



# Enhancing Project Delivery: Implementing an Integrated Project Master Schedule for the LRT Jabodebek PMO



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The LRT Jabodebek project, a complex undertaking involving multiple stakeholders and significant national importance, necessitated a robust project management approach. This white paper details how Avenew Indonesia, acting as consultants to the KAI LRT Division PMO, implemented an Integrated Project Master Schedule (IPMS) to overcome challenges related to schedule integration, variance analysis, and PMO capability enhancement. The result was improved project tracking, effective schedule control, and enhanced overall project delivery.

## 1. Introduction: A National Infrastructure Project

The LRT Jabodebek, an integrated light rail transit system serving Jakarta, Bogor, Depok, and Bekasi, commenced operations on August 28, 2023. This nationally significant project, intended to alleviate traffic congestion in the greater Jakarta area, involved four state-owned enterprises: PT Adhi Karya (civil works, trackwork, railway systems), PT Len Industri (signaling and power supply systems), PT INKA (rolling stock), and PT Kereta Api Indonesia (KAI) (operation and trial run readiness). The project's complexity, with its geographically dispersed infrastructure and multiple interdependent work packages, demanded a sophisticated approach to project scheduling and management. Avenew Indonesia, leveraging its expertise in PMO consulting and maturity assessments, partnered with the KAI LRT Division PMO to optimize project delivery.

## 2. Challenges: The Need for Integrated Schedule Management

The initial project management approach suffered from critical shortcomings:

- **Lack of Schedule Integration:** Stakeholders managed their individual project schedules in isolation, leading to synchronization issues and unforeseen delays stemming from interdependencies.
- **Ineffective Variance Analysis:** The absence of an integrated schedule hampered effective variance analysis, making it difficult to identify and mitigate the impact of delays on the overall project timeline.



- **Insufficient PMO Capabilities:** The PMO's ability to effectively track and manage the overall project was limited by the absence of integrated scheduling and reporting mechanisms. The PMO's role was largely restricted to internal monitoring, lacking comprehensive oversight of the entire project's progress.
- **Lack of Standardized Tools and Processes:** Inconsistent scheduling practices amongst stakeholders hampered the creation of a unified project view.

### 3. Conceptual Framework: Leveraging the Integrated Project Master Schedule

To address these challenges, Avenew Indonesia recommended and implemented an Integrated Project Master Schedule (IPMS). This approach builds upon established project management principles and leverages the power of integration to create a single source of truth for project scheduling and progress monitoring. An IPMS consolidates individual project schedules into a unified framework, accounting for dependencies between different work packages and stakeholders. This enables:

- **Proactive Risk Management:** Early identification of potential delays and conflicts through dependency analysis.
- **Improved Resource Allocation:** Optimized allocation of resources based on a comprehensive understanding of project timelines and interdependencies.
- **Enhanced Communication and Collaboration:** Improved communication and collaboration among stakeholders, facilitated by the unified schedule.
- **Data-Driven Decision Making:** Facilitated data-driven decision-making based on real-time project performance insights.

The implementation drew upon relevant literature emphasizing the importance of integrated master schedules in large-scale projects, as highlighted by Chang et al. (2013) on the use of integrated master schedules as "temporal boundary objects" facilitating shared understanding in megaprojects. This framework helped us translate complex interdependencies into a manageable and comprehensible format for all stakeholders.



#### 4. Methodology: A Phased Approach to Implementation

The IPMS implementation followed a phased approach:

- **Stakeholder Engagement and PMO Maturity Assessment:** Initial discussions with project leaders from each stakeholder were conducted, followed by an assessment of project management maturity levels within the PMO. This informed the tailoring of our implementation approach.
- **Work Breakdown Structure (WBS) Review and Refinement:** A comprehensive review and standardization of the WBS for each stakeholder was undertaken, ensuring a consistent level of detail and allowing for clear integration.
- **Critical Path Analysis and Schedule Integration:** Critical path analysis was performed on each stakeholder's project schedule. These individual schedules were then integrated to create the IPMS, explicitly defining dependencies and critical path activities across the entire project.
- **PMO Capability Enhancement:** Avenew provided training and support to the PMO team to ensure they possessed the necessary skills and tools to effectively manage and monitor the IPMS. Standard reporting tools and processes were implemented.
- **Schedule Validation and Refinement:** A workshop was conducted with stakeholders to validate the integrated schedule, addressing concerns and making adjustments to ensure feasibility and practicality.

#### 5. Results and Findings: Improved Project Control and Visibility

The implementation of the IPMS resulted in several key improvements:

- **Enhanced Project Visibility:** Provided a clear and holistic view of the project's progress, identifying potential bottlenecks and risks.
- **Effective Variance Analysis:** Enabled thorough variance analysis and facilitated prompt corrective action, reducing overall project delays.
- **Improved Resource Allocation:** Optimized resource allocation based on the integrated schedule, leading to improved efficiency.
- **Strengthened Stakeholder Collaboration:** Enhanced communication and collaboration among stakeholders, improving overall project coordination.
- **Data-Driven Decision Making:** Facilitated data-driven decision making to improve project delivery.



## 6. Conclusion: The Value of Integrated Project Management

The implementation of the IPMS for the LRT Jabodebek project demonstrated the significant benefits of integrated project scheduling in complex, multi-stakeholder environments. By implementing a structured approach, addressing PMO capacity, and ensuring stakeholder buy-in, Avenew Indonesia enabled the successful completion of this critical national infrastructure project. The IPMS serves as a powerful tool for enhancing project visibility, improving collaboration, and achieving successful project delivery, showcasing a best-practice model for future large-scale infrastructure projects.

## 7. References

Chang, A., Hatcher, C., & Kim, J. (2013). Temporal boundary objects in megaprojects: Mapping the system with the Integrated Master Schedule. *International Journal of Project Management*, 31(3), 323–332. <https://doi.org/10.1016/j.ijproman.2012.08.007>

Six, T. (2022, June 13). What is an Integrated Master Schedule? Ten Six Consulting. <https://tensix.com/what-is-an-integrated-master-schedule/>

Usmani, F. U., PMP. (2024, March 26). What is Master Schedule in Project Management? | PM Study Circle. PM Study Circle. <https://pmstudycircle.com/master-schedule>

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