Advanced Work Packaging

A Fit For Purpose Approach

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What is Advanced Work Packaging?

- CII / COAA - Advanced Work Packaging is the overall process flow of all detailed work packages.

- Eichleay - A **construction driven** systematic approach to delivering engineering and procurement deliverables to align with the construction plan, means and methods.

IPA Global Quotes

"Globally, there is a 35% failure rate for small to large size projects, and 65% on Megaprojects."

"Failure is often the result of 'running too fast' on the front end of the project."

IPA Global Quotes

"Failure is defined as:

- o Schedule slippage or overspending of 25%

- o Execution time is 50% longer than planned"

Construction Industry Institute Research

- Research Efforts

  - RT 272-1 Circa 2009

  - RT 272 -2 Circa 2011

- Publications

  - RT 272-1 "Enhanced Work Packaging – Design through Workface Installation

  - RT 272-2 "Advance Work Packaging " – Design through Workface Execution.

  - Research Reports, Summaries & Implementation Resources

Advantages of Advanced Work Packaging

- CII / COAA Research

  - Predictability

    - A better plan for the unpredictable variables

  - Productivity

    - Improved Tool time

    - Get the work in front of the works

Advantages of Advanced Work Packaging

- Evidence

  - Two similar scope construction projects performed by the same contractor in the same geographic region:

    - Fifty % more efficient rate of installation

    - One time schedule performance vs. two month overrun

    - Average time from piping spool delivery to installation 3.5 months vs. 8.5 months

    - Lower re work rate 6.5 % vs. 7.0%

Advantages of Advanced Work Packaging

- Other Research Benefits Sited

    - Improved safety planning g and awareness

    - Improved up front planning

    - Improved overall project predictability

    - Improved housekeeping

    - Reduced cost

    - Better progress tracking

    - Improved foreman performance

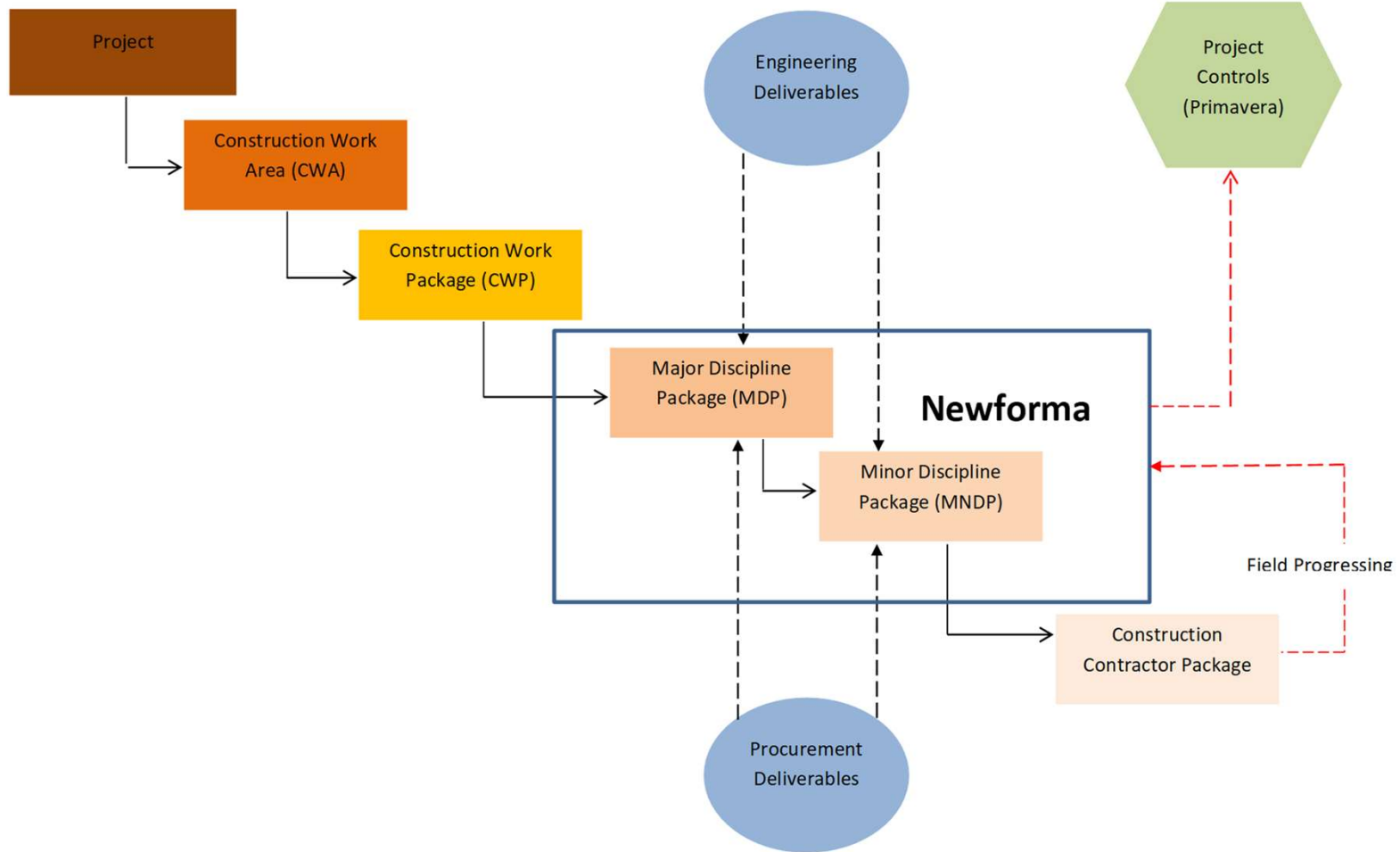   - Better craft retention due to improved moral

Advantages of Advanced Work Packaging

- Eichleay EPCM View

    - Construction driven projects

    - Easy incorporation of constructability early on

    - Improved construction risk analysis and mitigation

    - Improved objective construction progress assessment during construction

    - Just-in-time engineering and procurement to support fast track construction

Work Packaging Hierarchy

Construction Work Package Scoping

Rule of Work Packaging

- Work packaging is geographical area and boundary specific

- CWA / CWP structure developed prior to engineering

- CWA or CWP boundaries will not cross into other CWA's or CWP's

- Work Packages will follow same WBS as CPM Schedule

- Major discipline specific work packages (and minor discipline work packages) can be combined to make subcontract packages

Construction Work Package Content

- Safety/work permitting information and requirements

- Quality information and requirements

- Applicable drawings, specifications & standards

- Material /equipment Information and vendor data

- Schedule

- Scaffold plan

- Termination /turn-over and completion information

Construction Work Package Content

Eichleay   **PROJECT NAME**

CONSTRUCTION WORK PACKAGE

CWP 007
CWA 003

Major Discipline
PIPING/MECHANICAL
Minor Discipline
N/A

Review Sign Off sheet			
Reviewer	Signature	Print Name	Dat
Contractor			
QA Engineer			
SHE Coordinator			
T/I Coordinator			
CM Representative			
Operations			
Client Representative			

Construction Work Package Content

Contents Sheet

Headings	Contents	Responsibility				
		EPCM	CONT.	CLIENT	N/A	Signature
Safety Health and Environment	Summary Scope of Work	X				
	Work Method Statement		X			
	JSA Requirements Posted		X			
	Task Risk Assessments		X			
	Material Safety Data Sheet(s)		X			
	Work Permits Posted		X			
	Lift Studies				X	
	Ventilation/ Rescue Plans				X	
Technical Data/ Drawings	Detail Job Description / Scope of Work	X				
	Plot Plans	X				
	Equipment Drawings	X				
	Blind List (T/A) / Isolation List / Schematic drawings			X		
	Construction P&ID's	X				
	* Demolition P&ID's					
	Piping Specification	X				
	Construction Isometrics	X				

Barriers and Challenges to Advanced Work Packaging

- Engineering driven projects

- Project managers buy in on the value

- Client buy in on the value

- No budget

- No schedule

- Late construction input

- No internal construction resources

Successful Implementation

- Recognition of value to your project

- Team or internal buy in

- Selecting appropriate work process for your project

- Consider outside recourse for development and implementation

- Measure outcomes to confirm value is added