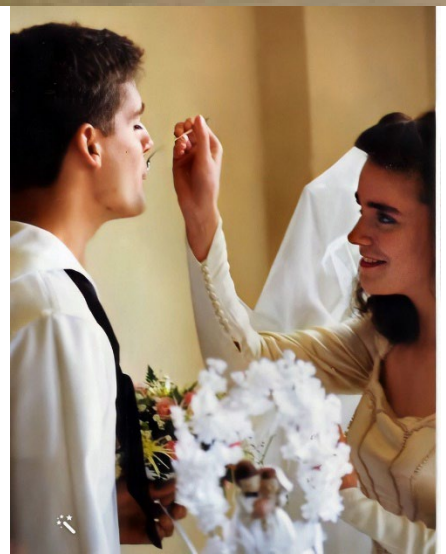

Sustain the Gain!




FIFER

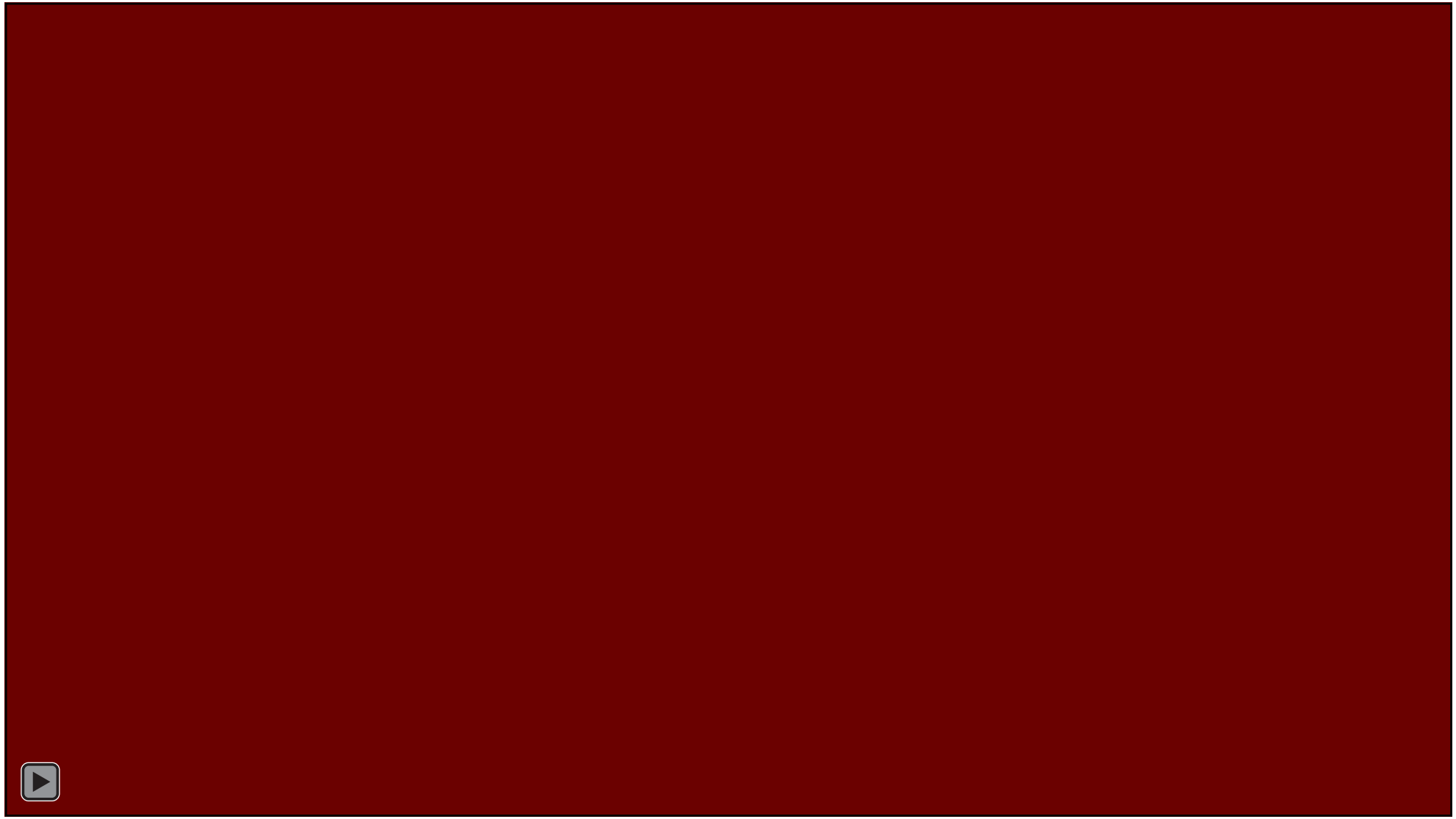
TRF Bangor
Transformation Program

- Who are we
- Our Lean Journey
- USN Innovation History
- Moonshine Rapid Prototyping
- Discrete Event Simulation

- New Capabilities/ Tech Insertion*
- Tactical Focus Areas*

West Coast Strategic Deterrence

Incremental Maintenance

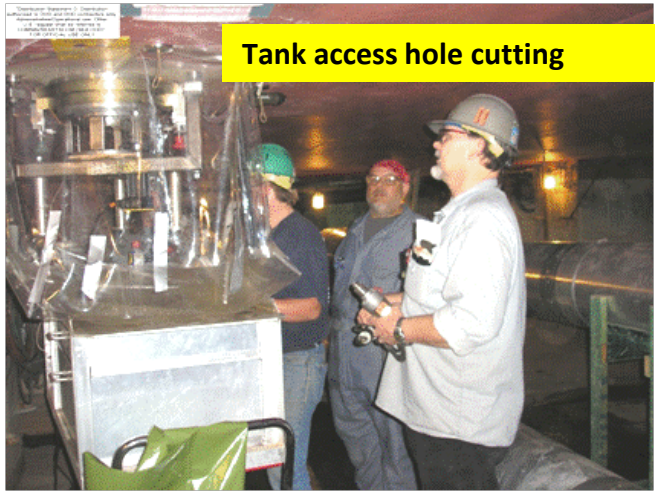


Training Within Industry

Part 1, starting page 10:
https://www.flipsnack.com/kredmond/the-federal-manager-fall-2022.html
Part 2, starting page 14:
https://www.flipsnack.com/kredmond/the-federal-manager-winter-2023.html
Part 3, starting page 11:
https://www.flipsnack.com/kredmond/the-federal-manager-spring-2023.html

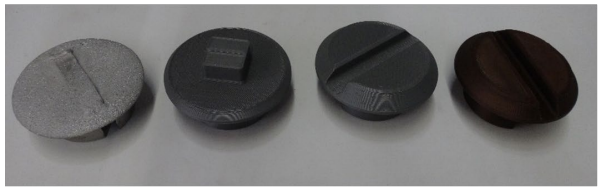
Moonshine is a *"Try Before You Buy" capability*
(aka Try-Storming vs. brainstorming)

Do everything to simulate, test and experiment before committing to any solution.
The *PHYSICAL* nature of Moonshine creates ideas previously impossible to attain.



Tank access hole cutting

Topside Stanchion FME

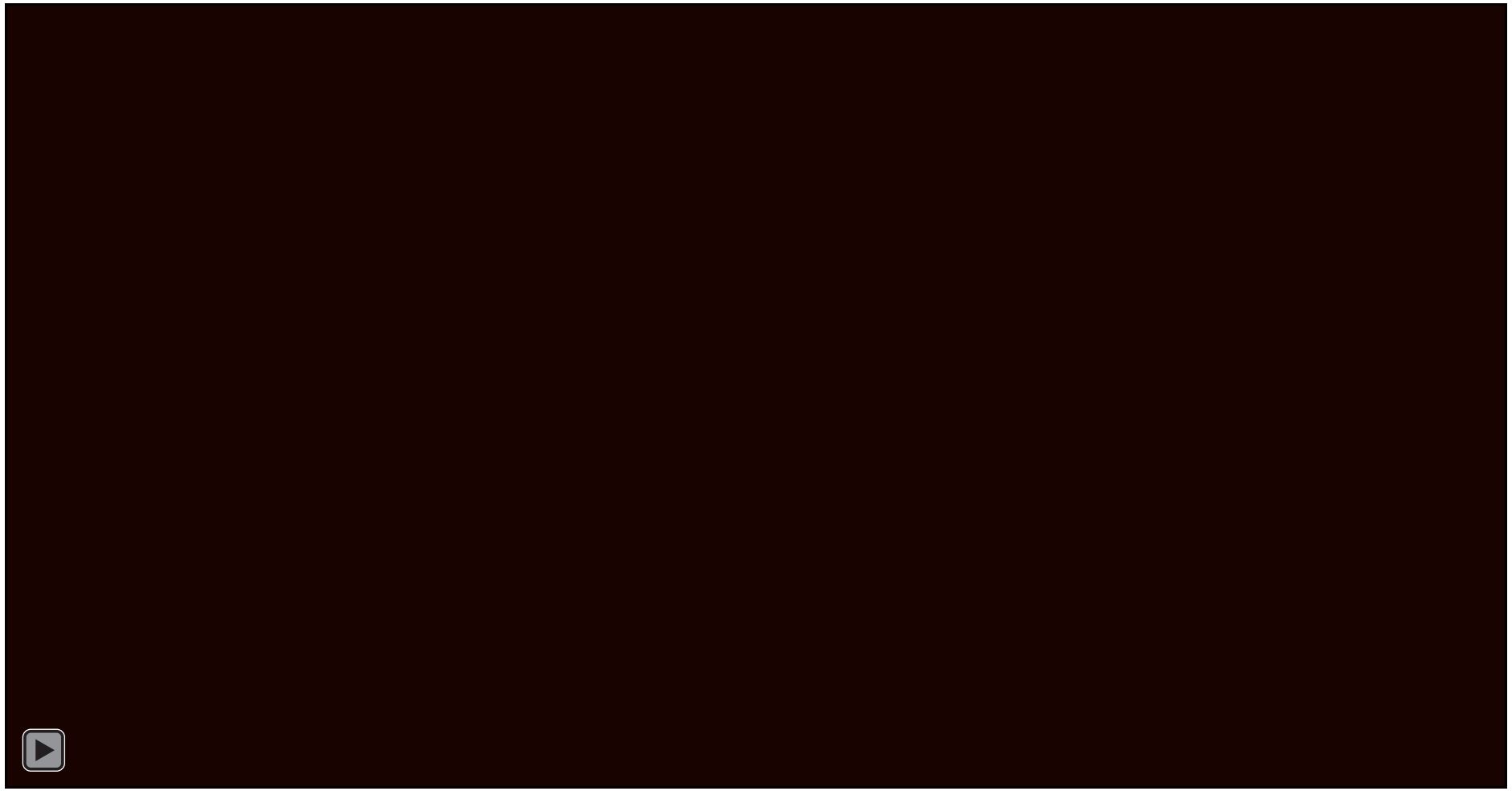


Mobile mast repair stand

Shipboard tool kit

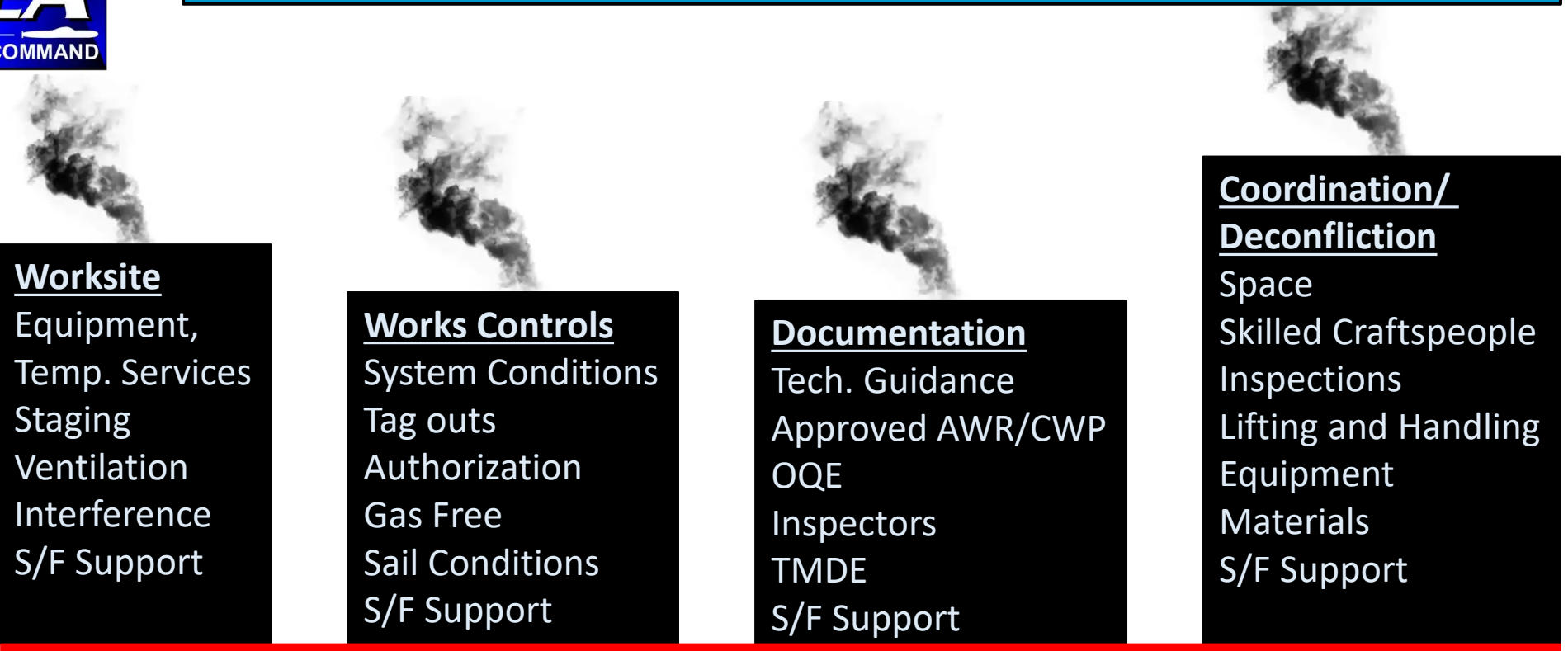
LEARN BY DOING!

Discrete Event Simulation



Study ⇨ Build ⇨ Test ⇨ Refine ⇨ Hypothesize

Status/ Information Flow Constraints



Worksite
Equipment,
Temp. Services
Staging
Ventilation
Interference
S/F Support

Works Controls
System Conditions
Tag outs
Authorization
Gas Free
Sail Conditions
S/F Support

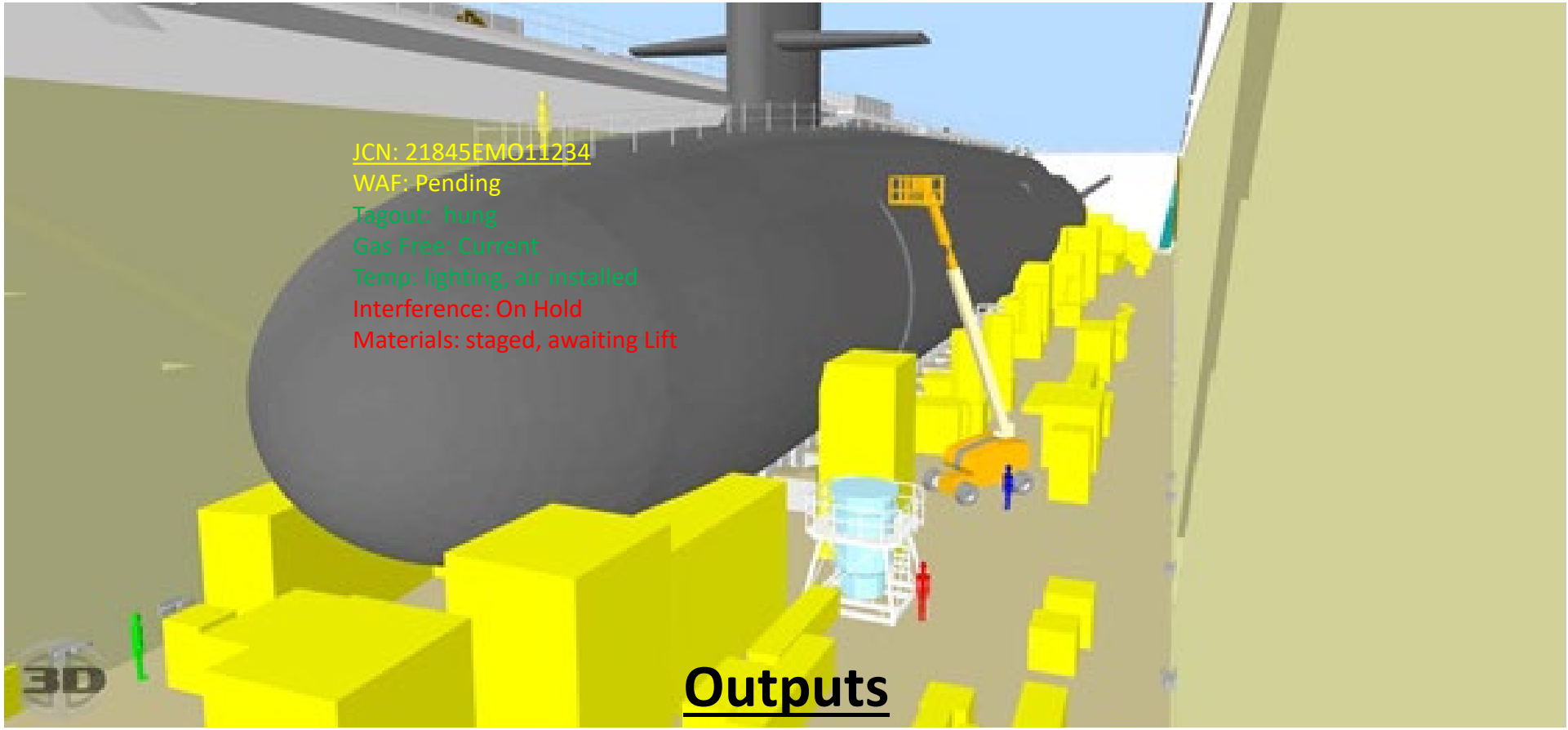
Documentation
Tech. Guidance
Approved AWR/CWP
OQE
Inspectors
TMDE
S/F Support

Coordination/ Deconfliction
Space
Skilled Craftspeople
Inspections
Lifting and Handling Equipment
Materials
S/F Support

Meetings, Paper, Overhead, Multiple Databases
300+ ManHours / Day at TRFB

Future
Automated Tracking, Information Streams, Accessible User Interface

VISUAL Solution



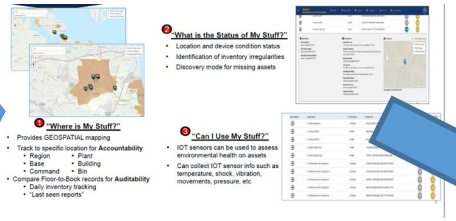
Outputs

Real Time: Job Status, Project Management Updates,
Filter and Automate Notifications,
High Fidelity Data for Modelling and Risk Management

Logistics

AVM

NADACS



Mission Database(s)

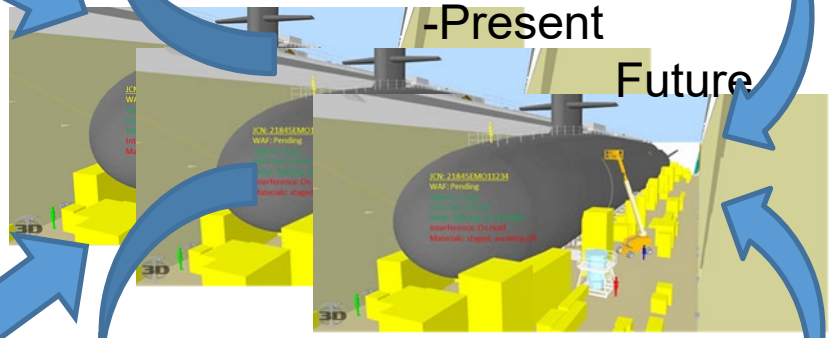
DATA INPUT

Project Management

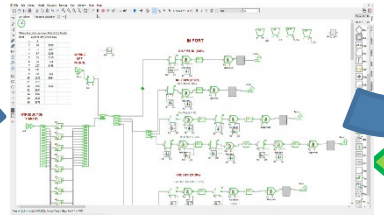
LIVE -Past

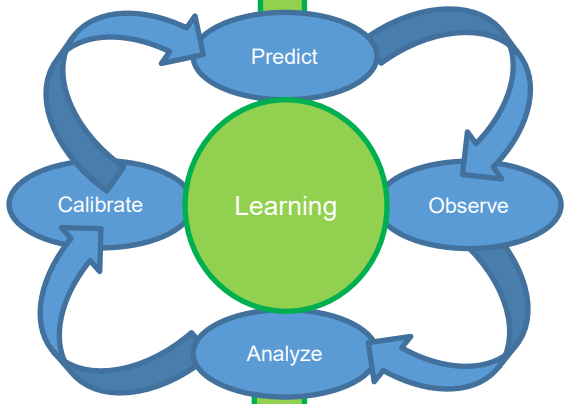
-Present

Future



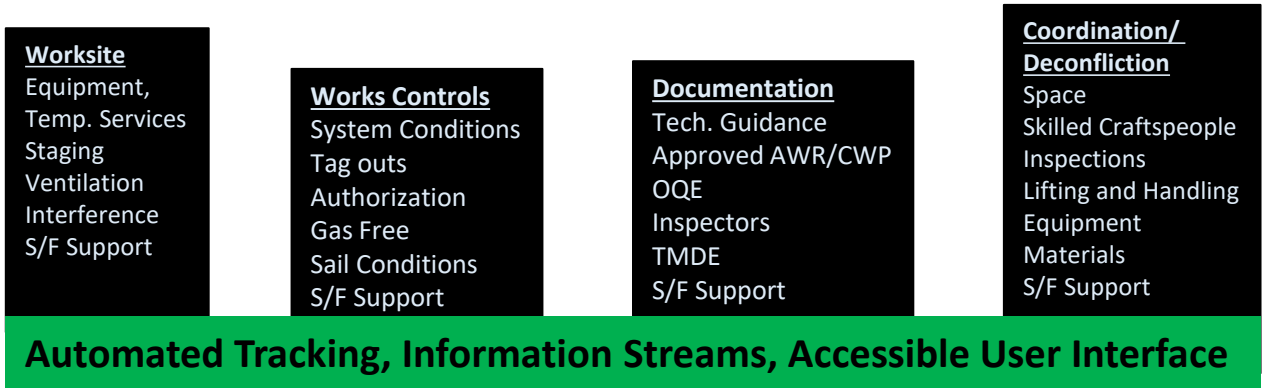
DES





AVM: Asset Visibility Management (Input devices)
NADACS: Naval Autonomous Data Acquisition System (Database)
LIVE: Logistics Integration Virtual Environment
DES: Discrete Event Simulation

Conclusion



- Tangible Value within 6 months
- Worksite Visualization for Status and Planning
- Auto Status Updates
- Data Fidelity for Planning and Process Modelling
- Improve 3D Modelling of Infrastructure and Blue Gear
- Drive Culture Change to Prepare for Project Blue Solutions

Conclusion

- Start with Origin stories
- Have a top down and bottom up strategy
- Find your Tims
- Low Tech. first, then new capabilities
- Start building the foundation to leverage AI/ML

Questions?

www.yachtfifer1928.com

@ZIGGYHASBOATADVENTURES
Instagram

@YACHTFIFER1928
Instagram

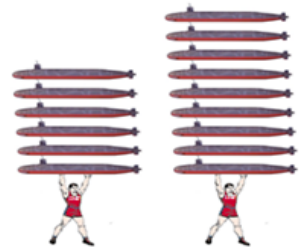
Prework

Champions: Lt. Benton, Rick Baker
Blackbelts: Vince Stamper, Diana Perea

Lean

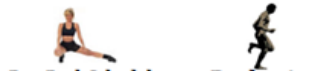
Command Goals

Problem:
Submarines Supported at IMF



FY 05' FY 06'

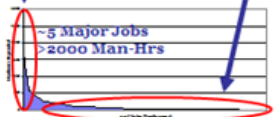
Strategy:
Select Projects to Increase



Dry-Dock Schedule **Flexibility**

Production **Capacity**

Pareto Chart of Refit Jobs
~750 Jobs Total
Typical Dry-Docking Refit



~500 Jobs < 24 Man-Hrs

- **Pre-work Process/ New Work Control Group**: Design a process which results in the mechanic going to the boat to find the tag-out and WAF complete and work is ready to start
- **Work Package Routing**: Reduce flow time, wait time, and package handling thus getting the package into the mechanics hands quicker

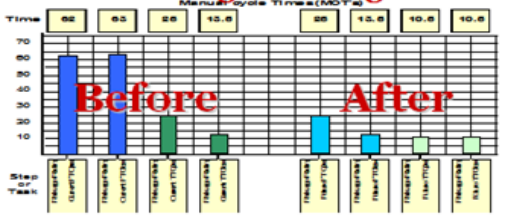
The Hidden Factory

Data Collection Revealed

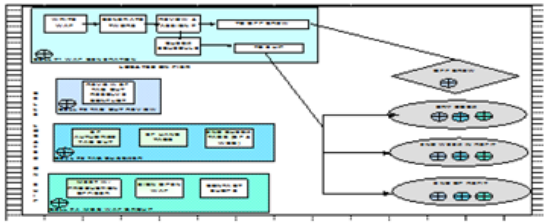
~30%

(12.3 Hours) Of a Mechanics
40 Hour Work Week
Was spent routing WAF's & Tagouts (Pre-work)

Package Routing

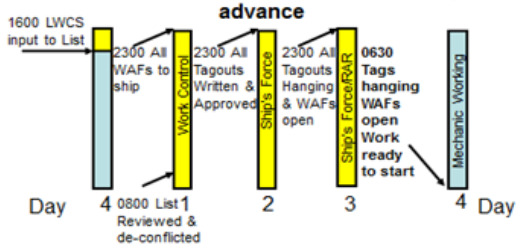


New Work Control Cells

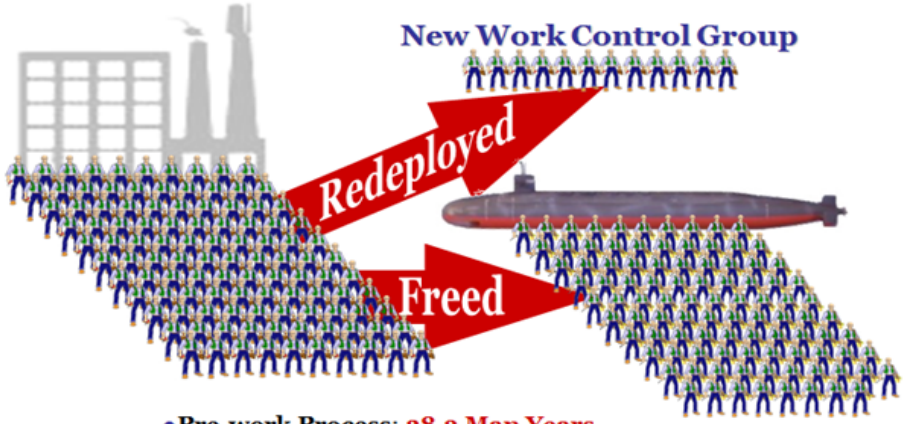


4 Day Rolling List

Lead Work Center Supervisors (LWCS) de-conflict and schedule one days worth of work 3 days in advance



New Work Control Group



- **Pre-work Process**: 28.3 Man Years
- **New Work Control Group**: 59.8 Man Years
- **Work Package Routing**: 278,000 flow time hours (based on 2,000CWP's & 6,000 FWP's per year)
- ~ 38 Man Years

Packag Routin s

17 Days to <2 Days

(Based On Data Collected After Event)

Pre-Work Process

Intermediate Maintenance Facility Bangor

Project Description / Expected Outcome:
The Pre-work Process of running Tag-outs, opening WAF's, and routing Work Packages affects approximately 90% of all work performed during any refit period. In the current state, this administrative work is performed by the mechanics. The team goal is to have all pre-work completed prior to the job being issued to the mechanic. This would free the mechanic to do more value added production work.

Value Stream Champions: LT Benton / Rick Baker
Black Belts: Vince Stamper / Diana Perea

Status:

Pre-Work Process VSA- Jan. 18 – 21, 2005
Action Item List – Complete

New Work Control Grp RIE – Feb. 28 – Mar. 4, 2005
Action Item List – 92% Complete

Work Package Routing RIE – April 25 – 29, 2005
Action Item List – 87% Complete

Full Implementation by September 1,2005

Metrics:

Metric	Baseline	Goal	Current	% Change
Pre-Work Increased Work Capacity	5911MDs	7389MDs		125%
New Work Control Group Cell	100MDs per day	40MDs per day		60%
Work Package Routing	15.6MHs	8.75MHs		88%

Cost to Accomplish:

- Team Costs $ 76,494.00
- Material/Equipment $ 0.00
- **Total Project Cost $ 76,494.00**

Cost Savings:

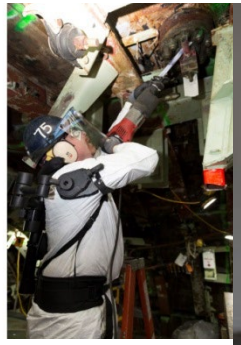
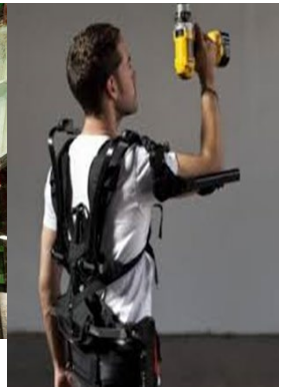
- Reduction in Cycle Time $ 8,307,834.00

First Year Projected Savings: $ 8,307,834.00

3 Year Projected Savings: $ 39,194,940.00

Status - As of: 08/26/2005

Augment and Protect

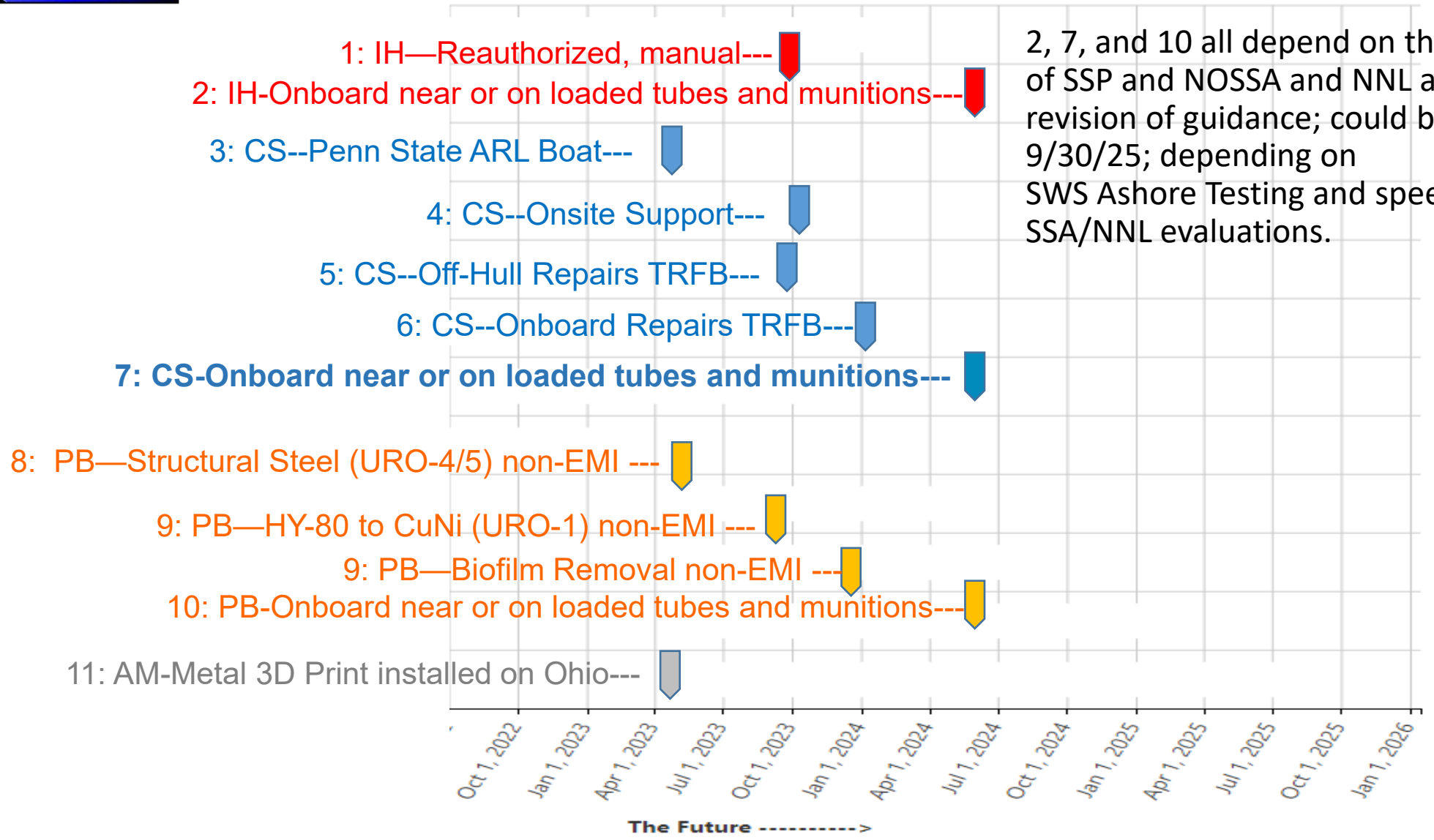
2011	2012-13	2015	2015	2015	2016	2017
						
Distribution Statement A: Approved for public release: Distribution is unlimited	**Distribution Statement A**: Approved for public release: Distribution is unlimited		**Distribution Statement A**: Approved for public release: Distribution is unlimited		**Distribution Statement A**: Approved for public release: Distribution is unlimited	
LM HULC 2-days	**LM Mantis 18-months**	**LM Fortis Own**	**BAE OLAD Own**	**Equipois Own**	**EksoBionics Own**	**Suit X Own**

Description: PSNS&IMF has trial tested seven (7) exoskeleton systems since 2011. This promising human augmentation technology can make holding an industrial tool feel weightless, improving both ergonomics and productivity.
Problem: There are no nationally recognized standards or test methods. We collaborated with NIST to develop ASTM F48.
Solution: Human Factors and Ergonomics engineers to collaborated to develop standards and test methods, and to funded the set-up of a NIST Exoskeleton test lab to support testing. POC: Ron Zmijewski, PSNS&IMF (360) 340-1226

Tactical Focus Areas

- **Expand Capability:**
  - Plasma Blast
  - Cold Spray
  - Through Paint Inspection
  - Controlled Industrial Material Marking
- **Discrete Event Simulation:**
  - Waterfront Operations
  - Refit Closeout with plan to expand to the left
- **Command Initiatives:**
  - Onboarding continued
  - Military Time
  - Facilities VSA

Technology Insertion Milestones



2, 7, and 10 all depend on the speed of SSP and NOSSA and NNL analysis and revision of guidance; could be 9/30/23 or 9/30/25; depending on SWS Ashore Testing and speed of SSP/NO SSA/NNL evaluations.