeted flow and purposes of the research itself. This study uses a manual checking method, especially in checking the validity of questionnaire answers.

## C. RESULTS AND ANALYSIS

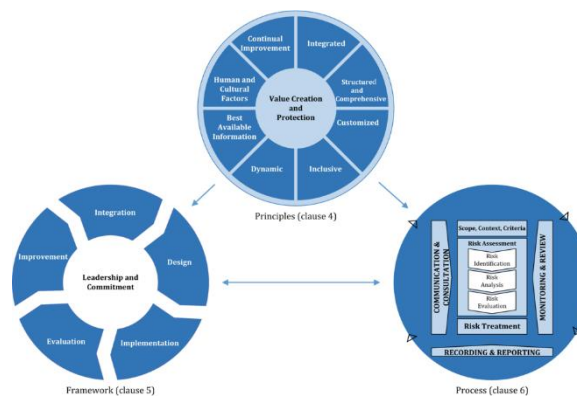
### *Risk*

The word "risk" has no official definition; it depends on the industry field. However, theories agree that risk is uncertainty when a situation has more than one possible outcome in which one has the potential to give losses. There are three types of risk: known risk, unknown risk, and unknowable risk, based on the risk happening possibility analysis. Focusing on the banking industry, eight main risks must be considered: 1) Credit risk or loss resulting from debtors' failure to pay their debts on time, bad faith, or bank failure. Typically, it is separated into commercial and consumer credit risk; 2) Market risk is the loss in recordings that are impacted by market factors

and economic swings; 3) Liquidity risk is due to inefficient asset-to-cash conversion, the bank faces the inability to satisfy cash flow requirements; 4) Inadequacies in the bank's internal systems or human error contribute to operational risk; 5) Legal risk, which arises from the fact that applicable laws or judicial systems do not cover some procedures or actions within the bank.

### Risk Management

Risk Management is a process or system that identifies, assesses, treats, controls, and evaluates an organization's risk to handle uncertainty. It aims to take control of all potential risks. As mentioned in ISO 31000:2018, the risk management concept consists of Risk Management Process, Risk Management Principles, and Risk Management Framework, which are all related. Implementing risk management in a company starts with defining the circumstances, risk identification, risk analysis, risk evaluation, risk treatment, risk monitoring, and communication and consultation.



**Figure 1: Enterprise Risk Management Guidelines**

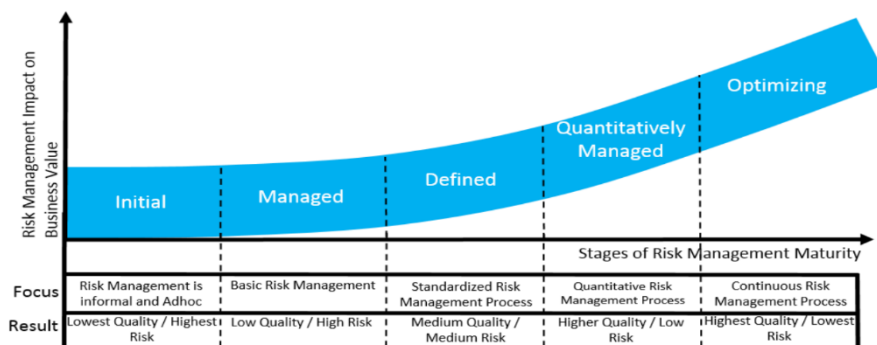
Source: ISO 31000:2018

Elaboration of the risk management concept starts with Risk Management Processes. The main aspects start from communication and consultation with stakeholders for decision-making and reasoning for actions, both with internal and external parties. Afterward, several components will be set up to customize risk management procedures with company culture and improve its effectiveness: scope, context, and criteria. This will be customized considering different levels of employees and job responsibilities, combined with the values and goals of the organization. Risk Assessment, as the risk management processes, will be done in three sub-actions, starting from risk identification, risk analysis, and risk evaluation, including identifying and defining all risks, analyzing their types and features while taking risk sources into account, and risk appraisal through reporting in order to help decision-making. The risk must be "treated" after being assessed through risk management implementation. All prior processes must be recorded and evaluated daily by gathering information and analysis and resulting feedback and reviews, which must be distributed to all company levels and external stakeholders to make decisions.

Processes in determining effective risk management implementation need to follow principles according to ISO 31000:2018 as follows: 1) Integrated, meaning that risk management is involved in all organization parts; 2) Structured and comprehensive risk management implementation; 3) Customized risk management strategy with each organizational part needs; 4) Inclusive from all perspective to give best risk awareness; 5) Dynamic following the organization situation and needs; 6) Best available information which is complete from the past until future planning; 7) Human and cultural factors which bring significant effect on each element; and 8) Continual improvement for risk management process and strategy.

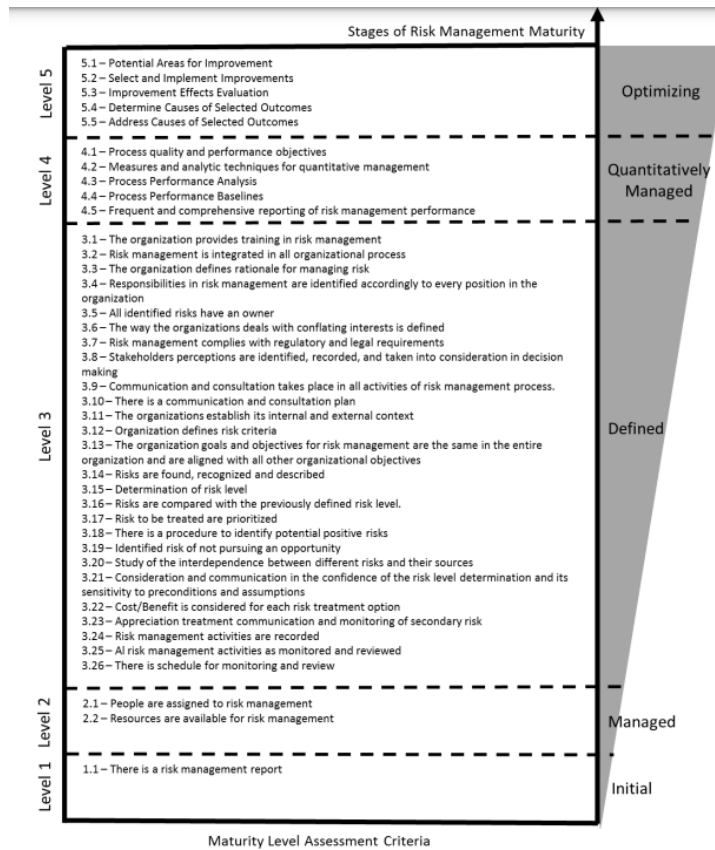
The risk management framework guides organization integration in risk management for all activities. Elements in the framework are: 1) Leadership and commitment as the core of the risk management framework since this is the indicator of risk management coverage and customized based on the organization; 2) Integration which integrates risk management with the organizations culture and moves dynamically considering organization activities and principles; 3) Design in the risk management framework, which needs to cover external and internal factors of the organization (employees, activities related with risk management implementation); 4) Implementation with a considerable dependency with stakeholders understanding and entanglement; 5) Evaluation which will be held regularly to assess the risk management framework used in its relation with organization purposes and Implementation; and 6) Improvement following inputs from evaluations and changes from situations in the organization during the Implementation.

As one of the applied risk management frameworks based on ISO 31000:2018 and utilized by COSO, Enterprise Risk Management is an integrated system between a company's culture, capabilities, strategy, and performances that aim to identify, assess, and prepare for potential losses. This is the assessment tool that is the main focus of this study. The risk maturity level focuses on risk concerns specific to each company, which is strongly related to risk appetite and the risk management system, which have to be involved and known by all employee levels in the company itself. This framework has five indicator levels: initial level, managed level, defined level, quantitatively managed level, and optimizing level. The higher the risk maturity level of a company (at a quantitatively managed or optimizing level), the higher the risk impact on the organization's performance, meaning that the company can explore its opportunities and threats. Risk maturity level assessment requires data from the whole company. It must be taken quantitatively to the whole company through questions regarding the risk management implementation and their risk management knowledge, qualitatively through interviews with divisions responsible for the risk management implementation, and secondary data through the company-owned documents.



**Figure 2: Risk Maturity Level**  
 Source: ISO 31000:2018

The steps required for this assessment are data collection and analysis through several perspectives, which will support data collected from all methods. In order to fulfill quantitative data, questionnaires will be distributed to all levels of employees. Detailed Implementation of risk management and document checking is done through qualitative and secondary research focusing on Risk Management Division and Corporate University Division. Quantitative and secondary data results will be confirmed by its Implementation in all employees, which will be checked with quantitative results. All of them will be measured with Analytical Hierarchy Method, and the risk maturity level will be measured with criteria fulfillment. The more criteria fulfilled, the higher its risk maturity level.

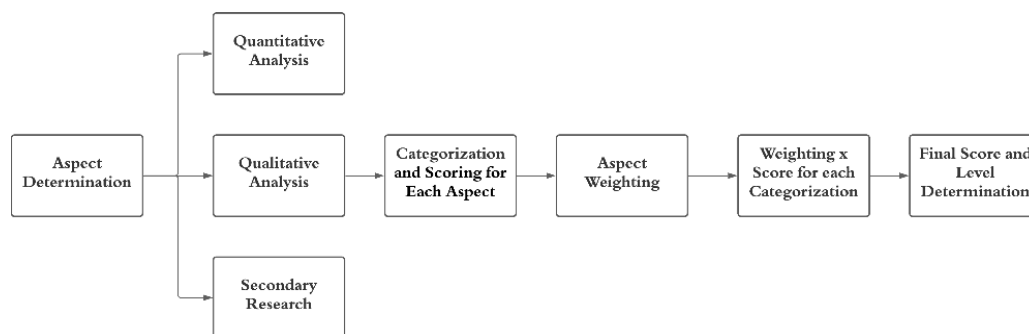


**Figure 3: Risk Maturity Level Criteria**  
 Source: ISO 31000:2018

**Bank**

As the industry focuses in this study, a bank is well known as a trust-based financial business that deals with financial processes for other businesses and individuals (lending, deposits) in order to make money. This is why banks are considered a high-regulated industry, due to their crucial role in money management, both for the company itself, other businesses, and the country. This article concludes that the higher the risk maturity level of the company, the better its risk management implementations.

The level determination is defined by aspect weighting and risk maturity criteria fulfillment. Each method will be described further below. The steps required for this measurement are drawn in a flowchart below.



**Figure 4: Aspect Weighting Steps Flow**

From the aspect's determination, elements of the framework from Risk Management Guidance ISO 31000:2018 will be described into attributes and categorized into five aspects as scoring guidance: 1) Documents, 2) Resource Allocation, 3) Implementation, 4) Quantitative Measurement, and 5) Commitments. Afterward, moving on to analysis, divided into quantitative, qualitative, and secondary research. Quantitative research through questionnaires with 18 questions and two open-ended questions as score reduction for questions with risk management policy and risk appetite topic, to validate their knowledge. With 398 respondents spread from all levels and positions in the company. For yes/no questions with reduction questions, weights from "Yes" answers are scored into two: "know" and "understand." "Know" means less understanding of the topic asked, and it will give a score of 0.5 and a score of 1 for answers with an understanding of the topic. Afterward, these are categorized into five scoring aspects, elaborated in the Table below.

**Table 2. Summary of Question Scoring**

Question Topic	Percentage for "Yes" Answer	Aspect
Risk Management Policy Knowledge	96.33%	Commitment
Risk Appetite Knowledge	93.46%	Implementation
Risk Owners	97.24%	Commitment
Risk Awareness	84.67%	Commitment
Colleagues Risk Awareness	81.91%	Commitment
Risk Management Information System	88.94%	Resources Allocation
Using Information System of Risk Management	84.67%	Implementation
Risk Management Training	86.93%	Implementation
Risk Management Training Application	90.20%	Implementation
Risk Management Effectiveness	88.69%	Implementation
Risk Management Training Implementation with Colleagues	86.18%	Implementation
Leaders Involvement	89.20%	Commitment
Leaders Supervisor	86.93%	Commitment
Regular Education on Risk Management	87.94%	Commitment
Education from Risk Management Division	86.93%	Resource Allocation
Customization of Risk Management Education	87.69%	Research Allocation
Risk Awareness Culture in the Company	90.70%	Commitment
Risk-Aware Culture Awareness in Employees	91.71%	Commitment

Source: research data, 2023

Final scoring obtained from this analysis are from Commitments (89.63%), Resource Allocations (87.85%), and Implementation (88.36%).

Through interview sessions from Risk Management Divisions, functions are divided into cross-checking function and Quantitative Measurement scoring aspect function. The validation of aspects based on the questions is elaborated in Table 3 below.

**Table 3. Validation of Questionnaires**

Question Number	Aspect	Interview Questions (for Validation)
Risk Management Policy Knowledge	Commitment	Risk Management Principles, Framework, Strategy, and Policy
Risk Appetite Knowledge	Implementation	Risk Management Principles, Framework, Strategy, and Policy
Risk Owners	Commitment	Legal products of risk management processes
Risk Awareness	Commitment	Documents knowledge distribution to employees
Colleagues Risk Awareness	Commitment	
Risk Management Information System	Resources Allocation	

Question Number	Aspect	Interview Questions (for Validation)
Using Information System of Risk Management	Implementation	Training and Materials related to risk management education
Risk Management Training	Implementation	Risk Management Training for Employees
Risk Management Training Application	Implementation	
Risk Management Effectiveness	Implementation	
Risk Management Training Implementation with Colleagues	Implementation	
Leaders Involvement	Commitment	Decisions makings and processes related to Risk Management
Leaders Supervisor	Commitment	
Regular Education on Risk Management	Commitment	Risk Management Division distribution involvement and actions
Education from Risk Management Division	Resource Allocation	
Customization of Risk Management Education	Research Allocation	
Risk Awareness Culture in the Company	Commitment	
Risk-Aware Culture Awareness in Employees	Commitment	

Source: research data, 2023

In order to get a score for the Quantitative Measurement aspect, questions with this category are scored based on their answers and elaborated on in Table 4 below.

**Table 4. Quantitative Measurement Aspect Scoring**

Question	Aspect	Answer
Risk Management Division's target to all employees?	Quantitative Measurement	According to vision, mission, and risk management targets, they align with unit and responsibilities.
Numerical Indicator(s)	Quantitative Measurement	KPIs in KRIs and certifications
Assessment for Teams	Quantitative Measurement	Peer Assessment and Individual Assessment
Risk Management understanding measurement	Quantitative Measurement	Daily assessment through the dashboard, 3-year risk survey, and BMSR Certification requirements.

Source: research data, 2023

### Secondary Research

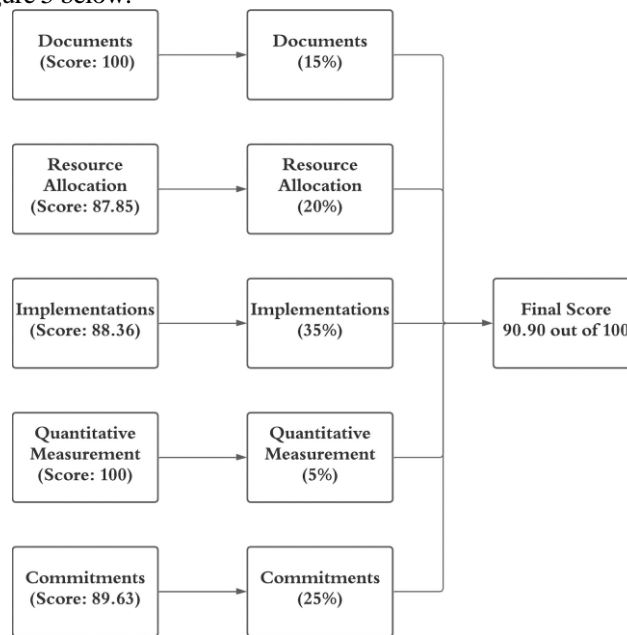
This method aims to check the availability of risk management required documents in the company, which include: (1) Risk Management Guidance, (2) Risk Management Dashboard, (3) Standard Operational Procedures, (4) Job Descriptions, (5) Key Performance Indicators in principles, framework, processes, and culture, (6) Annual Report, (7) Risk Management Disclosures. The company has all documents; therefore, the documents aspect scoring is 100%.

Based on discussions with the company and experts in the field, the weighting of each scoring aspect is elaborated as follows:

- a. Commitments = 25%
- b. Resource Allocation = 20%
- c. Implementations = 35%
- d. Quantitative Measurement = 5%
- e. Documents = 15%

*Final Scoring*

The final scoring is based on the result of the weighting aspect and scores obtained from the previous analysis, as shown in Figure 5 below.

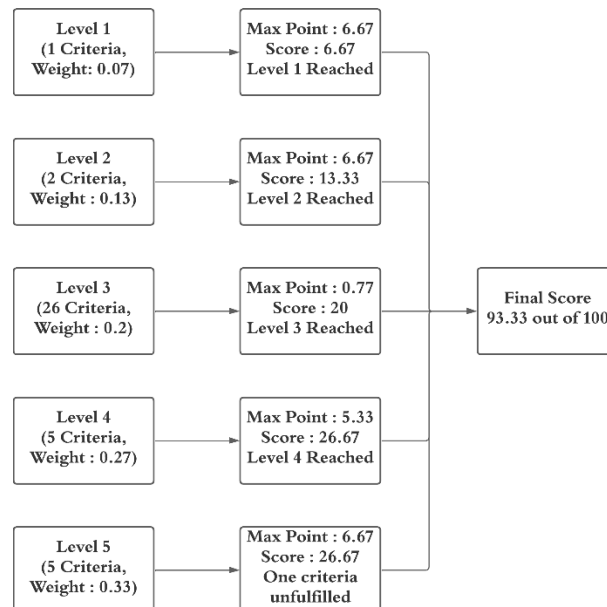


**Figure 5. Final Calculation for Risk Maturity Level**

Therefore, based on the aspect weighting method, the score is 90.90 out of 100.

*Risk Maturity Criteria Fulfillment*

The second method used for the scoring is risk maturity criteria fulfillment, with a weighting method for each criterion in levels 1-5, and the result is from total scores from fulfilled criteria. The flow of this method is shown in Figure 6 below.



**Figure 6. Calculation of Risk Maturity Criteria Fulfillment Method**



Fulfilled criteria in one level will be up to level 2 until the maximum level. As a result, all criteria from levels 1-4 has fulfilled. However, there is a lack of one criterion in level five, which concludes that the scoring is on level 5 (with a scoring 93.33 out of 100), from 100 reduced by 6.67 as the score lacked criteria.

*Discussion*

According to several primary research, the scores of 90.90 and 93.33 all exceed the minimum score point of level 5 requirements and the scoring interval for level 5.

**Table 5. Minimum Points of Risk Maturity Level**

	Minimum Point
<b>LEVEL 1</b>	6.67
<b>LEVEL 2</b>	20.00
<b>LEVEL 3</b>	40.00
<b>LEVEL 4</b>	66.67
<b>LEVEL 5</b>	80.00

Source: Proenca, Vieira, and Borbinha (2017)

**Table 6. Scoring Interval for Risk Maturity Level**

Scoring Interval	Maturity Level
1.00 - 1.81	Level 1
1.82 - 2.60	Level 2
2.61 - 3.40	Level 3
3.41 - 4.20	Level 4
4.21 - 5.00	Level 5

Source: Misbah, 2017

**Table 7. Scoring Interval for Risk Maturity Level**

Level	Descriptions
Level 1 (1.0 ≤ score < 2.0)	Initial
Level 2 (2.0 ≤ score < 3.0)	Repeatable
Level 3 (3.0 ≤ score < 4.0)	Defined
Level 4 (4.0 ≤ score < 4.5)	Managed
Level 5 (4.5 ≤ score ≤ 5.0)	Integrated

Source: Suparto and Lukmandono, 2022

**D. CONCLUSION**

As one of the most important aspects of being owned by a company, risk management must be assessed regularly with the proper framework based on ISO 31000:2018. Risk maturity level is one of the indicators to measure a company's risk awareness and culture, seen from the effectiveness of risk management implementation. The measurement of risk maturity level needs to be seen from many perspectives to complete criteria from each level of maturity, as one of the state-owned companies categorized in the banking industry, following regulations from the government regarding risk management utilization in banking and state-owned companies. Based on the measurement above, XYZ Bank has reached level 5, which is an optimizing level, corresponding to the expected result of XYZ Bank.

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