

VELOCITY

INNOVATION AND LEADERSHIP FOR CAPITAL PROJECTS

THE LEVEL UP EDITION

ADVANCED WORK PACKAGING GOES MAINSTREAM

How AWP is
empowering
professionals
and transforming
capital project
organizations

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EDITORIAL

Level Up with Advanced Work Packaging

How AWP and Predictability Thinking® are empowering professionals and transforming capital project organizations

BY OLFA HAMDI

If you're missing project deadlines, if you're going over budget, if you've got an erratic and unpredictable project delivery system, Advanced Work Packaging can help. AWP has been adopted at record speed by capital project leaders for good reason: it is adaptable, scalable, and effective in all types of capital project organizations, from petrochemical and mining installations to rocket ships and more. At Concord, we've used our proprietary AWP protocol — along with Predictability Thinking® — to help some of the world's biggest Owner organizations adopt AWP, and we've seen the benefits first-hand.

Advanced Work Packaging has quickly become the gold standard

for companies that are serious about on-time, on-budget project delivery. It's not a "nice to have," it's not something to "try out and see how it goes." AWP is a structural upgrade that is central to and critical for the efficient functioning of a modern capital project organization. It is best practice.

If you talk to capital project veterans, they'll tell you that AWP is very similar to the way we used to do capital projects back in the day. At some point, we lost our way — capital projects were dismembered, and the left hand no longer knows what the right hand is doing. We've worked with companies that are so siloed that the engineering and procurement

divisions are essentially separate organizations, speaking different languages and using different sticks to measure success. It's impossible to deliver predictably in this context.

How does AWP solve this problem? First, it integrates siloed functions. People working in a construction-driven project environment understand how their work impacts their own department as well as other departments in the organization. AWP is the best way we've found to effectively integrate an organization — it's not a tool, it's not a software you buy, it's a system that impacts people's behavior, job functions, roles and responsibilities.



Second, AWP establishes interdependent accountabilities that are aligned with project-level goals — no single department can succeed unless the entire project succeeds. For example, a procurement group may save \$1 million by purchasing a key component from a new supplier, but if the new supplier cannot deliver the component on schedule and the organization pays millions of dollars to workers who have nothing to do, then the procurement department has failed. AWP makes these interdependent accountabilities visible.

Third, the AWP body of knowledge is empowering to capital project professionals. It makes them conscious of their unique role in project success, and highlights the need to work as a team. The AWP body of knowledge, along with Predictability Thinking®, supports capital project professionals to become better project managers, directors, construction managers, and more.

I hope you enjoy this most recent issue of Velocity, which focuses on the many ways in which AWP has transformed the capital projects sector and become a mainstream approach to project execution.

Olfa Hamdi
CEO, Concord® Project Technologies

10 YEARS LATER

What We Know About Construction-Driven Capital Projects

BY OLFA HAMDI



We've been using Advanced Work Packaging and Workface Planning for a decade now. What have we learned?

Advanced Work Packaging (AWP) was born in the Canadian oil patch, just after the turn of the century. There, in the sprawling snow-covered oilsands, forward-thinking members of the Construction Owners Association of Alberta started to articulate a new way of thinking about capital project development, a game-changing paradigm shift that put construction needs at the heart of every decision. The industry had a powerful financial incentive for change:

construction crews were spending less than 40% of their time on tools, and companies were losing millions.

In 2009, the COAA partnered with CII to form a research committee, the first formal effort to codify these new ideas (I was on this committee for three years). Word of this innovative approach spread fast, with early adopters implementing Workface Planning and early forms of AWP in the years

that followed. In 2013, CII published IR-272 in 2013 — I was a member of the team that wrote it — and by 2015 AWP was officially considered best practice. That same year, I founded the Advanced Work Packaging Institute.

We can't say precisely when AWP started, it's safe to say we've been on the construction-driven planning and execution path for a decade at this point. What have we learned so far?

1 | Owners Must Lead Implementation and Change

We've seen many EPC companies implement Advanced Work Packaging over the past decade, some at the corporate level, others at the regional and even office level. Today we can say with confidence that in most cases, the transition to Advanced Work Packaging is most effective when the Owner not only mandates AWP, but also invests in capacity-building and integrates construction-driven planning into the stage-gate system. In short: Efforts led by informed, committed leaders at the highest levels are the ones that meet with the greatest success.

2 | Honesty is a Critical Component of Success

Advanced Work Packaging is all the rage, and it's tempting for Owners and contractors to adopt a "fake it 'till you make it" approach. Resist the temptation. Many have learned the hard way that it does not serve anyone when EPC contractors claim to have AWP capabilities they do not have. Similarly, nobody wins when Owner companies demand that

AWP be applied on a project without understanding how that requirement will impact the work as a whole.

AWP is not a marketing gimmick or a fancy turn of phrase; baiting with AWP and switching to a traditional approach is a recipe for confusion, inefficiency, and failure. At Concord, we encourage both Owner and contractor companies to be honest and transparent about their knowledge and capacity when it comes to AWP. There is no shame in embarking on a journey of collaborative learning and change together; in fact, those who are honest and who work together are far more likely to succeed.

3 | AWP Requires Unique Technology

When it comes to AWP technology, we know two things. First, we know that the right technology is key to large-scale implementations. Second, we know that the best technology is purpose-built for AWP. Advanced Work Packaging is a business function in and of itself, and it requires technology designed to support that business function. Using your 3D Digital Twin technology to manage your Advanced Work Packaging systems is like using your project management software to do your accounting — sure, they both contain a

lot of the same information, but you can't keep accurate and useful accounting records in software that is not designed for that purpose. The solution: buy technology for your digital twin, buy technology for AWP, then integrate.

4 | Culture Eats AWP Implementation for Breakfast

It's an old saw, but a sharp one. If we've learned one thing over the past 10 years, it is that leaders vastly underestimate how much their teams will have to learn and change in order to implement Advanced Work Packaging effectively.

There is good reason why so many books are written about change management, and why universities devote entire courses and programs to it. Smart companies sit down with a specialist to systematically assess AWP readiness *before* they start, so they can identify the steps they need to take to prepare their people, teams and systems. Implement proven strategies to navigate resistance to change and avoid conscious or subconscious sabotage — it's critical to success!

AWP is not a marketing gimmick or a fancy turn of phrase; baiting with AWP and switching to a traditional approach is a recipe for confusion, inefficiency, and failure.

— Olfa Hamdi

5 | Fight Initiative Fatigue

When the number of initiatives increases while time, resources, and emotional energy stay the same, then each new initiative — no matter how well-conceived or well-intentioned — will receive fewer minutes, dollars, and ounces of emotional energy than its predecessors. This is the Law of Initiative Fatigue, and it operates in every business. Keep piling on the change, and your employees will start saying things like “here we go again” — and that’s a death knell for your company. If you’ve been putting your organization through a host of change initiatives — growth, technology, human resources, operational excellence — make sure you’ve figured out how they integrate with AWP before you begin the move to a construction-driven project execution strategy.

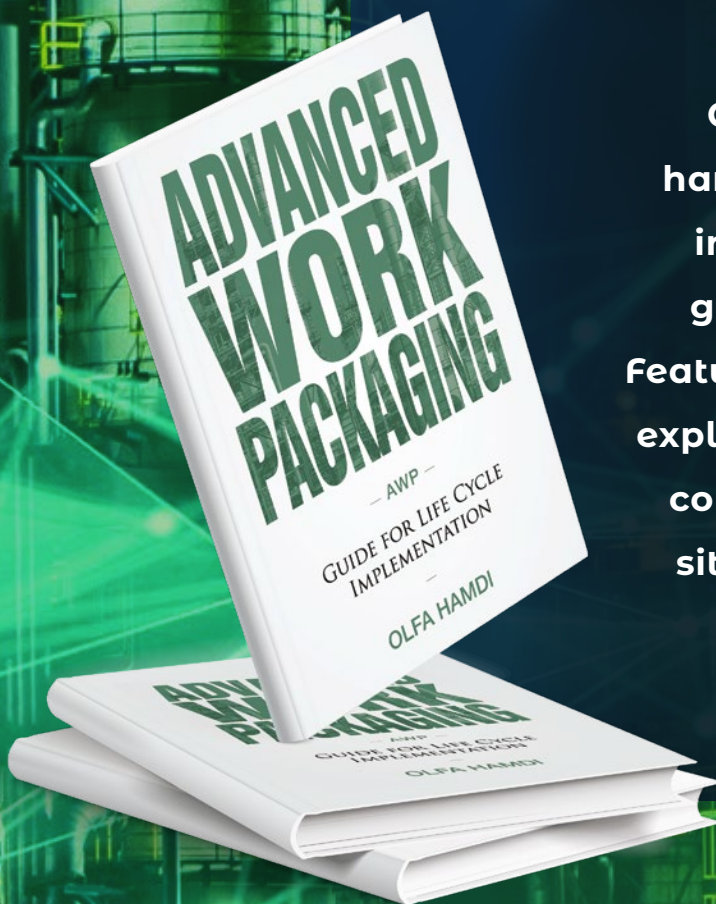
6 | Advanced Work Packaging Works

Construction-driven project planning and execution works. Companies who successfully implement AWP, workface planning, Predictability Thinking™ and supporting strategies report better outcomes than those who stick with traditional approaches. While academic research is still difficult to come by, the anecdotal evidence is clear: moving to a construction-driven project delivery model is worth it. 🇵🇪



A HANDBOOK FOR CAPITAL PROJECT PROS

BY OLFA HAMDI



Olfa Hamdi distills a decade of hard-won insight and experience into a comprehensive, practical guide for AWP implementation. Featuring short, clear, step-by-step explanations and a robust table of contents, this book is destined to sit on the corner of every capital project practitioner's desk.

DEFINITIONS | CONSTRUCTION-DRIVEN PLANNING | ROLES & RESPONSIBILITIES | MUCH, MUCH MORE

DELIVER ON-TIME & ON-BUDGET

WHAT TO DO

When You Get Your First AWP Mandate

BY OLFA HAMDI

Your client just told you they're mandating Advanced Work Packaging on your next project. What should you do?



We regularly hear from leaders at capital project organizations who are taking their first steps toward construction-driven project execution because a client — or prospective client — has mandated Advanced Work Packaging (AWP). A new approach to project execution can seem overwhelming at first, especially if your company has been working from a traditional, engineering-driven paradigm for decades.

The recommendations that follow apply to capital project organizations of all sizes, as well as EPC contractors, discipline contractors and any other company or organization impacted by an AWP mandate. While your AWP implementation process will be unique to your company, the starting point and fundamentals are the same for everyone.

Let's jump in.

1 | Make Sure at Least One Person on Your Team is Certified in AWP

If you only learn one thing from this article, make it this: You must have someone on your team who has been trained and certified in Advanced Work Packaging. Construction-driven project execution is fundamentally different from engineering-driven approaches to construction. A construction-driven project will unfold differently from start to finish. Your obligations will be different. The schedule will be different. The project hierarchy will be different. There will be people in roles you've never heard of, and critical deliverables you've never seen before. Without a competent person on your team who has been properly trained in AWP, you'll be singing from the wrong songbook, and everyone will hear. Ideally, this person will become your first Certified AWP Champion.

2 | Use This as an Opportunity for Your Own Upgrades and Improvement

In embarking on your first construction-driven project, it is helpful to begin with the understanding that AWP is here to stay. Your client is mandating AWP because it has shown great promise in addressing some of the most intransigent problems in our sector, most notably the fact that the vast majority of projects are late and over-budget. At the time of writing, we estimate that AWP is used on projects totaling over \$100B globally, and the momentum is only growing.

Instead of seeing this as a one-off attempt to adopt a new work style for the sake of a single contract, it is useful to instead view this as the first step in your organization's transition to construction-driven project execution. Rest assured that clients can tell whether you're ticking a box or transforming your organization.

WHAT DOES "MANDATING" MEAN?

In some cases, companies will secure a contract and the client will introduce the Advanced Work Packaging Mandate during the early phases of the project. In other cases, companies will pre-qualify you as a contractor based on whether or not you have the capacity to do Advanced Work Packaging. In both cases, you've got a mandate to do AWP on your project. In both cases, you need to make sure that you understand your obligations and are capable of executing in a construction-driven project environment.

At the time of writing, we estimate that AWP is used on projects totaling over \$100B globally, and the momentum is only growing.

— Olfa Hamdi

If you find that your system for creating and managing packages is faltering, you need to give your team space to stop and retool.

3 | Ask Questions

Organizations that are serious about transforming their project execution system will have documentation explaining how AWP will be implemented and what your company will be expected to do. If your client says they're mandating AWP but doesn't provide any documentation, ask lots of questions. Some key questions will include:

- Is the entire project construction-driven, or just a small portion?
- Who is responsible for packaging the work?
- Are you reporting based on packages, or the old-fashioned way?
- How has the compensation structure changed (if at all)?

You may also want to ask why the organization is implementing AWP. Are they looking to improve productivity and keep costs under control? Do they want to improve safety or standardize processes? When you understand the driving rationale behind the decision to adopt AWP, it will be easier to meet the organization's expectations.

4 | Understand the Implications for Your Business

Most capital project organizations who transition to Advanced Work Packaging never go back, and I personally believe that all contractors will be using AWP in two or three years' time. If you refuse to change, or change slowly and grudgingly, you need to be prepared for the possibility that you will no longer be competitive in the sector and will struggle to keep existing contracts and win new ones. I mention this because I've been in several boardrooms over the past six months where executives are actively discussing whether existing contractor organizations will be able to make the transition to AWP. This is not a drill: Change is here, and you need to adapt.

5 | Stop and Retool When Necessary

Change is challenging for everyone, and when you're doing AWP for the first time you need to be prepared to stop and retool when necessary. For example, on-site IWP creation is a key part of a successful construction-driven project. If you find that your system for creating and managing packages is faltering, you need to give your team space to stop and retool. Do you have a workforce that is capable of delivering fully resourced IWPs to the install crew? Do they have the skills and resources they need to execute that work? Where are the breakdowns happening?

Right now, the industry as a whole is transitioning to AWP, and companies who are dedicated to change can reasonably expect Owner organizations to accommodate the need to stop and retool when things aren't working. But this window won't be open for long — in a few years, the companies that start today will have all the kinks worked out and Owner companies won't be giving any more grace. Be the company that starts today. 🇺🇸

LEAN OR AWP?

HOW ADVANCED WORK PACKAGING IS RESHAPING CAPITAL PROJECTS

The move away from Lean and toward construction-driven Advanced Work Packaging is changing the way we execute capital projects. Why?

BY OLFA HAMDI

Whether I'm speaking or consulting, I can always guarantee that someone will ask me some variation of the question: "Lean or AWP?" Leaders and practitioners alike want to know if Lean and AWP are mutually exclusive, or if they can be applied to a project together, and if so, how. My thinking on this has changed over the past few years, and today I would tell you that AWP is the best choice for capital projects, hands down.

Why? Because the reality is that we have been applying Lean principles to capital projects for the past two decades, and we can see from our outcomes that Lean thinking alone is not effective in delivering on-time, on-budget

capital projects. Lean construction principles are important and beneficial, and we can apply them alongside Advanced Work Packaging, but Lean alone is not the answer.

Here are three reasons I believe that AWP is capturing the sector.

1 | Rigorous, Disciplined, Integrated Planning

The Path of Construction (PoC) is a game-changing deliverable unique to the Advanced Work Packaging method. It is a step-by-step construction strategy that explains exactly how you are going to build your capital project in the field. It is the product of an integrated,

rigorous, disciplined planning process that takes into account the needs of all stakeholders. On most modern capital projects, there's nothing like it.

In my experience, the quality of a project's Path of Construction is highly correlated with project predictability. This is because the PoC curates and distills all the best thinking from across the entire project team. It reflects the cumulative intelligence and experience of the engineering, procurement and construction teams; the human resources, contracting and leadership teams; plus the history and characteristics of the site, such as weather and politics. The PoC is unique to AWP — unlike a critical path, it is mandatory, collaborative, and comprehensive.

2 | A Critical Focus on the Workface

Planning is not a waste. On the contrary, planning is a critical, core component of a project execution system that delivers on-time and on-budget. Construction-driven projects that use the AWP method use Workface Planning (WFP) to deliver predictable results. WFP is the organization of field execution around the creation of fully resourced packages of work that can be executed by a single construction crew in five to 10 days, or around 1,000 hours.

On a construction site, Workface Planners give their full attention to the creation and management of detailed Installation Work Packages (IWP). These IWPs are broken down by discipline and delivered to the construction manager and foreman fully resourced and ready to execute. This means the Workface Planner has put all the labor, materials, tools, drawings and other project requirements in place so the construction leaders can focus on execution. Done consistently, this helps to improve safety, maximize tool time and reduce resource-related delays.

While construction leaders can learn much from Lean thinking, it was not created for construction. AWP, by contrast, is a system designed by construction leaders, for construction projects. Workface Planning acknowledges the reality that capital project construction requires people, technology, tools and resources — a complex and highly variable array of inputs that cannot be automated (not yet, at least). This level of on-site planning is key to delivering on-time, on-budget — two things that clients truly value.

3 | Standardized Language for Construction Projects

I've worked on capital projects in North America, Europe and the Middle East, and so I can say with confidence that one of the most formidable impediments to predictable capital projects is the absence of a standardized language to discuss them. From minor inefficiencies to major crises, many — if not most — of the problems we encounter boil down to miscommunication.

Standardized language can go a long way toward remedying that.

The critical need to standardize capital project language is one of the key reasons we sought ISO9001 certification for Concord's Advanced Work Packaging Fundamentals Certification course. It's also why I published my book, *Advanced Work Packaging: Guide for Life Cycle Implementation*. Standardizing the language we use to talk about capital construction projects fosters clear, accurate communication, and it's one of the reasons that AWP has been able to accomplish in a few years what Lean has been unable to accomplish in decades.

Conclusion

I studied Lean when I was in university, I recognize that it has been spectacularly successful in the manufacturing sector, and I do think it brings value to the capital project sector. That said, I no longer believe that capital project leaders need both AWP and Lean to succeed. I now believe that AWP is perfectly effective on its own. Lean is a valuable addition, but it's not essential.

I'm not alone. The speed with which AWP is being adopted across the capital projects sector is a testament to the value that leaders and practitioners are finding in a construction-driven approach to capital projects. While Lean thinking will always be a tool in our execution toolbox, AWP is providing the structural reform our industry so desperately needs. 🇺🇸

Planning is not a waste. On the contrary, planning is a critical, core component of a project execution system that delivers on-time and on-budget.

— Olfa Hamdi



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DESIGNED TO EMPOWER



THE 5 BIGGEST PITFALLS ON THE ROAD TO AWP SUCCESS

BY OLFA HAMDI

Forget the big landmines like staffing and training — the hazards most likely to trip you up now are the surprising, subtle, and seductive ones.

It's safe to say that Advanced Work Packaging has gone mainstream, now that NASA is using it to put people on the moon. It's true: The space agency has taken a page out of the petrochemical construction playbook and is using AWP to build the launch platform that will send Artemis flights to space carrying cargo and astronauts. Michael Costas from

Bechtel's nuclear, security and defense global business unit recently told the Engineering News-Record that modularization and AWP were cutting design and construction time and that the project was "right on plan."

"We've considered what it would take to master plan a community on the moon," Costas told ENR.

"We recently bid some work with academia around how we help NASA plan for those missions: How do you develop the capabilities to do construction work on another planet?" Turns out AWP might be part of the solution for NASA, and it certainly should be for those of us building here on earth.

Suffice it to say that Advanced Work Packaging has come into its own, and we certainly know a lot more about how to make construction-driven planning work for projects of all sizes. Most major organizations have implemented AWP on at least one project, and the more obvious issues — like insufficient resourcing and inadequate training — are now well-known barriers to success. Many of the myths surrounding AWP have been debunked, and most organizations acknowledge the need for formal change management when implementing AWP, even if they don't do it.

As AWP matures, the pitfalls become less obvious — but no less insidious. In this article, I'll walk through five of the biggest challenges that organizations need to watch for today.

1 | Mindset, Mindset, Mindset

Advanced Work Packaging is not a tool in your construction management tool box, it is a fundamental paradigm shift. I can't say this enough: the goal is to move your team from an engineering-driven mindset to a construction-driven mindset.

An organization that has fully implemented AWP is an organization in which everything — including engineering — is orchestrated in support of the construction strategy and sequence. Like Stephen Covey's iconic "green and clean" analogy, everyone on your team needs to agree that the goal is construction-driven execution. When everybody agrees on the goal and starts rowing in the same direction, that's when you'll see results.

2 | Your Reach Exceeds your Grasp

A decade ago, we saw well-resourced multinational firms refusing to allocate adequate resources to AWP. This is still an issue, but today we have a different issue: We are seeing smaller, more nimble companies looking to go all-in, but they simply don't have the resources. If this sounds like your company, you need to scale back your AWP implementation ambitions. Most organizations are understaffed, and even those with resources to hire face a dearth of candidates with the requisite training. Start where you are and structure your implementation intelligently, in phases. Start with an AWP Readiness Assessment, put together a blueprint, identify someone internally and train them to become an AWP Champion and Workforce Planner. Take a layered approach and implement AWP across your organization in a scoped, staged process. One step at a time.

3 | Technology Troubles

These days, technology causes problems in one of two ways. Sometimes, leaders try to implement Advanced Work Packaging without the right technology, leaving teams to jerry-rig old systems to meet radically different demands, undermining efficiency and morale. Other times, they're seduced into thinking that once they buy new "AWP technology," the job will be done. In this case, however, teams are left struggling to adapt to new technology without any understanding of the systems and processes that the technology is designed to support.

Either way is a recipe for failure. Every company will have unique technology needs when implementing AWP, the key is to scope the project properly, select and implement with care.

4 | Leadership Turnover

Inconsistent leadership can have a devastating impact on AWP implementation over the long term. We've seen months and even years of work go down the drain when the person or people who are sponsoring AWP move on before the transition is complete. Leadership turnover is a well-known challenge in change management circles, but the impact often comes as a big surprise to capital project organizations. If your leadership is changing every year or two, now is not the time to implement AWP.

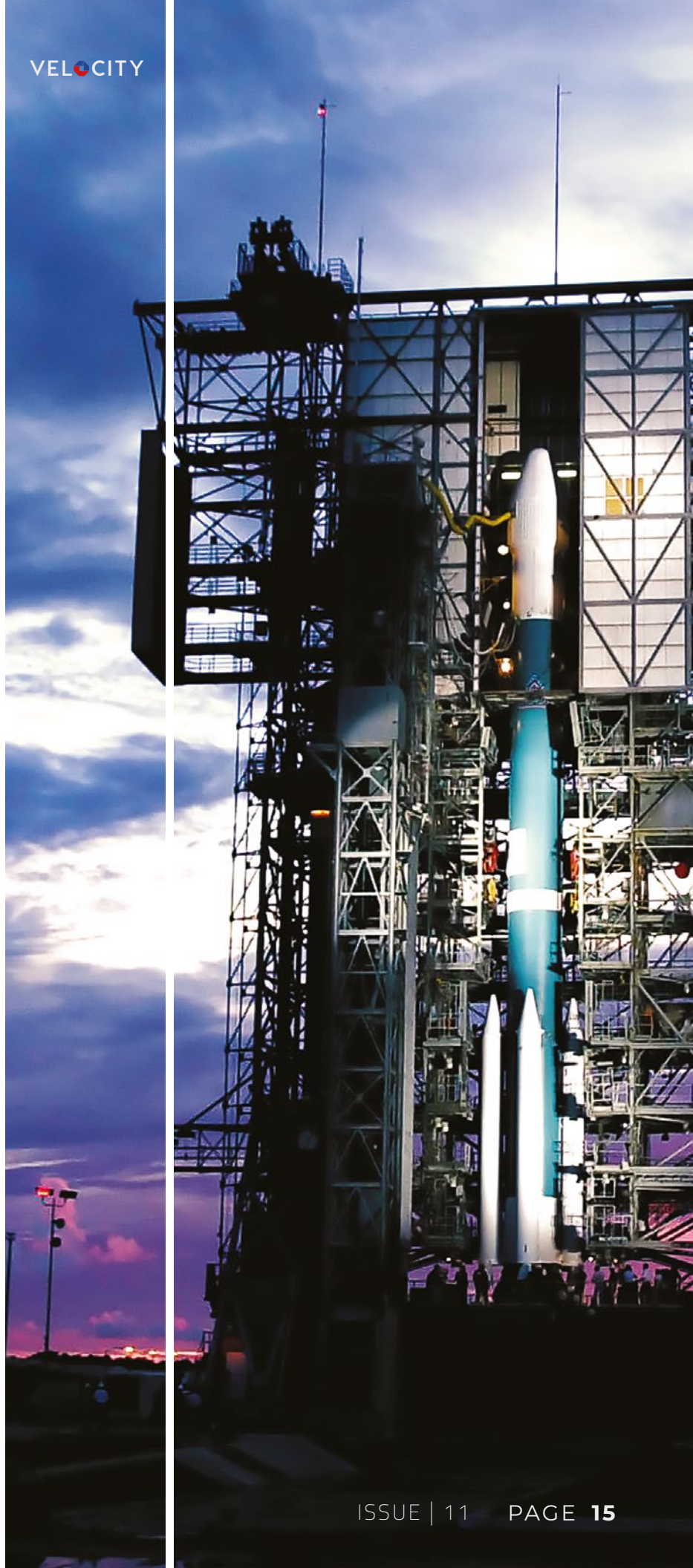
5 | Lack of Expertise

There simply aren't enough experienced AWP practitioners, Champions and Workforce planners in the labor market today. The Concord Academy has trained and certified thousands of professionals, and we've barely made a dent. On a very practical level, the industry is just not ready for AWP in terms of the availability of good AWP experts. The solution is to train your team and address structural issues in your organization that make it risky for top talent to invest in an AWP-focused career trajectory. Over time, this issue will resolve itself, but in the short term companies will need to do whatever it takes to keep skilled, experienced AWP leaders on board.

Conclusion

As AWP matures, companies are facing different challenges than they did even two or three years ago. As our understanding of construction-driven project management grows, we are able to identify issues and refine processes at an increasingly granular level. We're a long way from perfect, but now that heavy-hitters like NASA are using AWP, it's clear that this approach is here to stay and we can expect increased support from all corners. 🇺🇸

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4 ADVANCED WORK PACKAGING MYTHS DEBUNKED

BY OLFA HAMDI

Learn to recognize the toxic myths that will undermine your efforts to adopt and benefit from Advanced Work Packaging

One of the major challenges in Advanced Work Packaging (AWP) education is the debunking of miseducation. We spend a lot of our time with clients identifying and correcting myths about AWP because they undermine learning, application and success. This article aims to clear up some commonly held misconceptions about AWP in the field of capital project management.

1

Myth 1: AWP Competes with PMP

You don't need to give up the PMI standard when you adopt Advanced Work Packaging. When you adopt AWP you'll continue to need Project Management Professionals for the same reason you need them now: because they understand the basic requirements for effectively managing a project. What PMI doesn't provide — and AWP does — is a comprehensive, construction-driven approach to managing complex industrial projects.

AWP informs and directs the work of the PMP, but does not replace it. When someone tries to persuade you that PMP is the same thing as AWP, remember: If the PMI standard was sufficient for delivering capital projects on-time and on-budget, AWP would never have been invented and all capital projects would have been delivered successfully and there would not be a problem to solve in the first place!

2

Myth 2: There Is No Proof That AWP Works

Critics who promote this myth claim that the benefits of Advanced Work Packaging are unproven, and the enthusiasm around this promising new approach is just unsubstantiated hype. They point to the absence of academic research and say there is no hard evidence that it helps organizations deliver projects on-time and on-budget.

We say the proof is in the pudding. Major capital project organizations, including NASA, now use Advanced Work Packaging because it offers a rational, transparent process for upgrading a company's ability to deliver projects. Industry leaders from around the world have recognized the value

of moving to a construction-driven approach, and are actively working to apply and expand AWP principles. It is also worth noting that AWP was borne out of frustration with the failure of existing models of capital project management, which consistently deliver projects late and over-budget. We trust practitioners.

In short: If you tell me you tried AWP and it didn't work, I would ask about how you implemented AWP and what you did. I'm willing to bet the problem lay not in the recipe, but in the way the cooking has been conducted.

3

Myth 3: AWP is Too Good To Be True

Have you heard of the straw man fallacy? It's a nasty tactic that people use to win arguments. First, they mischaracterize the claim. Then they argue against their mischaracterization. In this case, they say advocates like Concord are claiming that Advanced Work Packaging will "solve all our problems." Then they argue that it's "too good to be true."

To be clear, nobody is claiming that Advanced Work Packaging is a panacea for everything that ails modern capital projects. It will not solve all your problems. What it is, however, is the most promising

advancement in capital project management thinking in a generation. Like any new idea, the benefits you realize will depend on your resources, training, organizational maturity and ability to manage transformational change, along with a myriad of other factors too numerous to list here. It will take time to get it right, yes, but organizations that don't try will be left behind. The truth is it's too good not to try.

Let's light this straw man on fire once and for all, and get on with the business of transforming capital project organizations.

4

Myth 4: Only a Few People on the Team Need AWP Certification

This common myth is a key reason why most organizations struggle with Advanced Work Packaging implementation. Your AWP Champion cannot single-handedly lead a wholesale transformation of your organization, neither can a construction manager and or a lone executive.

Moving to a construction-driven mindset is a significant paradigm shift for most capital project professionals, and the shift to AWP will impact every role in the organization to some degree. By training

your entire team in the principles and application of AWP, you ensure that everyone on your crew is rowing in the same direction.

These four myths can undermine even the best intentions for Advanced Work Packaging implementation. If you're ready to move beyond the myths to a construction-driven approach that delivers projects on-time and on-budget, the Concord team is standing by to help. 🚀

DON'T WORRY, Scalability is Built Right in to Advanced Work Packaging

BY OLFA HAMDI

AWP is a principle-driven approach to capital construction and it can work for all projects, regardless of cost or complexity. Don't let anyone tell you different.

Advanced Work Packaging is built on sound, reliable principles of construction-driven project development, and because it's principle-based, it's inherently scalable. That's good news for companies leading small capital projects, because they, too, can benefit from increased safety, predictability, productivity and quality.

Beware of those who say that Advanced Work Packaging "does not scale" and cannot be used on small projects. Much of the resistance to AWP hides behind the scalability discussion. The hard truth is that moving from an engineering-driven mindset to a construction-driven mindset can be challenging for established organizations, and claiming that AWP does not scale is an easy way to avoid this difficult paradigm shift.

Nothing prevents organizations from applying construction-driven project planning and execution principles to smaller projects. While it's true that AWP may look slightly different on smaller projects, it may also look slightly different on very big or very complex projects. The beauty of AWP is that it can be tailored to fit projects of all sizes and all levels of complexity. All it takes is the intelligent application of key principles.



1 | Insist on Construction-Driven Project Execution from Start to Finish

You can't skydive with one foot in the plane, and you can't implement Advanced Work Packaging with an engineering-driven project mindset. From beginning to end, everyone involved in the project should be working from a construction-driven mindset: All planning and engineering should be organized to support the construction strategy and sequence. Practically speaking, this means that engineers, schedulers, procurement teams and everyone else involved in the project must reevaluate their work processes to ensure that they are meeting the well-defined requirements of construction.

For most established organizations, this is the most difficult step. You'll need a coherent change management strategy along with strong leadership, a skilled AWP Champion, and well-trained staff in order to succeed.

2 | Invest in Construction-Driven Planning

A comprehensive Path of Construction (PoC) is absolutely essential, regardless of project size. Created early in the project lifecycle, it should be developed in accordance with best practices and should reflect all relevant constraints. This cannot be skipped — it's a foundational component of all Advanced Work Packaging projects. The PoC for a simple \$100 million project may be shorter than that of a complex \$3 Billion project, and it may take less time to develop, but it will have a direct and powerful impact on project safety, predictability and quality regardless of project size. Do it well.

3 | Seek to Understand and Manage Complexity

One of the most important benefits of Advanced Work Packaging is its ability to help capital project leaders assess and manage the scope and complexity of a project in a meaningful and structured way. Remember that cost and complexity operate independently of one another: Just because a project is less expensive does not mean it will be less complex, and vice-versa. The goal is to understand how complex the project is, regardless of cost.

Once you have an accurate understanding of the scope and level of complexity on a project, that complexity can be better managed, which is critical to AWP success. In practice, we may manage complexity by implementing systems, software, technology, people and more. What you need depends in large measure on the scope and complexity of your project, so this step is essential.

4 | Ensure that the Right People Develop your IWPs

Whoever is responsible for executing the Installation Work Packages (IWPs) should be responsible for developing them. In other words, IWPs are not engineering deliverables, they are contractor deliverables. Contractors must have a Workface Planner in place, and when the construction team receives engineering deliverables, that Workface Planner must be responsible for developing the IWPs. This ensures that the project execution is genuinely construction-driven.

While it's true that AWP must be configured to some degree when applied to very small projects, it's equally true that it must be modified to some degree for large and complex projects.

— Olfa Hamdi

Next Steps

In sum, Advanced Work Packaging can be applied to all capital construction projects. What matters most is that leaders make a concerted effort to develop a construction-driven mindset on the project team and that they apply the principles of construction-driven planning and execution.

While it's true that AWP must be modified to some degree when applied to very small projects, it is equally true that it must be modified to some degree for large and complex projects. The wonderful thing about a principle-driven approach like AWP is that, so long as the principles are applied, the approach can be tailored to fit any project. 🚀

PMP vs. AWP CERTIFICATION: WHICH ONE TO CHOOSE?

BY OLFA HAMDI

Learn the difference between these two popular approaches to project management to make the right choice for you.

When I'm traveling and speaking about Advanced Work Packaging training and certification, one of the most common questions I get relates to the Project Management Professional (PMP)® designation. People are curious about the difference between the PMP designation and Certified Advanced Work Packaging Professional® designation, and they wonder whether an individual who is already a certified PMP can benefit from AWP certification, or vice-versa. In this article, I'm going to answer all of these questions and more.

What is the difference between PMP and AWP Certification?

During the certification process, a PMP gains a foundational understanding of the principles of project management. Once certified, a PMP has the basic knowledge required to participate in a project in industries ranging from aerospace and financial services to healthcare and IT. In other words, the PMP training is a multi-tool that can be leveraged in many organizational contexts.

By contrast, AWP Certification prepares an individual to apply construction-driven planning and collaboration systems to complex capital construction projects. While some have begun to apply work packaging principles to fields outside capital project management, AWP was purpose-built by and for capital project organizations specifically to support their efforts to deliver on-time and on-budget. The AWP training is laser focused on capital projects.

Many established capital project professionals who do not have their PMP designation pursue AWP Certification to keep pace with best practices.

I cannot say with certainty how many AWP certificants pursue the PMP designation *after* becoming a Certified AWP Professional®, but I suggest this might be an excellent choice for a young professional looking to position themselves for a leadership role in project management.

complexities of multi-billion dollar capital construction projects, AWP would never have been developed. The fact that world-class organizations like NASA have moved to adopt AWP further buttresses my belief that AWP is a necessary and valuable addition to the project management cannon.

Which certification should I get? Should I get both or just one?

If you're a capital project professional, you need the Certified AWP Professional® designation. Many who pursue AWP Certification through Concord Academy already hold a PMP designation and are looking to deepen their understanding of capital project construction; these individuals are typically working in a capital project organization and have recognized the limits of PMP training in the context of a complex capital construction project. We also see many established capital project professionals who do not have their PMP designation but pursue AWP Certification to keep pace with best practices.

Is PMP training sufficient for project management professionals working on complex capital projects?

The short answer is no. The Project Management Institute, the organization that established the PMP certification, was established in the late 1960s and has been certifying project management professionals since the 1970s. The training is excellent, and PMPs have delivered solid value to organizations for decades.

However, we cannot ignore the fact that capital project professionals developed AWP in the early 2000s *precisely because existing project management systems were not working to deliver capital projects on-time and on-budget*. If the project management tools that form the core of the PMP training were sufficient to manage the extraordinary

Why take the AWP Certification Program at Concord Academy?

Here at Concord®, our goal is to become the go-to certification program for capital project professionals who work on large construction projects. During their training, Certified AWP Professionals® get:

- Principles for on-time, on-budget capital project delivery;
- Definitions, core concepts and key challenges;
- Tactical skills and information to improve delivery of capital projects;
- Industry-specific knowledge derived from first-hand experience;
- Recognition among Owner organizations and EPC in mining, oil and gas and many additional industrial sectors. 🇺🇸



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BECOME A CERTIFIED AWP PROFESSIONAL™

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Concord Academy students master Advanced Work Packaging fundamentals and master the skills, methods and tools required to make AWP work in any organization. From definition to engineering and construction, Concord's program provides you with a comprehensive understanding of Advanced Work Packaging project lifecycle.

DESIGNED TO EMPOWER.

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YOUR

ADVANCED WORK PACKAGING CHEAT SHEET

BY THE CONCORD RESEARCH TEAM

Definitions, acronyms and project stages all in one place.

To celebrate the release of Concord CEO Olfa Hamdi's first book, Advanced Work Packaging, we're sharing a linked, online excerpt! This article includes all of the key

definitions, acronyms and project stages outlined in the book. If you are reading a PDF version of the magazine, you'll see hot links to our most relevant Velocity articles!

Print or save this article for quick reference when you're working on your next construction-driven capital project, and order your copy of the book today!

Definitions

Advanced Work Packaging (AWP)

Advanced Work Packaging (AWP) is the overall process flow of all the details work packages (construction, engineering, and installation work packages). It is a planned, executable process that encompasses the work on an EPC project, beginning with the initial planning and continuing through detailed design and construction execution. AWP provides the framework for productive, predictable, and progressive construction, and presumes the existence of a construction execution plan. (CII, 2013)

Construction Work Area (CWA)

A Construction Work Area is a portion of the plot plan that has been defined by the project as being a logical area of work. The CWA includes all the disciplines.

Construction Work Package (CWP)

A Construction Work Package is a detailed construction plan that uses the Engineering Work Package as a foundation, adding a scope of work, construction equipment requirements, tools, access, vendor requirements and all other possible construction constraints to facilitate construction planning at a work package level. Construction Work Packages may be utilized as scoping and contract documents for construction contractors.

Release Plan

The Release Plan is an alignment deliverable, and outlines a list of Work Packages, planned deliverable dates, and prioritization of work package development that aligns with the Path of Construction.

Engineering Work Package (EWP)

Engineering Work Packages are produced by the engineering team, and are data deliverables that contain discipline specific engineering documentation for a geographically defined scope of work. Engineering Work Packages have a defined and explicit relationship with Construction Work Packages.

Procurement Work Package (PWP)

A Procurement Work package is a number associated with a scope of equipment and material that fits the scope of a construction work package. The acronym PWP is followed by the numbering structure as the WBS.

Path of Construction (POC)

The optimal sequencing of execution of construction activities (within Construction Work Areas and Construction Work Packages) to achieve desired project performance. The engineering deliverables schedule must be aligned with the Path of Construction.

Stakeholder

A person, or persons, who have an interest, responsibility, or accountability within the Advanced Work Packaging program.

Workface Planning (WFP)

Workface Planning is the process of organizing and delivering all elements necessary, before work is started, to enable craft professionals to perform quality work in a safe, effective and efficient manner. It necessitates the development of discipline specific work packages, ranging from 500–1000 constraint free man hours, that construction crews will execute in the field.

Installation Work Package (IWP)

Installation Work Packages are produced by the Construction contractor, and are detailed plans for small scope of work, which are taken from a CWP. The work scope is intended to be performed by a single crew, working under a single foreman, in a single shift. It contains all the information needed by the crew to execute the work, including scope, drawings, materials, equipment, safety and quality.

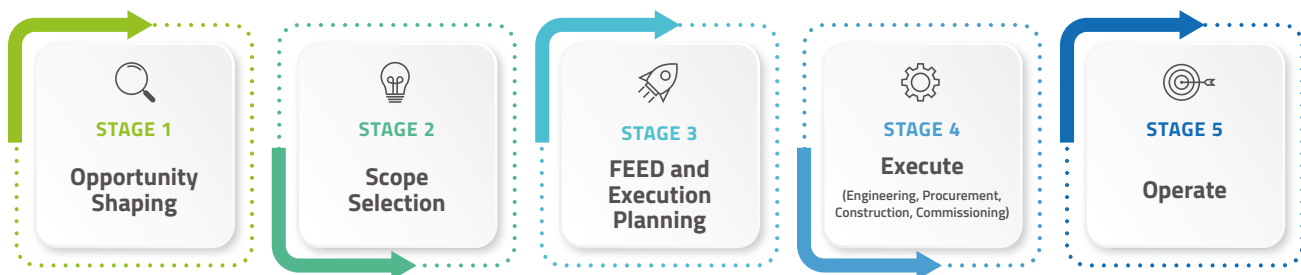
Work Breakdown Structure (WBS)

A Work Breakdown Structure provides the numbering that will be used throughout the project to define the work associated with each area, discipline and activity. A project-specific WBS is required for each project. The WBS is created in Stage 2, once Construction Work Areas established. Please refer to chapter 3 of this background section of the AWP manual for more detail.

Acronyms

CII	Construction Industry Institute	FID	Final Investment Decision (Funding)	PPE	Personal Protective Equipment
CM	Construction Management Contractor	GC	General Contractor	QA	Quality Assurance
CMT	Construction Management Team	HSSE	Health, Safety, Security, Environmental	QC	Quality Control
CWA	Construction Work Area	IFC	Issued for Construction	RACI	A chart to show roles — Responsible, Accountable, Consulted, Informed
CWP	Construction Work Package	IPPM	Interactive Project Planning Meeting	RAS	Required at Site (Date)
EP	Engineering and Procurement Contractor	IWP	Installation Work Package	RFI	Request for Information
EPC	Engineering, Procurement, Construction	JHA	Job Hazard Assessment	RFP	Request for Proposal
EWP	Engineering Work Package	MTO	Material Take-Off	TAR	Turnaround
FEL	Front End Loading (Engineering — equivalent to Stages 1–3)	NDE	Non-Destructive Examination	TWP	Test Work Package
		PoC	Path of Construction	WBS	Work Breakdown Structure
		PO	Purchase Order	WFP	Workface Planning 

Project Stages at a Glance





A MULTIPURPOSE TOOL FOR AWP EXECUTION

BY OLFA HAMDI

*Learn how to get the most out of Olfa Hamdi's new book,
Advanced Work Packaging: Guide for Life Cycle Implementation.*

I decided to write a book about AWP implementation for one simple reason: we needed one. Concord's clients and students needed a comprehensive, accessible, indexed guide to Advanced Work Packaging that they could keep on the corner of their desks and reach for when questions popped up. Working professionals needed something that could be

shared among colleagues across the hall and across the world, so that everyone would be using the same language, definitions and frameworks. In short: We needed to start the hard work of standardizing AWP.

The book is designed to be a practical, easy-to-navigate guide for students, practitioners and leaders who are using

AWP to manage construction-driven projects across all sectors. It is thorough, rigorous and clear, informed by my work with hundreds of front-line practitioners over the past decade. It is technical, procedural, and designed for daily use. Over time, my aim is to have it translated, to get it into colleges and universities, and to update it with successive editions as necessary.

Here are four ways I anticipate this book will be used.

1 | A Resource for Professionals at Work

The book follows the life cycle of a project, and so it's easy for working professionals to use as a reference book at any stage of project execution. Confused about a colleague's use of acronyms? Unclear about the correct structure and components of an Installation Work Package? Need a refresher on EWP rollouts or a CWP release plan? All of this and much more can be found right in the index.

The book also makes it possible for leaders to keep the entire team aligned, even if that team is distributed across the globe. Forcing your team to rely on Google searches for key concepts and definitions is a recipe for disaster (if you don't think your team is Googling, you should know that our 2018 article on Defining Advanced Work Packaging remains one of our most popular articles *to this day*). Give every member of your team a copy of this book, and even if they only use it to standardize their language, you'll be miles ahead. Go further and use it to guide your entire project execution plan, and you'll give your company an unrivalled competitive advantage.

2 | A Textbook for Colleges and Universities

Advanced Work Packaging: A Guide to Life Cycle Implementation is designed to be used by college and university professors teaching courses on construction-driven project execution. The book is organized chronologically, so it can complement a process-driven curriculum that carries students from early business considerations all the way to handoff, teaching them step-by-step how a construction-driven, Advanced Work Packaging project should unfold.

When I wrote the book, I imagined that a professor would select a real-world project and use it as a case study, applying AWP project deliverables chapter by chapter. For example, a student group may be required to build out a Path of Construction or a Construction Work Package. This kind of hands-on training would prepare students for the real work of building capital projects using AWP principles — training that is desperately needed in the sector!

Forcing your team to rely on Google searches for key concepts and definitions is a recipe for disaster.



3 | An Inspirational Guide

Advanced Work Packaging looks different at every company, so when push comes to shove, your organization will need to write its own rules about how AWP will function. Concord already offers an AWP Start Up Package and a turnkey manual that can help with this, but the book takes it to a new level, offering a comprehensive guide to designing your own systems and culture.

For smaller companies that don't have the resources to invest in consulting but want to win those AWP contracts, it offers a fantastic bootstrap option.

4 | A Study Guide for AWP Certification

Currently, the only way to get the Advanced Work Packaging Fundamentals Certification is to take our self-paced online training course through the Concord Academy. With the release of the book, we plan to offer an exam-only certification option. Read the book, take the exam, and get certified! Everybody learns differently, and for those who absorb material most readily while reading, this is an excellent new option.

I've said it before, and I'll say it again: At heart, Concord is a knowledge company. All of our work — consulting,

—
Read the
book, take
the exam,
and get
certified!
—

training, publishing — aims to teach capital project leaders about the benefits of and strategies for adopting Advanced Work Packaging. Our goal: To help companies deliver capital projects predictably, on-time and on-budget. 🇺🇸





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