

**INTEGRASI *LEAN MANUFACTURING* DENGAN SIMULASI SISTEM
SEBAGAI REKOMENDASI PERBAIKAN PADA DEPARTEMEN
LOGISTIK PT. MBI**

Dimas Haryo Tri Atmojo

ABSTRAK

PT. MBI berdiri sejak tahun 1970 yang merupakan agen utama, perakitan (*assembler*), dan *manufacturer* dari mobil MBI yang ada di Indonesia. Produk-produk yang diproduksi yaitu *passenger cars* dengan varian C-Class, E-Class, S-Class, GLE-Class, GLS-Class, and GLC-Class. Dalam kegiatan *warehouse*, Departemen Logistik PT. MBI bertugas menerima, menyimpan dan menyuplai komponen *trim* untuk dikirim ke Departemen Produksi, dalam kegiatan tersebut melibatkan 2 proses yaitu *receiving, handling and storage* dan *unboxing trimming*. PT. MBI menargetkan menyelesaikan sebanyak 144 unit per 1 lot (8 mobil) dalam waktu 876 menit (14,6 jam). Namun dalam kondisi nyata Departemen Logistik hanya mampu menyelesaikan rata-rata sebanyak 140 unit dikarenakan terjadinya pemborosan (*waste*) pada beberapa aktivitas sehingga kegiatan suplai menjadi terhambat dan mengalami penambahan jam kerja (lembur). Perlunya dilakukan identifikasi dan rekomendasi perbaikan terhadap pemborosan (*waste*) dengan menggunakan metode *lean manufacturing* dan merancang model simulasi menggunakan *software* ProModel sesuai dengan proses yang ada di PT. MBI dan dijalankan selama 876 menit (14,6 jam) yang sudah diverifikasi dan sudah divalidasi sehingga mampu mewakili sistem nyata. Atas dasar itu dilakukannya model simulasi aktual untuk dapat menganalisis proses yang terjadi dan dibandingkan dengan model simulasi usulan. Dimana model simulasi usulan dengan waktu perbaikan berhasil menghasilkan *output* yang lebih tinggi dibanding dengan model aktual yaitu dari *output* 140 unit menjadi 180 unit dalam waktu 872 menit (14,6 jam), dengan persentase kenaikan *output* 28,57%.

Kata Kunci : *Lean Manufacturing*, Pemborosan (*Waste*), Simulasi Sistem.

**INTEGRATION OF LEAN MANUFACTURING WITH SIMULATION OF
THE SYSTEM AS A RECOMMENDATION FOR IMPROVEMENT
IN THE LOGISTIC DEPARTMENT OF PT. MBI**

Dimas Haryo Tri Atmojo

ABSTRACT

PT. MBI was founded in 1970 which is the main agent, assembler, and manufacturer of MBI cars in Indonesia. Products produced are passenger cars with variants of C-Class, E-Class, S-Class, GLE-Class, GLS-Class, and GLC-Class. In the warehouse activity, the Logistics Department of PT. MBI is in charge of receiving, storing and supplying trim components to be sent to the Production Department, in these activities involving 2 processes namely receiving, handling and storage and unboxing trimming. PT. MBI targets to complete 144 units per 1 lot (8 cars) in 876 minutes (14.6 hours). But in real conditions the Logistics Department is only able to complete an average of 140 units due to the occurrence of waste in some activities so that supply activities become hampered and experience additional working hours (overtime). The need to identify and recommend improvements to waste by using lean manufacturing methods and designing simulation models using ProModel software in accordance with the processes at PT. MBI and run for 876 minutes (14.6 hours) which has been verified and has been validated so that it is able to represent the real system. On this basis, an actual simulation model is carried out to be able to analyze the processes that occur and compare with the proposed simulation model. Where the proposed simulation model with the time of improvement succeeded in producing a higher output than the actual model, namely from the output of 140 units to 180 units within 872 minutes (14.6 hours), with the percentage increase in output 28.57%.

Keyword : *Lean Manufacturing, Waste, Simulation System*