

Development of a Framework for Determining Business Process Indicators as a Basis for Risk Identification at PT PLN (Persero)

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Abstract. PLN has established long-term objectives detailed in the Rencana Usaha Penyediaan Tenaga Listrik (RUPTL), or Electricity Supply Business Plan, for 2021-2030. This plan focuses on providing an adequate, reliable, and efficient electricity supply to ensure national energy security. However, significant uncertainties may present risks that threaten the achievement of PLN's strategic goals and business processes, potentially disrupting the company's business sustainability. To mitigate these risks, PLN has implemented risk management practices and business process standardization, with policies that include mandatory risk identification in business processes. Process Performance Indicators (PPIs) are measurable values used to demonstrate the effectiveness of a process. In practice, the formulation of PPIs at PLN has not been optimally implemented due to the absence of specific steps on how to determine PPIs. Therefore, this study aims to contribute both scientifically and to meet PLN's practical needs. Through a literature review and observation, this study will examine the relationship between organizational strategy, Key Performance Indicators (KPIs), business processes, and risk management. This study identifies the relationship between strategic objectives, Key Performance Indicators (KPIs), business processes, Process Performance Indicators (PPIs), and risk identification. The findings emphasize the importance of integrating these elements to ensure that every business process not only aligns with the company's strategic objectives but also effectively identifies, manages, and mitigates risks that could potentially hinder goal achievement. The results of this study are expected to serve as a guideline for PT PLN (Persero) in implementing PPIs as tools that not only monitor operational performance but also strengthen proactive risk management. Through this approach, PPIs can be optimized to support corporate performance achievement, ensure operational sustainability, and uphold good governance at every level of the business process executed.

Keywords: *Process Performance Indicators, Risk Identification, Business Process Management, Key Performance Indicators, Risk Management.*

1 Introduction

PT PLN (Persero) is a State-Owned Enterprise (SOE). According to the Republic of Indonesia Law Number 19 of 2003 concerning SOEs, one of the primary objectives of establishing an SOE is to generate profits. As the national electricity provider, PLN plays a highly strategic role in ensuring the sustainability of electricity supply throughout all regions of Indonesia. In Indonesia, State-Owned Enterprises (SOEs) play an essential role in the economy. SOEs are important for promoting development, providing essential services, and driving economic

stability [1]. PLN has a highly complex business process that spans from primary energy, generation, transmission, distribution, to customer service, with operational areas across Indonesia. This complexity impacts the numerous strategic objectives the company must achieve. Strategic objectives can be defined as long-term goals established by a company, encompassing the actions and allocation of resources necessary to achieve those goals[2].

The role of business processes is crucial for companies. The goal is to ensure that all activities conducted align with the established objectives [3]. Business process is a series of structured activities or tasks conducted to achieve the strategic objectives of a company [4]. Business processes that are aligned with the company's strategic goals indicate that every process implemented must be designed to support the achievement of the established strategic objectives [5]. However, the significant uncertainty that can occur over time, whether at the local, regional, national, or international level, has the potential to pose risks that threaten PLN's strategic goals and business processes. Risk is considered as the possibility of undesirable events occurring that can have a negative impact on achieving company goals [6]. Currently, PLN faces various risks that threaten the achievement of its performance targets across multiple value chains, including primary energy, generation, transmission, distribution, and customer service. Risk, in this paper, is defined as an event that, if it occurs, will negatively impact the achievement of the company's performance targets. Integrating risk management into business process management allows companies to consider risks early in the business process management cycle [7].

PLN has established Directors' Circular No. 0004.E/DIR/2023 concerning Standard Procedures for Business Process Management, which stipulates that business process documents must include Performance Indicators (PI). PI is defined as a measurable value that indicates how well or effectively a business process performs its function. In academia, the Performance Indicator in the directors' circular is often referred to as the Process Performance Indicator (PPI). Process Performance Indicators (PPI) provide a more specific focus on measuring the performance of a particular business process within a company. PPI also enables more detailed and accurate monitoring of the effectiveness and efficiency of each operational step taken [8]

However, in its implementation at PLN, the formulation of PPI is not carried out optimally because there is no specific explanation regarding the method or steps to determine PPI. Understanding business process objectives is crucial in risk management as it enables the company to identify and prioritize risks that may affect the company's objectives [9].

Based on the explanation above, it is important to know the objectives of each business process so that it can assist in carrying out the risk management process.

This study has four main contributions. First, it provides a framework for integrating organizational strategies, KPIs, business process performance indicators, and business process-based risk identification within PLN's value chain. Second, it offers guidance on determining business process performance

indicators by considering organizational strategies and KPIs in the value chain of the electricity sector in SOEs. Third, it develops guidelines for decision-makers in SOEs within the electricity sector to identify operational risks in the value chain based on business process indicator information. Finally, it serves as a guide for decision-making in PLN regarding the framework for determining business process performance indicators and operational risks based on these indicators, taking into account organizational strategies and KPIs.

2 Methodology

This research methodology employs a combination of a literature review and observational approaches. The literature review is used to gather and analyze various studies that examine the relationship between organizational strategy, Key Performance Indicators (KPIs), business processes, the determination of Process Performance Indicators (PPIs), and the risk identification process. This approach aims to understand how each of these elements interacts and contributes to supporting the achievement of strategic objectives and risk management within organizations.

Additionally, the observational method is conducted within the company to gain a deeper understanding of real-world applications and practices. Through direct observation, the research examines the actual implementation of business processes, the challenges faced in achieving KPIs, and the integration of risk management into operational activities. This dual approach ensures that the framework developed is both theoretically robust and practically applicable to the organizational context.

3 Discussions

3.1 The Relationship Between Organizational Strategy, KPIs, and Organizational Processes

Strategic goals, according to [10] are the specific outcomes a company strives to achieve to support its long-term mission and vision. These goals are crucial in aligning all divisions within the company. With clear objectives, each division can work cohesively and focus on achieving shared goals within a defined timeframe.

Furthermore, the process of formulating these goals should be in harmony with the organization's vision, mission, and strategic objectives[11]. These goals can be translated into Key Performance Indicators (KPIs), which are metrics used to measure and evaluate a company's performance in achieving its strategic goals [12]. A structured approach enables organizations to effectively monitor process performance and make any necessary adjustments to achieve strategic goals. The relationship between organizational strategy, KPIs, and organizational processes is illustrated below:

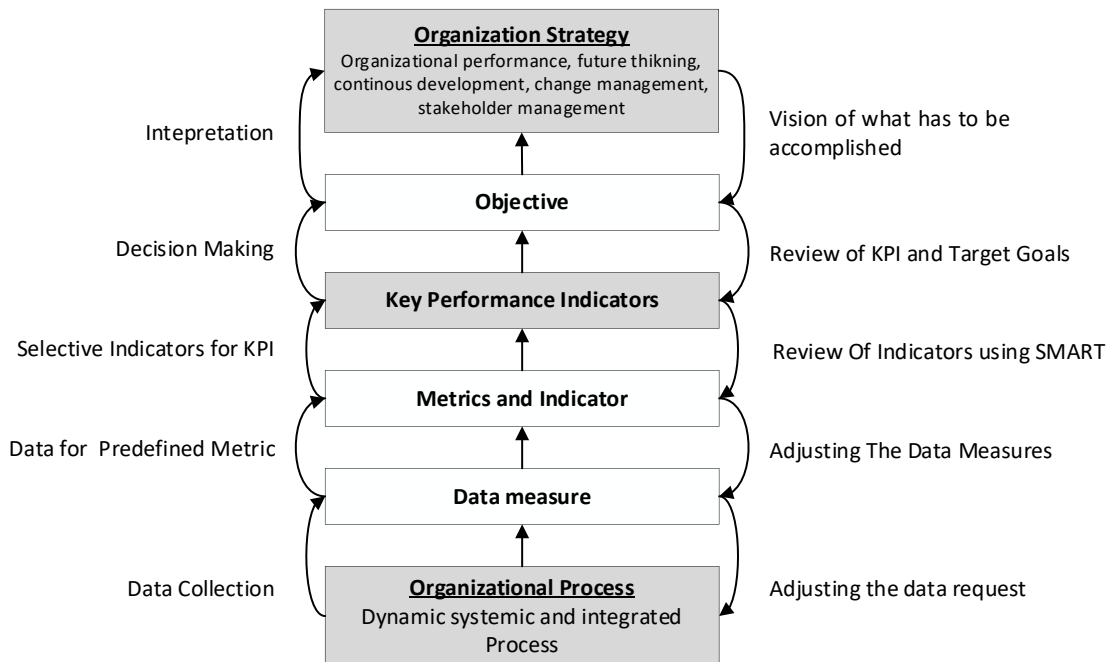


Figure 1 Relationship Between Organizational Strategy, KPIs, and Organizational Processes in [13]

Research conducted by [13] highlights the relationship between organizational strategy, KPIs, and organizational processes. Determining organizational strategy is the initial step in formulating the company's direction. This is followed by setting specific objectives that the organization aims to achieve. After setting objectives, key performance indicators (KPIs) are determined to measure progress towards those objectives. Metrics and indicators are then defined to evaluate performance in more detail regarding the established KPIs. Relevant data is collected and measured to monitor and analyze performance based on the formulated metrics and indicators. The measured data is then used to evaluate and optimize processes within the organization to achieve objectives. Business processes are a fundamental component of the elements of organizational processes.

In the context of PLN, one of the company's strategic objectives is to enhance reliability, operations, supply, and services. This strategic objective is then translated into specific Key Performance Indicators (KPIs), one of which is Distribution Losses. This KPI measures the efficiency of electricity distribution, encompassing both technical and non-technical losses. The business processes related to the Distribution Losses KPI include various activities, one of which is managing the Non-Technical Distribution Loss Reduction Program. The business process of managing the non-technical loss reduction program is also analyzed to evaluate the effectiveness of the implemented initiatives, serving as a basis for continuous improvement. Thus, the Distribution Losses KPI becomes a crucial tool in ensuring that the company's strategic objectives are achieved consistently and sustainably.

3.2 The Relationship Between KPIs, Business Processes, and Risk Identification

Risk management is a coordinated activity to direct and control an organization in relation to risk, which is defined by ISO 31000:2018 [14] as something uncertain with the potential to cause both positive and negative impacts on objectives [15]. Risks can manifest in various forms and categories, impacting different levels of an organization [6]. Risk identification is defined as the process of finding and recognizing risks that can affect the goals or objectives of an organization. Therefore, risk identification is an essential first step in risk management. Without first identifying risks, the process of risk assessment and control cannot be carried out effectively [16].

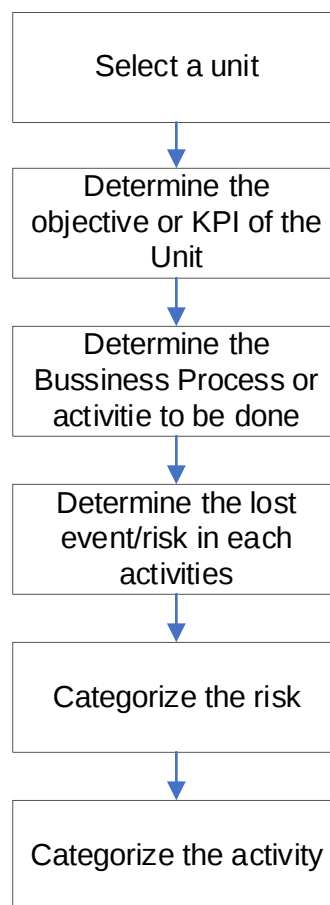


Figure 2. The Relationship Between KPIs, Business Processes, and Risk Identification in [16]

According to research conducted by [16] the relationship between KPIs, business processes, and risk identification can be understood through a Business Process Approach. This approach is used for risk identification by following the flow of activities carried out to achieve strategic objectives. The first step is to determine the unit. This unit is the smallest level in the organizational structure where risk identification begins. The next step is to determine the Key Performance

Indicators (KPIs) for that unit. This serves as a reference to understand the targets that must be achieved by the unit. The next stage is to determine the business processes that must be carried out. This step involves identifying all the processes that need to be carried out to achieve the established objectives or KPIs. After that, the next stage is to identify risks in each process. In the context of PLN, one of the KPIs is Distribution Losses, which serves as an indicator of efficiency in electricity distribution, encompassing both technical and non-technical losses. To achieve this KPI target, the relevant business process is Managing the Non-Technical Distribution Loss Reduction Program, which focuses on reducing non-technical losses such as electricity theft, inaccurate meter readings, or anomalies in power usage. However, this business process also carries risks, one of which is the inaccuracy of AMR (Automatic Meter Reading) results. This risk can lead to mismatched electricity consumption data, hinder problem identification, and reduce the effectiveness of the non-technical loss reduction program. Therefore, mitigating this risk, such as through regular maintenance of AMR devices and improving system accuracy, is a critical part of PLN's efforts to ensure the optimal achievement of the Distribution Losses KPI.

3.3 The Relationship Between Business Processes and Business Process Performance Indicators

Key Performance Indicators (KPIs) and Process Performance Indicators (PPIs) are distinct concepts. PPIs are more specific, measuring the performance of a particular business process within an organization [8]. In contrast, KPIs are performance indicators used to measure and evaluate a company's overall performance in achieving its strategic goals [12]

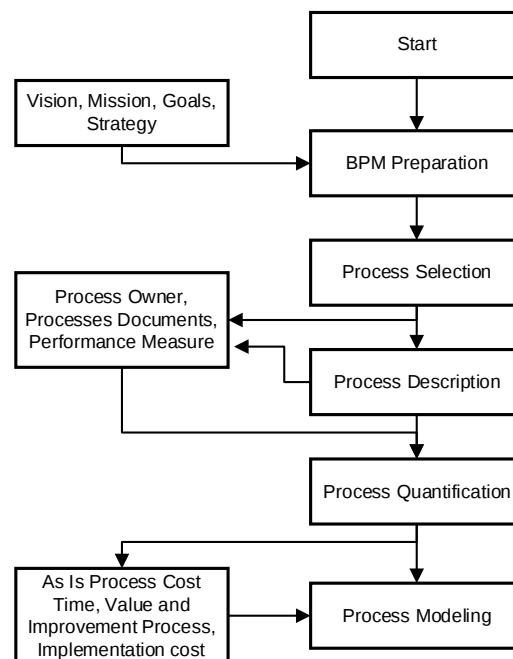


Figure 3. The Relationship Between Business Processes and Business Process Performance Indicators in [17]

According to research by [17] determining performance indicators for business processes involves several steps. The first step is preparing a Business Process Model (BPM) by understanding the organization's vision, mission, and strategy. These elements form the basis for determining the direction of improvement and the goals to be achieved in the business process. The next step is identifying the overall business processes that support the achievement of the organization's vision and strategy. This step aims to gain an overview of all relevant activities and operations.

Following this is the selection of specific processes or sub-processes to be improved. The processes selected should have a significant impact on the overall performance of the organization and be based on available data and needs analysis. Once a process is selected, a detailed description of that process is created. This description includes the steps involved in the process, the process owner, relevant documents, and process performance measures. Process performance involves measuring the ongoing process. The data collected is used to measure the time, cost, and performance of each process.

In the context of PLN, within the business process of Managing the Non-Technical Distribution Loss Reduction Program, a performance indicator is established related to the number of realized non-technical loss reduction programs in accordance with the planned targets. This indicator is used to measure the extent to which the planned programs have been successfully implemented, providing insights into the effectiveness of reducing non-technical losses in a measurable and systematic manner. Furthermore, this indicator also serves as an evaluation tool to identify areas for improvement and ensure that efforts to reduce non-technical losses are optimized.

3.4 The Developed Framework Model

Based on the framework in studies [13], [16], and [17] the researcher developed a framework derived from the results of the literature review. This research aims to develop a framework for integrating business processes with risk management in the functions of projects, transmission, and distribution, as illustrated in the figure 4.

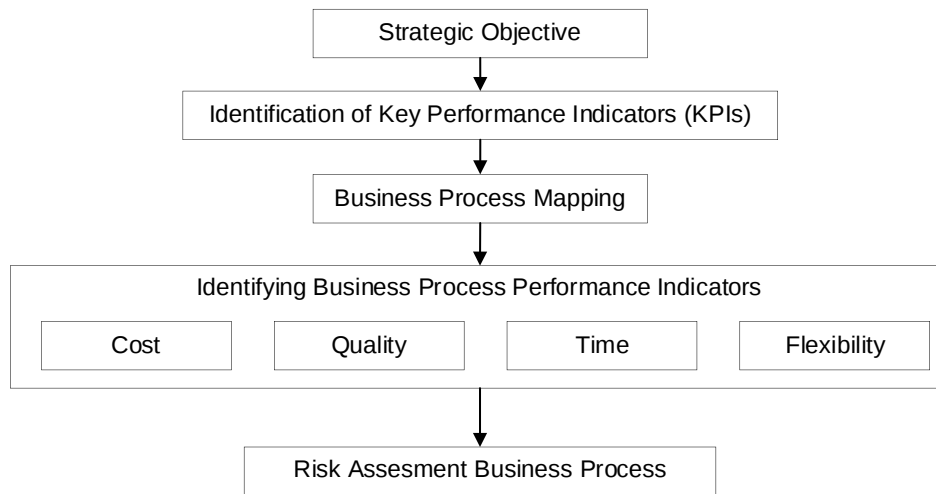


Figure 4. Framework for Integrating Risk Assessment into Business Process Management

The process begins with identifying strategic objectives, which include the overall goals and strategies the organization seeks to achieve. The next step involves selecting key performance indicators (KPIs). The chosen KPIs are used to measure and evaluate the company's effectiveness in achieving its objectives and are selected based on their relevance to each strategic goal.

The subsequent phase is business process mapping, which involves identifying the necessary or required business processes based on the analysis of the company's vision, mission, and strategic objectives. Following this, the next step is business process modeling. This process classifies and groups existing or new processes through data collection, interviews, and discussions to ensure all aspects of the business processes are clearly documented.

The next step is the identification of business process performance indicators. These indicators are further defined into four categories: cost, quality, time, and flexibility, each providing metrics to evaluate and optimize various operational aspects. Once the performance indicators are identified, the next stage is risk assessment. This involves identifying potential risks that might arise within the business processes.

In the context of PLN, one of the company's strategic objectives is to Enhance reliability, operations, supply, and services. To achieve this objective, a Key Performance Indicator (KPI) has been established: Distribution Losses, which refers to electrical energy lost or reduced due to technical or non-technical causes during the provision and transmission of energy from generation to distribution over a specific period. The relevant business process for achieving this KPI is Managing the Non-Technical Distribution Loss Reduction Program, with a primary focus on identifying and implementing measures to reduce non-technical losses, such as electricity theft or inaccuracies in meter readings. In its implementation, the business process performance indicator used is the number

of realized non-technical loss reduction programs in accordance with the established plan. This indicator serves as a measure of the program's success, providing an overview of how well the implementation targets have been achieved and the program's effectiveness in reducing non-technical losses.

However, this process also faces risks, one of which is inaccurate readings from the Automatic Meter Reading (AMR) system, which can compromise the validity of electricity consumption data and affect the program's effectiveness. Therefore, mitigating this risk through measures such as regular maintenance of AMR devices and improving the accuracy of the recording system becomes essential to ensuring the optimal achievement of the Distribution Losses KPI and supporting the company's strategic objectives.

4 Conclusion

This study develops a framework for integrating business process management with risk management at PT PLN (Persero), the Indonesian state electricity company, to enhance the effectiveness of achieving strategic objectives. Through a literature review approach, this research identifies a strong relationship between organizational strategy, Key Performance Indicators (KPIs), business processes, and Process Performance Indicators (PPIs). The proposed framework encompasses strategic objective mapping, KPI selection, business process modeling, determination of PPIs based on cost, quality, time, and flexibility dimensions, and risk evaluation. By implementing PPIs as a tool for monitoring and identifying risks, PT PLN is expected to proactively manage risks, optimize operational processes, and support business sustainability.

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