Introducing Today’s Presenter

Mike Pappas, PhD, PE
Associate Director for Deployment
Construction Industry Institute
Mike.Pappas@cii.utexas.edu
Introducing the Topic

• The Construction Industry Institute is a capital projects research & development organization at The University of Texas at Austin
• CII has been involved with AWP R&D for more than a decade
• Describe current activities related to AWP
Agenda

• What is CII?
• AWP Community for Business Advancement
• AWP Research & Development
What is CII?

www.Construction-Institute.org
About CII

**Vision**
CII envisions a construction industry that builds predictable value for society and stakeholders

**Mission**
The mission of CII is to inspire owners, service providers, and academia to collaborate through research to produce best practices and implementation resources, creating innovative solutions that tangibly improve safety and capital efficiency

**Facts**
- Founded in 1983 by 28 organizations
- Today: 147 Members
CII Strategy

CII’s strategic objective is to exponentially increase the Institute’s impact and reach for member organizations, extending across the capital projects industry as follows:

**IMPACT**
- Amplify the scale of financial returns from capital projects and lifecycle management
- Catalyze our industry with inventive business processes, organizational structures, and technological developments
- Create avenues to promote start-up culture (external incubation)
- Promote a culture of continuous innovation in a diverse and inclusive setting

**REACH**
- Expand CII’s global reach
- Expand industry sector representation
- Advocate for improved business outcomes
- Engage and help develop the management, leadership, business and technology acumen of the industry’s future leaders
- Diversify external R&D funding
CII Strategic Themes

- Process
- People
- Technology
- Business Model
CII Member Companies - Owners
CII Member Companies - Contractors
CII Member Companies – Service Providers

Design + Construction Strategies
CII Safety – TRIR / RIR

Figure 2. TRIR (RIR) Rate, Aggregated Data, 1989-2017 (CII Membership only)
CII Safety – DART / LWCIR

Figure 3. DART (LWCIR) Rate, Aggregated Data, 1989-2017 (CII Membership only)
CII Safety – Fatality Rate

Figure 7. Yearly and 3-year Average Fatality Rate Trend (2001 – 2017) (CII Membership only)
CII Industry Sectors

- Downstream & Chemicals (DCC)
- Upstream, Midstream & Mining (UMMC)
- Facilities & Healthcare (FHC)
- Manufacturing & Life Sciences (MLS)
- Power, Utilities & Infrastructure (PUIC)
Communities for Business Advancement

- Advanced Work Packaging
- Information Management
- Modularization
- Project Controls
- Quality Management
- Risk Management
- Safety
- Supply Chain Management
CII Best Practices

• 17 practices demonstrated to consistently improve project delivery when implemented effectively.
Q & A

Question and Answer Period
State of AWP Adoption

AWP is positioned to become the next generation capital project execution framework
Goal: Scale AWP

Deliver A Measurable Reduction in Construction Cost & Schedule via Programmatic Adoption of AWP

- Expand project phases, types & segments
  - FEP and Commissioning & Startup
  - Greenfield to Brownfield, SDTA, operations
  - Industrial to Infrastructure
Priorities: Scale AWP

• Resource & drive innovation via overarching AWP research program
• Education is a leading indicator of success
  • Rally around a set common definitions & educational framework
• It’s all about the data
  • Agree on a common data environment
• Measurement: We are moving the needle
  • Document results via a common set of metrics and communicate the results

We are creating the “Go To Resource” for AWP!
Education & Outreach

• Standardize Definitions & Acronyms

• Create an Education Course Framework

• Support for Conferences and the Knowledge Management Committee
Performance & Benchmarking

Provide ROI data on 50 Projects utilizing AWP

• Data collected & blinded

• Seeking Company Contacts to identify and communicate with potential projects
  • Contacts will receive info about data handling information, time commitment, and requested data

• Collecting Work Package-level ROI, KPIs, and Project Categorical Data
Knowledge Management

• Establish an AWP Knowledge Library
Business Accelerator

• Define the digital AWP framework

• Remove adoption and implementation barriers
CII AWP CBA 2019 Meeting Topics

• Organizational Case Studies / Updates
  • Dow, ExxonMobil, Southern Company, Shell
• 4D/5D BIM and AWP
• AWP in Engineering & Procurement
• Right Sizing AWP
• AWP Playbooks
• AWP and Enhanced Completions / Commissioning
• AWP in Infrastructure
• Digital Threads
AWP CBA at CII Annual Conference
Aug 5-8 in San Diego, CA

• Face to Face Dinner Meeting, Aug 7
  • Presentations from all sub-committees
  • Latest on Research Projects
  • Networking with AWP Peers

• AWP Exhibit, Aug 6-8
  • Provide information on what we’re working on
  • Examples & Templates
  • AWP Maturity Assessment Toolset

Register Now!!
Q & A

Question and Answer Period
CII and COAA Joint Research
CII’s AWP Research History

- RT271a (2009-2011), AWP Basics
- RT272b (2011-2013), AWP Implementation
- RT310 (2013-2015), Aligning E-P-C
- RT319 (2013-2015), AWP as a Best Practice
- RT330 (2015-2017), Frontline Supervision
- RT344 (2016-2018), Supply Chain Visibility
- Fiatech 01 (2018), FIM to Support AWP
CII Research Programs

Strategic Planning Committee (Oversight)

Funded Studies (Management)

Research Team 1
Research Team 2
Research Team 3
Research Team 4
Research Team 5

Sectors
CBAs
Standing Committees

Long-Term Goal
Craft planning other than pipe

Site management team (CM, Superintendent) successes... with implementation of WFP, then WFP when AWP is implemented, etc. Engineering team successes...how AWP has helped them

Lack of industry guide on AWP requirements from Engineering models to feed forward to Work Package/IWP building. i.e. tagging of foundations, structures, spools, piece marks, etc.

Getting engineering to align EWPs to CWPs, for their deliverable based EWPs.

How much of the AWP process should be implemented? If you stop at EWP’s and go no further, do you still get enough benefit?

Defining AWP FEED
OWNERS must be educated on the VALUE of Construction Sequence Planning and Assignment of CWPs EARLY in FEL3. The FEL3 Estimates for both engineering and construction must be broken by CWP. Deliverables need to break at or near the CWP lines. Research is needed to help clearly define owner AWP deliverables during scope definition.

Data failure; Data specs; IT standardization Hardware/Software – implementation in the field
"Data specs Templates" for AWP Execution Plan - Having Engineering understand the delta between what they do now and how it changes with AWP Training of all stakeholders

Standard definitions for level of AWP adoption on a project Clear departmental deliverables Clear process AWP vs. how we “used to do it”

Lack of standard definition. Everyone has a different definition of AWP.

Start-up
Research regarding the start-up, commissioning, and operation of the completed asset is necessary. CII’s

Guidelines and Playbooks

Barriers and Incentiv. (DCC)
(CBA) identifying the CURRENT, specific main barriers to effective AWP implementation around the globe and (2) driving removal of these barriers

"Why change?" An organization can still see successful projects without AWP. "Crawl, walk, run" is needed....but that phased implementation approach hurts if an early phase stumbles...how to get to the next phase organizationally?
CII AWP Research Program

Goal: Artificial Intelligence Engine for Project Optimization Through AWP

- Automating Engineering Constraints with Links to Vendor Work Packages
- AWP Contracts as the Basis for the ‘Digital Twin’ built from Multiple Sources of Truth
- Work Pack Automation Across All Disciplines and Sectors
- AWP Delivery Combined with IPD and/or OS 2.0

Enterprise Scale-Up of AWP with Leading Owners & EPCs

- Procurement Work Packaging – Clarify & Standardize
- Contract Specs for ‘Digital Threads’ in Vendor Work Packages
- Next Gen Work Packs for Digital Field Access
This needs to be updated (it’s from Houston 2018)