

## LAYOUT ANALYSIS IN PACKING & VANNING DIVISION PT. TOYOTA MOTOR MANUFACTURING INDONESIA

Oleh : Umar Syarif  
Program Studi : Magister Manajemen  
Instansi Asal : -  
Pembimbing : Dr. Ir. Adi Joko Guritno, MSIE  
Tanggal Wisuda : 24 April 2008

### INTISARI

Studi ini bertujuan untuk mempelajari efisiensi tata letak yang diperoleh dari perubahan bentuk tata letak manufaktur menggunakan software CRAFT. CRAFT adalah singkatan dari Computer Related Allocation Facility Technique. Software CRAFT ini bekerja dengan 2 input utama, yaitu tata letak awal (*initial layout*) dan input kedua berupa biaya perpindahan material (*material handling cost*).

Pengumpulan data dilakukan pada 28 departemen yang berada pada divisi *Packing & Vanning* Toyota. Untuk input tata letak awal CRAFT diperoleh dari data tata letak awal Toyota. Satu kotak luasan yang terdapat dalam tata letak Toyota mewakili 2m pada bentuk aslinya. Setelah semua luasan departemen diperoleh baru ditentukan luas departemen terkecil untuk acuan software CRAFT. Kemudian semua luas departemen yang ada dibagi dengan luas departemen terkecil untuk menentukan kordinat CRAFT. Sedangkan untuk input biaya diperoleh dari data penggunaan *man power*, *forklift*, *towing*, dan penggunaan lakban.

Hasil dari analisis CRAFT diperoleh penghematan sebesar Rp. 173.297.000,00 yang diperoleh dari selisih antara biaya yang produksi pada tata letak awal sebesar Rp. 596.737.000 dikurang biaya produksi pada tata letak akhir sebesar Rp. 423.440.000, 00. Hasil output ini diperoleh dari pertukaran iterasi ke enam pada pertukaran 3 departemen ke 2 departemen. Jarak rectilinear awal sebelum analisis

sebenarnya sebelum analisis sebesar 320 x akar dari 20 m<sup>2</sup> sehingga sebesar 1431 m. Jarak setelah analisis 297,66 x 4,4721 yaitu sebesar 1331,17. Artinya penghematan jarak total yang terjadi sebesar 99 meter untuk *material handling*. Sehingga hasil penelitian menunjukkan bahwa terdapat efisiensi setelah dilakukan analisis tata letak pada PT. Toyota Motor Manufacturing Indonesia.

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### ABSTRACTION

This study aims at studying the layout efficient obtain from the changes of manufacturing layout form by using CRAFT software. CRAFT software is a short abbreviation from Computer Related Facilities Technique. These CRAFT software is working by using 2 main inputs. This are initial layout and the second input is material handling cost. Data collection is made within 28 different departments which are in packing & vanning department of Toyota. For CRAFT initial layout data input, is obtained from initial layout data Toyota. One wide block which can be obtained from Toyota layout is representing 2 meter of the original form. After all departments wideness is obtained the next stage we can determine the width of the smallest department for CRAFT software reference. Next, all width of existing department is divided by the width of smallest department for determination of CRAFT coordinate, futhermore input cost is obtained from manpower, forklift, towing and isolation tape. So, the result from CRAFT analysis obtained economize amounting Rp. 173.297.000,00 which is obtained from the difference between production cost in the initial layout amounting Rp. 597.737.000,00 deducted the production cost at final layout amounting Rp. 423.440.000,00. This output result is obtained from sixth iteration changes from 3 departments changes to 2. Initial rectilinear distance before layout analysis amounting 320 points. More over the distance after analysis amounting is 297,66. The real distance before analysis amounting 320 times under root from  $20m^2$  so that until amounting 1431 meter and distance after analysis 298,66 x 4,4721 that is 1331,67. This means economizing total distance which happened at 99 meter for material handling so that research result shows that we get efficient after making layout analysis at PT. Toyota Motor Manufacturing Indonesia.

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