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The Combination of DEMATEL, ANP, and IPMS Methods for Performance Measurement System Design: A Case Study in KOLAT KOARMATIM Marsetio<sup>1</sup>, Amarulla Octavian<sup>1</sup>, Siswo Hadi Sumantri<sup>2</sup>, Ahmadi<sup>2</sup>, Rajab Ritonga<sup>3</sup> and Supartono<sup>2</sup> <sup>1</sup> Indonesia Defense University, Bogor, West Java, Indonesia <sup>2</sup> Sekolah Tinggi Angkatan Laut, Surabaya, East Java, Indonesia <sup>3</sup> Universitas Prof Dr Moestopo (Beragama), Jalan Hang Lekir, Jakarta, Indonesia <sup>4</sup> Biro Klasifikasi Indonesia, Jakarta, Indonesia \*Corresponding author: rajab.ritonga@dsn.moestopo.ac.id

**Abstract** The use of Integrated Performance Measurement System (IPMS) method in an institution under Indonesian Naval Forces (TNI AL) is intended to improve the integrated performance measurement system which generally is only based on financial accountability report.

This paper presents the combination of DEMATEL, ANP, and IPMS methods for performance measurement system design. The method was designed at KOLAT KOARMATIM to analyze the achievement of the 2015 and 2016 Work Programs with 23 Key Performance Indicators (KPIs), based on stakeholders' requirements of KOLAT KOARMATIM.

To indicate the impact among criteria, DEMATEL is used to then determine the weight of each sub criteria and their respective KPIs identified. Based on the scoring system using Objective Matrix (OMAX), from the 2015 performance measurement conducted, the Total Performance Index obtained is amounted to 7.697; in addition, by using Traffic Light System, it is situated in the Yellow category, meaning that the performance measurement target (achievement) in 2015 has not been reached despite nearing the desired threshold target; there are 11 green KPIs, 11 yellow KPIs, and 1 red KPI.

The performance measurement results in 2016 show that the Total Performance Index is

amounted to 8.344 as a result of scoring by using OMAX, and by using the Traffic Light System, it is situated in the Green category, meaning that the performance measurement target (achievement) has been reached (satisfactory) with the dispersion including 16 green KPIs, 6 yellow KPIs and 1 red KPI.

Red KPI is the KPI below the targets set by KOLAT KOARMATIM; hence it becomes a top priority for the implementation of improvement. Two KPIs in the red indicator include the Combat Task Exercise of The Republic of Indonesia Warship (GLAGASPUR KRI (U)) and the Development Planning (RENBANG). Keywords: ANP; DEMATEL; IPMS; KPI; OMAX; Traffic light system

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