ABSTRAK

PT Parkland World Indonesia 2 merupakan perusahaan manufaktur sepatu yang menghadapi permasalahan tingginya tingkat cacat produk pada proses *assembly*, khususnya untuk produk sepatu New Balance 327, dengan rata-rata cacat sebesar 11,5%, melebihi batas toleransi perusahaan sebesar 5%. Penelitian ini bertujuan untuk merumuskan strategi peningkatan kualitas produksi dengan menerapkan metode Six Sigma berbasis pendekatan DMAI (*Define, Measure, Analyze, Improve)* serta *Fuzzy Failure Mode and Effect Analysis* (*Fuzzy* FMEA). Data diperoleh dari hasil produksi periode Agustus 2024 hingga Januari 2025. Hasil pengolahan menunjukkan bahwa rata-rata nilai *Defects Per Million Opportunities* (DPMO) sebesar 14.796 dan level sigma sebesar 3,69. Jenis cacat dominan diidentifikasi melalui diagram Pareto, dan akar penyebab dianalisis menggunakan diagram *Fishbone*. Selanjutnya, metode *Fuzzy* FMEA digunakan untuk menghitung nilai *Fuzzy Risk Priority Number* (FRPN) dan menentukan prioritas perbaikan. Rekomendasi strategi perbaikan meliputi pelatihan operator, inspeksi mesin secara berkala, dan peningkatan kebersihan area kerja. Hasil penelitian diharapkan dapat menurunkan tingkat kecacatan produk dan meningkatkan kualitas proses produksi secara berkelanjutan.

Kata Kunci: Six Sigma, DMAI, Fuzzy FMEA, Kualitas Produksi, FRPN, PT Parkland World Indonesia 2.

ABSTRACT

PT Parkland World Indonesia 2 is a footwear manufacturing company that faces a high defect rate in the assembly process, particularly for the New Balance 327 product, with an average defect rate of 11.5%, which exceeds the company's tolerance limit of 5%. This study aims to formulate a production quality improvement strategy using the Six Sigma method with the DMAI (Define, Measure, Analyze, Improve) approach and the Fuzzy Failure Mode and Effect Analysis (Fuzzy FMEA) method. The data were obtained from production results during the period of August 2024 to January 2025. The analysis showed that the average Defects Per Million Opportunities (DPMO) was 14,796 and the sigma level was 3.69. The dominant defect types were identified using a Pareto diagram, and root causes were analyzed using a Fishbone diagram. Furthermore, the Fuzzy FMEA method was applied to calculate the Risk Priority Number (RPN) and determine improvement priorities. Recommended improvement strategies include operator training, routine machine inspections, and enhancements in workplace cleanliness and order. The results of this study are expected to reduce the defect rate and improve production quality sustainably.

Keywords: *Six Sigma, DMAI, Fuzzy FMEA, Production Quality, RPN, PT Parkland World Indonesia 2.*