

ABSTRAK

PT PLN ICON PLUS SBU Regional Sumbagsel mengelola sejumlah besar proyek aktivasi layanan menggunakan *spreadsheet* Microsoft Excel tanpa mekanisme kalkulasi *Aging* otomatis maupun notifikasi sistem, sehingga mengakibatkan tingginya nilai *Aging* rata-rata proyek dan keterlambatan identifikasi kendala operasional. Penelitian ini bertujuan merancang dan mengembangkan "Sistem *Monitoring* dan *Aging* Proyek Aktivasi Layanan berbasis *Website*" menggunakan metode *Waterfall*. Sistem dibangun dengan *framework* Laravel, basis data MySQL, serta antarmuka berbasis *Tailwind* CSS dan *Alpine.js*. Fitur utama meliputi *Import* data Excel dengan validasi kelengkapan data, kalkulasi *Aging* otomatis berbasis tanggal penerbitan Permohonan Aktivasi yang diklasifikasikan ke dalam empat level (*On Track*, *Warning*, *Critical*, *Overdue*), *Dashboard monitoring* interaktif per wilayah *Project Team Leader* (PTL), notifikasi otomatis berbasis level *Aging*, Panel Anomali *Audit Trail*, serta *Generate* laporan PDF. Pengujian dilakukan menggunakan metode *Black Box Testing* terhadap empat kategori pengguna: Admin, officer Aktivasi, staff Aktivasi, dan Manager Sub Bidang Aktivasi. Seluruh skenario pengujian berhasil dilewati tanpa kendala signifikan, dengan penguncian tanggal acuan tersebut sebagai *Audit Trail* yang menjamin integritas kalkulasi *Aging* dan akuntabilitas data antar peran pengguna. Sistem dinilai layak dioperasikan untuk menggantikan mekanisme rekap periodik, memberikan visibilitas data secara *real-time* kepada seluruh peran pengguna, serta mendukung identifikasi proyek bermasalah secara lebih cepat melalui *Dashboard monitoring* dan notifikasi otomatis.

Kata kunci: sistem *monitoring*, *Aging* proyek, aktivasi layanan, Laravel, *Waterfall*, *Black Box Testing*

ABSTRACT

PT PLN ICON PLUS SBU Regional Sumbagsel manages a large number of service activation Projects using Microsoft Excel spreadsheets without automated Aging calculation or system Notification mechanisms, resulting in high average Project Aging and delayed identification of operational constraints. This research aims to design and develop a "Web-Based Service Activation Project Monitoring and Aging System" using the Waterfall method. The system is built with the Laravel framework, a MySQL database, and a Tailwind CSS and Alpine.js-based interface. Key features include Excel data Import with completeness validation, automated Aging calculation based on the Activation request issuance date, Classified into four levels (On Track, Warning, Critical, Overdue), an interactive monitoring Dashboard per Project Team Leader (PTL) region, automated notifications based on Aging level, an Audit Trail Anomaly Panel, and PDF Report generation. Testing was conducted using the Black Box Testing method across four user categories: Admin, Activation Officer, Activation Staff, and Sub-Division Activation Manager. All test scenarios passed without significant issues, with the locking of that reference date as an Audit Trail ensuring the integrity of Aging calculations and data accountability across user roles. The system is considered feasible for operation to replace periodic recap mechanisms, providing real-time data visibility to all user roles, and supporting faster identification of problematic Projects through monitoring Dashboards and automated notifications.

Keywords: monitoring system, Project Aging, service activation, Laravel, Waterfall, Black Box Testing