Scheduling Best Practices

14 Ways to Evaluate your Schedule in Primavera Analytics

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Overview and Background

- A Public Power and Utility Services company based in St. Louis, Missouri, serving 2.4 million electric, and 900,000 natural gas customers across 64,000 square miles.
- As a Project based Organization, this company invested heavily on Oracle Primavera portfolio of products including P6 Analytics (P6A).
- The implementation of P6 Analytics was focused on **empowering Project Management personnel with better methods to assess project performance.**
  - Single platform for automated reporting delivering strategic and tactical reports through role based dashboards
  - Consistent approach between Transmission, Generation and Delivery business lines
  - Integrated approach to Risk Management, scheduling, change and project cost management
## Project Headlines

<table>
<thead>
<tr>
<th>Proof of Concept</th>
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<tbody>
<tr>
<td>Enabled P6A prototype</td>
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<tr>
<td>Data Source Integration – Enabled integration of 4 instances of P6</td>
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<tr>
<th>Analytic Assessment Approach (A3)</th>
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<td>Conducted 5 workshops with stakeholders from 3 independent business lines.</td>
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<td>Evaluated fit of packaged analytics based on reports and metrics survey and feedback</td>
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<tr>
<td>Analyzed catalog of 120+ reports and 350+ measures and attributes from existing reports.</td>
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<td>Synthesized themes, forming a common analytic vision and storyboards to serve project managers and leadership</td>
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<tr>
<td>P6A roadmap, architecture, and implementation plan, with usability for all business lines</td>
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# P6 Analytics Roadmap

## A3 Analytic Assessment Approach and Proof of Concept

### Phase 1
**P6A Enablement**
- Establish enterprise standard for P6A utilization
- Build 30-40 priority reports
- Enable ad hoc analysis
- Focus on P6 schedule data
- Leverage priority on PCM as a secondary source; include cost summary and risk notation
- Analyze and prioritize UDFs and codes; consider standardizing
- Deliver P6A subject areas:
  - Schedule Health
  - Project Performance
  - Resource Productivity Management
  - Forecast Diagnostics
  - Project Detail
  - Project Data Control Tower

### Phase 2
**Integrated P6A Enterprise**
- Incorporate enterprise standards, and prioritize best practice initiatives
  - Earned Value
  - Risk Management
  - Project Justification
  - Integration of Costs
  - Baseline Execution Index
  - Contingency Definition
  - Resource Management
- Drive pervasive use for project managers via end user enablement and training
- Establish expanded executive analytics for oversight
- Expand delivered subject areas for detailed cost

### Phase 3
**P6A Competency Center**
- Evaluation ongoing and future business requirements
- Ongoing assessment of analytic capabilities of the users
- Continuous monitoring and enhancement of the BI skill set
- Standards and guidelines established and enforced
- Incorporation of both business SMEs and power users
- Governance by the steering committee to set direction
- Self-service access with assistance from SMEs
- Deliver structured releases through change management
Key Objectives for P6 Analytics Enablement

• Provide ready access to schedule and cost information to enable project management personnel to make timely assessments and decisions around project performance.

• Reduce manual processes of collecting information and crunching data in spreadsheets and other labor intensive systems to produce reports.

• Save time and effort

• Establish a degree of commonality across all business lines to enable the organization to look at projects from an enterprise view.
In the PM Home dashboard, the user first determines the level of analysis at which to evaluate a project.

Three options were provided to allow flexibility across diverse business lines and programs:

- Portfolio Analysis
- Program Analysis (driven by project codes)
- Schedule (or set of schedules)

After selecting the level of analysis, the user can navigate to the Overview, Schedule, Resources, or Cost dashboard.
P6 Analytics Enablement

Schedule

Project Managers use the Schedule dashboard to evaluate various aspects of their project or program schedule.

- Summary
- Schedule Performance
- Milestones
- Critical Path & Near Critical Path
- Look Ahead
- Metrics
- Health

- The **Summary** page provides high-level schedule metrics. From this page, you can access the WBS structure.
- The **Schedule Performance** page provides SPI, CPI, and other summary metrics such as the percentage of activities that are complete, a count of critical activities, and the Baseline Execution Index.
- The **Milestones** page provides a list of upcoming milestones with details such as the milestone dates, BL Variance, Total Float, and Finish date trending over weekly periods.
- The **Critical Path and Near Critical Path** page provides a list of activities with less than 40 hours of Total Float. The TF threshold can be adjusted by the user, and tasks may be filtered by a date range.
- The **Look Ahead** page provides a list of activities within an adjustable date range.
- The **Metrics** page displays metrics that are extracted from the schedule based on coded activities.

The Health page provides industry standard metrics for Schedule Health based on the DCMA 14 Point Assessment.
Schedule Health Assessment Approach & Methodology

- Schedule Health Assessment puts schedule quality metrics in the hands of project management personnel who operate at all levels of involvement with project schedule controls and project management.
- Based on the US Defense Contract Management Agency (DCMA) 14 Point Assessment, which was developed to evaluate large volumes of contracts and schedules.
- Widely adopted guideline for evaluating the quality of schedules by checking them against a set of scheduling best practices.
- The 14 Point Assessment metrics provide a framework for asking educated questions and performing follow-up research.

[DCMA 14 Point Assessment](http://www.dcma.mil/policy/200-1/PAM-200-1.pdf)
The Schedule Health Assessment presents industry-standard schedule quality metrics in an interactive format that highlights problem areas according to adjustable thresholds.
Schedule Health Assessment Solution Overview

Action links enable users to drill into potential problem areas for each of the metrics.

Drill down on metrics to the related activities.
Schedule Health Assessment Solution Overview

- Large programs that consist of many Primavera Schedules can be aggregated and evaluated with Project Codes or evaluated as Portfolios.
- Portfolio-level evaluation of the Schedule Health Assessment enables comparative analysis of projects or subcontractors.
Schedule Health Assessment

• Measures

  • Relationship-based measures:
    – Missing Logic
    – Finish-to-Start Relationships
    – Leads
    – Lags

  • Constraint-based measures:
    – Hard Constraints
    – Soft Constraints

  • Resource-based measures:
    – Resource Assignments

  • Float and Duration-based measures:
    – High Float (based on user-specified threshold)
    – Negative Float
    – High Duration (based on user-specified threshold)

  • Date and Performance-based measures:
    – Invalid Dates
    – Missed Tasks
    – Baseline Execution Index
    – Hit Percent
The Schedule Health Assessment is an extension to the P6 Analytics data model

- ETL was developed to stage Relationship information from the P6 Extended Schema into the P6A schema.
- A custom fact table is fully refreshed when the P6A ETL process is run.
- A new subject area was created for the Schedule Health Assessment, which conforms to the existing P6A dimensions.
P6 Analytics – Benefits Realized

• P6A Schedule Health Assessment
  – Improved performance compared to P6 Schedule Check (particularly for large projects and sets of multiple schedules.
  – Comparable to tools such as Acumen Fuse Project Analysis (~$10K/license)
  – A manual 14-Point Assessment can take a PM or scheduler 8-16 hours, the Schedule Health Assessment is available within seconds

• P6A Automated Project-Specific Metrics
  – Saves time in the reporting process for PMs
  – Calculated daily (rather than monthly) for fresh visibility into schedule performance
P6 Analytics – Best Practices, Lessons Learned

• Primavera EPPM version R8.3.3 should be patched up to at least R8.3.13 to fix problems with the Publishing Service
  – P6 Publishing Service is essential to P6A. It populates the schema that is the data source for P6A.

• Rationalize Project and Activity Codes across the organization prior to implementing P6A.
  – There is a limit to the number of codes of each type that can be used in P6A.
  – Can extend the number of available codes in P6A, but this requires customization.

• Project Publication settings can be confusing, and can mean drastic differences in the amount of data that is generated in the P6A data warehouse.
  – Do you need to retain prior snapshots of your schedules?
  – This may be helpful information if you’d like to see how projects and activities are trending, but will substantially increase the number of records in your P6A database.
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