ANALISIS PENERAPAN *LEAN MANUFACTURING* DALAM MENGURANGI *WASTE* PADA PROSES PRODUKSI ES BATU DI CV ALASKA ICE TUBE

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Abstrak

CV Alaska Ice Tube merupakan perusahaan yang bergerak di bidang produksi es batu kristal dan menghadapi permasalahan berupa tingginya tingkat pemborosan (*waste*) pada proses produksinya. Jenis waste dominan yang teridentifikasi meliputi *overproduction* sebesar 28,85%, *waiting* sebesar 3,84%, dan *defect* sebesar 8,79%. Permasalahan ini berdampak pada rendahnya efisiensi produksi dan meningkatnya biaya operasional. Penelitian ini dilakukan dengan pendekatan Lean Manufacturing yang menggunakan metode *Value Stream Mapping* (VSM), *Process Activity Mapping* (PAM), *Fishbone Diagram*, FMEA, serta 5W+1H. Tujuannya adalah untuk menganalisis sumber pemborosan dan memberikan solusi perbaikan yang tepat. Berdasarkan hasil PAM awal, proporsi *aktivitas Value Added* (VA) hanya mencapai 30,17%, sementara aktivitas *Necessary but Non Value Added* (NNVA) mencapai 67,63%, dan aktivitas *Non Value Added* (NVA) sebesar 2,2% dari total waktu proses 21.726,8 detik. Setelah implementasi perbaikan, yang mencakup penerapan SOP, penyesuaian sistem produksi menjadi berbasis permintaan *(make to order*), serta optimalisasi jumlah tenaga kerja dan setup mesin, terjadi peningkatan efisiensi signifikan. *Waste defect* menurun menjadi 4,67%, *overproduction* menjadi 0%, dan *waiting* turun menjadi 2,15%. Aktivitas VA meningkat menjadi 31,11%, NNVA menurun menjadi 68,89%, dan aktivitas NVA berhasil dihilangkan sepenuhnya. Hasil ini menunjukkan bahwa penerapan Lean Manufacturing secara sistematis mampu menekan pemborosan serta meningkatkan kinerja dan efektivitas proses produksi di CV Alaska Ice Tube.

Kata Kunci *: Lean Manufacturing, Waste, Value Stream Mapping, Process Activity Mapping.*

ANALYSIS OF LEAN MANUFACTURING IMPLEMENTATION IN REDUCING WASTE IN THE ICE CUBE PRODUCTION PROCESS AT CV ALASKA ICE TUBE

Abstract

CV Alaska Ice Tube is a company engaged in crystal ice production and faces a high level of waste in its production process. The dominant types of waste identified include overproduction (28.85%), waiting (3.84%), and defects (8.79%). These problems resulted in low production efficiency and increased operational costs. This research was conducted using a Lean Manufacturing approach, utilizing Value Stream Mapping (VSM), Process Activity Mapping (PAM), Fishbone Diagram, FMEA, and 5W+1H. The goal was to analyze sources of waste and provide appropriate improvement solutions. Based on the initial PAM results, the proportion of Value Added (VA) activities reached only 30.17%, while Necessary but Non-Value Added (NNVA) activities reached 67.63%, and Non-Value Added (NVA) activities accounted for 2.2% of the total process time of 21,726.8 seconds. After implementing improvements, which include implementing SOPs, adjusting the production system to a make-to-order basis, and optimizing workforce and machine setup, significant efficiency improvements occurre. Waste defects decrease to 4.67%, overproduction to 0%, and waiting time decrease to 2.15%. VA activities increase to 31.11%, NNVA decrease to 68.89%, and NVA activities are completely eliminated. These results demonstrate that the systematic implementation of Lean Manufacturing can reduce waste and improve the performance and effectiveness of the production process at CV Alaska Ice Tube.

Keywords: Lean Manufacturing, Waste, Value Stream Mapping, Process Activity Mapping.

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