

## **ABSTRAK**

PT Maju Jaya Sarana Grafika merupakan sebuah perusahaan yang bergerak di bidang industri paper packaging. Produk yang dihasilkan berupa produk kemasan berbahan kertas seperti kemasan obat promag, kemasan obat procold, kemasan obat woods, kemasan susu prenagen, kemasan hansaplast dan kemasan rokok. Proses produksi PT Maju Jaya Sarana Grafika meliputi proses cetak (printing), proses pemotongan (die cut), proses pembrodolan (manual blanking), proses folding gluing dan terakhir proses packing. Berdasarkan pengamatan yang telah dilakukan, lini produksi PT Maju Jaya Sarana Grafika mengalami permasalahan yaitu adanya kegiatan-kegiatan yang tidak bernilai tambah yang masuk kedalam bentuk *waste* (pemborosan). Pemborosan tersebut yaitu adanya penumpukan produk setengah jadi dari proses die cut ke proses manual blanking yang menyebabkan terjadinya *bottleneck* dan lamanya waktu menunggu di beberapa proses. Pada penelitian ini akan dilakukan penyelesaian masalah menggunakan *lean manufacturing tools* yaitu *value stream mapping*, *waste assessment model*, *value stream analysis tools*, *failure mode and effect analysis* dan *root cause analysis* guna mengurangi pemborosan yang terjadi. Pada pembuatan *current state mapping* diketahui jumlah VA sebesar 28.676,5 detik (39,10%), NVA sebesar 38.190 detik (52,07%) dan NNVA sebesar 6.472,3 detik (8,83%). Kemudian hasil identifikasi *waste* menggunakan *waste assessment model* diperoleh tiga peringkat *waste* terbesar sampai terkecil yaitu peringkat pertama *waste defect* sebesar 23,54% dan peringkat terakhir *waste inappropriate processing* sebesar 5,31 %. Dari hasil pengolahan metode *value stream analysis tools* dengan menggunakan tools PAM diperoleh NVA terbesar disebabkan karena delay sebesar 52,07% atau 38.190 detik serta aktivitas transportation sebesar 4,14% atau 3.037,9 detik. Kemudian dilakukan usulan perbaikan yaitu dengan perbaikan sistem shift kerja, penerapan keseimbangan lintasan (*line balancing*) dengan menggunakan metode *ranked positional weight*, perbaikan sistem perawatan mesin dan *rearrange layout* produksi serta penambahan satu unit lift. Setelah dilakukan perbaikan, kemudian membuat *future state mapping*. Rancangan *future state mapping* diperoleh VA sebesar 28.676,5 detik, NVA sebesar 6.776,6 detik dan NNVA sebesar 5.578,02 detik. Dengan pembuatan *future state mapping* dapat diketahui terjadinya pengurangan waktu pada NVA dan NNVA. Dari hasil pembuatan *future state mapping* dihasilkan nilai *lead time* yang awalnya 20,4 jam menjadi 11,4 jam serta menghasilkan persentase pengurangan waktu kegiatan *non value added activity* (NVA) sebesar 82,3 % dan *necessary but non value added activity* (NNVA) sebesar 13,82 %.

*Kata kunci : Lean manufacturing, WAM, VALSAT, RCA, Line balancing.*

## **ABSTRACT**

*PT Maju Jaya Sarana Grafika is a company engaged in the paper packaging industry. The products produced are paper-based packaging products such as promag drug packaging, procold medicine packaging, wood medicine packaging, prenagen milk packaging, hansaplast packaging and cigarette packaging. The production process of PT Maju Jaya Sarana Grafika covers the printing process, the die cut process, the manual blanking process, the folding gluing process and finally the packing process. Based on observations that have been made, the production line of PT Maju Jaya Sarana Grafika has a problem, namely the existence of activities that do not add value into the form of waste (waste). This waste is the accumulation of semi-finished products from the die cut process to the manual blanking process which causes bottlenecks and the length of time waiting for some processes. In this research, the problem solving will be done using lean manufacturing tools namely value stream mapping, waste assessment models, value stream analysis tools, failure mode and effect analysis and root cause analysis to reduce the waste that occurs. In the making of the current state mapping, it is known that the number of VA is 28.676,5 seconds (39,10%), NVA is 38.190 seconds (52,07%) and NNVA is 6.472,3 seconds (8,83%). Then the results of identification of waste using the waste assessment model obtained three ranks of the largest to the smallest waste, namely the first rank of waste defect of 23,54% and the final ranking of inappropriate processing waste of 5,31%. From the results of processing the value stream analysis tools using PAM tools, the biggest NVA is caused by delays of 52,07% or 38.190 seconds and transportation activities by 4,14 % or 3.037,9 seconds. Then the proposed improvements are made by repairing the work shift system, applying line balancing using the ranked positional weight method, repairing and rearrange the production layout and adding one lift unit. After repairs, then make a future state mapping. Future state mapping design was obtained VA of 28.676,5 seconds, NVA of 6.776,6 seconds and NNVA of 5.578,02 seconds. By making future state mapping, it can be seen the occurrence of time reduction in NVA and NNVA. From the results of making future state mapping, the lead time value was initially generated from 20,4 hours to 11,4 hours and resulted in a percentage reduction in the time of non value added activity (NVA) of 82,3 % and the necessary but non value added activity (NNVA) of 13,82 %.*

**Keywords :** *Lean manufacturing, WAM, VALSAT, RCA, Line balancing.*