

## INTISARI

Industri minyak dan gas menghadapi tantangan dalam kelancaran operasional, termasuk pengelolaan material. PT XYZ, sebagai perusahaan hulu migas, mengalami keterlambatan dalam proses pembuatan Kode Identifikasi Material, dengan rata-rata waktu (*lead time*) 23 hari jauh melampaui *service level agreement* (SLA) perusahaan selama 5 hari. Hal ini berdampak pada pengadaan barang dan kelancaran operasi produksi serta pengeboran. Penelitian ini bertujuan untuk mengidentifikasi *waste* dan penyebab utama keterlambatan pembuatan Kode Identifikasi Material, merumuskan langkah perbaikan proses, serta mengukur efisiensi waktu yang dihasilkan dari usulan perbaikan.

Penelitian ini menggunakan pendekatan *Lean Service* dengan mengaplikasikan metode *Seven Waste* dan *Service Value Stream Mapping* (SVSM). Pada tahap *current state*, identifikasi *waste* dilakukan melalui *Process Activity Mapping*. Analisis akar masalah menggunakan Diagram Pareto dan *fishbone* sebagai bagian dari metode *Root Cause Analysis* (RCA). Prioritisasi perbaikan menggunakan *Analytical Hierarchy Process* (AHP) dan *Simple Additive Weighting* (SAW) oleh *expert*. Solusi perbaikan kemudian diuji coba kepada responden untuk mendapatkan nilai rata-rata *future lead time*.

Hasil analisis menunjukkan bahwa *waste* utama dari proses ini yaitu *delay* dan *unnecessary movement*. *Waste delay* terjadi karena proses persetujuan manual yang panjang dan kurangnya sistem digitalisasi yang memperlambat verifikasi. Sedangkan, untuk *waste unnecessary movement* terjadi karena banyaknya tahapan verifikasi akibat keterbatasan akses *database* sehingga kataloger regional hanya berperan sebagai perantara. *Lean Service* melalui identifikasi *waste*, analisis akar masalah, serta perankingan solusi alternatif oleh *expert* terbukti mampu menurunkan total *lead time* dari rata-rata 20,44 hari menjadi 6,25 hari atau efisiensi sebesar 69% dibandingkan kondisi *existing*. Penelitian ini menyimpulkan bahwa penerapan *Lean Service* secara sistematis efektif untuk mempercepat proses pembuatan Kode Identifikasi Material, meningkatkan efisiensi proses dan kualitas layanan pengadaan, serta berpotensi diterapkan lebih luas di sektor migas.

Kata kunci: Kode Identifikasi Material, *lean service*, *service value stream mapping*, *root cause analysis*, *lead time*, minyak dan gas bumi.

## ABSTRACT

*The oil and gas industry faces significant challenges in maintaining smooth operations, particularly in material management. PT XYZ, an upstream oil and gas company, experiences delay in the Material Identification Code creation process, averaging 23 days—far exceeding the company’s Service Level Agreement (SLA) of 5 days. These delays disrupt procurement and critical operational activities, including production and drilling. This study aims to identify waste and the main causes of delays in the creation of material identification codes, formulate process improvement steps, and measure the time efficiency resulting from the proposed improvements.*

*This study applies the Lean Service approach by implementing the Seven Waste concept and Service Value Stream Mapping (SVSM). In the current state analysis, waste identification was conducted using Process Activity Mapping. Root cause analysis was performed through the Pareto Diagram and Fishbone Diagram as part of the Root Cause Analysis (RCA) method. Improvement prioritization was carried out using Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) involving expert judgment. The proposed improvement solution was tested with respondents to obtain the average future lead time.*

*The analysis shows that the main wastes in this process are delay and unnecessary movement. The delay waste occurs due to lengthy manual approvals and the lack of digitalization that slows down verification. Meanwhile, unnecessary movement arises from multiple verification stages caused by limited access to the KIMAP database, resulting in regional cataloguers functioning merely as intermediaries. By applying Lean Service through waste identification, root cause analysis, and expert-based prioritization of alternative solutions, the total lead time was successfully reduced from an average of 20.44 days to 6.25 days, achieving a 69% efficiency improvement compared to the existing condition. This study concludes that the systematic implementation of Lean Service is effective in accelerating the material identification code creation process, enhancing process efficiency and procurement service quality, and holds significant potential for broader application within the oil and gas sector.*

**Keywords:** *material identification code, lean service, service value stream mapping, root cause analysis, lead time, oil and gas sector.*