Productivity Analysis and Management

If you Measure It
They will come
Case Study: Advanced Work Packaging and Tool Time Analysis

• North American Project
• $5 Billion
• 2 Year above ground schedule
• Advanced Work Packaging
• Tool Time Activity Analysis
AWP Procedure

Comprehensive Procedure (60 Pages)
Flow charts
Templates
Job Descriptions
Definitions
Methodology

• Trained Observers, from Construction
• Detailed Standard Procedure
• Random Patterns
• Balanced calls across Hours and Areas
• 000’s of Observations per Survey
Tool Time Analysis

- Delays: 37%
- Direct: 40%
- Support: 23%
Tool Time

Trade Workers

Productivity Analyst

Observations

Weekly Report

Activity

Planning

Area CMT

Action Items

Access Database

Workface Planner

IWP

Progress

Scorecard & Report for each Area (8)

Chair

Area Steering Committee

Workface Planning Compliance

WFP Analyst

Trade Workers
Sample size

• 5 Companies
• 8 Unique areas
• 5000 workers
• 8 Months
• 2 Cycles each
• 80,000 observations
Compliance with AWP

• Detailed procedure issued with the contract
• Contractors left to interpret and apply the process
• Interviews and **AWP scorecard** used to measure compliance
• No companies achieved substantial compliance with ‘constraint free’ or short duration (1 week) IWP.
The True Influence of Advanced Work Packaging

% of Compliance with AWP

Tool Time
AWP Attributes

• Best in Class Contractor:
  • Workface Planners had Construction Expertise.
  • 1 to 50 ratio
  • SmartPlant Construction
  • Engineering and Procurement alignment

• Worst Performing Contractor:
  • Summer Students developing Packages
  • 1-200 Ratio
  • Shared SmartPlant Review Station
  • Over the fence Engineering and Procurement
The impact per $Billion / Year

• Delta between the Best and the Worst
• 38 – 45.1 Direct Activity = 7.1%
• 7.1/40 is a 17.8% increase in Productivity
• 17.8 % of $400 Million (the construction portion of the TIC) = 71.2 $Million cost reduction/$Billion
  + 65 days of schedule per year
Cost of implementation is about 2% (1-50)
ROI > 900%

This is based on only 77% compliance.
• World class Safety Performance
• Minimal Punch Lists
• Reduced Indirects (Document Control, Project Controls, Material Management)
• Best in Class Scaffold Performance (18% of Direct)
Any Questions