

## Analisis pemborosan pada proses desain enjiniring dengan pendekatan lean design management (studi kasus PT. Biru) = Waste analysis on engineering process design using lean design management approach (case study PT. Biru)

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### Abstrak

PT BIRU yang menyediakan jasa konsultasi enjiniring di bidang minyak dan gas, diketahui sering mengalami keterlambatan waktu penyelesaian proyek terutama terkait proses DED (Detailed Engineering Design) sehingga menimbulkan kerugian bagi perusahaan. Oleh karena itu diperlukan analisis pemborosan pada proses DED dalam proyek EPC (Engineering, Procurement dan Construction) yang dijalankan perusahaan dengan menggunakan pendekatan Lean Design Management. Pengumpulan data dilakukan menggunakan kuesioner, wawancara, dan data sekunder. Diagnosis dan evaluasi proses desain menggunakan value stream mapping, distribusi waktu, serta indikator kinerja. Dari identifikasi 24 pemborosan yang diteliti, ditemukan 10 pemborosan dengan kumulatif frekuensi 80% terjadi di proses DED PT BIRU.

Dari hasil penelitian diperlukan tindakan perbaikan pada: ruang lingkup pekerjaan; alur komunikasi dan koordinasi internal; quality control; hubungan antar pemilik proyek dan kontraktor; integrasi sistem; motivasi dan dukungan manajemen. Value stream mapping diusulkan untuk mengurangi aktivitas non-added value sebesar 29,3% dan waktu tunggu sebesar 82,5%, serta meningkatkan utilisasi cycle time.

.....PT BIRU who provide oil and gas engineering consultation has been suffered from many project delays especially related to DED (Detailed Engineering Design) process. Therefore losses to the company is inevitable. In order to overcome this condition, a waste analysis in DED process of EPC (Engineering, Procurement, and Construction) projects is needed. This analysis is conducted using Lean Design Management approach. Data is collected using questionnaire, interview, and secondary data. Process design diagnosis and evaluation is performed using value stream mapping, time distribution, and performance indicator. Out of 24 type of identified wastes, there are 10 type of wastes that have 80% of cumulative frequency that happened in the DED process of PT BIRU.

The research suggests improvement activities in: scope of work; communication and internal coordination; quality control; relationship among project owner and contractor; system integration; and management support. A value stream mapping is proposed to decrease non-added value activity by 29,3%, reducing idle time by 82,5%, and increasing the utilization in the cycle time.