Project Management Dashboard & Reporting Tool

System Overview and Operational User Guide

Internal Systems Team

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1 Introduction and Business Context

This document serves as the official reference guide for the new Project Management Dashboard. Historically, our project tracking relied on disparate spreadsheets, leading to version control issues, broken formulas, and delayed reporting.

The new platform consolidates all project data—financials, timelines, risks, and milestones—into a single, secure database. This transition ensures that the ”single source of truth” is always available to decision-makers in real-time, eliminating the need for manual data collation before weekly status meetings.

2 System Architecture & Technology Stack

We selected a technology stack that balances rapid development speed with long-term enterprise stability. This section outlines the tools used and the business reasoning behind each choice.

2.1 Core Components

- **Python (Backend Logic)**: Python was chosen for its robust data processing capabilities. Unlike Excel macros, which can be fragile, Python scripts handle complex calculations for Earned Value Management (CPI, SPI) and financial forecasting with absolute precision. This ensures that the KPIs displayed on the dashboard are mathematically rigorous and audit-ready.
- **Streamlit (User Interface)**: This framework allows us to deploy a modern, web-based interface accessible from any browser. It removes the need for users to install specialized software on their laptops. Updates to the dashboard are pushed centrally, meaning all staff members instantly have access to the latest features without needing IT support to patch their local machines.
- **SQLite (Data Storage)**: For data security and simplicity, we utilize a serverless SQLite database engine. This keeps all sensitive project and financial data contained within our secure internal environment. It provides the reliability of a SQL database—enforcing data types and relationships—without the heavy maintenance costs of an enterprise server farm.
- **ReportLab (Document Generation)**: The reporting engine is built on ReportLab, a library designed for programmatic PDF creation. Unlike ”Print to PDF” features which often result in blurry images or bad page breaks, this tool draws the report vector-by-vector.

This guarantees that our status reports maintain high-resolution branding and perfect formatting, regardless of the device used to generate them.

3 Operational Workflow

The system is designed to support the daily and weekly workflows of our project teams.

3.1 1. Daily Management (Project Managers)

Project Managers are the primary contributors to the data ecosystem.

- **Financial Tracking**: Instead of waiting for monthly reconciliation, costs are logged as they occur. The system automatically categorizes spend (Labour, Material, Plant) and updates the ”Burn Rate” metrics immediately.
- **Risk Management**: The Risk Register is live. PMs add new risks as they are identified in the field, assigning impact levels (High/Medium/Low). This triggers automated visibility on the Executive Dashboard for any critical items.
- **Schedule Updates**: As milestones are achieved, PMs mark activities as ”Complete”. The system then recalculates the ”Schedule Performance Index” (SPI) to warn if the project is trending behind baseline.

3.2 2. Weekly Review (Executives)

Executives use the platform for high-level oversight.

- **Portfolio Health**: The Executive Landing Page aggregates data across all active job numbers. A ”Red/Amber/Green” status system allows leadership to identify troubled projects in seconds without opening individual files.
- **Budget Oversight**: The dashboard highlights ”Variance at Completion”—a predictive metric showing the estimated final cost based on current spending trends, allowing for proactive budget interventions.

4 Automated Reporting Features

A critical requirement for this upgrade was to streamline the creation of the Weekly Status Report.

4.1 The PDF Generation Engine

We have implemented a ”One-Click Report” feature that replaces the manual drafting of Word documents.

1. **Data Aggregation**: When requested, the system pulls the very latest snapshots of budget, schedule, and risks from the database.
2. **Visualization**: It dynamically generates professional-grade charts (Bar, Donut, and Gantt charts) tailored to the specific data of that week.
3. **Styling**: The output is formatted into a standardized corporate template, complete with cover page, confidentiality footers, and executive summaries.

5 User Guide: Generating a Status Report

To generate a board-ready PDF report for any project, follow these steps:

1. **Log In**: Access the dashboard and sign in with your credentials.
2. **Select Project**: Navigate to the **"Project Dashboard"** using the sidebar. Use the drop-down menu to select the specific project code (e.g., IN963058).
3. **Review Data**: Briefly review the on-screen metrics to ensure all recent costs and risk updates have been entered. The PDF will reflect exactly what is currently in the system.
4. **Generate**: Scroll to the **"Reports"** section at the bottom of the sidebar. Click the **"Generate PDF Report"** button.
5. **Download**: After a brief processing moment (indicated by a spinner), a **"Download PDF"** button will appear. Click this to save the file to your local drive.
6. **Distribute**: The file is ready for email distribution or presentation. No further formatting is required.

6 Support and Data Integrity

This tool is an internal business asset. Data integrity is paramount.

- **Corrections**: If you notice a discrepancy in financial totals, please contact the Project Controls team. Do not attempt to "force" the numbers by entering negative adjustments without authorization.
- **Access Control**: New user accounts must be approved by the System Administrator. This ensures that sensitive commercial data is only viewable by authorized personnel.
