Analisis kualitas docking maintenance menggunakan metode analytic network process (ANP) pada kapal penumpang = Quality analysis of docking maintenance using the analytic network process (ANP) method on passenger ships

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Abstrak

Docking maintenance pada kapal penumpang merupakan tahap krusial dalam siklus pemeliharaan guna menjamin keselamatan dan efisiensi operasional. Namun, proses ini kerap menghadapi hambatan yang memengaruhi kualitas pelaksanaannya. Penelitian ini bertujuan menganalisis kualitas docking maintenance dengan mengidentifikasi sistem kapal yang paling diprioritaskan serta hambatan paling berpengaruh terhadap keselamatan pelayaran. Metode Analytic Network Process (ANP) digunakan untuk memodelkan ketergantungan antar elemen dalam lima klaster utama: hambatan perencanaan dan eksekusi, hambatan teknis di lapangan, ketersediaan material, kendala operasional, dan metode perbaikan. Data diperoleh melalui kuesioner perbandingan berpasangan dengan responden ahli dari industri galangan dan operator kapal. Hasil menunjukkan bahwa sistem penggerak utama menjadi prioritas perawatan tertinggi, diikuti sistem kemudi dan navigasi, serta struktur lambung. Faktor sumber daya manusia, material, dan metode kerja juga berperan signifikan. ANP terbukti efektif dalam menentukan prioritas strategis untuk meningkatkan mutu docking maintenance kapal penumpang.

.....Docking maintenance on passenger ships is a crucial phase in the maintenance cycle to ensure operational safety and efficiency. However, this process often encounters obstacles that affect the quality of its implementation. This research aims to analyze the quality of docking maintenance by identifying the ship systems that should be prioritized and the most significant barriers affecting maritime safety. The Analytic Network Process (ANP) method is used to model the interdependencies among elements within five main clusters: planning and execution constraints, technical field challenges, material availability, operational limitations, and repair methods. Data were collected through pairwise comparison questionnaires involving expert respondents from shipyard industries and passenger ship operators. The results indicate that the main propulsion system is the highest maintenance priority, followed by the steering and navigation systems, and the hull structure. Human resources, materials, and work methods are also found to be significant factors. ANP proves to be effective in formulating strategic priorities for improving the quality of docking maintenance on passenger ships.