

ABSTRACT

The road construction industry is a vital sector in the development of infrastructure in Indonesia, particularly in West Java Province. Asphalt Mixing Plants (AMP), as producers of hot mix asphalt, play a crucial role in the road construction supply chain. The complexity and dynamics of the AMP business necessitate a performance measurement system that can holistically encompass various operational aspects. This study aims to design a performance measurement system for the Asphalt Mixing Plant (AMP) business unit in West Java Province, focusing on physical distribution activities, using the Balanced Scorecard (BSC) and Analytical Hierarchy Process (AHP) approaches. The system is designed to provide a comprehensive framework for performance measurement, not only focusing on financial aspects but also considering non-financial perspectives critical to AMP operations. The primary objective of this research is to identify strategic priorities and the most influential Key Performance Indicators (KPIs) for improving AMP's physical distribution performance.

Based on the analysis conducted, a set of KPIs was established for each BSC perspective. The financial perspective includes indicators such as revenue growth, operational cost efficiency, and profit margin. The customer perspective covers customer satisfaction, customer loyalty, and market share. The internal business process perspective focuses on production efficiency, on-time delivery, and product quality. The learning and growth perspective includes employee training, process innovation, and the adoption of new technologies. After establishing the KPIs, AHP was used to determine the relative weights of each perspective and KPI. The analysis results indicate that the internal business process perspective has the highest weight (33%), followed by learning and growth (29%), financial (21%), and customer (17%).

The high weighting of the internal business process and learning and growth perspectives reflects the importance of operational efficiency and internal capability development in the AMP industry. The resulting performance measurement system was validated through discussions with AMP management and limited trials. Validation showed that this system provides a comprehensive

overview of the AMP business unit's performance, particularly in physical distribution aspects. The system also allows for the identification of areas requiring further improvement and development. The implementation of this performance measurement system is expected to enhance AMP's competitiveness in West Java Province through continuous improvements in physical distribution processes. Additionally, the system can serve as an effective tool for management in strategic decision-making and resource allocation.

This research makes a significant contribution to the development of a performance measurement system specifically for the AMP industry, with a focus on physical distribution. The approach that combines BSC and AHP has proven effective in producing a comprehensive and balanced measurement system that considers various aspects of business performance. However, this study has some limitations. First, the scope of the research is limited to AMPs in West Java Province, so the results need to be considered carefully before applying them to other regions. Second, industry dynamics and regulatory changes may affect the relevance of the established KPIs, necessitating periodic evaluation and adjustment of the performance measurement system. For future research, it is recommended to expand the geographical scope and conduct comparative studies across regions. Moreover, integrating this performance measurement system with broader management information systems could be an interesting area of research to enhance the effectiveness of implementation and real-time performance monitoring.

Keywords: Physical distribution, Asphalt Mixing Plant (AMP), Key Performance Indicator (KPI), Balanced Scorecard, Analytical Hierarchy Process (AHP).