

WHY YOU NEED AN AWP-BASED PATH OF CONSTRUCTION

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The impact Advanced Work Packaging (AWP) is having on the construction landscape is nothing short of monumental. The emerging science of AWP is revolutionizing CAPEX planning and execution, and I am a strong advocate for this methodology that works to establish a constraint-free Path of Construction. Before diving into an overview of the inner workings of AWP, let's look back and examine how major CAPEX projects to date have been planned and executed during the project phase.

LEFT TO RIGHT VS. RIGHT TO LEFT

Traditional CAPEX planning has generated what I call the best-case scenario versus the *most likely* scenario, because it's always been about planning from *left to right*. We start by defining a project start milestone, then the engineering scope, looking at the procurement, fabrication work and deliverables that are required. During the execution phase, those deliverables are then fabricated, delivered to site, installed or constructed, thereafter followed by commissioning and closeout — all very much a left-to-right mentality.

This model is focused on what we call the “critical path” — the work elements that don't have any “float” — meaning every day that they're late, they have a one-for-one knock-on effect on the project completion date. The project is very prone to compounding delays along that critical path and the project completion milestone becomes very uncertain.

AWP flips the script and plans from *right to left*. We don't begin with a defined start date; instead, we start with a defined completion date, working backwards, defining the construction or execution scope, then we look at what and when is needed in terms of fabrication in order to satisfy that construction. Taking that a step further, we determine what is needed and when it is needed from an engineering perspective in order to feed into that procurement, which then feeds into construction.

PATH OF CONSTRUCTION

The Path of Construction (PoC) focuses on the sequence of steps for execution, which moves us away from focusing on the traditional critical path. There may be mission-critical steps during the startup sequence that are not necessarily on the critical path but are absolutely needed in order to execute that startup sequence. And really, that is the thinking behind defining the PoC — it's the baseline to which we march, the milestone view of the overall project.

AWP OVERVIEW

With those basics in place, let's move along to some of the top reasons it's beneficial to adopt an AWP philosophy:

- 1. Reduce Schedule and Costs:** Coordinating and sequencing work across the project life cycle through the adoption of Advanced Work Packaging (AWP) can reduce Total Installed Cost by 10%*.
- 2. Increased Productivity:** Ensuring that people have the equipment, materials and instructions to complete their work can help reduce idle time and increase labor productivity by as much as 25%*.
- 3. Improve Predictability:** Establishing stakeholder collaborations early in the process permits the design of a constraint-free work environment in the field, resulting in more predictable outcomes.

AWP SOLUTIONS

The construction Industry Institute (CII) defines AWP as *“the overall process flow of all the detailed work packages (construction, engineering and installation work packages). AWP is a planned, executable process that encompasses the work on an EPC project, beginning with the initial planning and continuing through the detailed design and construction execution. AWP provides the framework for productive and progressive construction, and presumes the existence of a construction execution plan.”*

I think AWP really boils down to planning with the end in mind. We are starting with the end goal, focusing on construction and working backwards. If we can ultimately execute as per plan, that's really the *holy grail* of project management. It's when we execute outside of that plan that we have the perception that the project is incurring overruns with regards to cost and schedule.

AWP is the culmination of both front-end planning (FEP) and WorkFace planning (WFP). Traditional project management has always been highly sequential. We start with the planning phase, throw it over the fence and then move onto execution. With AWP, we're planning throughout the entire project life cycle. We're doing our FEP but, more importantly, we are continuing to plan in the field with the WFP and FEP perfectly aligned with our field execution.

TOP 3 REASONS TO ADOPT **ADVANCED WORK PACKAGING**

- 1. Reduce Schedule and Cost:** Coordinating and sequencing work across the project life cycle through the adoption of AWP can reduce Total Installed Cost by 10%*.
- 2. Increase Productivity:** Ensuring that people have the equipment, materials and instructions to complete their work, reduce idle time and increase labor productivity by as much as 25%*.
- 3. Improve Predictability:** Establishing stakeholder collaboration at the outset of the project permits the design of a constraint-free work environment in the field, resulting in more predictable outcomes.

AWP DRIVES **PROJECT ALIGNMENT**

When using traditional CPM planning, you can certainly focus on an optimized duration or schedule, but typically that's at the expense of project cost and quality. A lot of the value and benefit of AWP centers around alignment — *getting the right stuff to the right people at the right time.*

With AWP, we are aligning:

- The triple constraint of time, money and quality
- Outcome prediction (the plan) and outcome reality (the execution)
- Engineering, procurement and construction
- Materials, people, tools and location during execution

These alignments, together with planning from right to left to ensure constraint-free execution, are really driving AWP forecasting certainty.

Advanced Work Packaging, taken very literally, is an advanced way to plan, yet it still adopts CPM planning techniques. The focus is on the work during execution — bundling it into manageable packages. In the past it's been, “plan the work and

then work the plan.” With AWP it’s, “better plan the plan so as to better work the work.”

To learn more about how an Advanced Work Packaging approach can benefit you, visit [InEight.com](https://www.ineight.com).

*Reference CII Publication 272

AUTHOR BIO

Dr. Dan Patterson is Chief Design Officer with InEight. In this role, he focuses on expanding upon his vision of creating next-generation planning and scheduling software solutions for the construction industry. Dan is a certified Project Management Professional (PMP) by the Project Management Institute (PMI).