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Improving the Performance of Project & Facility Management Division with the Sustainability Balanced Scorecard

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ABSTRACT

Objectives*: The Project & Facility Management Division of PT XYZ identified an issue as a gap between the cost budget plan and actual project execution, resulting in additional effort beyond the set limits. To address this issue, this study employs a Sustainability Balanced Scorecard (SBSC) approach based on the Analytical Hierarchy Process (AHP) and Plan-Do-Check-Act (PDCA).*
Methodology*: This research employs quantitative methods with AHP that used to determine the priority weights of SBSC perspectives and indicators to enhance division performance. Meanwhile, qualitative analysis is conducted through Focus Group Discussion and fishbone diagram analysis to identify root causes. The PDCA methodology is then implemented to monitor and improve the effectiveness of the applied strategies.*
Findings*: Evaluation of work programs that can be carried out in 2025 focuses on aspects of standardization, time management, process documentation, human resource development, and external management to support project success.*
Conclusion*: The study results indicate that the customer perspective holds the highest weight in SBSC (0.309), followed by the internal business process perspective (0.255), learning and growth (0.235), and financial (0.201). Several strategies are proposed to improve division performance, including digitizing the cost budgeting process, strengthening supply chain risk management, enhancing human resource capacity, and implementing a real-time evaluation system. This study contributes to improving operational efficiency and optimizing resource allocation within the company that aligned with SDG 16 (Peace, Justice, and Strong Institutions).*

Keywords*: Cost Budget Planning; Cost Control; SBSC; AHP; PDCA.*

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INTRODUCTION

Rebuilding the economy in the post-pandemic era, particularly the health sector, calls for calculated actions and suggested policies to guarantee robust and long-term growth (Syafitri, 2023). Furthermore, a paradigm shift in healthcare has been brought about by the pandemic, necessitating a dynamic capabilities approach in order to adjust to new standards after the pandemic (Liew et al., 2021). The healthcare provider PT XYZ places a high value on quality and consideration for all parties involved, particularly clients. In addition, the business works to promote sustainable development goals by

continuing to focus on and enhance environmental, social, and governance performance. The business actively grows and renovates health service infrastructure, creates subsidiaries, buys hospitals, and constructs new hospitals. In order to reach every corner of the archipelago, the organization is also executing strategic collaborations by growing its digital health services. According to the Indonesia Clinical Laboratory Market, Revenue, Growth, Share, Demand, Upcoming Trends, Opportunities, and Forecast Research Report 2032 published by Sper Market Research, the country's health clinic sector is expected to generate $12.76% in revenue in 2032. The market for digital health is expanding quickly due to changes in people's lives. Asia's digital health market is expected to reach IDR 1,434 trillion by 2025, according to McKinsey, with a compound annual growth rate (CAGR) of 21% since 2020. (BMHS, 2023).

According to project data for 2022–2023, 26 projects are being carried out to achieve the company's objectives, which include expanding the number of hospitals and hospital beds. The project's additional work is limited to no more than 10% of the allocated budget. Five projects, or 19.23% of all the projects, have extra work that is nominally worth more than 10%. This demonstrates how inaccurately the Cost Budget Plan was prepared in comparison to the project's actual execution. The P&FM Division's performance assessment, the percentage of accuracy in generating the cost budget plan against the actual implementation, is one of the Key Performance Indicators (KPIs) that are mandatory for all Project workers. This motivates the P&FM Division to continue improving its cost control performance, one example being the preparation of a cost budget plan that can be accounted for. Management requests that extra work on projects approved in 2024 be kept to a minimum. In this context, developing a cost budget plan and maintaining cost control are key steps in ensuring the P&FM Division's best performance. However, executing cost-effective budget planning and tight cost control in a complicated project environment can be tough.

To address this complexity, one proven strategic management framework is the Balanced Scorecard (BSC), which has become a popular tool for connecting an organization's vision and strategy to operational goals and performance evaluation. With a balanced approach to financial and non-financial components, BSC enables organizations to define and track their performance in accomplishing long-term and strategic objectives. (Hamied and Elbagoury, 2023; Lu et al., 2022). With the company transitioning from a family to a public corporation and focusing on sustainability, the Sustainability Balanced Scorecard (SBSC) has emerged as a relevant and vital strategy. SBSC is an evolution of BSC that blends sustainability goals and performance measures with the four classic viewpoints of BSC, as well as ethical, environmental, social, and sustainable governance challenges.

LITERATURE REVIEW

Project Cost Planning

Budget planning is a plan that serves as a guideline for carrying out a project's development and refurbishment. In contrast, the cost budget is the price of the structure that has been properly estimated and satisfies the specifications. Prices for similar buildings can vary depending on the cost of materials and labor in each locale. The primary goal of developing a cost budget plan is to determine the prices of parts or work items to use as a guide in incurring expenses during the building implementation phase. Aside from that, the financial plan attempts to ensure that the proposed building can be built successfully and efficiently. This allows the finished building to be built at a reasonable and cost-effective price while still meeting necessary quality standards. Meanwhile, the cost budget plan serves as a guide for work implementation and a means of monitoring work implementation. This budget plan allows us to assess and know exactly how much it will cost to construct the building according to the owner's wishes.(Meredith et all, 2009)

Sustainability Balanced Scorecard

BSC usage figures reveal that BSC usage has changed significantly since its first publication in 1992. In the 2000s, more than 53% of organizations adopted the Balanced Scorecard, but by the 2010s, that figure had dropped to 29%. However, the use of BSCs has increased in 2020, with 88% of private and public companies reporting that they are as valuable as they were before the COVID-19 outbreak. (Kumar et al., 2023).

The incorporation of sustainability principles into organizational management processes, particularly performance estimation and measurement, has received more attention in recent years. SBSC is one strategy that has proven to be an effective tool in this situation. This is a modification of the classic BSC framework that incorporates environmental, social, and ethical factors alongside financial indicators (Chalmeta, 2023). Companies can better measure their progress toward sustainable practices and make informed decisions about investments and activities by include elements such as governance, social responsibility, and environmental effect in the scorecard (Mio et al., 2021).

The Sustainability Balanced Scorecard can help firms improve their budgeting processes by concentrating on activities that contribute to meeting predefined goals and targets. The SBSC strategy allows firms to select budget allocations based on their influence on sustainability performance, boosting overall organizational effectiveness and performance (Verawati, 2020).

Performance Appraisal

The Sustainability Balanced Scorecard is used to assess the impact of sustainability while developing and monitoring a project portfolio, by selecting relevant Key Performance Indicators (KPIs) for each project or process. Using SBSC to convert business strategy into KPIs, guaranteeing a balance between short-term management performance and non-financial management, resulting in greater competitiveness and long-term sustainability. Furthermore, SBSC functions as a performance evaluation and management control tool, contributing to overall business performance by assessing characteristics such as innovation, organizational culture, and efficiency. To completely analyze project performance, a performance measuring indicator system based on the BSC was developed, incorporating indicators from environmental qualities, project financing, stakeholder satisfaction, and project sustainability (Mio et al., 2021).

Sustainable Development Goals

In order to improve service quality and make institutions more inclusive and effective, the organization has prioritized sustainable development. In this effort, the organization has implemented SBSC as an effective performance measuring system. To assess company performance, the Balanced Scorecard takes into account financial, customer, internal, and development elements. Meanwhile, SDG 16 focuses on "Peace, Justice, and Strong Institutions" and has become a global reference for achieving sustainable development and combating many global concerns such as violence, discrimination, and corruption. Thus, integrating SBSC with SDG 16 can assist organizations in measuring performance more efficiently and sustainably, as well as improving the quality of inclusive and effective services and institutions.

Analytic Hierarchy Process

Thomas L. Saaty (2012) invented the Analytic Hierarchy Process (AHP) decision-making approach in the 1970s. It is a structured strategy for organizing and analyzing complex decisions by dividing them

into a hierarchical framework of criteria and options. The AHP approach is used to make multi-criteria decisions. AHP compares multiple criteria and measures their relative relevance.

Implementation of Plan – Do – Check – Act (PDCA)

The Plan-Do-Check-Act (PDCA) method is a methodical way to improve an organization's procedures. Walter A. Shewhart invented this method, which was introduced by W. Edwards Deming. Let us simply describe each step of the PDCA process. The PDCA method operates in a continuous cycle, with each stage leading to the next. This technique offers a systematic framework for identifying, planning, implementing, and assessing process improvements and modifications. PDCA promotes organizations to keep learning and improve their performance. Deming defined the PDCA cycle as the four steps shown below (Baali et al., 2023). The first is Plan (Planning), which is the process of establishing objectives, recognizing problems, gathering data, and devising remedial actions. Second, Do (Implementation) is the process of carrying out plans that have been developed during the planning stage. Third, check (examination) is the process of monitoring and evaluating implementation results, comparing them to predetermined targets, and analyzing variances. Fourth, Act (Action) is the process of making corrective modifications and improving processes based on evaluation outcomes.

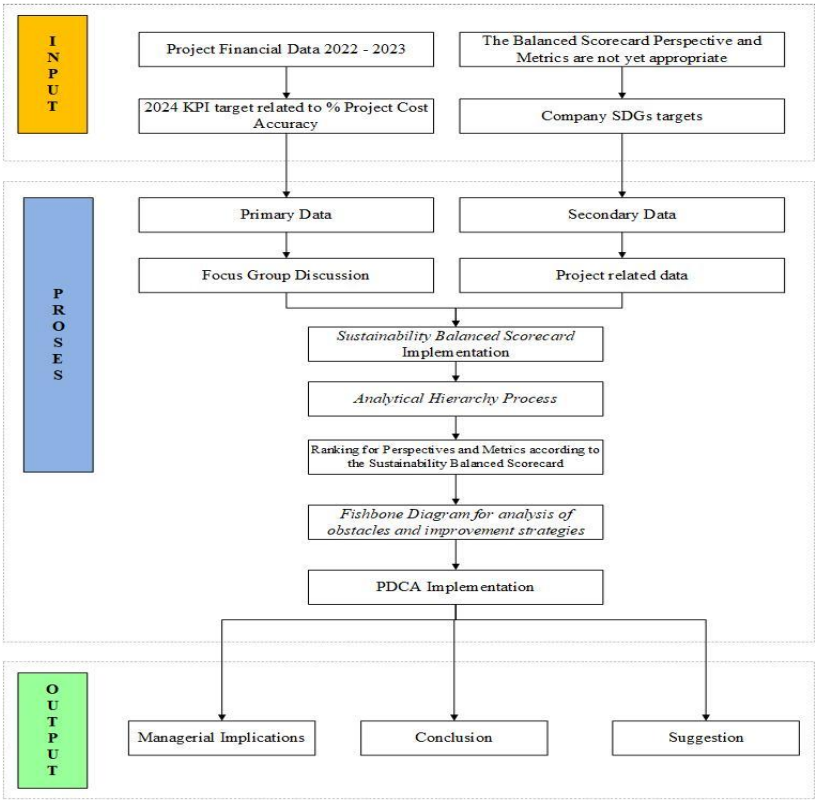

Figure 1. Conceptual Framework

METHOD

The current research combined both a quantitative descriptive and a qualitative methodology (Sugiyono, 2013). This method was chosen because it allows us to immediately quantify the impact of improving performance using the Sustainability Balanced Scorecard. Creating cost budgeting plans and maintaining cost control for the Project & Facility Management Division. The quantitative method employs the Analytical Hierarchy Process (AHP) to establish the priority weights of Sustainability

Balanced Scorecard views and indicators in order to enhance performance. Furthermore, the qualitative method employs Focus Group Discussion (FGD) to conduct problem analysis and visualization using a fishbone diagram to identify patterns in problems based on human categories, method, method, material, and environment, resulting in structured knowledge for future improvements. Finally, the implementation of the strategies derived from the FGD and fishbone diagram will be monitored using the PDCA (Plan, Do, Check, Act) methodology.

In this study, researchers focused on identifying three major problems and aims. First, the researcher intends to assign importance weights to each perspective and measure in the SBSC and organize them properly. Second, researchers intend to identify barriers to implementing SBSC in the P&FM Division, such as establishing cost budget plans and controlling costs, and develop solutions to overcome these barriers. Third, the researcher intends to use the PDCA approach to create adjustments that will increase performance in the areas of cost budgeting and project cost control at PT XYZ.

RESULTS AND DISCUSSION

Results

Determination of SBSC Indicator Weights Using AHP

The goal of determining indicator weights is to establish each indicator's importance level in relation to other indicators. This approach was carried out utilizing the AHP method, which involved writing a questionnaire and then delivering it to the three respondents in this study. The following is a picture of the SBSC which is the result of the FGD that has been carried out.

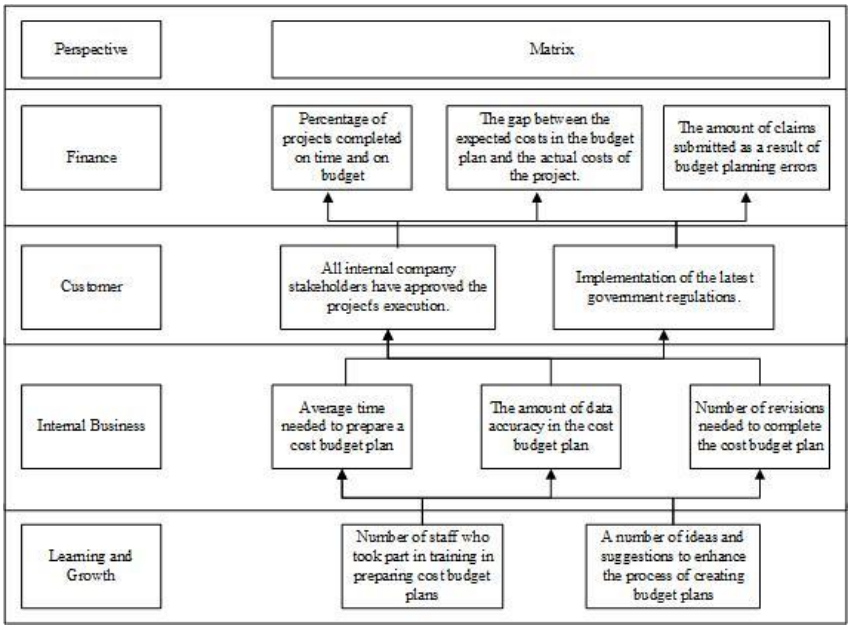

Figure 1. Sustainability Balanced Scorecard

The findings of the questionnaire are presented in the table below. The table below shows the questionnaire used and the findings obtained from it.

Table 1. Comparison Between SBSC Indicators

Comparison of Indicators	More Important Indicators	Intensity of Interest		
		R1	R2	R3
Indicator A vs Indicator A	Equal	1	1	1
Indicator A vs Indicator B	Indicator A	5	1/4	1/2
Indicator A vs Indicator C	Indicator A	3	1/2	1/3
Indicator A vs Indicator D	Indicator A	4	1/3	1/5
Indicator B vs Indicator B	Equal	1	1	1
Indicator B vs Indicator C	Indicator B	1/3	4	3
Indicator B vs Indicator D	Indicator B	1/5	3	4
Indicator C vs Indicator C	Equal	1	1	1
Indicator C vs Indicator D	Indicator C	2	1/2	2
Indicator D vs Indicator D	Equal	1	1	1
Indicator A1 vs Indicator A1	Equal	1	1	1
Indicator A1 vs Indicator A2	Indicator A1	2	3	2
Indicator A1 vs Indicator A3	Indicator A1	3	4	4
Indicator A2 vs Indicator A2	Equal	1	1	1
Indicator A2 vs Indicator A3	Indicator A2	2	2	3
Indicator B1 vs Indicator B1	Equal	1	1	1
Indicator B1 vs Indicator B2	Indicator B1	5	4	2
Indicator C1 vs Indicator C1	Equal	1	1	1
Indicator C1 vs Indicator C2	Indicator C2	1/2	1/3	1/2
Indicator C1 vs Indicator C3	Indicator C1	2	3	3
Indicator C2 vs Indicator C2	Equal	1	1	1
Indicator C2 vs Indicator C3	Indicator C2	3	5	4
Indicator D1 vs Indicator D1	Equal	1	1	1
Indicator D1 vs Indicator D2	Indicator D2	1/2	1/3	1/2

Source: (Questionnaire Results, 2024)

In SBSC, the financial perspective is represented by indicator A, which includes metrics for the percentage of projects completed on time and within budget (indicator A1), the difference between estimated costs in the cost budget plan and actual project costs (indicator A2), and the number of claims submitted as a result of budget planning errors (Indicator A3). Second, indicator B represents the customer perspective, with data for project approval from all internal company stakeholders (Indicator B1) and metrics for implementing the most recent government laws (Indicator B2). Third, the internal business process perspective is represented by indicator C, which includes the metrics of the average time required to prepare a cost budget plan (Indicator C1), the level of data accuracy in the cost budget plan (Indicator C2), and the number of revisions required to finalize the budget plan costs (Indicator C3). Finally, indicator 4 represents the learning and growth perspective, with the metric of the number of staff who participated in cost budget plan preparation training (Indicator D1) and the metric of the number of ideas and suggestions for improving the cost budget planning process (Indicator D2). The explanation above can be summarized in the SBSC chart as follows:

The stage begins with defining objectives and creating a decision hierarchy made up of core objectives, criteria, sub-criteria, and options. Next, pairwise comparisons of the elements in the hierarchy are performed using a numerical scale to determine their level of relevance. The results of this comparison

are then processed using the eigenvector approach to determine the priority weight of each element. Following that, a consistency ratio (CR) is calculated to guarantee that the comparisons are not overly subjective or inconsistent. Finally, priority weights are utilized to identify the optimal alternative that meets the stated objectives. The preceding table displays the results of the AHP weighting data processing.

Table 2. Comparison Between SBSC Indicators

SBSC Perspective	Priority	Matrix	Priority
Customer	0,309	Data for project approval from all internal company stakeholders	0,774
		Implementing the most recent government laws	0,226
Internal Business Process	0,255	Average time required to prepare a cost budget plan	0,578
		Level of data accuracy in the cost budget plan	0,293
		Number of revisions required to finalize the budget plan costs	0,129
Learning and Growth	0,235	Number of staff who participated in cost budget plan preparation training	0,696
		Number of ideas and suggestions for improving the cost budget planning process	0,304
Financial	0,201	Percentage of projects completed on time and within budget	0,574
		The difference between estimated costs in the cost budget plan and actual project costs	0,285
		Number of claims submitted as a result of budget planning errors	0,141

Based on these findings, PT XYZ improvement process for preparing cost budget plans will be more focused on customer satisfaction and compliance with government regulations, ensuring that customer needs are met during the cost budget planning process without sacrificing operational efficiency or project quality is the primary challenge. Second, the internal business perspective demonstrates that effectiveness in budget planning and project cost control is critical for optimizing internal processes. In third place, the learning and growth perspective demonstrates that expanding human resources and capabilities is a critical component in supporting improvement. The final one is a financial perspective, which demonstrates that the company prioritizes operational aspects and customer satisfaction over measuring short-term financial performance, indicating that PT employs a strategy centered on long-term sustainability and growth rather than simply controlling direct costs. The ranking of this weighting has an impact on other research objectives, such as identifying obstacles and developing strategies for implementing SBSC metrics, as well as how to plan improvements in efforts to improve performance in cost budgeting and project cost control at PT XYZ.

Discussion

Root Cause Analysis of Main Problems Using Fishbone Diagrams

The following are the variables which cause variations in the Cost Budget Plan in a project, as indicated in the image below:

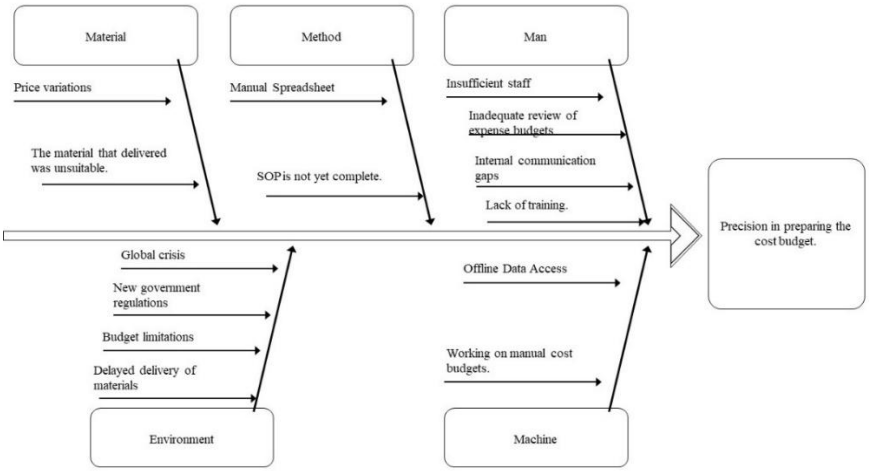

Figure 2. Fishbone Diagrams

From the results of the analysis obtained through the Fishbone diagram and AHP methods, a number of root causes were found which were divided into several perspectives based on SBSC, namely Customer, Internal Business, Learning and Growth, and Finance. Each perspective has causal factors that need to be improved so that the RAB preparation process can be more effective and efficient.

PDCA Implementation

Improvement strategies in the cost budget plan preparation process integrated with PDCA will have a significant impact on the achievement of project KPIs.

Plan

In this planning stage, strategic planning steps are focused on identifying problems, objectives, and expected solutions by increasing the efficiency of the cost budget plan preparation process to be faster, more accurate, and based on real-time data, minimizing errors in the cost budget plan preparation process through process control and risk management, improving staff competencies and human resource management and integrating sustainability aspects in the preparation of cost budget plans according to the SBSC concept.

Do

In the implementation stage (Do), this process involves implementing the planned improvement strategies. From the root of the problem that has been found, the improvement strategy that has been formulated and based on the company's strategic plan for 2025 - 2029, it can be concluded that the improvements to be made include the following table.

Table 4. Improvement Strategic Plan

Focus of Improvement	Strategic Plan
Process Strengthening	Complete standard operating procedures for the preparation of SBSC-based cost budget plans and establish clear cost budget plan preparation time standards. Create a revision system and record changes to the cost budget plan (change log)
Human resource development	Staff Addition in accordance with the minimum number of staff required Organize technical training on the preparation of SBSC-based cost budget plan
Process Digitalization	Cloud-based e-budgeting system.
External Management	Improve communication with project suppliers and vendors.

Check

Evaluation of work programs that can be carried out in 2025 focuses on aspects of standardization, time management, process documentation, human resource development, and external management to support project success.

1. Standardization of guidelines and standard operating procedures. The development of guidelines and standard operating procedures is a top priority. Standardization is fundamental in the preparation of the Cost Budget Plan as design changes during the project can have a significant impact on budget realization. Therefore, the Strategic Plan sets this work program to be implemented in the period 2025 to 2027. An evaluation of the achievement of this target will be conducted every semester to ensure the effectiveness of implementation.
2. Service Level Agreement (SLA) and duration of cost budget plan preparation will be implemented to minimize the possibility of additional work above 10% and this step is strengthened by the preparation of standard operating procedures and socialization to business units and subsidiaries. Evaluation is carried out periodically every semester to ensure that the SLA for the preparation time of the cost budget plan can be achieved.
3. Process Documentation. All change processes in the project are documented to create accountability and transparency in project implementation with evaluations to be carried out monthly.
4. Human resource development. By 2025, the target number of certified staff will be evaluated every semester. In addition, the addition of one new staff planned for the first semester of 2025, will help strengthen the competency of the team.
5. Cooperation agreements with external parties were strengthened and implementation of this policy began in October 2024. Each project will be evaluated separately to ensure smoothness and sustainability.

Act

If the evaluation results show that the improvement objectives have not been achieved, corrective actions need to be taken. Some corrective actions include revising standard operating procedures, improving technology, or further developing staff training.

CONCLUSION

This research aims to improve the process of preparing the Cost Budget Plan in the P&FM Division through the Sustainability Balanced Scorecard (SBSC), Analytical Hierarchy Process (AHP) and Plan - Do - Check - Act (PDCA) approaches. The measurement and analysis carried out in this study obtained several conclusions, among others

1. AHP weighting reveals the Customer Perspective as the most important SBSC indicator (0.309), driven by stakeholder approval (0.774) and regulatory compliance (0.226). Next is the Internal Business Perspective (0.255), weighted by data accuracy (0.578), budget preparation time (0.293), and revision frequency (0.129). Third is Training and Development (0.235), based on improvement ideas (0.696) and staff training (0.304). Lastly, the Financial Perspective (0.201) is weighted by on-time/within-budget projects (0.574), cost variance (0.285), and claims due to errors (0.141).
2. Fishbone and AHP analysis identified root causes across SBSC perspectives (Customer, Internal Business, Learning & Growth, and Finance). Proposed strategies include staff additions, HR skill development, SOP implementation, risk management, cost budget process digitization with real-time systems, and risk-based supply chain management to mitigate material price and environmental fluctuations. These improvements aim to optimize project KPI achievement.
3. Recommendations for 2025-2029 focus on strengthening the cost budget process, HR development, digitalization, and external management. Key measures include real-time information systems for decision support, digital technology for efficiency, improved supply chain risk management, and HR competency enhancement through training.

Based on the research results, some suggestions that can be given for implementation in the company and for further research are as follows:

1. Companies can customize KPIs based on SBSC and PDCA metrics to be used as the basis for performance assessment and evaluation.
2. The application of SBSC will help companies align sustainability goals with key performance indicators, while AHP enables more objective strategic prioritization. PDCA, as a continuous improvement cycle, will ensure that the budget preparation and control process is dynamic and responsive to change. With this approach, companies can improve operational efficiency, achieve sustainability goals, and systematically optimize resource allocation.

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