



Revolutionizing Success: Unleashing the Power of Sustainability Balanced Scorecard for Optimal Performance in Transportation Services

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A B S T R A C T

This study aimed to understand and analyze the performance measurement system within transportation service companies, focusing on the Sustainability Balanced Scorecard approach. Specifically, it outlined a process for developing a performance measurement strategy for PT Maju Logistik Transportindo, utilizing the Sustainability Balanced Scorecard (SBSC) and Analytical Hierarchy Process (AHP) methodologies. The research revealed prevalent issues often overlooked in transportation service companies during their internal assessments. Previously, PT Maju Logistik Transportindo's performance assessment primarily centered on financial aspects, neglecting a comprehensive evaluation. The Sustainability BSC method employed at the company expanded the evaluation to encompass four balanced scorecard perspectives—financial, customer, internal business, growth and learning—incorporating additional environmental and social viewpoints. This quantitative descriptive research employed survey methods, utilizing interviews and questionnaires for primary data collection. The process involved developing indicators grouped into the five perspectives of the Sustainability Balanced Scorecard to design performance measurements. The Analysis Hierarchy Process (AHP) was used to assign weights and priorities to each perspective. The result of measuring the performance of PT Maju Logistik Transportindo using BSC Sustainability is 91% which means it is very healthy if based on performance criteria.

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1. INTRODUCTION

Indonesia's economy is gradually recovering post-Covid-19 pandemic. Society's activities are resuming normalcy, with increased mobility. Many businesses are re-engaging to stimulate the economy, resulting in growth

across various sectors. The Gross Domestic Product (GDP) by industry experienced growth, except for the government administration and education service sectors, which declined (Bps.go.id, 2022). The highest growth occurred in transportation, warehousing,

accommodation, and food & beverage sectors, driven by eased travel restrictions by the government (bps.go.id, 2022). Based on the growth in the transportation and warehousing sector, initial observations that were conducted on five ground transportation service companies identified several issues including delays in loading or unloading processes by the cargo booking parties, claims of damaged goods primarily due to transportation, suboptimal vehicle maintenance due to poor scheduling, discrepancies in invoicing and customer return delivery schedules, and delays in transportation fleet arrivals at loading/unloading locations. These issues were overlooked in the companies assessments, where performance evaluation solely relied on financial indicators.

In the global competition landscape, evaluating performance solely from a financial perspective does not portray the true performance. Therefore, a measurement system considering non-financial aspects is imperative (Rosie & Idayati, 2018). Logistic activities fall within the scope of sustainable development, intertwining economic, environmental, and social aspects. It's crucial to highlight that the study presented here has not been published previously. Its significance lies in emphasizing the necessity of a comprehensive performance measurement system in the logistics sector, one that encompasses both financial and non-financial metrics, contributing to the discourse on sustainable development (Olszańska & Prokopiuk, 2021).

2. LITERATURE REVIEW

Several prior studies have explored the implementation of the Balanced Scorecard in measuring company performance within the transportation sector, encompassing land, sea, and air transport services. Currently, in response to national and international regulations and the increasing pressure of sustainability development of society, companies are gradually adopting social and environmental responsibility-related guidelines in their strategies, structures, and management systems (Wang, et al, 2022). One study highlighted the sequential factors in the Balanced Scorecard model: financial, customer, internal business processes, and learning and growth (Sari & Lestari, 2021). To have a

successful performance measurement system, it is necessary to select the proper set of indicators among all of them. Performance measurement as part of supply chain management impacts on the effective planning, controlling, monitoring, and conduction of logistics processes, and it allows to have and deep insight into their costs and revenues (Pascual, et al. 2021). Strategic Management Accounting (SMA) in the public sector, particularly at the Swedish Transport Administration, can be a determining factor in the success or failure of strategies, heavily influenced by the characteristics of the public sector, government interventions, and external monitoring that can affect the focus and relevance of SMA in strategy formulation Hoglund, et al. (2021). Statistically, a significant relationship between non-financial indicators and company performance was observed, underscoring the importance of utilizing the Balanced Scorecard methodology (Yusdinata & Irawati, 2021). The Balanced Scorecard method provides a comprehensive overview of company performance, aiding organizations in seeking solutions for performance enhancement (Sukmanawan & Affandi, 2019). Measuring the performance of transportation service companies is also needed for the company's business development. By knowing performance, the company has the opportunity to realize where its potential and obstacles are, and can strive for more appropriate strategies (Hermanto & Rivani, 2018). Transportation is the most important element in the development of a country, where transportation is one of the foundations of economic development and societal development as well as the growth of industrialization. Where the development of transportation will encourage economic activities and development in a region or country (Adhiguna & Sulistiyo, 2019)

The decision to introduce the BSC system into a company is made by the top management (Kicova et al, 2023). However, in the course of researching performance measurement systems within companies, the Balanced Scorecard method has also evolved. This evolution is evident in earlier studies that employed the Sustainability Balanced Scorecard (SBSC) for performance measurement (Burhany et al.,

2021). The design process for measuring performance using the Sustainability Balanced Scorecard is based on the steps of the Balanced Scorecard with the addition of a new perspective, environmental and social aspects (Lu et al., 2018). The study's outcome aimed to identify decisions crucial for companies to manage their operations (Rosyada et al., 2020). Therefore, a performance measurement system is necessary, serving as a foundation for company decision-making and management planning. Performance measurement shouldn't solely focus on financial perspectives as it merely reflects past performance. A comprehensive assessment is valuable for long-term strategies and goal setting, aiding companies in achieving their vision and mission (Hardono et al., 2018). Based on the literature review, this research employs the Sustainability Balanced Scorecard (SBSC) as a system to gauge the extent of a company's sustainable business development. This method considers both financial and non-financial aspects. Its advantage lies in encompassing five perspectives: financial, customer, internal business processes, learning and growth, and environmental and social aspects (Susanty et al., 2018).

3. RESEARCH METHOD

This research employs a quantitative descriptive approach, addressing issues through pertinent calculations. The research design involves a survey method utilizing interviews during observations and questionnaires as data collection tools. The research focuses on PT Maju Logistik Transportindo, a ground transportation service company located in Tangerang. Conducted between 2022 and 2023, post-Covid-19 pandemic, the study began with initial observations to identify issues within the ground transportation service industry.

A comprehensive literature review supplemented by VOSviewer software aided in acquiring secondary data and identifying research gaps. Data collected were categorized into the five Sustainability BSC perspectives. Subsequently, indicators for measuring company performance using the Sustainability BSC were derived, as outlined in the table below. The methodology highlights the systematic process employed to gather primary and secondary data, utilizing surveys, observations, literature reviews, and software analysis to structure the research approach.

Table 1. Performance indicator

Dimensions	Criteria	Indicator	Reference
Financial Perspective	Revenue Increase	1.1 Return of Asset	Observations
		1.2 Return of Equity	
Customer Perspective	Customer Satisfaction	2.1 Timely Loading/Unloading Process	Observations
		2.2 Timely Deliveries	
		2.3 No Damaged Goods in Deliveries	Observations
		2.4 Addressing Customer Complaints	Observations (Sari & Lestari, 2021)
Internal Business Processes Perspective	Operational Processes	3.1 Maintaining Quality in Activities	Observation (Susanty et al, 2018)
		3.2 Scheduled Purchase of Delivery Returns	
		3.3 Improving Facilities and Services	
Learning and Growth Perspective	Human Resource Development	4.1 Effective Vehicle Maintenance Scheduling	Observation (Susanty et al, 2018)
		4.2 Employee Competency Level	
		4.3 Utilization of Technology for Operational Activities	
Environmental and social perspective	Environmental management systems Company image Health and safety	5.1 Environment-oriented policies and goals	(Susanty et al, 2018)
		5.2 Company reputation and public image	(Susanty et al, 2018)
		5.3 Implementation of health care management	(Lu et al, 2018)
		5.4 Absenteeism rates and accident levels	(Susanty et al, 2018)

The research involved the entire staff and customers of PT Maju Logistik Transportindo. The sample comprised six employees, including owner-managers, and 30 customers. Purposive sampling was used to select employees based on their roles, and customers were chosen for their perspective. Questionnaires were distributed to owner-managers, supervisors, and customers.

Performance measurement employed SPSS for validity, Super Decision for weighting via pairwise comparison, and descriptive analysis of financial and non-financial data using Sustainability BSC's KPIs. The steps: problem identification, KPI grouping, measurement, weight calculation, and overall assessment for the company's health status.

Table 2. Performance criteria

Criteria	Total Score
Very Healthy	≥ 65 SS
Less Healthy	$30 > KS < 65$
Unhealthy	$0 > TS < 30$

4. RESULT AND DISCUSSION

According to result of the research revealed five perspectives for PT Maju Logistik Transportindo's performance measurement using the Sustainability BSC approach: financial, customer, internal business processes,

learning and growth, and environmental and social perspectives. These led to 9 strategic objectives and 16 key performance indicators. Pairwise comparisons via Super Decisions software determined their priority levels.

Table 3. Performance weighting matrix for PT Maju Logistik Transportindo

Perspective	Perspective Weight	Strategic Objective	Strategic Objective Weight	Key Performance Indicator	KPI Weight
Financial Perspective	0,34	Revenue Increase	0,34	Return on Asset	0,23
				Return on Equity	0,11
Customer Perspective	0,28	Customer Satisfaction	0,28	Timely Loading/Unloading Processes	0,04
				Timely Deliveries	
				No Damaged Goods during Delivery	0,11
				Addressing Customer Complaints	0,05
				Maintaining Quality in Every Activity	0,03
Internal Business Perspective	0,12	Operational Processes	0,04	Returns as per Schedule and Agreement	0,01
				Service Processes	
			0,08	Enhancing Facilities and Services to Customers	0,08
Learning and Growth Perspective	0,17	Human Resource Improvement	0,10	Scheduled Vehicle Maintenance	0,10
				Operational Technology	
			0,07	Utilization of Technology for Company Operations	0,03
Environmental and Social Perspective	0,08	Environmental Management System	0,03	Policies and Objectives Aligned with Environmental Concerns	0,13
				Company Image and Reputation	
		Health and Safety	0,01	Health Care Implementation	0,04
				Absenteeism Rate and Accident Rates	0,06
Total	1,00		1,00		1,00

Source: Research findings

The performance measurement of PT Maju Logistik Transportindo, based on the comprehensive perspective of the Sustainability BSC, encompassing financial perspective, customer perspective, internal business process

perspective, learning and growth perspective, and environmental and social perspective, yielded results as presented in the following Table 4.

Table 4. Performance measurement of sustainability BSC for PT Maju Logistik Transportindo

Sustainability BSC Perspective	Weight KPI	Actual	Target	Score	Final Score
Financial	0,34	0,036	0,04	0,9	0,315
Customer	0,28	0,07	0,07	1,0	0,28
Internal Business Processes	0,12	0,49	0,52	0,94	0,113
Learning and Growth	0,17	0,10	0,12	0,83	0,142
Environmental and Social	0,08	0,21	0,25	0,84	0,067
Total Score	1				0,917

Source: Research findings

Based on the analysis from the Sustainability BSC perspective summarized in Table 4.2, the performance of PT Maju Logistik Transportindo in 2021 reflects robust standings across various aspects. In financial terms, the company nearly met the target with a realization of 0.036 against a target of 0.04, yielding a final score of 0.315. This categorizes the financial health as "very healthy," showcasing effective management of assets and equity. Regarding customer perspective, PT Maju Logistik Transportindo achieved its target with a realization of 0.07 against a target of 0.07, resulting in a final score of 0.28, indicating a "very healthy" customer satisfaction level. In terms of internal business processes, the company achieved a realization of 0.49 against a target of 0.52, yielding a final score of 0.113. Despite slightly missing the target, operations maintained a "very healthy" synergy and quality. The growth and learning perspective exhibited 83% performance, with a realization of 0.10 against a target of 0.12, showing effective human resource improvement and adaptive technology use. Environmental and social perspectives scored 84%, with a realization of 0.21 against a target of 0.25, reflecting effective environmental management and a positive reputation.

Overall, PT Maju Logistik Transportindo achieved a 91% score, portraying a "very healthy" performance level. Notably, improvement is required in the environmental and social aspects, scoring lower compared to other perspectives. This comprehensive Sustainability BSC measurement offers a

holistic overview of the company's performance, encompassing environmental and social aspects, indicating a robust overall performance.

This study for discussion about employs the Sustainability Balanced Scorecard method and draws upon several references from previous research on measuring company performance. The resulting research outcomes vary, serving as benchmarks for the study's findings. Below is a summary comparing the prior and current research findings.

Table 5. Comparison between previous and current research

No.	Researchers	Method	Research Object	Product
1	(Nurul Annisa, 2018)	BSC	Performance measurement	Transportation services
2	(Rusmandani & Fauzia, 2020)	BSC	Performance measurement	City transport
3	(Burhany et al., 2021)	SBSC	Performance measurement	Heavy equipment manufacturer
4	(Pribadi & Hariyani, 2022)	BSC	Performance measurement	Railway services

Below are conclusions drawn from each research study: (Nurul Annisa, 2018): In the transportation service industry, using the Balanced Scorecard method for performance measurement, the highest weight was found in the financial perspective, aligning with the ongoing study. (Rusmandani & Fauzia, 2020): Research focusing on city transport identified weaknesses in the customer perspective, with

676 complaints from 26,270 passengers. Certain routes failed to meet standards during peak hours. This emphasizes that genuine performance assessment extends beyond financial aspects. (Burhany et al., 2021): Assessing a heavy equipment manufacturer using the Sustainability Balanced Scorecard revealed a satisfactory environmental performance in the customer perspective. However, customer satisfaction across four environmental performance indicators remained suboptimal despite the company's excellent market share. Research by (Pribadi & Hariyani, 2022) analyzing railway services through the Balanced Scorecard indicated a good rating in the learning and growth perspective but a less favorable performance in the financial perspective. This highlights the diverse aspects contributing to actual performance.

The implications of this research offer substantial benefits for the studied company concerning performance measurement using the Sustainability Balanced Scorecard. This study contributes to the scholarly understanding of performance measurement within the transportation service industry. The findings highlight that the Sustainability Balanced Scorecard method provides a comprehensive assessment of companies beyond financial aspects, encompassing customer, internal business, growth, environmental, and social perspectives. For future research, incorporating SWOT analysis is recommended to determine a company's position and formulate strategies for progress. Utilizing SWOT-based strategies can aid in expanding target markets, maintaining service quality, and enhancing both human resources and management systems. The research delivers several advantages to companies, especially in the transportation service sector, including providing holistic insights into a company's condition beyond just financial perspectives and evaluating the effectiveness of planned strategies.

The research still has notable limitations that signify its incompleteness, necessitating further development in subsequent studies. Key limitations include: Scope Limitation: The study's constraint lies in its focus on performance measurement within the specific context of the transportation service industry. This limitation arises from applying performance measurement solely within the scope of the studied company. Time Constraint: Another limitation stems from the time frame of the research, which restricted the methodology to encompass only performance measurement without extending to formulating future strategies. These limitations highlight the need for future research to expand the scope beyond singular companies and allow for a more comprehensive examination of performance measurement and strategy formulation.

5. CONCLUSION

Performance measurements for PT Maju Logistik Transportindo in the transportat on service industry were conducted using the following indicators: Return on Asset and Return on Equity, On-time loading/unloading processes, Timely deliveries, No damaged goods during shipment, Addressing customer complaints, Upholding quality in all activities, Timely purchase of delivery returns as per agreements, Improving facilities and services for customers, Scheduled vehicle maintenance, Employee competency levels, Utilization of technology in company operations, Environmentally oriented policies and objectives, Company reputation and public image, Implementation of healthcare management, and Absenteeism due to illness and accident rates. The performance evaluation of PT Maju Logistik Transportindo, assessed through the Sustainability BSC approach, falls within the "very healthy" category. The final scores reveal that all perspectives, notably customer satisfaction, met or exceeded targets. The inclusion of environmental and social perspectives in this comprehensive

Sustainability BSC assessment highlights a holistic performance analysis beyond the standard four BSC perspectives. Based on the analysis, the following recommendations are proposed. Firstly, PT Maju Logistik Transportindo should enhance vehicle maintenance scheduling, invest in employee competency through training, education, and technological adaptation for operational efficiency. Leveraging cutting-edge technology can boost competitiveness, crucial as the growth and learning perspective scored lower than other aspects. Additionally, prioritizing the implementation of health care management through incentivization and enforcement, aligning with environmentally oriented policies and goals, would be beneficial. Future researchers could explore alternative concepts and methods for successfully applying Sustainability BSC to measure company performance. Identifying precise solutions for existing company challenges would also be valuable.

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