Anticipatory Risk Planning at PT Telkom Indonesia

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Abstract

This study examines the anticipatory risk management strategies implemented by PT Telkom Indonesia to address potential crises, including pandemics. This research aims to explore how a company can proactively identify, analyze, and manage risks to maintain service stability. Employing the Narrative Literature Review (NLR) approach, this study gathers and analyzes secondary data from various risk-management-related literature, focusing on the telecommunications sector. The findings reveal that although PT Telkom Indonesia has established risk strategies, several areas require further development, particularly in terms of long-term risk anticipation. This study recommends strengthening a more comprehensive and adaptive risk-management system to enhance corporate resilience. The originality of this research lies in its specific focus on PT Telkom Indonesia as a case study, highlighting the unique challenges and opportunities faced by a leading telecommunications company to address uncertainties and future crises. Additionally, this study contributes to the existing body of literature by providing insights into the application of anticipatory risk management in the telecommunications sector, particularly in the context of future pandemics.

Keywords: Anticipatory Risk Management, Future Pandemics, Telecommunications Sector, Resilience, PT Telkom Indonesia

INTRODUCTION

Enterprise Risk Management (ERM) encompasses comprehensive approaches to identifying, managing, and mitigating risks faced by companies as a whole, as well as operational, financial, reputational, and other types of risk. In the telecommunications industry, inadequate risk planning can result in service instability with significant consequences for both service providers and consumers. PT Telkom Indonesia, as the primary telecommunications service provider in Indonesia, is highly reliant on the stability of its infrastructure, which must withstand various unforeseen conditions (Telkom 2023). In this context, PT Telkom plays a strategic role by providing digital infrastructure, such as 4G/5G networks and cloud-based services, while supporting digital applications, such as Peduli Lindungi (Fajri et al., 2022). Digital technology involves integration into business models, operational processes, and customer interaction. Global uncertainty affects all industries, whereas local uncertainty pertains to specific projects or decisions.

Telecommunication companies must ensure data privacy and security, maintain transparency with customers regarding the use of their data, and comply with privacy regulations (Gandini et al., 2014). Recent trends indicate an increased focus on industry 4.0, dynamic capabilities, and business model innovation (P. A. Y. Putri & Endi,ana, 2020) and (O. A. Putri et al., 2022). The absence of a comprehensive anticipatory strategy can affect service quality and impede company operations when confronted with potential risks such as natural disasters, economic crises, or even pandemics (Gandini et al., 2014). Given the growing complexity and dependence on communication systems, it is crucial for PT Telkom Indonesia to develop risk-planning strategies that can mitigate the challenges threatening the telecommunications sector. Previous studies have

also highlighted that proactive strategies can significantly help organizations mitigate crisis impacts (Hadi 2020).

The aforementioned facts are closely linked to the literature emphasizing the importance of systematic and structured risk planning in large organizations, such as PT Telkom Indonesia. Previous research reveals that existing risk management theories fail to adequately accommodate the various dynamics that may influence corporate resilience when addressing unexpected crises (Smith et al. 2020). Failures in internal processes, system imperfections, and human errors are critical aspects that must be addressed in operational risk management within telecommunications companies (López, 2021). Some theories prioritize short-term risk mitigation without considering long-term risks or more complex potential crises. Moreover, the strategies outlined in these theories remain limited in their real-world implementation, particularly within the rapidly evolving telecommunications sector, which requires quick response to emerging threats that can disrupt operational sustainability.

The primary aim of this research is to explore and analyze the anticipatory risk management strategies implemented by PT Telkom Indonesia in addressing various potential crises, including unforeseen threats such as pandemics. Anticipatory risk planning plays a pivotal role in enhancing PT Telkom Indonesia's operational resilience to various threats and disruptions in the digital era (Anjani & Yumeldasari, 2022).

This research examines the various stages in the planning and implementation of risk management strategies, including risk identification, risk analysis, risk evaluation, the development of strategies, and the implementation of sustainable controls. This study aimed to gain deeper insights into how a company can improve its operational resilience and sustainability through proactive and anticipatory risk management.

The significance of this research is not only driven by the need to address the challenges faced by PT Telkom Indonesia but also by the need to gain a more profound understanding of the role of risk planning in the telecommunications industry in general. Given the reliance of other sectors on the continuity of telecommunications services, the strategies adopted by PT Telkom Indonesia can serve as a model for other companies in similar sectors to address the increasingly complex and dynamic risks. Therefore, this study is expected to contribute significantly to the development of anticipatory risk-management theory and serve as a reference for better policymaking in the future. To address these risks, telecommunications operators require more reliable risk-management systems (Fauzi, 2016).

LITERATURE REVIEW

Risk Identification

Risk Identification is the first step in the risk management process, and focuses on identifying potential risks that could affect an organization's objectives. According to Aven (2015) and Asir et al. (2023), Risk Identification is the process of identifying and documenting external and internal risks within an organization, (López, 2021). This process aims to uncover all factors that may disrupt operational continuity and harm the organization. Appropriate risk identification leads to a clearer understanding of existing threats and provides a foundation for more appropriate mitigation measures (Gandini et al., 2014; López, 2021; Rokhmati, 2022). Without comprehensive risk identification, an organization cannot effectively plan risk-management actions. In the context of PT Telkom Indonesia, this step is crucial for understanding potential disruptions in the telecommunications industry, such as cyberattacks and changes in government regulations.

Furthermore, Telkom has developed and implemented various technology-based risk-management application modules to support more effective risk management. To address these risks, telecommunications operators require a more robust risk-management system (Fauzi, 2016). The use of information technology necessitates

system maintenance, enhanced information security, and risk management, which discuss how an organization maps out existing problems through a comprehensive and systematic approach (Raihanah et al., 2024). This underscores the importance of appropriate crisis management as an anticipatory measure to address potential risks that may affect a company's operational sustainability (Ardianto, 2024).

Manifestation of Risk Identification

Categorizing risks during the identification phase is critical for management to focus on the areas with the highest risk. According to Hillson (2016) and (Nurapiah, 2019), risks can be categorised into several types, such as strategic, operational, financial, and compliance risks. Each risk category requires a different approach for its mitigation and management. Strategic risks, for example, focus on threats to the organization's vision and mission, while operational risks relate to disruptions in daily business processes (Gandini et al.,2014; López, 2021). Financial risks are associated with the likelihood of significant financial losses, whereas compliance risks involve threats caused by regulatory changes or rules that could affect company operations. Therefore, a clear understanding of these risk types will help PT Telkom Indonesia to manage the most relevant threats to its company. External events such as natural disasters or regulatory changes can affect company operations and must be considered in risk management. Failures in internal processes, system imperfections, and human errors are critical aspects of telecommunications companies' operational risk management.

Risk Analysis

Risk Analysis is an evaluation process used to understand the nature and level of the identified risks. According to ISO 31000 (2018) and Ruiz-Canela López, (2021), Risk Analysis focuses on assessing the intensity and impact of identified risks as well as the likelihood of their occurrence. The objective of risk analysis is to provide a clearer picture of the threats faced so that companies can make informed data-driven decisions when designing appropriate mitigation strategies. In the context of PT Telkom Indonesia, risk analysis is crucial for evaluating the potential impact on communication networks, which, if not properly managed, can result in widespread service disruptions.

Manifestation of Risk Analysis

Risk analysis can be classified based on two main aspects: impact and probability. According to Smith et al. (2020), risks can be analyzed through a probability-impact matrix that classifies risks based on their severity and likelihood. Risks with high impact and low probability are often considered rare but can have significant consequences if they occur. Conversely, risks with low impact and high probability occur more frequently, but tend to have a smaller impact. Telecommunication companies are prime targets for cyberattacks because of the sensitive data that they manage. Data breaches and cyberattacks can damage a company's brand, cause financial loss, and erode customer trust (Gandini et al., 2014). Using this approach, PT Telkom Indonesia can prioritize the most significant risks and plan mitigation strategies that focus on threats with the greatest impact, even if their likelihood is lower.

Risk Evaluation

Risk Evaluation is the next stage in risk management after the analysis has been conducted, and focuses on selecting and determining actions to manage risks. Evaluating the risk-management framework is essential (Rokhmati et al., 2022). According to Chapman (2011), Risk Evaluation involves comparing the results of risk analysis with an organization's risk tolerance and determining the extent to which risks can be accepted without jeopardizing the organization's strategic objectives.

At this stage, decisions are made regarding whether the risks need to be controlled, accepted, or transferred. In the context of PT Telkom Indonesia, risk evaluation helps management decide the necessary actions to mitigate the identified risks and ensure that these actions align with the company's goals and strategies.

Manifestation of Risk Evaluation

Risk Evaluation can be categorized into three main types: acceptable, controllable, and risky. According to ISO 31000 (2018) and Raihanah et al., (2024), acceptable risks are within a company's tolerance level and require no further action. Controllable risks allow organizations to apply mitigation strategies to reduce their impact. Risks to be avoided are those that would cause significant harm if they occur, prompting organizations to take measures to eliminate them entirely. Proper evaluation enables PT Telkom Indonesia to prioritize and design more effective mitigation strategies.

Development of Risk

Risk development refers to the evolution and changing characteristics of risk over time. Risks can evolve because of changes in external and internal conditions that affect organizations (Raihanah et al., 2024). Risk development may also include the emergence of new previously unidentified risks. In the context of PT Telkom Indonesia, risk development may occur owing to technological changes such as the development of 5G or increasingly sophisticated cyberattacks. Therefore, it is essential for companies to continuously monitor and evaluate existing risks to adjust their risk-management strategies.

Manifestation of Development of Risk

Risk development can be divided into two main categories: those originating from internal changes and those arising from external changes. According to Smith and Hutter (2018), internal changes often involve factors under the organization's control, such as corporate restructuring or strategy changes. On the other hand, external risks include factors beyond the organization's control, such as regulatory changes or global economic volatility. PT Telkom Indonesia needs to understand both types of risks to formulate mitigation policies that are not only reactive, but also proactive in addressing dynamic risk development.

Management Strategies

Risk management strategies refer to measures undertaken to reduce or eliminate the negative impacts of the identified risks (Wahyuningsih et al., 2024). Operational risk management is not merely a technical activity but is integrated into the company's business strategy. Therefore, operational risks must be identified and assessed as a part of strategic planning. This includes: strategic, operational, reporting and compliance objectives.

According to Hillson Murray-Webster (2017) and Wahyuningsih et al., (2024), risk-management strategies involve various approaches such as risk avoidance, risk reduction, risk transfer, and risk acceptance. Each approach must be tailored to the characteristics of the risks faced and the resources available within the organization. In this regard, PT Telkom Indonesia must formulate strategies that align with the types of risks encountered and the company's readiness to implement them.

Manifestation of Management Strategies

Risk management strategies can be categorized into four main approaches: risks to be avoided, risks to be reduced, risks to be transferred, and risks to be accepted (Oktavianingrum et al. 2024). According to Lam (2014), each approach has its advantages and limitations depending on the organization's situation and conditions. Risk avoidance involves taking measures to eliminate the threat entirely, whereas risk reduction

entails efforts to decrease the likelihood or impact of the risk. Risk transfer includes using insurance or contracts to shift the risk impact to third parties, whereas risk acceptance allows the risk to occur if its impact is deemed tolerable by the organization (Hamzah, 2011). PT Telkom Indonesia must select the most appropriate strategy based on risks and the company's capacity to manage them.

Implementation and Execution

Implementation and Execution must follow a systematic and data-driven approach, employing a combination of qualitative techniques (e.g., questionnaires, interviews) and quantitative methods (e.g., actuarial analysis and, simulations). The results obtained can support strategic decision-making, optimize capital allocation, and improve operational risk mitigation efficiency.

Implementation and Execution refer to the stage in which risk-management strategies are implemented within a company's operations (Oktavianingrum et al., 2024). According to Hillson (2016), this stage involves executing the selected mitigation plans and ensuring that all the relevant parties adhere to the planned strategies. Successful implementation relies on effective communication, rigorous oversight, and strong leadership to guide the organization through a risk-mitigation process (Rahmadhania, 2023). At this stage, PT Telkom Indonesia must ensure that all employees understand and support the implementation of risk-management policies.

Manifestation of Implementation and Execution

The implementation and execution of risk management strategies can be divided into two main phases: direct execution and post-implementation evaluation. According to Aven (2015), direct execution involves implementing approved mitigation strategies, such as changes to operational procedures or staff training programs. Post-implementation evaluation entails monitoring and assessing the effectiveness of applied strategies, ensuring that the actions taken effectively reduce the risk impact (López, 2021). At PT Telkom Indonesia, these two phases are crucial to ensuring that policies are executed as expected and to address the challenges encountered in practice.

Monitoring and Review

Monitoring and Review represent the final stage of risk management, involving the continuous monitoring of risks and the implementation of mitigation strategies. According to ISO 31000 (2018), this stage aims to ensure that all measures taken remain relevant and effective in addressing the identified risks. Monitoring and Review enable organizations to identify potential changes in risks or external conditions, requiring adjustments to the strategies implemented. Careful scrutiny of various approaches to risk assessment permits conclusions regarding the assessment approaches in the most common methods of risk analysis (Panyukov et al., 2023).

Manifestation of Monitoring and Review

Monitoring and Review involve two primary processes: risk monitoring, and mitigation strategy evaluation. Risk monitoring entails the collection of data and information related to conditions that may affect the organization's risk profile, while mitigation strategy evaluation assesses whether the implemented measures remain appropriate given any changes. According to Lam (2014), monitoring and review must be conducted periodically to identify and address emerging risks and update existing strategies to remain aligned with the company's conditions and external environment.

METHOD

Research Object

This study focuses on the importance of developing and implementing comprehensive anticipatory strategies for risk management in PT Telkom Indonesia. This telecommunications company plays a vital role in providing communication services that support various other sectors, including the economy, education, healthcare, and the government. Inadequate anticipatory strategies for addressing potential crises can lead to service instability, which may harm these sectors. For example, during the COVID-19 pandemic, PT Telkom Indonesia faced numerous challenges in maintaining service stability. Without well-prepared strategies, this situation could have affected the company's credibility and performance. Therefore, this study explores how PT Telkom Indonesia can formulate and implement a more comprehensive anticipatory risk planning to address potential disruptions in the future, both internally and externally.

Research Type

This study employed the Narrative Literature Review (NLR) approach, a form of narrative review that provides a broad overview of a specific topic based on existing studies. In NLR, the researcher selected and summarized the relevant literature, albeit without employing highly systematic or rigid methods. This process is subjective and flexible, allowing researchers to provide broader or deeper insights into the research topic. In this study, primary data are drawn from the literature discussing risk planning in the telecommunications sector and the impact of service instability in various sectors reliant on telecommunications. Secondary data were obtained from broader literature related to research keywords, such as *"Risk Identification"*, *"Risk Analysis"*, and *"Risk Evaluation"*, sourced from books, journals, and prior scientific research.

Theoretical Framework

Several fundamental theories underpin this study, providing a foundation for understanding the dynamics of risk management in PT Telkom. The first is the Digital Resilience Theory proposed by Tim and Leidner (2023) and outlined by Harris and Toffler (2016). This theory focuses on how organizations, particularly those operating in the technology and communication sectors, can adapt to technological changes and develop digital systems that are resilient to crisis risks (Gandini et al., 2014). In the context of PT Telkom Indonesia, this theory is relevant as it directly addresses how a company can mitigate risks stemming from technological advancements and cyber threats.

The second theory is Anticipatory Risk Management Theory (Wagner & Disparte, 2016), introduced by Vaughan and Trotter in 2013. This theory highlights the importance of proactive planning and action to mitigate risks that have not yet occurred. According to Furlanetto and Poli (2018), the vast majority of future events are uncertain in the sense specified. Otherwise, only a small minority of future events are amenable to a probability assessment. Applying this theory in the present study will help PT Telkom Indonesia plan and mitigate future risks.

The third theory is the adaptive organization theory (Van Assche et al., 2022), developed by Burns Stalker in 1961. This theory focuses on an organization's ability to respond and adapt to unforeseen changes through flexibility and innovation. In this study, this theory was used to explore how PT Telkom Indonesia can develop an adaptive capacity to face various risks and challenges.

Research Process

The research process in this narrative literature review is not strictly structured but remains descriptive and systematic in selecting and collecting relevant literature. The first step involves identifying a relevant topic: anticipatory risk management strategies in the telecommunications sector. Following this, literature related to

this topic was gathered through searches of academic databases, journals, and books using predefined keywords. The search process employed flexible inclusion and exclusion criteria to ensure that the selected literature was directly relevant to the research topic.

Once the literature was collected, the researcher carefully read and analyzed the content of each source to gain a deeper understanding. The findings from these various sources are then organized into a coherent narrative, providing a clear picture of the risk planning applied at PT Telkom Indonesia and the challenges the company may face in managing risks.

Data Analysis Techniques

The data analysis technique employed in this study is content analysis, which involves examining and processing data from the collected literature to identify patterns, relationships, and critical information contained within them (Rozali, 2022). Through content analysis, researchers can assess various perspectives presented in the literature regarding risk planning and anticipatory strategies applied by companies.

This technique does not require statistical analysis because its focus is on obtaining a deep understanding of the findings of existing studies. The researcher evaluated how these findings relate to the context of PT Telkom Indonesia and how they can inform more effective risk-management policies and strategies. This process enables researchers to formulate broader conclusions and provide practical recommendations for companies to manage the potential risks that may arise in the future.

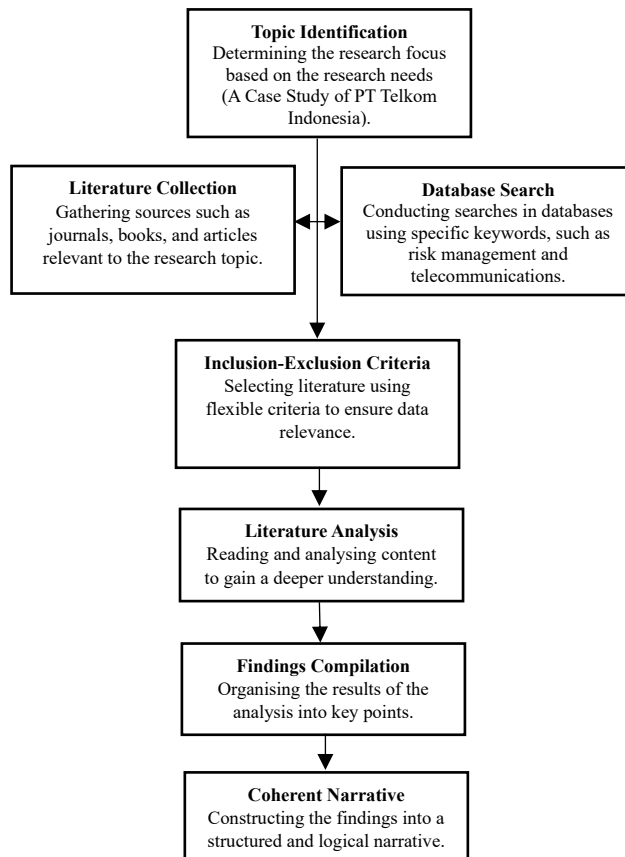## Research Process for Narrative Literature Review

Figure 1. Data Analysis Diagram

RESEARCH RESULTS

Risk Identification

Risk Identification is the initial step in risk management, involving the identification of potential risks that could threaten an organization's sustainability. Based on the existing literature, numerous studies highlight the importance of risk identification across various industrial sectors, including the telecommunications sector. Identifiable risks include a range of threats, such as infrastructure disruptions, cyberattacks, natural disasters, and regulatory changes (Smith & Allen, 2020; Ruiz-Canela López, 2021; Rios Insua et al., 2021).

These risks may arise from both internal and external factors that disrupt the operational continuity. Existing studies also stress the importance of involving multiple stakeholders within the organization to achieve a more comprehensive risk identification process. Effective identification allows companies to mitigate risks early and plan preventive measures effectively. According to Boin and Hart (2003), leaders who are capable of making quick, accurate decisions while maintaining good communication during crises have a greater chance of helping organizations survive.

The risk identification process is not limited to visible threats, but also includes predicting risks that may arise in the future. In the context of PT Telkom Indonesia, risk identification is crucial for addressing uncertainties,

such as infrastructure network disruptions, which could significantly affect communications. One commonly used approach is SWOT analysis (Strengths, Weaknesses, Opportunities, Threats), which enables companies to map risks based on internal and external factors. Additionally, the use of technology, such as risk management software, can assist PT Telkom Indonesia in mapping and prioritizing risks that may threaten operational continuity.

The literature on Risk Identification is highly relevant to the challenges faced by PT Telkom Indonesia. A lack of understanding and proper identification of emerging risks, such as network disruptions or changes in government policies, could cause instability in telecommunications services, harming numerous sectors reliant on these services. Therefore, implementing improved risk identification methods and leveraging technology to identify potential threats will enable PT Telkom Indonesia to mitigate risk more effectively and proactively.

Risk Analysis

Risk Analysis is the second stage of risk management and focuses on assessing the intensity and likelihood of the identified risks. Based on the literature, various methods are used to analyze risks, including the probability-impact matrix, which classifies risks based on their likelihood and impact on the organization (Sufa'atin, 2017; Smith et al., 2020; Putu et al., 2024). Studies indicate that risk analysis allows organizations to categorize risks into different levels, ranging from low to high risk, enabling management to prioritize the most appropriate mitigation actions.

Risk analysis allows companies to identify and understand risks more comprehensively, in terms of both impact and probability. For instance, risks with a significant impact but low probability often require special attention even if they rarely occur. Conversely, risks with a high probability but minor impacts tend to occur more frequently, but are generally easier to manage. Therefore, in the context of PT Telkom Indonesia, risk analysis is essential for planning mitigation strategies that align with a company's level of risk. With more accurate assessments, a company can plan for more efficient allocation of resources.

For PT Telkom, accurate risk identification and analysis are directly related to a company's ability to maintain telecommunication service stability. For example, conducting a risk analysis of cyberattacks, which have significant impacts but occur infrequently, or operational disruptions, which are more frequent but less severe, will enable the management to make more rational, data-driven decisions when formulating appropriate mitigation policies. Thus, the interplay between the descriptive and explanatory aspects of risk analysis is critical for optimizing PT Telkom Indonesia's risk mitigation policies.

Risk Evaluation

Risk Evaluation is the stage in which the company decides on the appropriate measures to take after analyzing the risks. According to the literature, risk evaluation focuses on selecting strategies that match the level of identified and analyzed risks. Several approaches are used in risk evaluation, including assessing the extent of losses that can be tolerated by the organization and determining whether a risk needs to be controlled, accepted, or avoided. Previous research shows that this evaluation process relies heavily on an organization's risk tolerance, which is often determined by internal factors such as vision, mission, and the organization's capacity to address existing risks (Chapman, 2011; Wiryono & Suharto, 2008).

Risk evaluation plays a critical role in determining whether a risk should be addressed or left unmanaged. In the context of PT Telkom Indonesia, risk evaluation can be conducted by considering various factors, including the impact on services, potential for operational disruptions, and an organization's ability to handle crises. For instance, risks that may degrade service quality, even without causing immediate financial losses, must be addressed promptly, as they can damage a company's reputation. Conversely, larger but less frequent risks may be acceptable if their impact can be predicted and controlled through insurance or other risk-transfer

mechanisms. Digitalization and resilient digital infrastructure are crucial factors in the crisis recovery phase, in which companies must ensure that information and communication systems operate effectively despite uncertainty (Shibata et al., 2023).

Risk evaluation at PT Telkom Indonesia is vital for identifying risks that require immediate management, such as network disruptions that could harm a company's reputation. The results of this evaluation determined whether a risk should be controlled, avoided, or accepted. Therefore, the relationship between the descriptive and explanatory aspects of risk evaluation is highly relevant to PT Telkom Indonesia's efforts to maintain operational stability and minimize the negative impacts of potential crises. Although a company's risk management performance is considered satisfactory, further improvements are needed to achieve the desired maturity level and minimize the risks that may hinder operations (Puspita, 2017).

Development of Risk

Risk development refers to the evolution of risk over time as a result of changes in an organization's internal and external conditions. The literature highlights that risks are not static; they evolve alongside changes in factors, such as technology, the economy, or regulations. For example, in the telecommunications industry, risks can develop with the emergence of new threats, such as increasingly sophisticated cyberattacks or regulatory changes that impact company operations (Taleb, 2007). Therefore, organizations must develop the capability to continuously monitor and adjust their risk-mitigation strategies in line with these developments.

Risk development is often influenced by technological advancement and socio-economic dynamics. In the telecommunications sector, new risks, such as cyberattacks, threats to physical infrastructure, and changes in government policies, can evolve rapidly. For instance, the implementation of 5G technology introduces new risks related to network speed and reliability, that must be carefully managed. Furthermore, stricter regulations concerning data privacy may introduce new challenges to managing customer information securely and in compliance with legal standards.

For PT Telkom Indonesia, the continuous development of risks must be closely monitored, as external factors such as regulatory changes or technological advancements can increase the complexity of existing risks. Consequently, companies must implement systems capable of detecting and managing emerging risks resulting from shifts in internal and external conditions. By understanding these relationships, PT Telkom Indonesia can anticipate future risks more effectively and can design appropriate mitigation strategies.

Table 1. Research Findings

No	Research Findings	Relevance to Research Objectives
1	The lack of comprehensive risk identification related to potential future crises.	Identifying deficiencies in the existing risk identification strategies at PT Telkom Indonesia.
2	The need for a more structured approach to risk analysis and evaluation.	Emphasizing the importance of more in-depth risk analysis to anticipate potential future crises.
3	Existing risk management practices are more reactive than anticipatory.	Highlighting PT Telkom Indonesia's reliance on reactive approaches that need to shift toward a more anticipatory stance.
4	The importance of developing risk management strategies to anticipate long-term crises.	Providing insights into the necessity for PT Telkom Indonesia to formulate stronger long-term risk strategies.
5	The necessity of enhancing organizational capacity to adapt to evolving risks.	Stressing the importance of organizational flexibility and adaptability in addressing evolving risks over time.

DISCUSSION

Summary of Research Findings

This study explores the anticipatory risk management strategies implemented by PT Telkom Indonesia to address potential crises, including pandemics. Key stages identified include risk identification, analysis, evaluation, strategy development, implementation, and monitoring. However, gaps in long-term planning, particularly in enhancing network capacity, adapting to remote work, and managing economic impacts, require attention.

Relationship to Previous Research

This research aligns with prior studies on the importance of risk management in telecommunications but provides a deeper focus on anticipatory strategies. Unlike earlier studies, it addresses practical applications for mitigating unforeseen crises such as pandemics.

Reflection on Research Findings

The findings highlight the significance of adopting anticipatory risk management as a proactive approach. PT Telkom Indonesia must view risks as dynamic phenomena that evolve rapidly due to internal and external factors, emphasizing adaptability and resilience.

Implications of Research Findings

Strengthening anticipatory risk strategies can enhance operational resilience and service stability in telecommunications. This approach is critical for mitigating disruptions and ensuring sustainable infrastructure and technological operations.

Actions to Be Taken Based on Research Findings

PT Telkom Indonesia should implement a data-driven risk identification system, improve risk analysis and evaluation processes, and regularly update and monitor risk management policies. These measures will enhance the company's capacity to adapt and respond effectively to future threats.

CONCLUSION

Key Research Findings

This study reveals that while PT Telkom Indonesia has established risk management mechanisms, it faces challenges in identifying and addressing long-term and unforeseen risks. Immediate risks are managed effectively; however, major crises such as advanced cyberattacks and regulatory shifts remain insufficiently anticipated. These findings underscore the need for a more structured and proactive anticipatory risk management strategy to enhance long-term resilience and service stability.

Contribution to Knowledge Development

This research advances risk management theory by introducing a comprehensive framework for anticipatory risk management, particularly within the telecommunications industry. By integrating digital resilience, anticipatory risk management, and adaptive organization theories, this study provides a holistic understanding of proactive risk planning. Practically, it offers insights for telecommunications companies to adopt data-driven strategies that enhance resilience against sudden threats, such as natural disasters, technological disruptions, and complex cyber risks.

Research Limitations and Directions for Future Research

This study is limited to PT Telkom Indonesia, focusing on a single case within the telecommunications sector. Future research could expand by comparing anticipatory risk management strategies across different companies in the same sector or other industries with similar risk profiles. Additionally, studies could evaluate the effectiveness of such strategies in diverse industrial contexts, identifying factors that contribute to their successful implementation on a broader scale.

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