


# AWP for Operating Facilities

An eBook

By O3 Solutions



# Before we get started... WHO IS O3?

O3 is a **modern SaaS** platform that leverages **Advanced Work Packaging** and **Agile** best practices to disrupt the status quo for companies in industrial construction who want to improve **productivity, safety, quality, and predictability.**



O3 SOLUTIONS

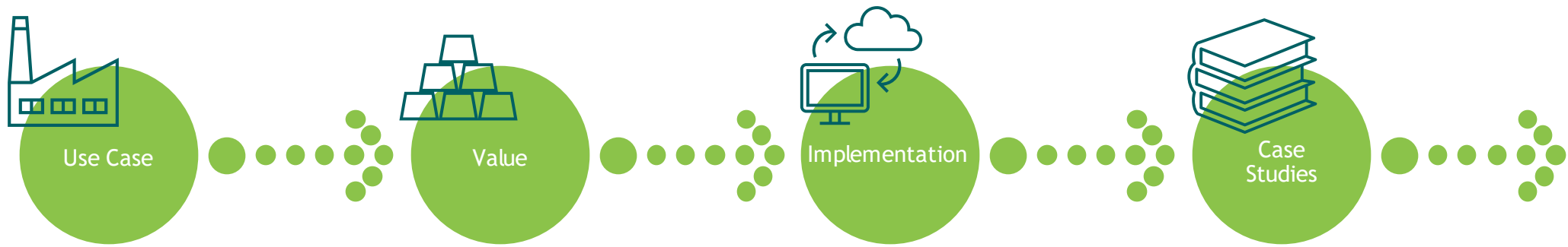
**Turn ON  
the Power of O3**

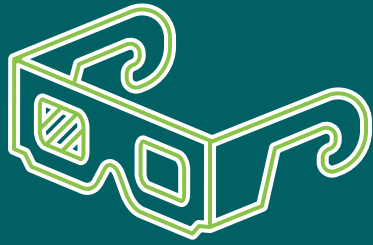


# Executive Summary

This eBook will help you:

- Understand the use case for AWP in operating facilities
- Assess the value and benefits that AWP will provide
- Outline the O3 implementation plan
- Review case studies of successful implementations





# Overview

- Executive Summary
- Owner Use Cases for AWP
- Value and Benefits of AWP for Owner Operating facilities
- Step-by-Step implementation Guide
- Success Stories
- Key Takeaways



Operating Facilities

Use Cases for AWP

# USE CASES

## *Why use Advanced Work Packaging at an operating facility?*

Most operating facilities typically perform a portfolio of small projects each year, including Growth, Sustaining, Regulatory, Turnaround or Compliance.

Many of these projects are quite small in scale, and would usually not be considered for AWP, which has historically been viewed as only applying to large capital projects.

When these small projects are viewed as a portfolio, however, the need for detailed planning, construction focus and alignment between contractors becomes clear.



# USE CASES

## *Fundamentals*



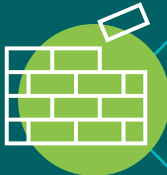
AWP concepts can, and should, be applied to projects of all sizes. Even with a varied portfolio of projects, the implementation of AWP need not be overwhelming, when viewed as fundamentals steps:



**Construction Involved Early**



**Break Work into Logical Areas**



**Plan Optimal Installation Sequence**



**Align Procurement and Engineering**



**Create a Schedule Reflecting Sequence & an Estimate that Supports Breakdown**



**Engage the Construction Contractor to Execute the Plan**





# USE CASES

## *Fit-for-Purpose*

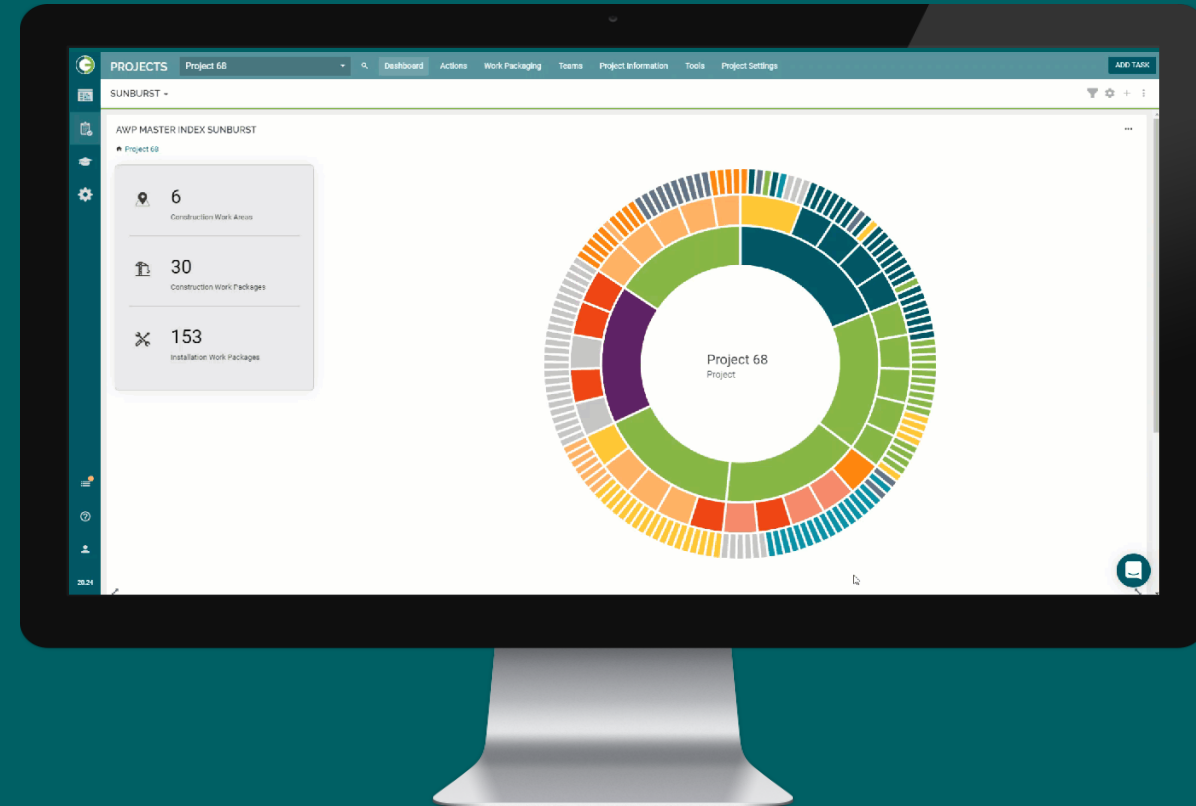


The use of AWP on a portfolio of small to mid-size projects requires some flexibility. Create a way to assess your projects against an AWP approach, and make it fit-for-purpose.

If you are selective with the application of AWP, and have clear guidelines for selection, it will be more value-added.

For example, if you have a small project with a single discipline scope in a single work area, all the engineering complete before mobilization, a lump sum contractor, and a very easy schedule, you may not benefit from AWP.

Focus your energy on the right projects.





Operating Facilities

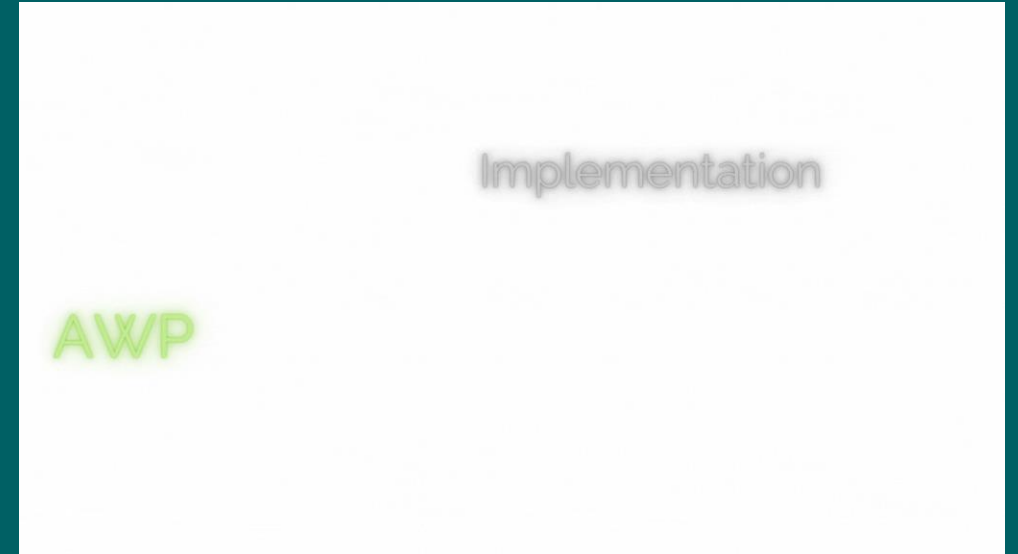
Value & Benefits

# Value & Benefits

## *Operating Facilities*



- The benefits of using an AWP approach will significantly outweigh the cost and effort of implementing it.
- Previous studies have shown that, at a high level, for every dollar spent on performing AWP on a project, ten dollars can be saved.
- The following pages will provide a high-level overview of the key value and benefits that AWP can deliver.



# Value & Benefits *Performance*



Some value and benefits to AWP include improved performance. For example, you can gain a reduction in craft hours in the field due to detailed planning. Work can be completed without interruption. AWP creates a reduced need to revisit work areas to complete missing items.

More benefits include improvement of “tool time” by removal of constraints, in addition to a reduction in crew time spent waiting for materials, equipment, drawings, RFI answers, access to a work location, and permits.

Also, a Foreperson can spend their time directing the work, meaning less time spent chasing missing items and more time in the field ensuring safe and efficient work.



# Value & Benefits

## *Predictability*

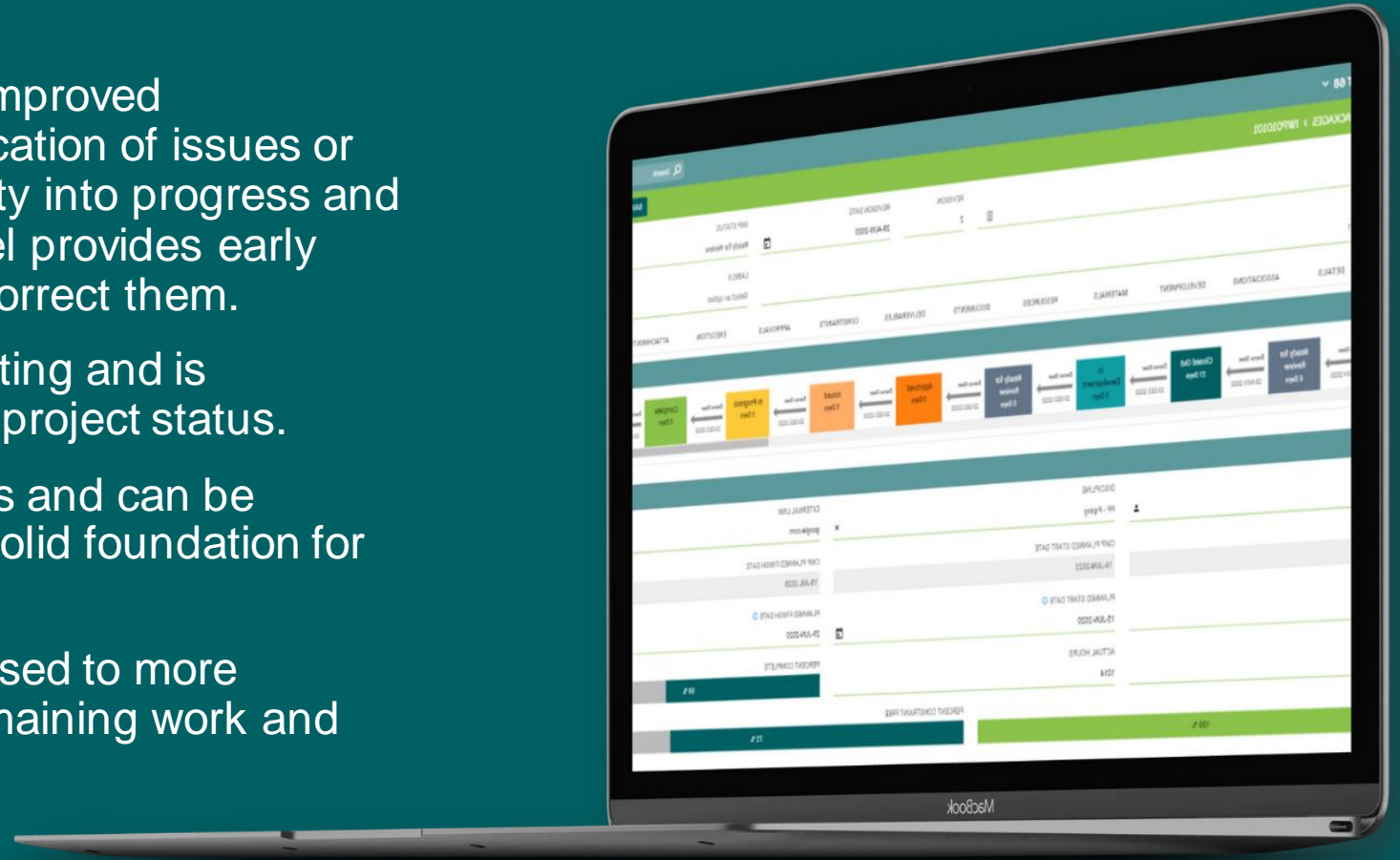


Another value add of AWP includes improved predictability. You gain earlier identification of issues or deviations from the plan. Plus, visibility into progress and performance at the granular IWP level provides early warning of issues and more time to correct them.

Optimism bias is removed from reporting and is supported by detailed information on project status.

AWP allows you to schedule progress and can be aligned with IWP progress to give a solid foundation for updates and forecasts.

Performance on early IWPs can be used to more accurately predict the forecast for remaining work and estimate at completion.

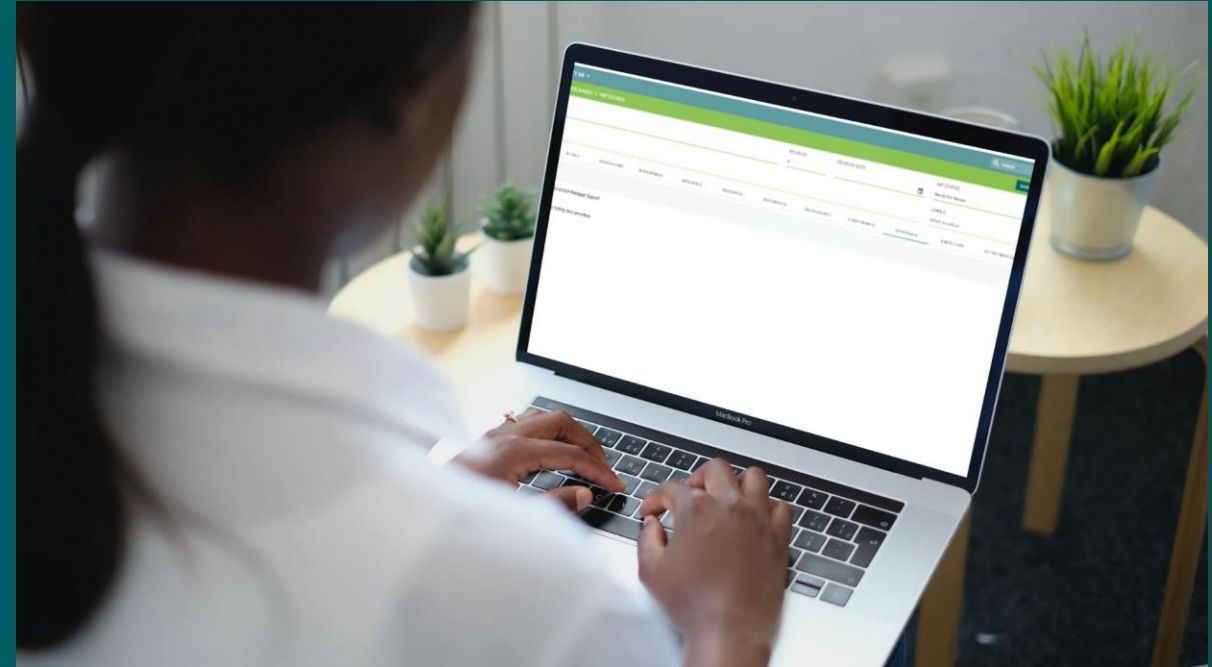


# Value & Benefits

## *Constructability & Coordination*

AWP value continues with constructability and coordination. Early involvement of construction personnel affords the maximum impact for constructability and encourages feedback during the early project's stages, when the design can be influenced without impact.

- Identify interface points between Contractors
- Support construction with sequenced Engineering and Procurement releases
- Drive accountability by including interfaces in the schedule
- Improve coordination and communication between the various stakeholders and trades
- Support daily planning review meetings with all parties



# Value & Benefits

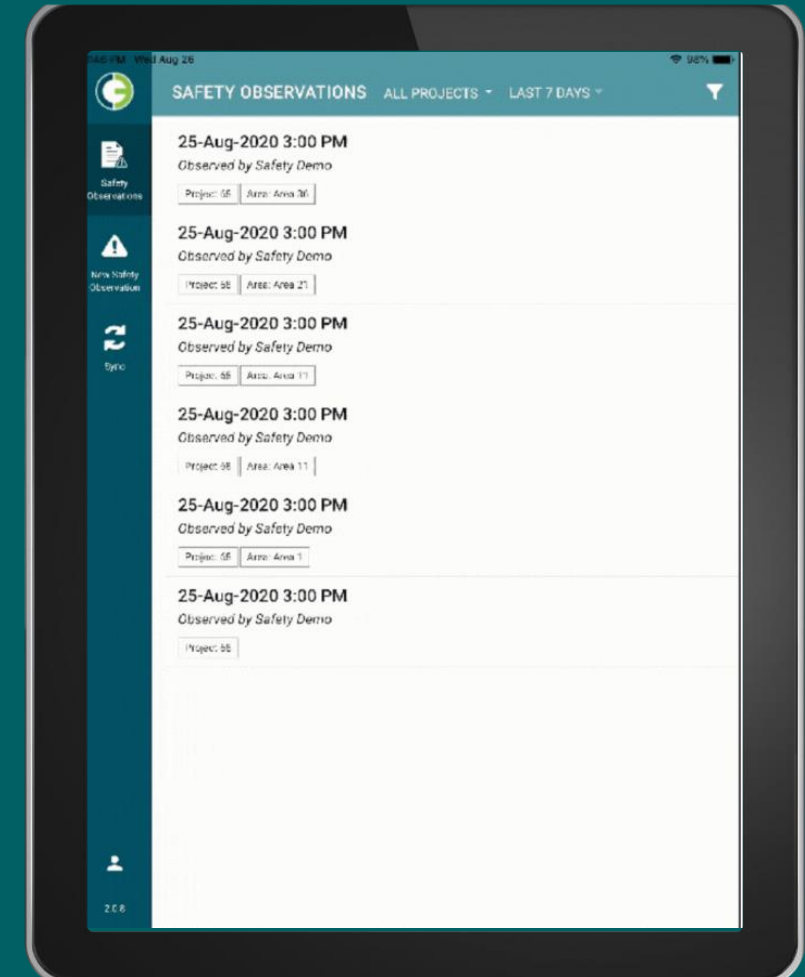
## Safety



A key benefit for AWP that comes from better planning includes improved safety.

Any incidents that happen in the field because of changes can now be addressed in real-time. If a crew cannot finish their work in one area, it is moved to another area, where they are less familiar with the hazards. When incidents happen, the root cause analysis often flags this change as a key contributor.

Better planning and constraint management will allow crews to execute the work that they were assigned, without having to stop and restart somewhere else.





# Value & Benefits

## *Quality*



Smaller, discrete work packages that can be fully executed will also be a significant benefit to quality.

Better planning will reduce rework, by ensuring that the latest revisions are used and that the work can be completed.

RFIs are identified earlier in the planning process, so they do not become a constraint on field execution.

Inspections can be carried out and completed for the individual IWPs, helping to assess and close actions earlier.

Quality documents / check sheets can be issued and completed at the IWP level, reducing the last-minute paperwork panic.





Operating Facility

**Step-by-Step Implementation**

# Step-by-Step Implementation

AWP Implementation does not have to be an "all or nothing" approach. You can view it as a series of smaller steps, each with a goal and a definition of success. Once you have mastered one aspect, continue your development in another area.



Start with the essentials, like training and organization structure. Then move on to the value areas one by one, like constraint management and work packages.

By taking a series of smaller steps, you can limit the organizational change, and target the areas of greatest concern, and benefit to your organization.



# Implementation

## *Agreeing on the Need*



The first step in any implementation is agreeing on the need for AWP. You need to ensure management has bought-in to the process.

You can do this by explaining the benefits and the value that AWP can bring. Or, run an ROI simulation to show the possible financial benefits to the portfolio. (<https://o3.solutions/o3-solutions-resources/roi-calculator/>)

Once you have buy-in, you'll need to agree on a plan for roll-out. Will it be a phased approach, or applied across the portfolio? Who will choose which projects are selected?

After a plan has been selected you will then choose a pilot project and identify a project team that handles new concepts well.



# Implementation



## *Select Technology & Identify Data*

Once you know that you want to use AWP on a pilot project, consider the technology and data challenges.

You'll want to choose a technology that will support your AWP goals and then you will need to map out data flows to understand where data is coming from, where it needs to go, who creates data, and who receives it.

Understand what you want to know, in terms of information and reporting capabilities and verify that you have the data to support it.

Next, you'll want to map out structured workflows, especially at contractor interfaces.

Most importantly, choose a technology that can support your plan, rather than having to modify your plan to support the technology.



# Implementation *Training & Procedure*



Next, train your people. Without training, your implementation will struggle. Let your team know why you are choosing to do AWP, and how it will benefit them and enhance their role on the project.

Create a procedure. Write down what it means to “do AWP” for your organization. Start by leveraging existing Construction Industry Institute (CII) literature. There's tons of helpful information available.

Gain some early, easy wins. Host a session for your chosen pilot project, and work through the Path of Construction. Show the value that early planning and alignment can bring.

Start discussions with your key contractors, to let them know your plans, and assess their experience in AWP.



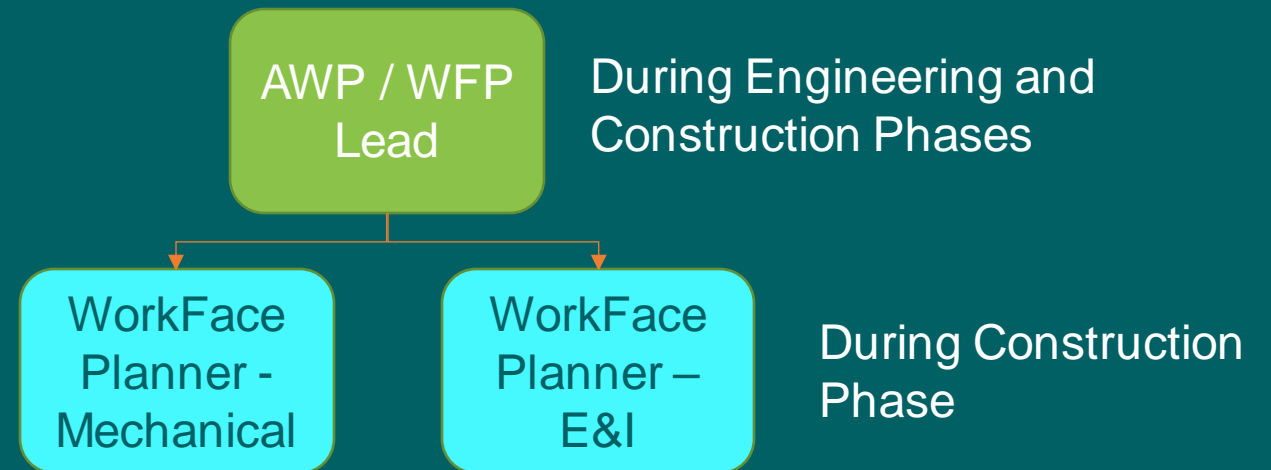


# Implementation *Organization Structure*



Then, you will need to create your organization structure.

- Identify and finalize your organization structure. How will the Owner team support AWP implementation? What role are the contractors playing in it?
- Make sure everyone knows their role in making AWP successful.
- Create a RASCI chart for all AWP-related deliverables.



# Implementation

## Constraint Management

The most value-added place to start for AWP in the construction space is to improve constraint management.

Your first implementation may be nothing other than detailed assessment and removal of constraints for all work scopes.

O3 provides an industry-leading constraint management platform that can be quickly configured to your project needs.





# Implementation

## Create Work Packages



Next, focus on the creation of work packages to support the field activities.

- Engineering deliverables can be grouped into Engineering Work Packages (EWPs), managed using ONDesign, O3's Solution for Engineering and Procurement.
- Procurement deliverables can be grouped into Procurement Work Packages (PWPs)
- Construction scopes can be well defined by creating Construction Work Packages (CWPs), as the basis for contractor bids.
- Non-graphical Installation Work Packages (IWPs) can be compiled by the contractor for field level execution, using ONBuild, O3's Solution for Construction and Execution.



# Implementation *Reporting*



Don't underestimate the work it takes to track and manage work packages across multiple disciplines and roles. Combining data from multiple systems or spreadsheets can take hours and introduces the possibility of manual errors.

Dashboards that are designed to support a specific company, team, or role makes decision making easier.

Examples of dashboards to create:

- Project Overview
- Engineering
- Procurement
- Construction Management
- WorkFace Planning
- Scaffolding
- Commissioning & Startup
- Project Controls

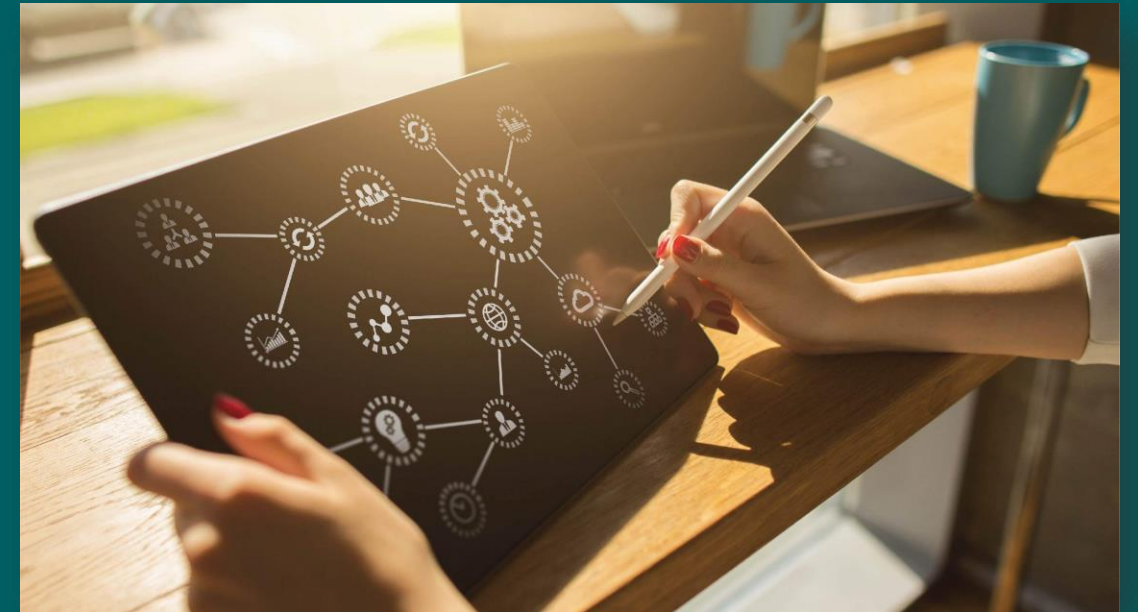


# Implementation *Integration*



Once you have mastered constraints, work packages and reporting, you can start looking at system integration.

- Create links with your document management system to ensure that the latest version of all documents are available.
- Synchronize with your schedule system to get the full range of dates for all work packages.
- Integrate O3 with your materials management software to create a detailed picture of your material availability and constraints.
- Import reports from engineering on the status of documents, or from the fabricator on the status of spools.

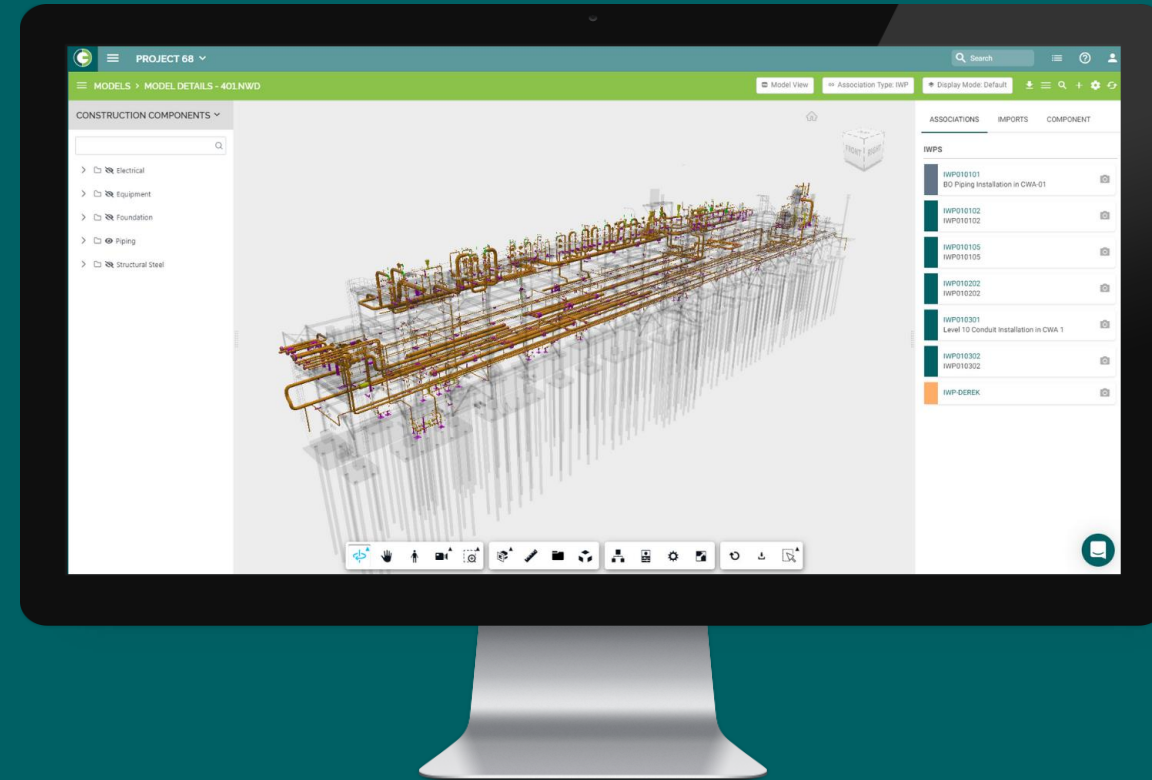


# Implementation Model



The final step in your AWP implementation maturity, incorporating a 3D model.

- Leverage the power of your 3D model to create graphical work packages, simply by clicking on pipe spools or steel pieces.
- Use model data to automatically calculate installation hours for each package and pull the relevant drawings.
- Give your planners instant viewing capabilities to see material status, drawing releases, or progress of installation.
- Enhance your reporting with status visualization, to show project stakeholders an image of project progress, or turnover readiness.





## 03 Solutions

# How to Include Technology in Your AWP Implementation

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**Goal: Prepare Your Team for 100% Self-Sufficiency**

Your technology implementation approach should facilitate quick wins with minimal disruption. The goal is to drive your team 100% adoption of your new process to self-sufficiency as soon as possible.

Projects can be summarized in the following phases:

1. **Kickoff:** All stakeholders participate in kick-off workshops to build relationships, discuss implementation strategies, identify project challenges. Build the activities based on the project phase and available resources.
2. **Process Alignment & Configuration:** After updating the applicable processes, configure roles, permissions, settings, and workflows. This step should also include identifying and managing of technical requirements. All of the decisions, actions, and issues identified should tracked so everyone on the project has real time visibility into progress.



# How to Include Technology in Your AWP Implementation

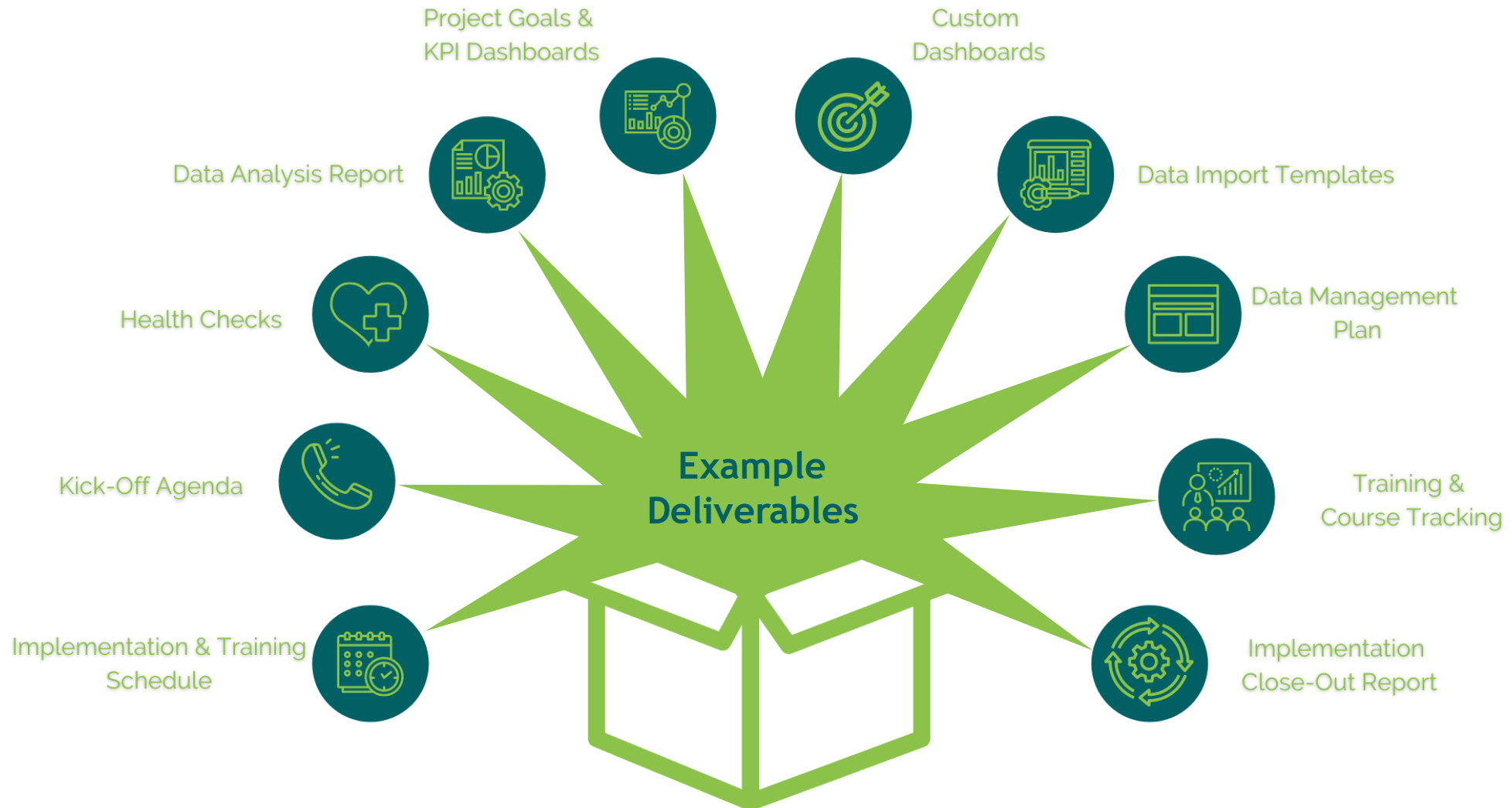


3. **Data Testing & Validation:** Evaluate your current data sets (manual or outside solutions) and develop import templates. After testing and validating data consumption, begin building and testing automatic integrations. Create and document a Data Management Plan (DMP) so all stakeholders understand how data will flow between systems.
4. **User Training:** Although training approaches vary by project, creating a train-the-trainer program to build super users improves adoption of the system. Training courses and completions should be monitored and tracked.
5. **Go Live & Measure:** You may experience multiple “go lives” during your implementation based on project phases and milestones. After each go live, you should measure progress, goals, and KPIs based on the implementation objectives.
6. **Self-sufficiency:** Set the stage for self-sufficiency. Establish a target date for this phase at the beginning of the implementation and track progress along the way. Document any lessons learned and update any procedures as changes are made.



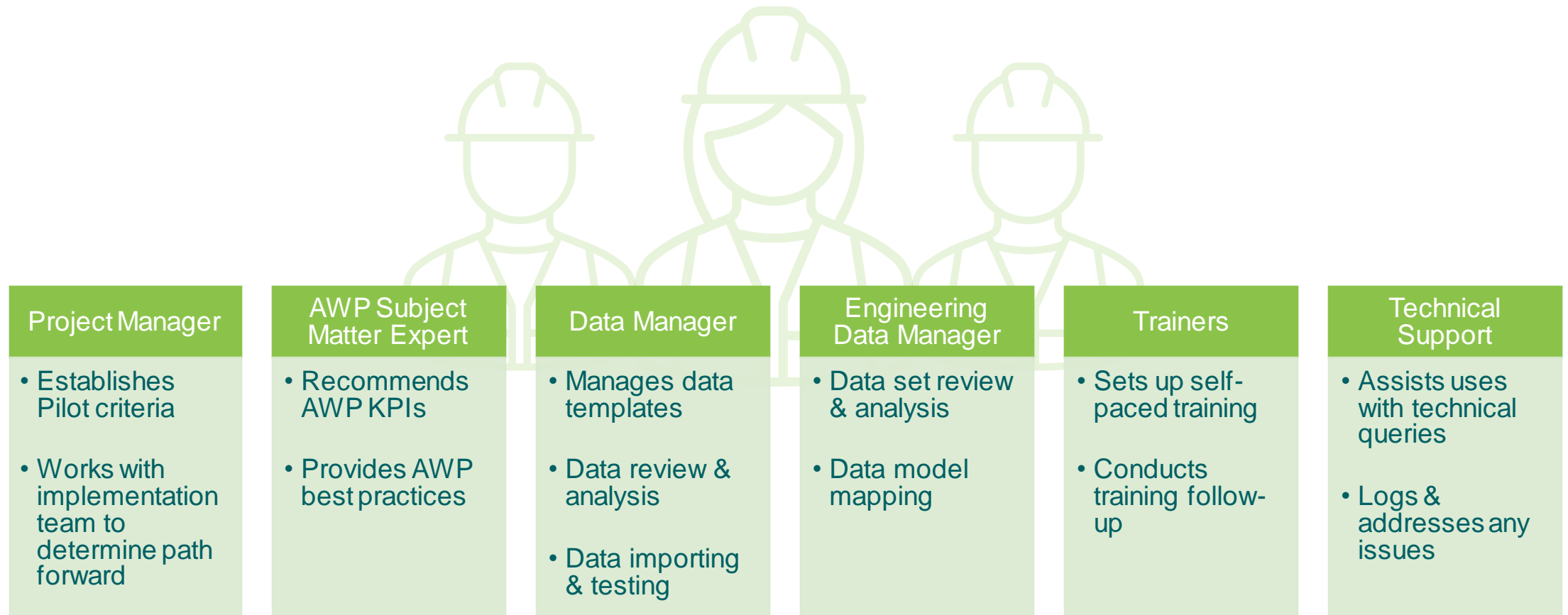


# How to Include Technology in Your AWP Implementation



# How to Include Technology in Your AWP Implementation

## *Example Implementation Team*



## 03 Solutions

# Operating Asset Case Study

## Operating Asset

- Active Projects: 36
- Total Projects: 80
- 2,300 acre refinery & chemical plant
- 4 billion gallons of crude oil & products managed annually
- 1,500 Employees
- Oldest parts of the facility date back to the 1920s

## Challenges

- Engrained processes
- AWP immature contractors
- Less sophisticated project systems with limited data sharing capabilities



## Constraint Management

- RFIs - Transitioned from spreadsheets and email to digital management & automation
- Materials - Automatically creating constraints as part of material analysis
- Scaffolding - Cross-discipline review of scaffolding requirements and automated constraint creation

## Non-Graphical Package Development

- CWP & IWP using engineering & materials lists
- Drawings pulled in from integration to DMS
- Auto-populating material requirements on IWPs

## Progress Measurement

- Real-time visibility into the progress of Installation Work Packages and hours earned vs. original estimated hours

“I was able to evaluate the overall status of the project, highlight that engineering has continued to slip, and ultimately is impacting construction.

I advocated that construction start needed to push a month . . . [to] allow engineering to catch up and create a backlog of constraint free work.

Not an ideal situation, but we had the data to support the decision.”

- Construction Manager



# Proven Results

- Asset is managing **15** simultaneous small cap projects
- Documented a **9%** decrease in project over projects that did not include AWP technology.

**20%**  
productivity  
improvement of over  
projects without AWP  
technology





## Benefits

- 20% increase in field productivity of AWP projects over non-AWP projects
- Enhanced visibility, collaboration, and accountability



## Lessons Learned

- Change Management at operating facilities is particularly challenging due to institutional inertia
- Engineering tends to be the least motivated to change



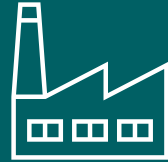
## Next Steps

- Graphical creation and visualization of packages
- Mobile access to IWPs in the field
- Expansion of Engineering Work Package utilization upstream of construction



# Key Takeaways

# Key Takeaways



## USE CASES

AWP concepts can, and should, be applied to projects of all sizes. The process should be fit-for-purposed based on your portfolio.



## VALUE & BENEFITS OF AWP

The benefits of using an AWP approach will significantly outweigh the cost and effort of implementing it. Previous studies have shown a 10:1 ROI.



## IMPLEMENTATION

Once you have executive support, you'll need to agree on a plan for roll-out with milestones based on project phase and portfolio size. Be sure to include technology in your implementation to avoid double change management.



## PROVEN SUCCESS

In one case study, an asset managing 15 small cap projects documented a 20% increase in productivity and 9% decrease in cost as compared similar projects that didn't include AWP technology.



# GET IN TOUCH

We'd love to hear your thoughts and understand your project or portfolio's needs.

## EMAIL

[info@o3.solutions](mailto:info@o3.solutions)

## WEBSITE

[www.o3.solutions](http://www.o3.solutions)



# O3 SOLUTIONS

