

Intisari

Penelitian ini bertujuan untuk memetakan *value stream* dari konsep *lean* pada proses pekerjaan dinding, mengidentifikasi jenis pemborosan (*waste*) yang terjadi pada proyek konstruksi perumahan komersial dan subsidi, menganalisis penyebab utama pemborosan, serta memberikan usulan perbaikan proses agar lebih efisien. Metode yang digunakan dalam penelitian ini adalah *Value Stream Mapping* (VSM), *Waste Assessment Model* (WAM), serta *Root Cause Analysis* (RCA). Hasil penggambaran aliran nilai menunjukkan bahwa pada proyek perumahan komersial, persentase aktivitas *value added* terhadap lead time mencapai 73,85%, sedangkan pada proyek subsidi hanya sebesar 46,44%. Hal ini menunjukkan bahwa proyek subsidi masih didominasi aktivitas *non-value added*, terutama waktu tunggu material dan pekerjaan ulang akibat cacat (*defect*). Analisis WAM menunjukkan bahwa jenis *waste defect* merupakan pemborosan dominan pada kedua proyek, dengan kontribusi terbesar terhadap inefisiensi. Hasil RCA mengungkapkan bahwa faktor penyebab utama *defect* berasal dari kurangnya standar operasional prosedur (SOP) rinci, keterampilan tenaga kerja yang beragam, serta lemahnya *quality control* di lapangan. Usulan perbaikan yang diberikan meliputi penerapan sistem *supermarket* dengan mekanisme *pull scheduling* dan *kanban* untuk mengurangi waktu tunggu, standarisasi SOP pada pekerjaan kritis (hebel, plaster, acian), dan penerapan *quality gate* untuk mencegah *rework*. Implementasi usulan ini menghasilkan *Future State Map* (FSM) yang menunjukkan penurunan *cycle time* sebesar 12% dan *lead time* sebesar 9,5%, sekaligus mempercepat durasi proyek agar lebih mendekati target rencana pengembang.

Kata Kunci: *Lean*, Pemborosan, *Value stream mapping*, *Waste assessment model*, *Root cause analysis*

Abstract

This research aims to map the value stream of wall construction activities based on the lean concept, identify types of waste occurring in commercial and subsidized housing projects, analyze the root causes of waste, and provide improvement proposals to enhance efficiency. The methods employed are Value Stream Mapping (VSM), Waste Assessment Model (WAM), and Root Cause Analysis (RCA). The value stream mapping results show that in the commercial housing project, the percentage of value-added activities to lead time reached 73.85%, while in the subsidized housing project it was only 46.44%. This indicates that the subsidized project is still dominated by non-value-added activities, particularly material waiting time and rework due to defects. The WAM analysis reveals that defects are the most dominant waste type in both projects, contributing significantly to inefficiencies. RCA further indicates that the main causes of defects are the lack of detailed standard operating procedures (SOP), varied worker skill levels, and weak quality control on-site. The proposed improvements include implementing a supermarket system with pull scheduling and kanban to reduce waiting times, standardizing SOPs for critical tasks (brick, plastering, finishing), and applying quality gates to prevent rework. The implementation of these proposals produces a Future State Map (FSM) that demonstrates a 12% reduction in cycle time and a 9.5% reduction in lead time, while also accelerating project duration to better align with the developer's planned targets.

Keywords: *Lean, Waste, Value stream mapping, Waste Assessment model, Root cause analysis*