

23RD ANNUAL



23RD LCI CONGRESS
OCTOBER 19-22

Documenting Lessons learned is easy; doing something with them is not

Jason Schulist, The Boldt Company

John Heck, The Boldt Company

LEARN BY DOING FROM THOSE WHO DO

October 21, 2021

Health precautions to keep everyone as safe as possible at Congress:

- Wear masks at all times in indoor events.
- Complete your daily health screening on your phone and bring it with you when you enter the center each day.
- Practice social distancing to the extent possible. Seating at plenary sessions is being structured to help with this.
- If you feel ill at any time, please leave the conference and return to your room/consult a physician as necessary.
- Ultimately, our collective health and safety at Congress is up to all of us. Thanks for your support!



US Army – How to Clear a Building

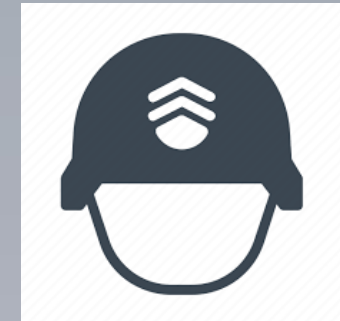


Learning in the Thick of It

"Imagine an organization that confronts constantly changing competitors. That is always smaller and less well-equipped than its opponents. That routinely cuts its manpower and resources. That turns over a third of its leaders every year. And that still manages to win competition after competition after competition."

Darling, Marilyn. "Learning in the Thick of it." *Harvard Business Review*

What does this remind you of ?



How to learn in this Environment – After Action Review (AAR)

- First instituted in the mid- '70s by U.S. Army leaders
- Started as critiques:
 - Focused on what went wrong
- AAR Army Focus Today: To Create Sustainable Improvements in Performance
 - Main purpose: to learn and improve
 - Focuses on critical performance areas or key leverage areas
 - Addresses complex situations
 - Completes PDCA learning cycle – AAR looking forward to the next task
 - Starts at platoon level and bubbles up – not cascading down



Retrospectives

- A Retrospective (“Lessons Learned”) is a structured reflective event resulting in a common understanding of a team’s experience. The retrospective leads a team to a new action. The Check in PDCA
- Plus/Delta
- Lessons Learned
- Keep/Stop/Start



KEEP	STOP	START
Keep Pre-Planning the work through use of the Big Room Concept. Helps with team development.	Stop allowing any of our team members to not meet commitments. This allows complacency to creep in and impacts the whole team. This includes owner decisions.	Start documenting decisions made by the team. Start including more detail as part of the team scope of work attached to any contract document.
Keep controlling what we can control. Keep documenting constraints caused by what we can't control.	Stop allowing others not under our contract to negatively impact our teams performance.	Start a more robust sequencing of work planning. Especially if another GC not under our control will be constructing the building or any other part of the project.
Keep clear and concise documentation on constraints and delays whether caused by us or others.	Stop allowing ourselves to become the victim in situations caused by others.	Start documenting commitments made by those who can impact our performance on the job. Also confirm the person(s) making the commitments will be on the site to ensure compliance with commitments.
Keep documenting all discussions & agreements made in the Big Room to avoid any loss of information due to team member turnover.	Stop trusting that all team members will be engaged in the whole process. Turnover will happen and we need to be prepared for it.	Start development of an on-boarding process for any new team members to ensure they are in alignment with what has transpired to date. This will require documentation of what has transpired to date on a weekly basis to maintain highlights of team progress.
Keep planning for material deliveries by working closely with the vendors to understand how they usually deliver and how we can change their standard to align with our site needs.	Stop agreeing to do whatever the client and their suppliers want for deliveries. We need to help shape how they behave so the whole team can be successful.	Start pushing back on material handling agreements which are not in our favor. Start using material handling allowances which can be bare to both parties for tracking Owner purchased equipment and materials.
Keep working with the Owner on Site Logistical Plans. This is critical for efficiency of the team as a whole.	Stop allowing waste to occur by having to search for things that were not delivered or handled properly. This costs the whole team time, money and mostly frustration.	Start being more detailed on Site Logistic Plans. Boundaries of construction area, trailer locations, porta-john locations, parking, trash bins, off-loading of materials and major equipment, staging of materials, disposal of pallets and trash.
Keep pushing to get current issue For Construction Drawings.	Stop working without proper plans. Do they have dimensions and details?	Start Demanding that we get the most current installation drawings for the equipment. Start documentation of what we don't get in a timely manner which is negatively impacting team performance.
Keep getting a listing of all Owner provided equipment & materials. Who is ordering and managing? How will this be handled when it gets to site? Who will be ensuring that all parts & pieces have been received at the site?	Stop allowing our team to get stuck with the material handling on the project unless we are getting compensated to do so.	Start planning for a material handling team. This includes someone who can take the lead on ensuring Owner provided equipment & materials have been received at the site and a team who can focus on off-loading the materials into the building while removing trash from the building.
		Start understanding the overall site logistics for receiving deliveries. Large sites with lots of work going on get confusing and things get lost very easily.
Keep focusing on Supply Chain Management. We must ensure that Equipment & Materials are at the site when we need them for installation.	Stop allowing vendors to send items to the site which we don't need and may not be labeled.	Start discussing the process for how materials and equipment will be packaged and delivered to the site in the pre-planning phase.
Keep our finger on the pulse of the local work force availability during the anticipated time frame of the project.	Stop allowing Executive Leadership to sell unrealistic schedules and budgets.	Start with a reasonable estimate & schedule. These both must be aligned with the available labor force in the work area. Otherwise we will be sending travelers to the site at a significant cost to the job. And where will travelers stay?
Keep providing an experienced & qualified management team.	Stop allowing individual incidents to change our whole management format. Unless due compensation is provided.	Start confirming with the Owner what the management team expectations will be for PM and Safety representation on the job site. If this changes for whatever reason, we must be compensated accordingly.
Keep focused on use of our Built in Quality program.	Stop promising BIQ performance without understanding impacts to staff & budget requirements.	Start getting a Quality Assurance program from the Owner so we can align budgets & resources accordingly.
Keep focused on providing a safe job site.	Stop allowing Owner to direct safety procedures without discussion on additional compensation due to added costs or production impacts.	Start Verification of mill requirements regarding lifts (diapers & socks), tool lanyards, basket containment fencing, tie-offs while in lifts, spotters.
Keep focused on contract requirements for field changes after IFC drawings have been issued.	Stop Taking verbal directions from the Owner for added work in the field.	Start developing the Change Order program before work is started in the field. Verify what forms will be used and who has the local authority to approve changes. (Must align with contract requirements).
Keep talking through the close out process from the beginning.	Stop allowing lack of owner commissioning resources to have a negative impact on our schedule and costs.	Start verification of the commissioning process and how that will be covered within the budget. What happens if the start-up process extends long after completion of the installation work?
Keep using some form of Invoice tracking format which can make the process visible. Our form included Billing dates to the owner, Invoice Amount, Payment due date, Payment received date, Variance of days to payment, Payment amount received. This makes the process very tangible.	Stop allowing Owners to miss contractual invoice payment dates.	Start holding Owner accountable for timely payments in alignment with contract terms. Openly discuss issues as required. Start using Sr. Leadership as a resource if necessary.

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Problem Statement

- We have a lot of information from retrospectives. How can we find an effective way to take lessons learned and use them in future processes and projects so that we get better project outcomes?
 - Learn about the After-Action Review (AAR) and its use at The Boldt Company
 - Learn about strategies for embedding within your standard work
 - Learn how the Before-Action Review (BAR) can accelerate project success

Using the After Action Review (AAR)



What is an AAR in a construction context?

- **Main purpose: to learn and improve as a Retrospective**
 - “Real time” review of a past project or phase to improve future project performance
 - Open, honest discussion to learn
 - Used to share knowledge and change / improve Boldt’s processes
 - **The real benefits lie in the actions resulting from the information gathered**
 - AARs can be as short as 30 minutes and as long as multiple days depending on complexity, size, and duration



Criteria for an After-Action Review

- **A Recognizable Event** – the focus of the review requires a clearly defined start and end point
 - Project or project phase
 - Quality issue on a project
 - Losing a project bid
- **Specific Standards** – Looking at the work from a process perspective – “Blame the process, not the person”
- **Concise Data** – everyone involved understands what happened
- **Shared Intent** – must involve a group striving toward a common goal
- **Intact Work Group** – clear understanding of roles and responsibilities
- **Immediacy** – review is held as soon as possible



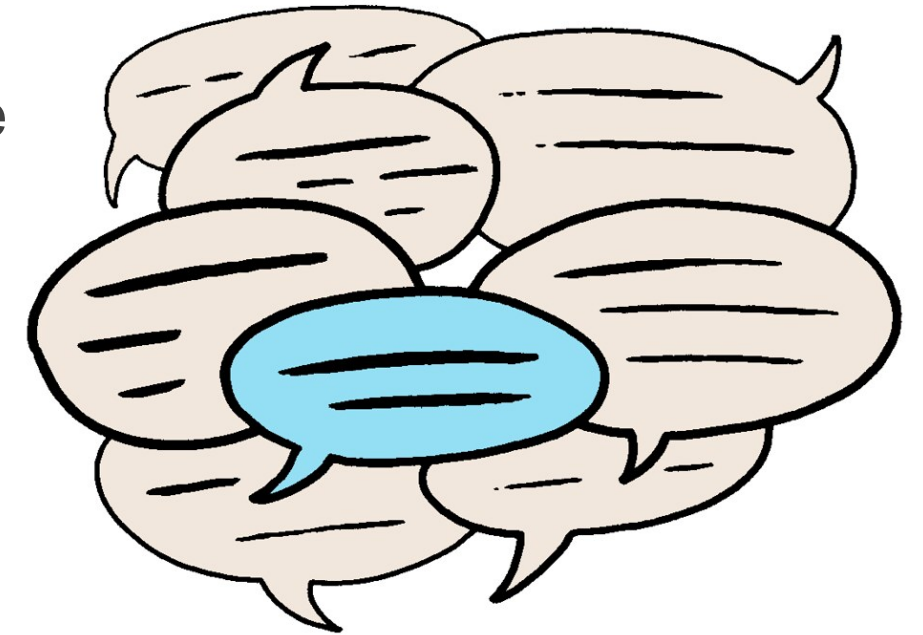
Ground rules for an AAR

- Behaviors to create a psychologically safe environment:
 - No Stripes – participants question leaders, and all opinions are valued
 - Desire to Learn and Improve – participants must believe in change
 - Anonymity – names never used in notes with exception to the action plan
 - Personal Responsibility – each participant holds their own accountability



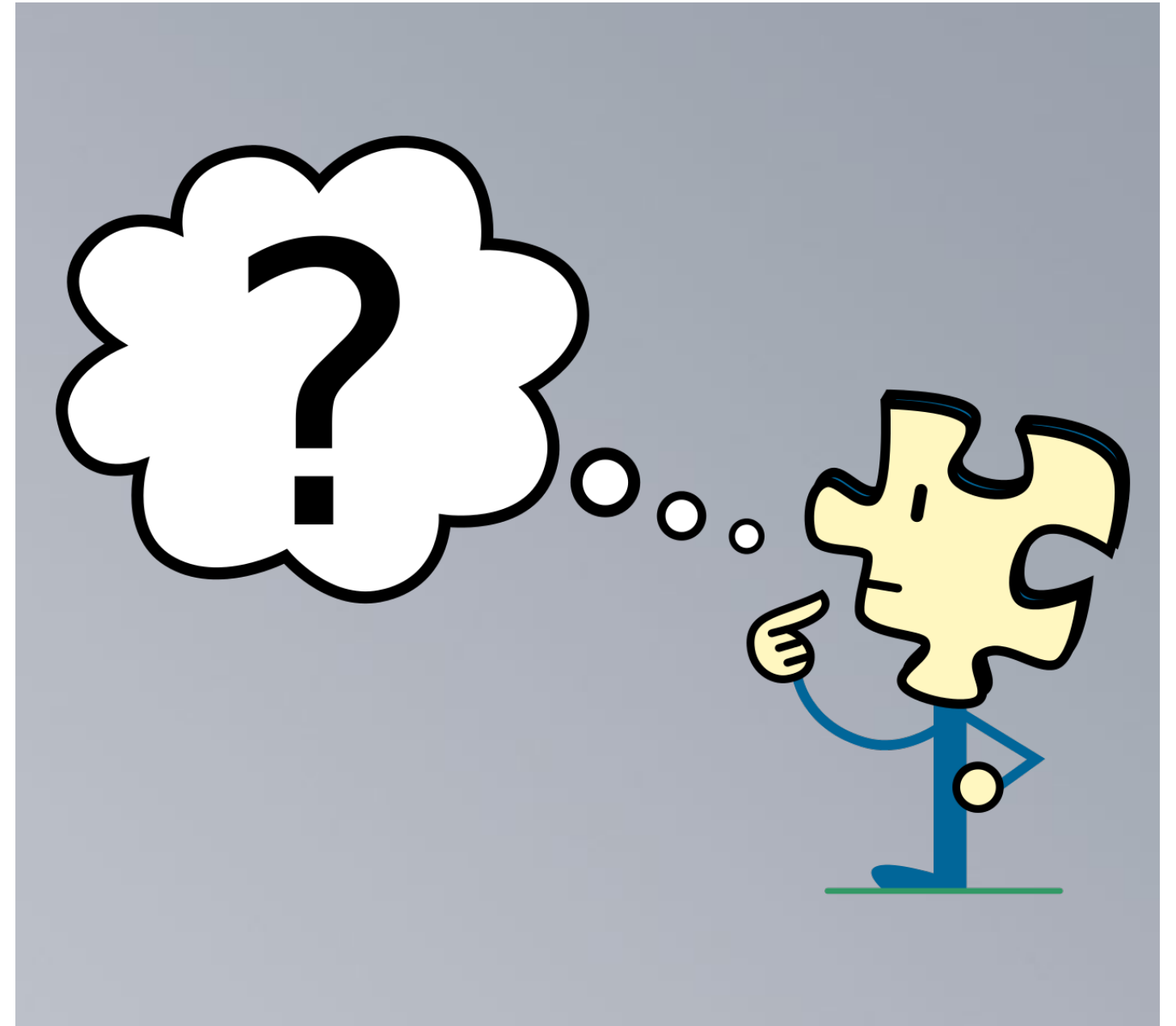
Ground rules for an AAR

- Leadership plays a key role in creating the environment for a successful AAR and should model the following behaviors:
 - Learning, not Blaming – purpose is to learn and improve, not judge; blame the process not the person
 - Open Communication – an honest, non-confrontational attitude
 - Mistakes are Valuable – mistakes offer opportunities to learn
 - Diversity of Thinking – encourage many ideas and opinions
 - Tolerance and Respect – a non-threatening environment



Four Steps of an AAR

- What was the intent?
- What happened and why?
- What are the lessons learned?
- Action plan



Example Agenda for an AAR



Project Elixir pre-qualification Tuesday, May 11

AGENDA	
1:00 – 1:10 PM	Review AAR material
1:10 – 2:25 PM	What was the intent?
1:25 – 1:45 PM	What happened?
1:45 – 2:05 PM	What did we learn? Why was there a difference?
2:05 – 2:25 PM	What actions will we take?
2:25 – 2:30 PM	Plus/Delta of AAR

Step 1: What was the INTENT?

- Safety
- Quality
- Cost / Budget
- Profit
- Schedule
- Team Building / Morale
- Tip #1: It's best when the intent is measurable. This makes it easier to describe and think through on future questions.
- Tip#2: You may find most of your intent can be related to your True North Exercise and /or Conditions of Satisfaction for your project.

What was the Intent? Example

- Zero Safety Incidents
- Zero Punch List items for the building
- High Quality construction – how would we define this as a measure?
 - Zero non-conformances
 - Zero rework
- Meet proposed building construction schedule: 8/15/2018 - 6/21/2019
- Lower construction cost as compared to Bid of \$52.3 million
- Developing a solid “building construction” team with great communications
- Process for Building – Utilize Boldt Integrated Lean Project Delivery
- Releasing areas to subcontractors completely

Step 2: What Happened and Why?

Conversation reviewed within context of intent

What is the Intent? Example

- ✓ Zero Safety Incidents
 - Zero Punch List items for the building
 - High Quality construction – how would we define this as a measure?
 - Zero non-conformances
 - Zero rework
 - Meet proposed building construction schedule: 8/15/2018 - 6/21/2019
- ✓ Lower construction cost as compared to BID of \$52.3 million
 - Developing a solid “building construction” team with great communications
- ✓ Process for Building – Utilize Boldt Integrated Lean Project Delivery
 - Releasing areas to subcontractors completely

What Happened?

- Zero Safety Incidents
 - 4 OSHA incidents
 - 1 Boldt ironworker slip on jobsite – job setup
 - 2 MEP contractors – strains – lifting, heavy weight / stretching
 - 1 roofer – object in eye – PPE improvements made
 - 7 First aids

What Happened?

- Lower construction cost as compared to Bid of \$52.3 million
 - Actual \$61.8 million
 - Scope changes by owner of \$12.2 million (total \$64.5 million)
 - Double on crew sizes as compared to concrete estimate
 - Value engineering efforts saved \$11 million in material substitution and modular construction productivity
- Process for building using Boldt Integrated Lean Project Delivery items
 - Issue with handoff between master schedule and mobilization – owner feedback mechanisms
 - Great use in planning phase
 - PPC 83% for most of field work

Steps 3 and 4: Learnings and Action Plan

- What are the lessons learned?
 - Go around the "room" and have each person share at least one lesson learned
 - As a team, vote on which lessons are the highest priority
- Action plan
 - Highest priority items – determine what needs to be done, by when, who is accountable
 - Identify a champion to ensure action plan items are being implemented



Example Action Plan

Lessons Learned							
Date		AREA	Well Done / Improve	EVENT	Lesson Learned Action	System	Process
11-May	1	Engineering	Improve	If it isn't written down, it didn't happen – memorialize all conversations/decisions	document meeting notes, incorporate big room decisions vs. only what's in the contract, scope review with trade partners and decisions in cost model – not always shared with customer, Utilize action item registers	Communication Management	Develop Communication Management Plan
11-May	2	Engineering	Improve	Culture – building relationships aids in a stronger project – early engagement	Make sure on-site team is involved in off-site teaming as part of the kick off process	Human Resource Management	Develop Team
11-May	3	Engineering	Improve			Boldt Production System	Construction Planning Phase
11-May	4	Engineering	Improve			Project Execution Gate3	Project Execution Assessment
11-May	5	Engineering	Improve			Financial Management	Estimating Planning phase
11-May	6	Engineering	Improve			Financial Management	Estimating - Planning Phase
13-May	7	Construction	Improve			Boldt Production System	
13-May	8	Construction	Improve			Project Integration Management	Project Execution Strategy - Kickoff Meeting
13-May	9	Sourcing	Improve			Project Supply Chain Management? Project Human Resource	Workforce Development
13-May	10	Construction	Improve			Project Resource Management	
13-May	11	Sourcing	Improve			Financial Management ; Project Resource Management	Estimating Planning phase; Establish Labor Rates
13-May		Admin	Improve				Communication

Direct Benefits

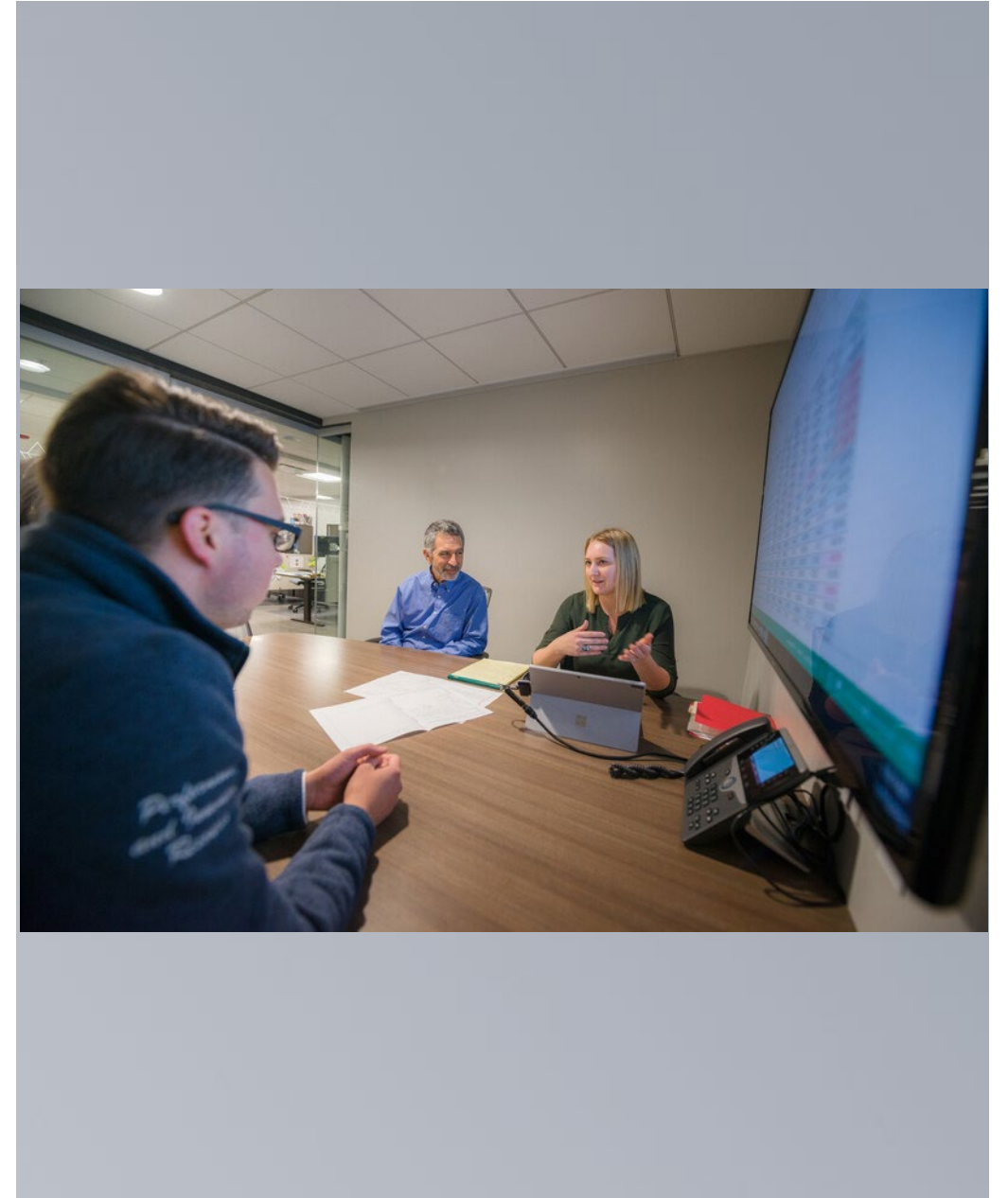
- Improved subsequent projects with Owner
- Improved Processes within Boldt
- Utilized within the business unit
- Shared with Owner on improvement plan

Before Action Review (BAR)



What is a Before Action Review (BAR) and Why?

- BARs are a more recent addition in the business field to better plan and prepare for an event
- A BAR focuses on planning a project or phase and identifying what knowledge, lessons, or experience we already have that aren't embedded in our processes
- Review of a past project's learnings improve an upcoming project
- Open, honest discussion to learn
- Documents decisions and actions to implement and sets up the framework for an After-Action Review.



Purpose of a BAR

- Main purpose: to identify potential challenges or risk and plan using prior lessons learned or experience
- Helps define critical performance areas or key leverage areas



BARs are linked to AARs

Our Framing Question: (What will it take to...? How can

Before Action Review

What are our intended results?

What will success look like?

What challenges might we encounter?

What have we learned from similar situations?

What will make us successful this time?

When will we do an AAR?

After Action Review

What were our intended results?

What were our actual results?

What caused our results?

What will we sustain or improve?

What is our next opportunity to test what we learned?

When will we do our next BAR?

Example of a BAR-AAR Chain

Installation of PCMC equipment

- Intent
 - Zero Safety Incidents
 - Zero Punch List Items
 - 5% improvement of installation hours
- BAR-AAR results
 - Zero Safety Incidents Achieved
 - Three punch list items
 - Reduced Installation Hours by 7.6%



How can you apply this tomorrow?

- AARs are a great way to focus the learning from projects and events
 - Get specific process changes embedded into the knowledge of the company
 - Focus on the must do, can't fail issues
 - Test out the AAR process for your Retrospectives
- BARs are a great way to reflect before a project or event occurs
 - Use past learning at the front end of a project
 - Create clear intents for a project (P of PDCA)
 - Use BARs on your projects to clarify and focus your project team
- AARs and BARs are effective in improving results of existing and future projects
 - Building a habit of reflection can improve specific projects and organizationally all projects.



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In the spirit of continuous improvement, we would like to remind you to complete this session's survey! We look forward to receiving your feedback.

Contact Us

Jason Schulist

The Boldt Company

Jason.Schulist@boldt.com



John Heck

The Boldt Company

John.Heck@boldt.com





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Thank you for attending this presentation. Enjoy the rest of the 23rd Annual LCI Congress!