

ABSTRACT

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Study Program : Master Of Civil Engineering
Title : **RAILWAY PROJECT WORK IMPLEMENTATION WITH CRITICAL PATH METHOD AND VALUE ENGINEERING**
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Analysis on the maintenance of the railway track was performed in this study. The maintenance was conducted to replace the R.41/R42 bearing iron with the R.54 bearing concrete on the railway track. The railway track maintenance project was run based on the unit price contract as decided by the state – owned Infrastructure Maintenance Operation for Railway. The unit price contract was selected to utilize existing resources as much as possible.

The problem of this study was to investigate the influence of the Critical Path Method and Value Engineering with analysis on of the railway tract project. The main objective of this study was to investigate the time and cost efficiency time and analyze the influence of the Critical Path Method and Value Engineering (VE) on this case study.

The analysis resulted in the influencing factors such as activities stage process (RII =0.58021), project planning (RII=0.57176), Implementation (RII=0.58194), Support (RII=0.57250), Structural Planning (RII=0.64653) Supervision (RII=0.55556) External Conditions (RII=0.57222) and Railway Work (RII=0.59144). The Case study using critical path method with the variable score CPM(X1) to the railway track (Y) resulted in the significance limit value $\alpha = 1.995$ more than the significance level of 0.824. The analysis showed that the variable CPM(X1) had significant influence on railway work (Y), while variable Value Engineering (X2) resulted in significance $\alpha = 1.995$ more than the significance level of 0.001. Therefore, the variable VE(X2) influenced on railway work (Y).

Keywords: *Railways, Critical Path Method, Value Engineering, Cost Time Efficiency, relative importance index*

ABSTRAK

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Judul : **ANALISIS PELAKSANAAN PEKERJAAN PROYEK
JALUR KERETA API DENGAN CRITICAL PERTH
METHOD DAN VALUE ENGINEERING**
Dosen Pembimbing : Dr. Ir. Budi Susetyo, M.T.

Analisis pemeliharaan proyek rel kereta api dilakukan dalam penelitian ini. Pemeliharaan dilakukan untuk mengganti besi bantalan R.41/R42 bantalan besi menjadi R.54 pada kereta api. Proyek pemeliharaan rel kereta api dijalankan berdasarkan kontrak harga satuan diputuskan oleh Prasarana Perkeretaapian Perawatan dan Pengoperasian Perkeretaapian milik negara. Kontrak harga satuan dipilih untuk memanfaatkan sumber daya yang ada semaksimal mungkin. Masalah penelitian ini adalah untuk mengetahui pengaruh metode *Critical Path Method* dan *Value Engineering* dengan analisis proyek jalur kereta api.

Tujuan utama dari penelitian ini adalah untuk mengetahui efisiensi waktu dan biaya serta menganalisis pengaruh *Critical Path Method* dan *Value Engineering* pada kasus penelitian ini. Analisis menghasilkan faktor-faktor yang mempengaruhi yaitu Proses tahapan kegiatan (RII=0,58021), Perencanaan proyek (RII=0,57176), Pelaksanaan (RII=0,58194), Pendukung (RII=0,57250), Perencanaan Struktur (RII=0,64653) Pengawasan (RII=0,55556), Kondisi Eksternal (RII=0,57222) dan Pekerjaan jalur kereta api (RII=0,59144). Studi kasus menggunakan metode *Critical Perth Method* didapatkan nilai variabel $CPM(X1)$ terhadap jalur kereta api (Y) untuk batas signifikan =1,995 lebih dari nilai signifikan 0,824.

Hasil analisis menunjukkan bahwa variable $CPM(X1)$ berpengaruh signifikan terhadap pekerjaan jalur kereta api(Y), Sedangkan variabel *Value Engineering* (X2) signifikansi = 1,995 lebih besar dari taraf signifikansi 0,001. Oleh karena, itu variable VE(X2) berpengaruh terhadap pekerjaan jalur kereta api (Y).

Kata Kunci : Jalur Kereta api, Critical Path Method, Value Engineering, Efisiensi Waktu Biaya, relative importance index