January 2024

# Advanced Work Packaging

White Paper

**It's Just Math**

Geoff Ryan, P.M.P
**Insight-AWP**
AWP Facilitator

**The Problem:**

Most manufacturing industries have developed an understanding of their operations to the point where they know the math. If Airbus builds airliners with wing tips, commercial airlines can use less fuel and operate at lower cost. If John Deere equips farm tractors with GPS navigation, farmers use less seed, fertilizer and chemicals while harvesting higher yields.

Automating and coordinating complex tasks in manufacturing helps eliminate production mistakes, raises product quality, and minimizes customer operating costs. This in turn raises the demand for the manufacturer over the long run. It's just math.

However, the argument against leveraging standardized manufacturing processes in the construction industry has always been the same: every project is unique. So unique, in fact, that the execution of efficiency enhancing activities across projects simply cannot be standardized.

Well yes, but also no. The end product may be unique, but the processes used to manage and coordinate projects are quite common. Experience teaches which processes work, and which processes don't. Using 3D models to design complex projects reduces mistakes. Digitizing access to technical drawings ensures that managers and workers get the latest revisions to the project.

The ability to collect relevant data, collate it properly, and create accessible charts to convey the information effectively reveals the true, current state of the project. This enables everyone involved to make fully informed and effective decisions. When workers are sent into the field without the proper materials or tools, they don't get much done. Crashing a project with more people and resources is inefficient when the right people are not given the right tools and the right materials to perform their tasks. And the work doesn't get done with either needed efficiency or expected quality.

**Why Change?**

What is the big rush for adoption? In our rapidly evolving world, urbanization is on the rise and infrastructure demands are reaching unprecedented levels. The U.S. Census Bureau has estimated that 79% of the U.S. population lived in urban areas in 2010, and that number increased to 83% by 2020. The American Society of Civil Engineers (ASCE) have assessed both growing construction demand and the needs arising from aging infrastructure and systems. They estimate that the U.S. will require around $2.6 trillion in new infrastructure investments over the next decade.

The Association of General Contractors (AGC) estimates that the U.S. construction industry does $2.1 trillion of business each year. The cost of inaction is not just measured in delayed construction projects. It extends to economic losses, environmental impact, and the overall well-being of communities. Continued urbanization and increasing demand for infrastructure means our industry is in a race against time to create sustainable, resilient, and innovative project execution practices that can support the needs of our future generations.

Today, the construction industry stands at a crossroads. Contractors are being called to step up and embrace novel technologies and engage in innovative collaborations. Such actions will seed the disruptive innovation we need to keep us all in business. In the famous words of JFK: If not us, then who? If not now, then when?

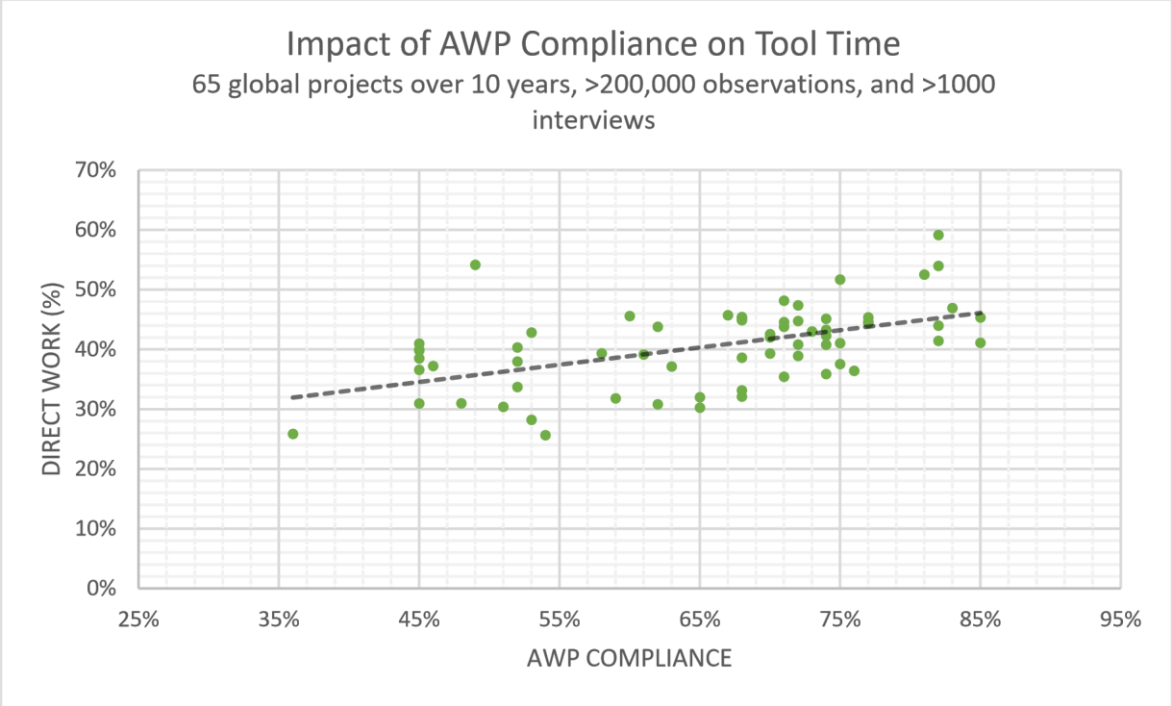
**The Solution**

Advanced Work Packaging (AWP) is not a new project execution methodology. It is a collection of best-known practices. It's what successful project managers employ to meet target deadlines. It's getting the right stuff to the right place at the right time. Yet, common sense implies that this is not commonly practiced. So how do we figure out what to do and when to do it?

Twenty years of research, testing and practical application across the global industry have refined what AWP is, and have optimized how to apply it. The Construction Industry Institute (CII), based in the University of Texas, have defined the elements of AWP. They are committed to sharing it with anybody who wants to know. CII and Construction Owners Association of America (COAA) will attest that applying AWP will increase the average level of productivity for the typical construction workforce by 25%. This is true for weekend barn raising projects and for multi-billion-dollar giga projects.

**The Results**

One of the tools that CII have developed with the help of the industry is the AWP scorecard: It is a list of 60 AWP best practices that infuse with each other to create the model for "construction in heaven". The industry has now amassed data from over 70 projects executed globally over the last 15 years. Over 200,000 tool time field observations were collected, and more than 1,500 interviews were conducted with key project staff. The result is a simple graph that compares the level of AWP compliance from the scorecard on the Y axis against the level of productive tool time on the X axis.



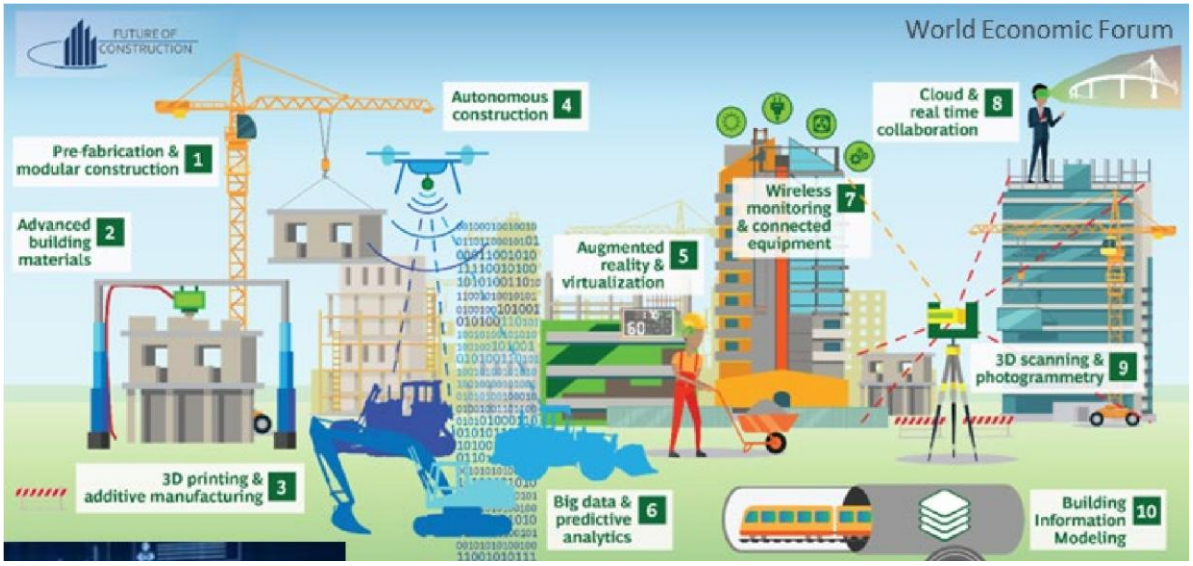

The data reveal an obvious and positive trend revealing how compliance with AWP best practices results in higher productivity. The real-world benefit is measurable. We now know that if a project is just 75% compliant with AWP that they will increase their productivity by 27%, which in turn will reduce both the cost and schedule of their project by 10%. That translates into a savings of $100 million for every $1 billion of project costs, and 5 weeks of less projected time needed for every year scheduled. Boil this down a little further and it shows that a simple 1% improvement in compliance is equal to $4 million worth of cost reduction and a week of schedule saved for every billion dollars of project cost.

**The Product**

The key deliverable from a functioning AWP system are constraint-free Installation Work Packages. Every foreman receives an Installation Work Package every week that has been vetted to make sure that the work is possible. We ensure that the materials are on hand, the documents are correct, workers have access to the workface, and that everyone has the right tools and equipment. We make sure that the workers have everything that they need before they go to work.

The data from the research verifies that workers are more productive and safer, the project finishes ahead of schedule and attains world-class quality. There is no Magic involved. AWP just assures that common-sense, best practices are applied consistently and monitored continuously.

**The future state of construction**




Imagine what happens to our industry when Construction Owners realize that they can get 10% more done every year for the same budget and schedule. How many more hospitals, schools, freeways, ships and wind farms are we going to build and how many people will be positively impacted? Improving construction productivity is a fundamental requirement of our continuous improvement as a nation, that will help us maintain our status as the benchmark for world class.

**Long Term Vision**

We know that our worlds are going to be positively impacted by Artificial Intelligence and that it will lead to getting more done with less. Proper adoption of what AI has to offer will lead us to achieving more with less. AWP will provide the foundation that will facilitate this future in our industry. We have created a stable execution process that allows us to consistently collect data and leverage the insights gained from leveraging AI technology to make better-informed decisions.

**Call to action**

Get started by going to YouTube and watching the AWP videos, or go to our website and download a copy of our procedures. We also offer the AWP book: Even More Schedule for Sale. Then build a plan for how to access greater efficiency and effectiveness in your organization. Simply call us or any one of the other AWP service providers if you need help. Ultimately, if you can measure it, you can manage it. The inherent benefits of AWP will propel it into the mainstream, making AWP the normal way to execute projects.

It's just math.

--Geoff Ryan P.M.P.