

ANALISIS EFEKTIVITAS MESIN MENGGUNAKAN METODE OVERALL EQUIPMENT EFFECTIVENESS (OEE) UNTUK MENINGKATKAN PRODUKTIVITAS LINE PAINTING DI PT XYZ

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INTISARI

Latar Belakang: PT XYZ merupakan perusahaan manufaktur yang memproduksi khususnya di sektor otomotif perusahaan ini memproduksi komponen seperti *part-part seat, interior, eksterior* untuk kendaraan roda dua dan roda empat. Berdasarkan hasil observasi dan wawancara ditemukan adanya gap atau selisih negatif antara kapasitas ideal produksi dengan aktual produksi yang disebabkan oleh berbagai faktor, seperti kerusakan mesin, efisiensi tenaga kerja yang rendah, keterlambatan pasokan bahan baku, atau waktu henti produksi yang tidak terduga (*downtime*). Penurunan efektivitas mesin berdampak pada rendahnya produktivitas, tidak tercapainya target produksi, serta keterlambatan pengiriman produk.

Tujuan: Penelitian ini bertujuan untuk memberikan rekomendasi perbaikan kepada perusahaan dalam menetapkan kebijakan perawatan mesin yang tepat, sehingga produktivitas divisi painting dapat meningkat.

Metode Penelitian: Pengukuran efektivitas mesin dilakukan dengan metode *Overall Equipment Effectiveness (OEE)*, dan identifikasi kerugian utama dilakukan melalui analisis *six big losses*, untuk menentukan prioritas perbaikan berdasarkan dampak masing-masing kategori kerugian menggunakan diagram *Pareto Analysis*, kerugian dominan kemudian dianalisis lebih lanjut menggunakan metode *Fault Tree Analysis (FTA)* untuk menemukan akar penyebab permasalahan serta diberikan rekomendasi perbaikan dengan metode *5W+1H*.

Hasil: Nilai OEE pada divisi *painting* sebesar rata-rata 56,28%, yang masih berada di bawah standar ideal. Hasil analisis *six big losses* menunjukkan bahwa *setup and adjustment* rata-rata 28,65% dan *reduce speed losses* rata-rata 14,45%. Selanjutnya, analisis menggunakan *FTA* berhasil memetakan struktur penyebab dari *setup and adjustment* dan *reduce speed losses* hingga ke akar permasalahan.

Kesimpulan: Perusahaan dapat meningkatkan produktivitas mesin di divisi painting dengan menerapkan rekomendasi perbaikan yang disusun dan hasil analisis secara bertahap dan berkelanjutan.

Kata Kunci: Produktivitas Mesin, *OEE*, *Six Big Losses*, Diagram *Pareto*, *Fault Tree Analysis*, *5W+1H*.

***ANALYZING MACHINE EFFECTIVENESS USING THE OVERALL
EQUIPMENT EFFECTIVENESS (OEE) METHOD TO IMPROVE
PAINTING LINE PRODUCTIVITY AT PT XYZ***

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ABSTRACT

Background: PT XYZ is a manufacturing company operating in the automotive sector, producing components such as seat parts, as well as interior and exterior parts for two-wheeled and four-wheeled vehicles. Based on observations and interviews, a negative gap was found between the ideal production capacity and the actual production output, caused by various factors such as machine breakdowns, low labor efficiency, delays in raw material supply, or unexpected production downtime. The decline in machine effectiveness impacts productivity, leading to unmet production targets and delays in product delivery.

Objective: This study aims to provide improvement recommendations for the company in establishing an appropriate machine maintenance policy to enhance productivity in the painting division.

Research Method: Machine effectiveness was measured using the Overall Equipment Effectiveness (OEE) method. The six big losses analysis was applied to identify major losses, and Pareto Analysis was used to prioritize improvements based on the impact of each loss category. The dominant losses were further analyzed using Fault Tree Analysis (FTA) to identify root causes. Finally, improvement recommendations were formulated using the 5W+1H approach.

Results: The OEE value in the painting division was found to average 56.28%, which is still below the ideal standard. The six big losses analysis showed that setup and adjustment accounted for an average of 28.65%, while reduce speed losses averaged 14.45%. Furthermore, the FTA analysis successfully mapped the causal structure of setup and adjustment and reduce speed losses down to their root causes.

Conclusion: The company can improve machine productivity in the painting division by implementing the proposed recommendations and gradually carrying out improvements in a sustainable manner.

Keywords: Machine Productivity, OEE, Six Big Losses, Pareto Diagram, Fault Tree Analysis, 5W+1H.