

## ABSTRAK

Terjadinya persaingan harga mobil yang kompetitif membuat PT. TMMIN melakukan pengurangan biaya produksi. Pengurangan biaya dapat dilakukan melalui perubahan proses manufaktur. Informasi mengenai perubahan proses manufaktur tersebut tertulis didalam *Engineering Change Instructions Value Added* (ECI VA). ECI VA adalah dokumen yang berisi informasi mengenai perubahan proses manufaktur suatu *part* pada kendaraan sehingga *cost reduction* dapat terjadi. Berdasarkan Engineering Administration Department (2007) standar waktu yang dibutuhkan dalam mengimplementasikan perubahan *part* yang terdapat didalam ECI VA adalah 6 bulan. Namun, berdasarkan data implementasi ECI tahun 2018 - 2019, didapatkan bahwa 65% ECI VA tidak dapat diimplementasikan dalam waktu 6 bulan. Penelitian ini bertujuan untuk menganalisis penyebab perbedaan waktu aktual dan waktu standar implementasi ECI dan memberikan rekomendasi strategi implementasi ECI VA yang tepat agar tidak terjadi keterlambatan dan *cost reduction* dapat segera diaplikasikan.

*Critical Path Method* (CPM) dan *Program Evaluation And Review Technique* (PERT) digunakan untuk membandingkan perbedaan waktu aktual dan standar implementasi ECI VA. Kemudian *Fault Tree Analysis* (FTA) digunakan untuk menganalisis penyebab perbedaan waktu tersebut. Keterlambatan aktivitas implementasi ECI VA kemudian dianalisis menggunakan *Time Impact Analysis*.

Hasil penelitian ini menunjukkan bahwa penyebab perbedaan waktu aktual dan waktu standar implementasi ECI adalah adanya keterlambatan aktivitas implementasi ECI VA dan kesalahan penentuan *lead time*. Kesalahan penentuan *lead time* disebabkan oleh penentuan *lead time* yang hanya berdasarkan *ordering system*, sedangkan keterlambatan implementasi disebabkan oleh *lead time* aktual *supplier preparation* membutuhkan waktu yang lama dan kurang maksimalnya proses monitoring implementasi ECI VA. Strategi implementasi ECI VA yang direkomendasikan antara lain memperbarui *standar lead time* berdasarkan jenis perubahan *partnya*, menggabungkan aktivitas *EIS submission*, *study cost impact*, dan *supplier preparation* menjadi aktivitas paralel, mempercepat proses *supplier preparation* dengan menambah pekerja dan alat/jig, dan memperbarui proses monitoring implementasi ECI dengan menggunakan metode *Time Impact Analysis*.

**Kata kunci** : ECI VA, *Critical Path Method*, PERT, *Delay*, *Time Impact Analysis*

## ABSTRACT

Car price competition makes PT. TMMIN reduced production costs. Cost reduction can be done by manufacturing process changes. The information about the changes in manufacturing process written in Engineering Change Instructions Value Added (ECI VA). ECI VA is a document that consists of information about the changes of a part manufacturing process in the vehicle that makes cost reduction happen. Based on Engineering Administration Department (2007), the standard time of ECI VA implementation is 6 months. However, based on the data of implementation ECI in 2018-2019, 65% of ECI VA could not be implemented in 6 months. The purpose of this research analyzes the causes of the actual and standard time of ECI implementation differences and provide recommendations on the appropriate ECI VA implementation strategy to avoid delays and cost reduction can be immediately applied.

Critical Path Method (CPM) and Program Evaluation And Review Technique (PERT) were used to compare the differences of the actual and standard time of ECI VA implementation. Then, Fault Tree Analysis (FTA) was used to analyze the standard time differences. The delay of ECI implementation activity was analyzed with the Time Impact Analysis method.

The results of this study indicated that the causes of actual and standard time ECI implementation differences are the delay of ECI implementation activity and the mistake in determining the lead time. The mistake in determining the lead time was caused by lead time determination based on ordering system only, while the delay of ECI implementation activity was caused by the actual lead time of *supplier* preparation needs a long time and the lack of implementation ECI VA monitoring. The recommendations of ECI implementation strategies that being carried out make a new standard of lead time based on the part changes, merge EIS submission, study cost impact, dan *supplier* preparation as a parallel activity, accelerate *supplier* preparation process by adding resources and tool/jig, and makes a new implementation ECI monitoring process with Time impact Analysis method.

**Key words** : ECI VA, *Critical Path Method*, PERT, *Delay*, *Time Impact Analysis*