AWP Scalability

AWP Steering Committee
## Committees and Chairs

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The committees are composed of over 40 professionals from the owner, and engineering, supply chain and construction communities from both sides of the border.
Advanced Work Packaging

FRONT-END PLANNING

Project Proposal → Interactive Planning → CWPs EWPs PWP

WORKFACE PLANNING

IWP

Project Setup

Detailed Engineering

Construction Commissioning Start-up
Benefits

- What positive effects will you see on your projects with effective AWP implementation?

  - Productivity (+25%)
  - Cost (-10% TIC)
  - Safety (0 TRIF)
  - Schedule (improvement)
  - Quality (0 rework)
  - Predictability (improvement)
Our Mandate

- Improving smaller projects’ ($100 million and under) outcomes through the application of Advanced Work Packaging principles.
- The objective is... maximize value through the right planning at the right time to improve project performance as measured by:
  - Productivity
  - Cost
  - Safety
  - Schedule
  - Quality
  - Predictability
The deliverables for each stage are being developed by the working committees.
Our Approach

- Articulate the AWP Principles ✓ 100%
- Develop a Project Classification Scheme based on familiarity and risk ✓ 100%
- Determine the Project Management Strategy for each project type ✓ 100%
- Use the Integrated Lifecycle Flowchart as a guide to identify the key activities required to plan a construction project ✓ 100%
- Develop an example for each project type, with supporting documentation ✓ 50%
- Prepare an interactive report for release at the 2018 COAA BP Conference ✗ 0%
AWP Principles

1. Determine how you will build the project (POC)
2. Determine how to package the project and manage the packages
3. Identify and supply the necessary information
4. Identify and supply the necessary materials requirements
5. Identify and supply the necessary equipment requirements
6. Identify and supply the necessary labor requirements
7. Ensure all requirements are satisfied prior to execution
AWP Practices
Categorizing Small Projects based on familiarity

• Type 1 - Solar Project/Valve Replacement

• Type 2 – Single Cycle Power Plant

• Type 3 – Debottlenecking Project
Type 1

- Familiar to the enterprise, low-risk projects which happen all the time. Limited scope change (0% to 25% scope change).
  - Managed as a program
  - Use similar contracting strategy
  - Reuse of POC and related planning documents
  - Reuse of schedule with minor modifications
  - Execute and report based on best-in-class
Type 2

- Happen a little less frequently, are of medium risk, and are a little out of the ordinary. Could have up to 25% to 50% scope change.
  - Managed as a portfolio for project category and type
  - Contracting strategy impacted by category
  - Previous POC and related planning documents are used as starting points
  - Reuse of schedule with modifications
  - Execute and report based on best-in-category
Type 3

- One-off, high-risk projects with which an organization is unfamiliar, though they are capable of executing them.
  - Managed as a project
  - Contracting strategy needs to be determined
  - POC needs to be developed
  - Project packaging, project plan, and schedule need to be developed
  - Execute and report based on project plan
Owners Working Group

Introduction, Jeremy Furzer

Oleg Koudriavtsev – Suncor Energy
Mike Smith - ExxonMobil
John Kushnery - Shell
William Gallagher - LyondellBasell
Karan Cleland – Dow
Landen Coderre - TransCanada Pipelines
Owners Working Group

• **What do owners want?**
  • Risks are identified in development and appropriately managed
  • **No one is harmed**
  • Environmentally sustainable
  • Meets or beats stakeholder and regulator commitments
  • **Right quality**
  • Engaged project teams
  • **Executed as planned without delays or compression of critical path**
  • **Minimal project change**
  • **Zero contract claims or litigation**
  • **Delivered as estimated**
  • Meets or beats promised IRR and OPEX

• We want it all of course 😊
Scaleability

• Central teams which manage portfolios of small project and programs
• Plant Location based responsible for a portfolio of projects and programs
• Small projects and programs lack the economy of scale to justify large vertical organizations, overhead costs and dedicated, specialized resources.
• Appropriate level of control and management
• Not suitable for single or few small projects and we are not Mini Major Projects
Key Assumptions

- Owners have mature project delivery and risk management processes.
- Projects are generally valued at $1-100 MM, however some owners set the upper limit higher.
- Principles of AWP are the same, the practices are scalable.
Engineering and Construction Strategy

• How does AWP-Scaleable differ from Major Projects
• Engineering
• Procurement
• Construction
• Strategic Alliances
• Co-located
Construction Labor Strategy

• Work Force Flexibility
• Crew Size & Composition
• Working Supervision
• Labor Mix

Suddenly, a heated exchange took place between the king and the moat contractor.
Key Performance Indicators

• Key Performance Indicators
• Bench Marking
• Leading / Lagging
Front-End Planning Working Group

• Introduction:
  • Kirk Harris – Chair
  • Front-End Planning Team:
    • Bryan Parsons – KBR
    • Christopher Wickins – Flour
    • Jason Diehl – Black & Veatch
    • Jeff Broadway – Willbros
    • Jeff Johnston – Aecom
    • Rob Dowler – DCM Integrated Solutions
    • Stephen Atkinson – KPMG
    • Zach Parston – Bantrel Mgt. Services
Front End Planning Work Group Agenda

• Project Definition
• Construction Planning
• Schedule & WBS Development
Front End Planning – Project Definition

- Definition of overall scope of work/project
- Project contracting and procurement Plan
- Project execution/construction plan and sequence (POC)
Front End Planning – Construction Planning

- Plan for work packaging
- Refine contracting plan
- Refine sequence of construction (POC)
- Identify site/project constraints
- Develop construction plan details
- Develop system turnover sequence
Front End Planning – Schedule & WBS

• WBS Structure
• Level 2 Schedule Development
• CWA/CWP Boundary Identification
Engineering and Supply Chain Group

Chair: Randy Friesen

Team:
James Peltier - Jacobs
Reggie Hoog - Black and Veatch
Terence Jellema - SNC-Lavalin
Al Wahlstrom - Toyo Engineering
Cheryl Roeric - Shell Canada
Kevin Thies - Black and Veatch
Andrea Baghino - SNC-Lavalin
Engineering and Supply Chain

Field Engineering story – Earliest experience with work packages
  • Introduction to principles of AWP
  • Unique challenges with managing smaller scope
Planning Engineering and Supply Chain

• Scalable Work
  • General
    • Align with construction execution
    • Clear presentation of plan basis
    • Minimize effort
  • Engineering
  • Supply Chain
  • Work Packages
Planning Engineering and Supply Chain

• Repetitive Work
  • General
    • Partnerships
    • Known scope
  • Engineering
  • Supply Chain
  • Work Packages
Detailed Engineering and Supply Chain

• Scalable Work
  • Engineering
  • Supply Chain
Detailed Engineering and Supply Chain

• Repetitive Work
  • Engineering
  • Supply Chain
  • Results
Detailed Engineering and Supply Chain

- Integrated Construction Schedule
- Initiate IWP release schedule in Stage 2
WorkFace Planning - Introduction

**Chair**
- Ben Swan, Element Industrial Solutions

**Team**
- Carey Painchaud, Westwood
- Claire Smith, Bird Construction
- Glen Bauer, Strike
- Kevin Weslowski, Westwood
- Mark Kondratski, Independent
- Randy Vandervoort, Tartan Industrial Services
- Ryan Posnikoff, Bentley Systems
- Seamus Coyne, Aluma Systems
WorkFace Planning

- Mentorship & Coaching
- To enable Front line Supervision the ability to provide their crews the right:
  - Information
  - Material
  - Tools & Equipment
WorkFace Planning – At the heart of it

EXPERIENTIAL KNOWLEDGE

COACHING & MENTORING

2017-10-12

AWP MANAGEMENT BRIEFING | GROUP ASI, INC. 35
Workface Planning – Mega Project

ENORMOUS IN SIZE

ABOVE NORMAL IN COMPLEXITY
Existing WFP Model

- Developed for Mega Projects
- Dedicated WorkFace Planners
- Dedicated Material Planners
- Dedicated Equipment Planners
- Document Control Department
- 3D Model software
WorkFace Planning

WORK PROCESSES, TRAINING & COACHING REQUIRED???

ABSOLUTELY!!
WorkFace Planning – Mega Project

MEGA PROJECT

REQUIRES DEDICATED PLANNERS
WorkFace Planning – Small Project

TYPE 1 (SIMILAR) PROJECT

ONLY REQUIRE YOUR PUTTER
WorkFace Planning – Small Project

TYPE 3 (ONE-OFF) PROJECT

Planners tasks delegated to others
WorkFace Planning - Hazards

TYPE 3 (ONE-OFF) PROJECTS

MEGA PROJECTS
WorkFace Planning - Challenges

TYPE 1 (SIMILAR) PROJECT

MEGA PROJECT
Work Plan

Phase 1  
October 2017: AWP Conference (Houston)  
Teams continue to develop and review work product for Type 1 example projects  
Delivery of concept and sample work product.

Phase 2  
May 2018: COAA BP Conference (Edmonton)  
Teams continue to develop and review work product for Type 2 and 3 projects  
Draft report to be released in April 2018 for review, formal release in May 2018

Phase 3  
Oct and Nov 2018: AWP Conference (Houston and London)  
Case studies release  
Updated report

Phase 4  
May 2019: COAA COAA BP Conference (Edmonton)  
Case studies release  
Progress report  
Develop path forward (research, pilot projects, validation studies)
AWP / WFP – where are you?

LEVEL 1 MATURITY

LEVEL 3 MATURITY