CNO Availability Planning

SEAPOWER THROUGH ENGINEERING

TOPIC LEARNING OBJECTIVES

Upon successful completion of this topic, the student will be able to:

1. Recognize the need for balance between flexible requirements and stable requirements / early planning.
2. Identify the five sources of jobs contained in Availability Work Packages (AWP).
3. Identify the process for AWP development.
4. Identify the names, abbreviations and purposes of typical CNO availability planning products.
5. Identify the duties of the key Project Team members during availability planning.
6. Identify the similarities and differences in the work definition and planning processes across different ship platforms in accordance with Surface Team One, Carrier Team One and Sub Team One.
7. Identify the benefits of Multiple Award Contract Multiple Order (MACMO) contracts when planning ship maintenance.
8. Identify the roles and responsibilities of availability planning activities/organizations.
9. Recognize the planning goals to be met prior to availability start.
10. Given a simple Gantt chart with defined task relationships, identify the critical path.

STUDENT PREPARATION

Student Support Material

1. 4.2.1 and 4.2.2 Reading

Primary References

1. COMFLTFORCOMINST 4790.3 (series) (Joint Fleet Maintenance Manual (JFMM))
2. NAVSEAINST 4790.23 (series) (Baseline Project Management Plan (BPMP))
3. Baseline Advanced Industrial Management (AIM) Process Manual
4. NAVSEA Standard Items (http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC/NSI.aspx)

Additional References

1. Carrier Team One Official Site (https://usff.navy.deps.mil/sites/cnal/CT1/SitePages/Home.aspx)
2. Submarine Team One Official Site (https://navsea.navy.deps.mil/hq/07/PMS392/ST1/Website/default.htm)
3. Surface Team One Official Site (https://navsea.navy.deps.mil/sites/ST1/SitePages/default.aspx)

Must request access to all websites.

Overview

- Balancing requirements
- Enterprise planning
- Availability Work Package (AWP)
- Work definition and scheduling
- Management teams
- RMC contracting

Planning and Requirements

- Customer
  - FLEET/TYCOM
  - The entity paying for the CNO Availability
  - Wants all work incorporated as early as possible to achieve a fully integrated schedule that meets planned duration

- Planning Activity
  - Public or private
  - Trying to plan, sequence, schedule, and order material to make the availability a success
  - Planners want to keep work within budget to ensure capability to accomplish work
  - Planners want to define and schedule work around available resources and tooling

Must balance funding, operational commitments, time-based maintenance requirements, workload, and workforce restrictions

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Carrier Team One

- Mission: Improve performance of aircraft carrier maintenance availabilities by focusing on improving availability planning and execution processes

- Executive Steering Council (ESC) includes:
  - NAVSEA (08P, 04XC), NAVAIR, NAVWAR
  - AIR LANT/PAC
  - Norfolk Naval Shipyard/Puget Sound Naval Shipyard
  - Supervisor of Shipbuilding (SUPSHIP) Newport News
  - PMS 312 In-service Aircraft Carrier
  - Carrier Planning Activity (CPA)
  - Newport News Shipbuilding (Contractor)
  - OPNAV

Surface Team One

- Mission: To affect positive change by meeting ships Expected Service Life (ESL) and addressing current readiness challenges
- ESC includes:
  - SEA 21/CNRMC
  - PEO USC, PEO IWS, PEO C4I
  - Fleet and TYCOM N43
  - Surface Maintenance Engineering Planning Program (SURFMEPP)
  - OPNAV N83
  - SEA 04, SEA 05
- Building a community that thinks of maintenance in terms technical requirements, the long-term impact of maintenance conducted today, and collaborating on engineered products
- Developing and implementing processes and policies for enduring change
- Developing the workforce to build knowledge and expertise, building teams for collaborative and integrated execution of work
- Command alignment and structure renewed to serve as a stronger partner to the Fleet

Naval Sustainment Systems-Shipyards (NSS-SY) Initiative

- Purpose: Navy's overarching initiative to drive ***transformational reduction in availability duration*** for the Navy's nuclear-powered warships. The goal is to deliver ***all availabilities on time, have 80% of SSNs not idle/in depot availabilities, and meet class maintenance plan (CMP) by FY26***
- NSS-SY is a business and process improvement initiative to increase the on-time delivery of submarines and aircraft carriers across all four public shipyards
  - NSS-SY improves work execution by streamlining processes, enhancing coordination between work groups and dismantling barriers
  - Personnel directly benefitting from the NSS-SY effort have provided feedback this is helping to track and accomplish jobs in a more timely manner
  - The goal: to not just improve the way we currently do things, but to fundamentally transform them, by eliminating certain functions if they do not provide value
  - A collection of commercial industry best practices, tailored to specific needs

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Sources of Work Candidates

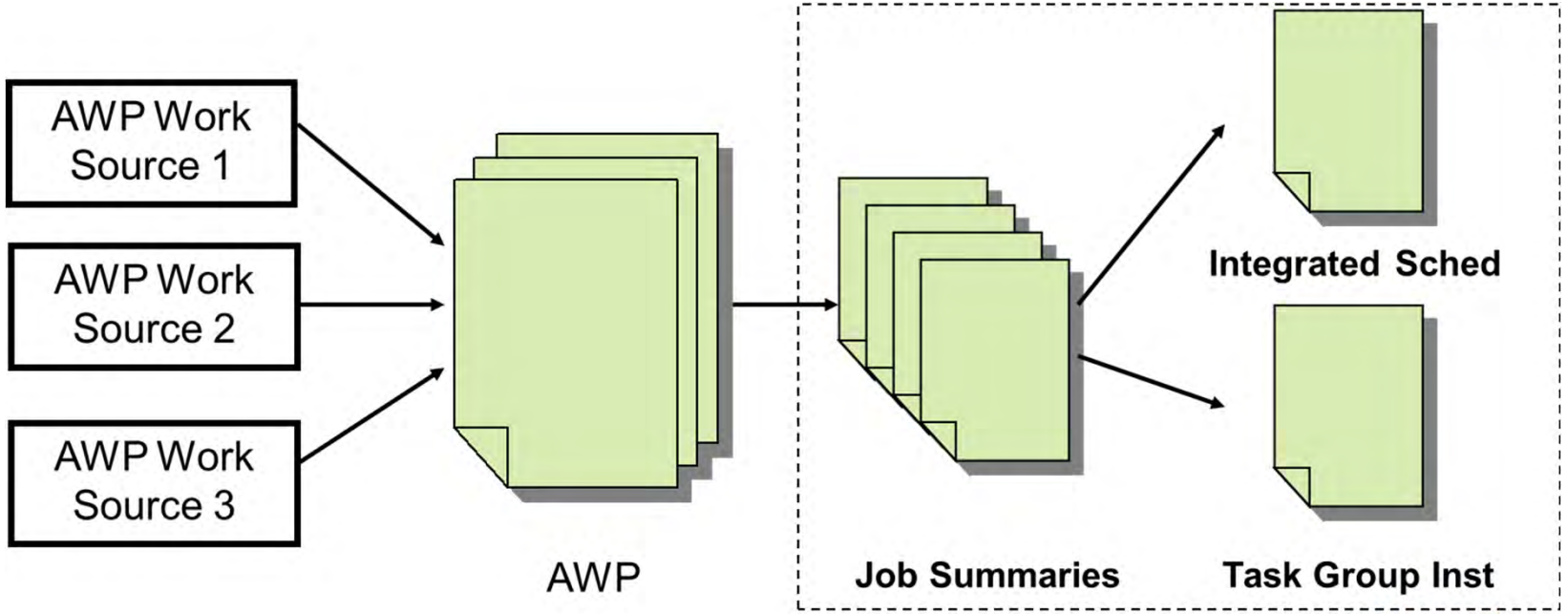
- Class Maintenance Plan (CMP) or Integrated CMP (ICMP)
  - Developed by Program Manager
  - Consists of routine work (e.g. planned maintenance, component/compartment inspections) envisioned at ship design
- Authorized alterations
  - Program (K-Alt) and Fleet (D-Alt) alterations
- TYCOM authorized repairs
  - TYCOM repairs
  - Jobs associated to clear Departures from Specification (DFSs) and Temporary Standing Orders (TSOs)
- Results of pre-availability test and inspections
  - Total Ship Readiness Assessments (TSRA)
  - Pre-Overhaul Tests/Pre-Availability Tests (POTS/PATS)
- Current Ship Maintenance Project (CSMP)

Pre-start Goals

- Ordering long lead-time material (LLTM)
- Special tooling on-site
- Early start requirements
- Critical path/key events known and included in the integrated schedule
- Logistics concerns addressed
  - Infrastructure (adequate power, water, support systems available)
  - Berthing barge
  - Galley
  - Force protection
  - Local Area Network (LAN) migration
- Training for crew on shipyard procedures
- On-time contract award or definitization

*The most important output of the planning process is an **integrated schedule** of all work for the availability*

Public Shipyard Availability Work Package (AWP)

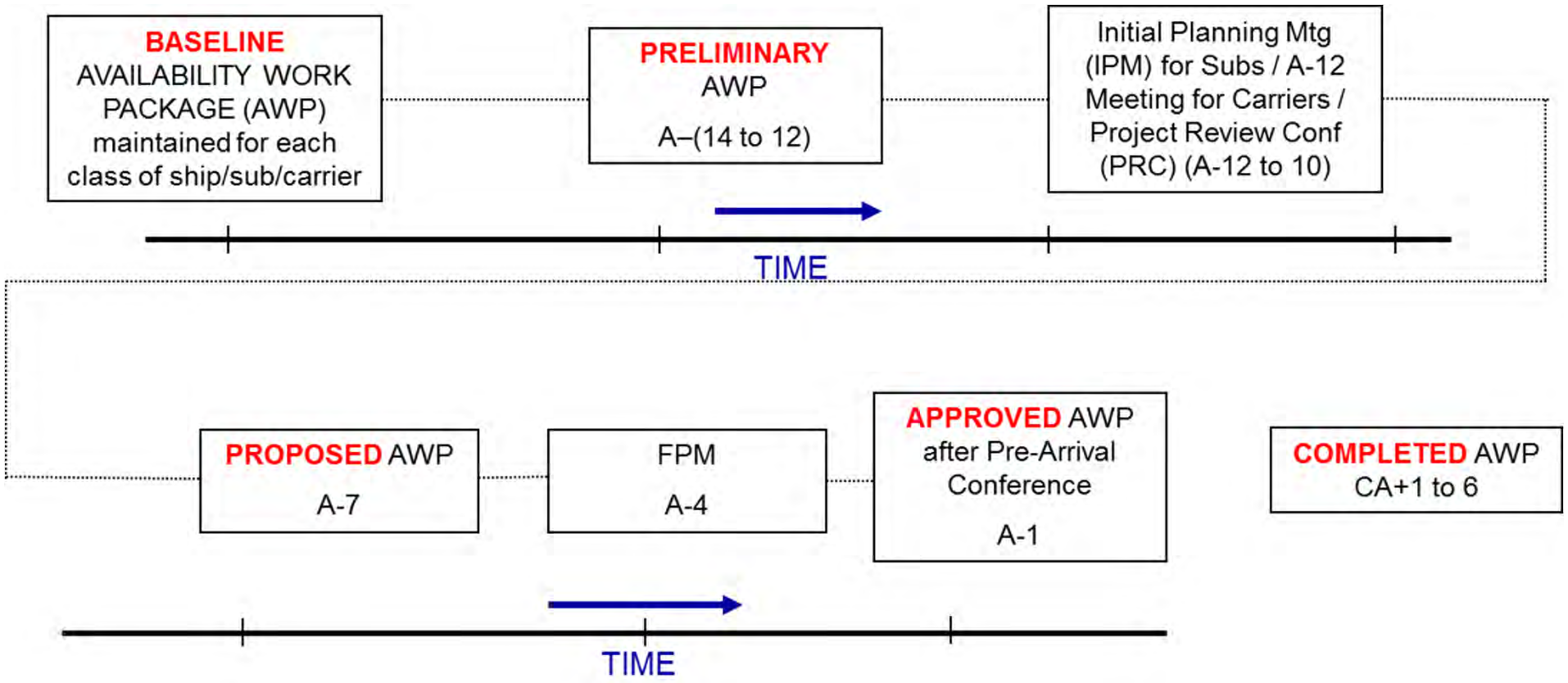


Public Shipyard AWP Development

- Baseline AWP: A-36 months
  - Planning requirements developed and maintained by
    - Submarine Maintenance Engineering Planning Program (SUBMEPP) (Submarines)
    - Carrier Planning Activity (CPA) (Aircraft Carriers)
- AWP Initial Issue: A-21 months
  - Consolidation of Baseline AWP, authorized alterations, and repairs
- Proposed AWP
  - Results of pre-avail test & inspections and Proposed AWP are reviewed by TYCOM for approval
  - Initial Planning Meeting (IPM) for submarines
  - A-12 meeting for carriers
  - Includes all authorized work tailored to specific ship
- Post Final Planning Meeting AWP: A-3 months
  - Results of pre-avail test & inspections and Proposed AWP are reviewed by TYCOM for approval
- Completed AWP
  - Issued within 6 months of availability completion

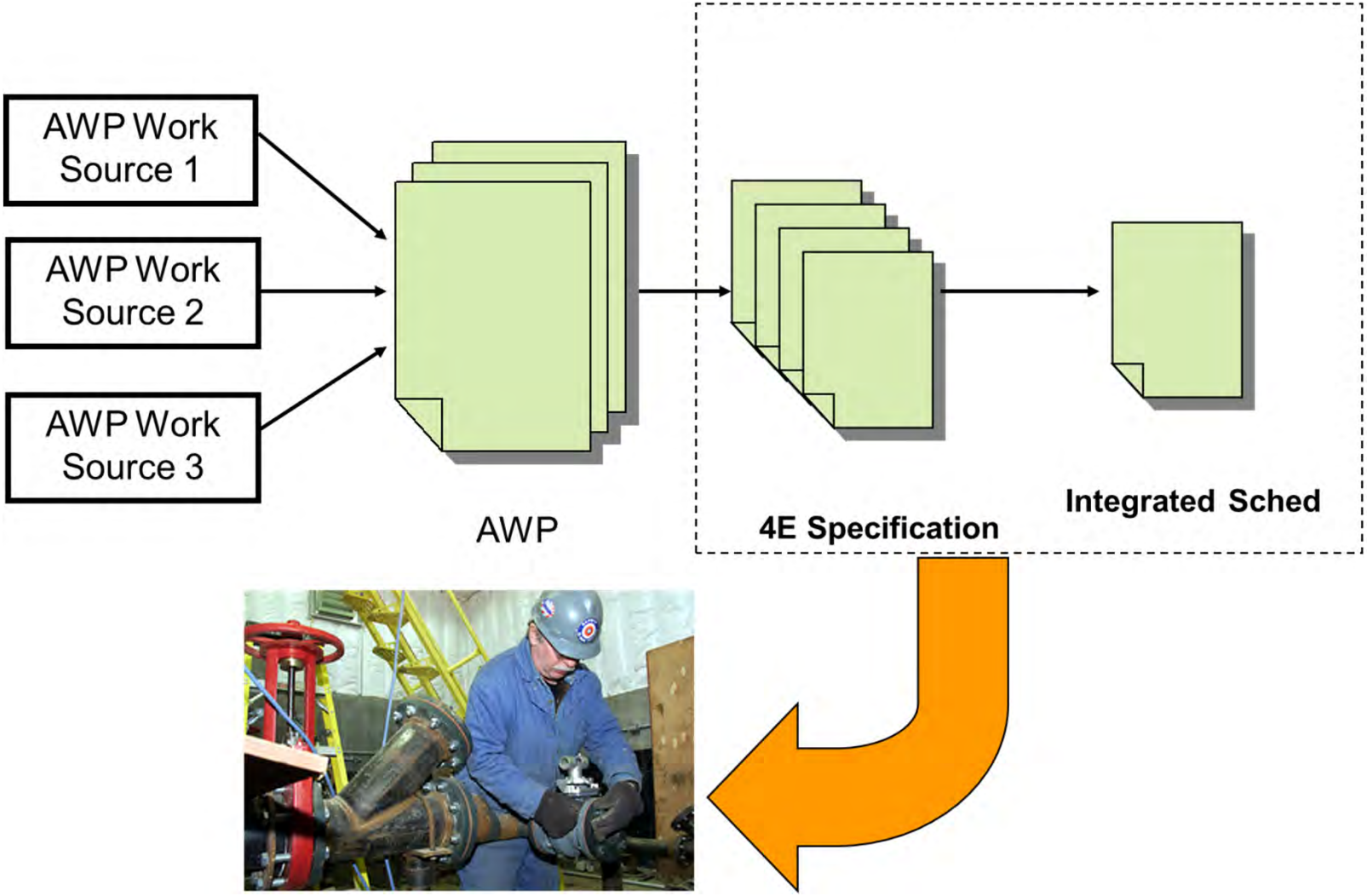
AWP develops as time passes and AWP requirement sources gain fidelity

Public Shipyard AWP Development



Always check your guidance - timelines vary between enterprise

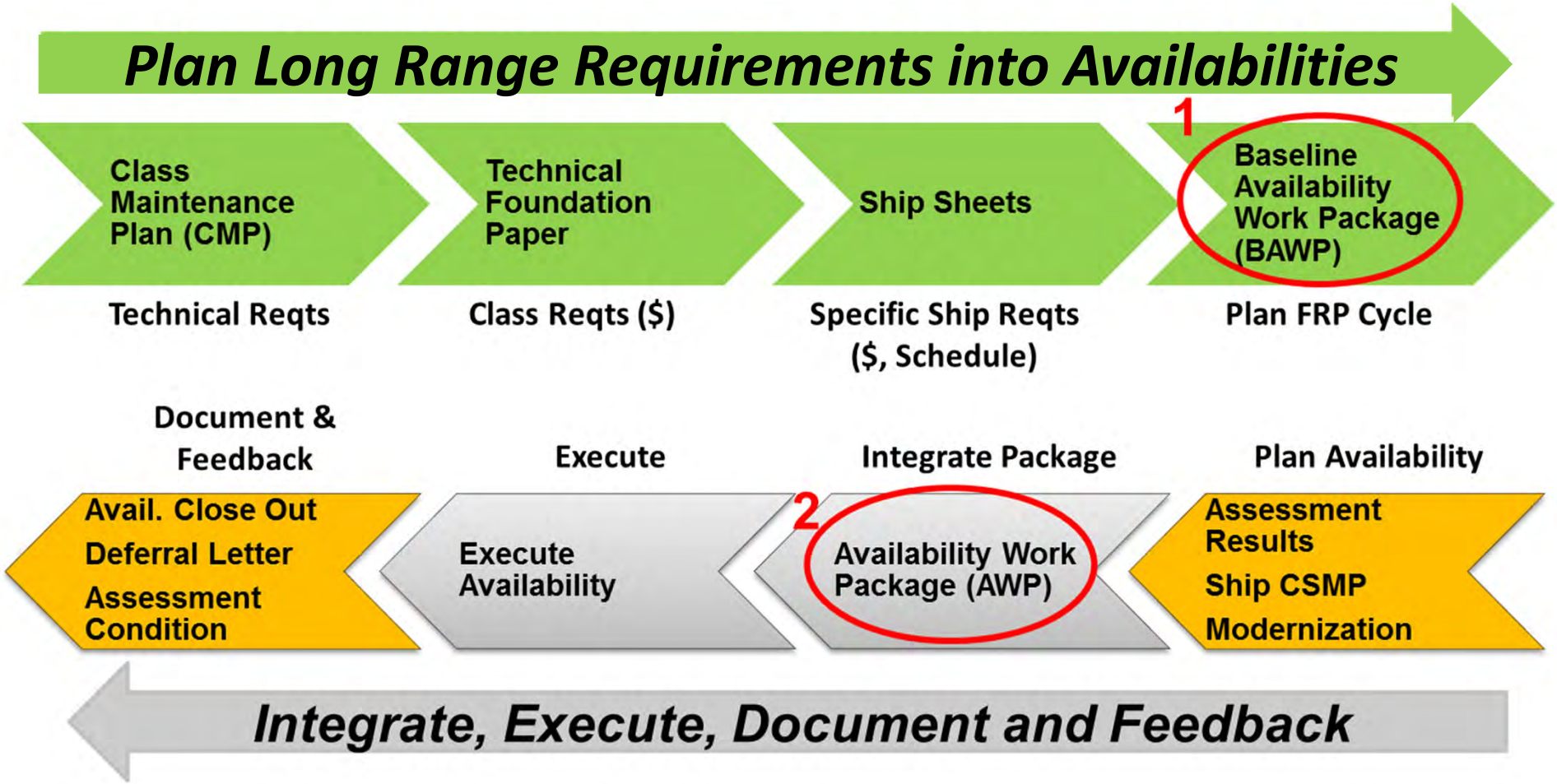
RMC AWP


AWP Work Source 1
AWP Work Source 2
AWP Work Source 3
AWP
4E Specification
Integrated Sched

RMC AWP Development

- Baseline AWP (BAWP)
  - Planning requirements developed and maintained by SURFMEPP
  - Includes input from:
    - Class Maintenance Plan (CMP)
    - Technical Foundation Paper (TFP)
    - Ship Sheets
- Availability Work Package (AWP)
  - Refines BAWP at A-360; balances ship's life-cycle maintenance and current readiness
  - Includes input from:
    - Assessment results
    - Ship CSMP
    - Modernization

RMC AWP Development



Overview

- Balancing requirements
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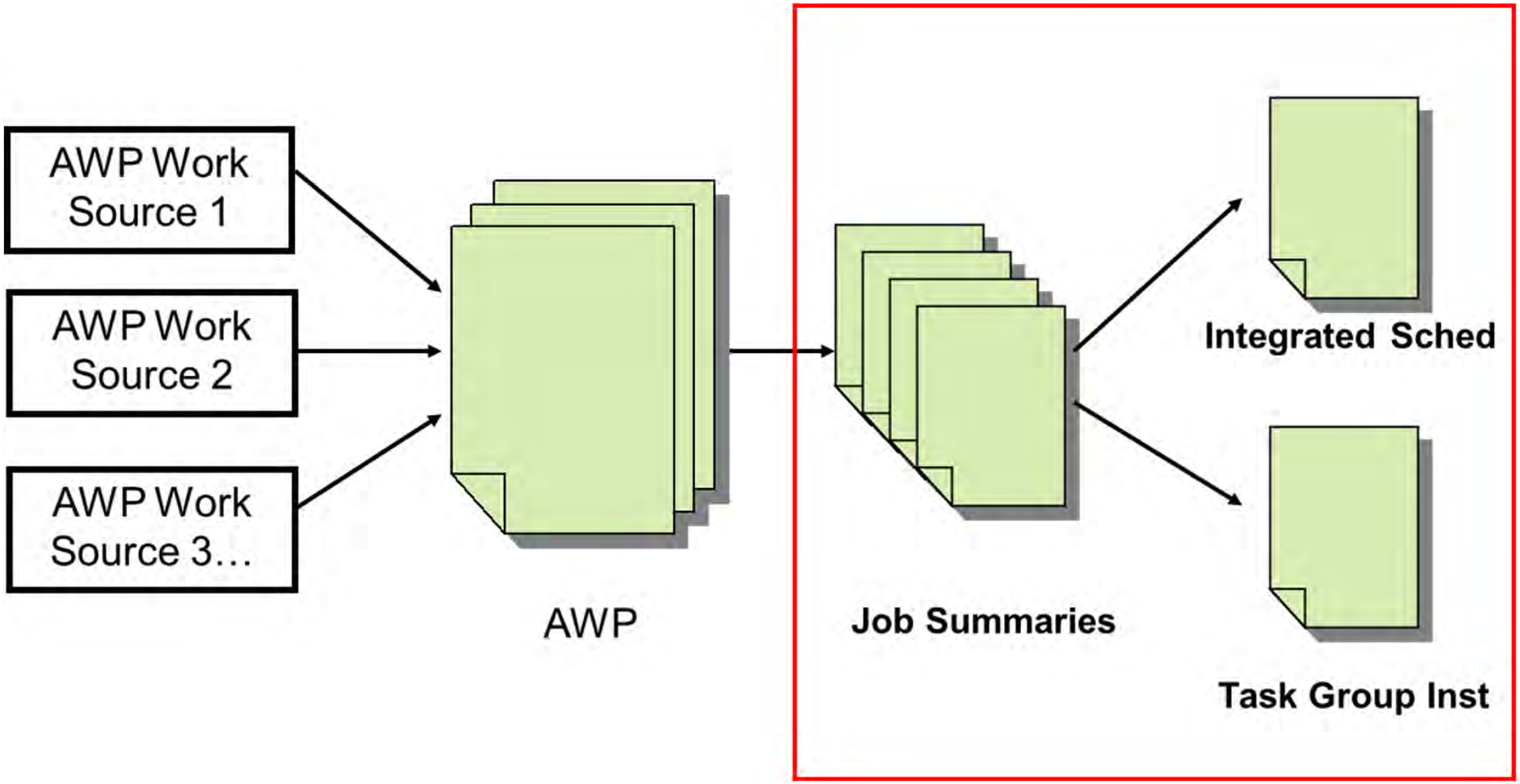
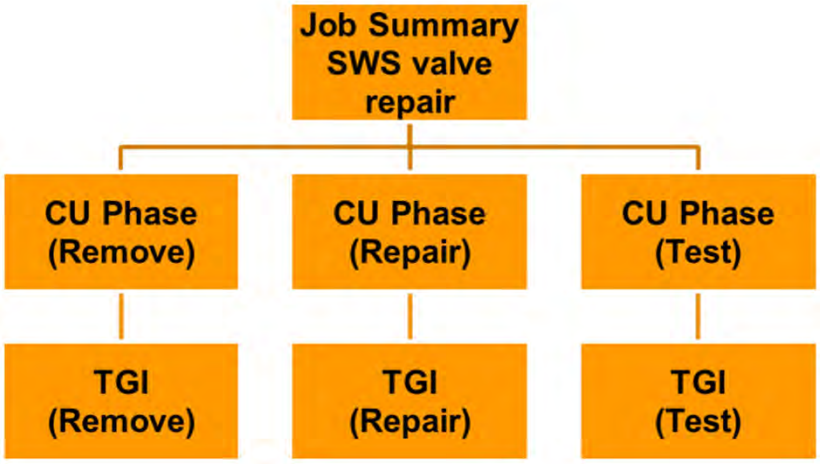
- Availability Work Package (AWP)
- Work definition and scheduling
- Management teams
- RMC contracting

Public Shipyard Work Definition



Public Shipyard Work Definition



- ***Job Summary (JS)***: Contains all data to plan and schedule work within a work evolution
  - Contains a number of CU's, associated phases, and phase sequence that make up a logical grouping of work (CU Phase)
  - Also has task list, required material, required trades, and man-hour estimates
- ***Component Unit Phase (CU Phase)***: A specific phase of work performed on a specific Component Unit
- ***Task Group Instruction (TGI)***: Provides detailed work instructions and other necessary technical information to accomplish specific tasks within a CU Phase
- ***Component Unit (CU)***: A physical piece of equipment or hardware that is the unit of work control
- ***Phase***: Standard work process performed on CUs (U, A, H, R, T)

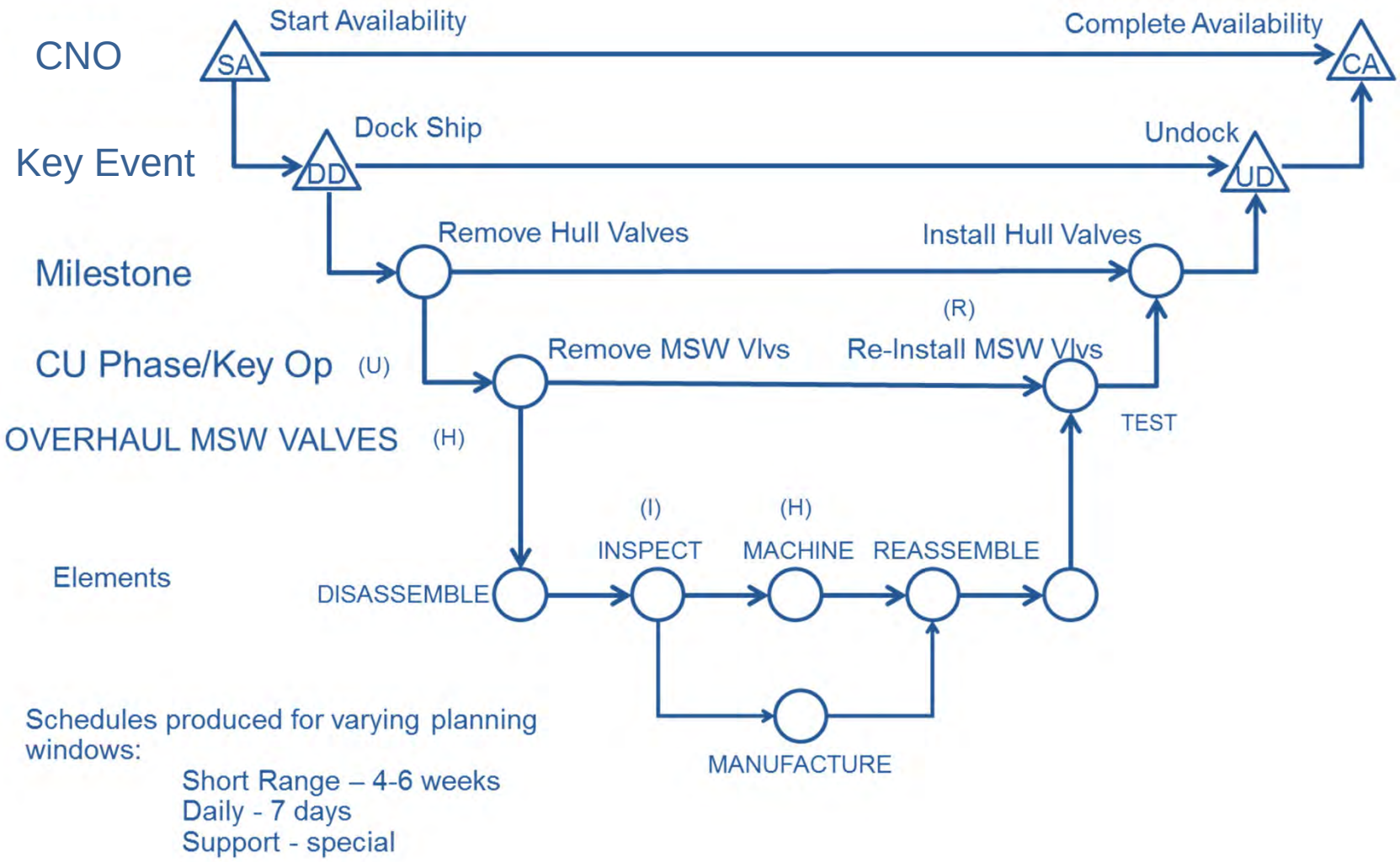
Shipyard Component Unit Phases

- A: Repair or service onboard ship
- C: Calibrate, align, or adjust
- D: Open and inspect, or disassemble
- E: Component or system restoration prior to testing
- F: Prefabricate, fabricate
- H: Repair, service, modify, or other work off ship
- I: Inspect
- K: Clean, flush, sandblast, or prepare for preservation
- M: Maintain or perform preventative maintenance
- P: Paint, preserve, or coat
- R: Reinstall, install or close, reassemble
- S: Stage, prep for next phase, perform service or training
- T: Test
- U: Unship, rip-out, or remove

Public Shipyard Integrated Schedule

- Define the Authorized Work Package (AWP)
- Establish ***Key Events***: High level breakdown of principle activities with hard dates set for completion
- Establish ***Milestones***: Lower-level event that is tied to a specific Key Event and must be completed prior to meeting/completing the Key Event
- Develop ***Job Summaries***: Strategic grouping of work per ship's system
- Establish sequence of CU Phases (part of job summary)
- Create Network Diagram using Program Evaluation Review Technique (PERT) programs (e.g., Concerto): The order that CU Phases milestones, and key events will be performed
- Integrate Ship's Force, Contractor, and Alteration Installation Team (AIT) work items into the network
- Estimate resource requirements
- Estimate time/duration and cost
- Determine ***Critical Path***: Longest sequence of related phases of work through the network diagram
- Develop ***Integrated Schedule***

Schedule Example



Critical and Controlling Path

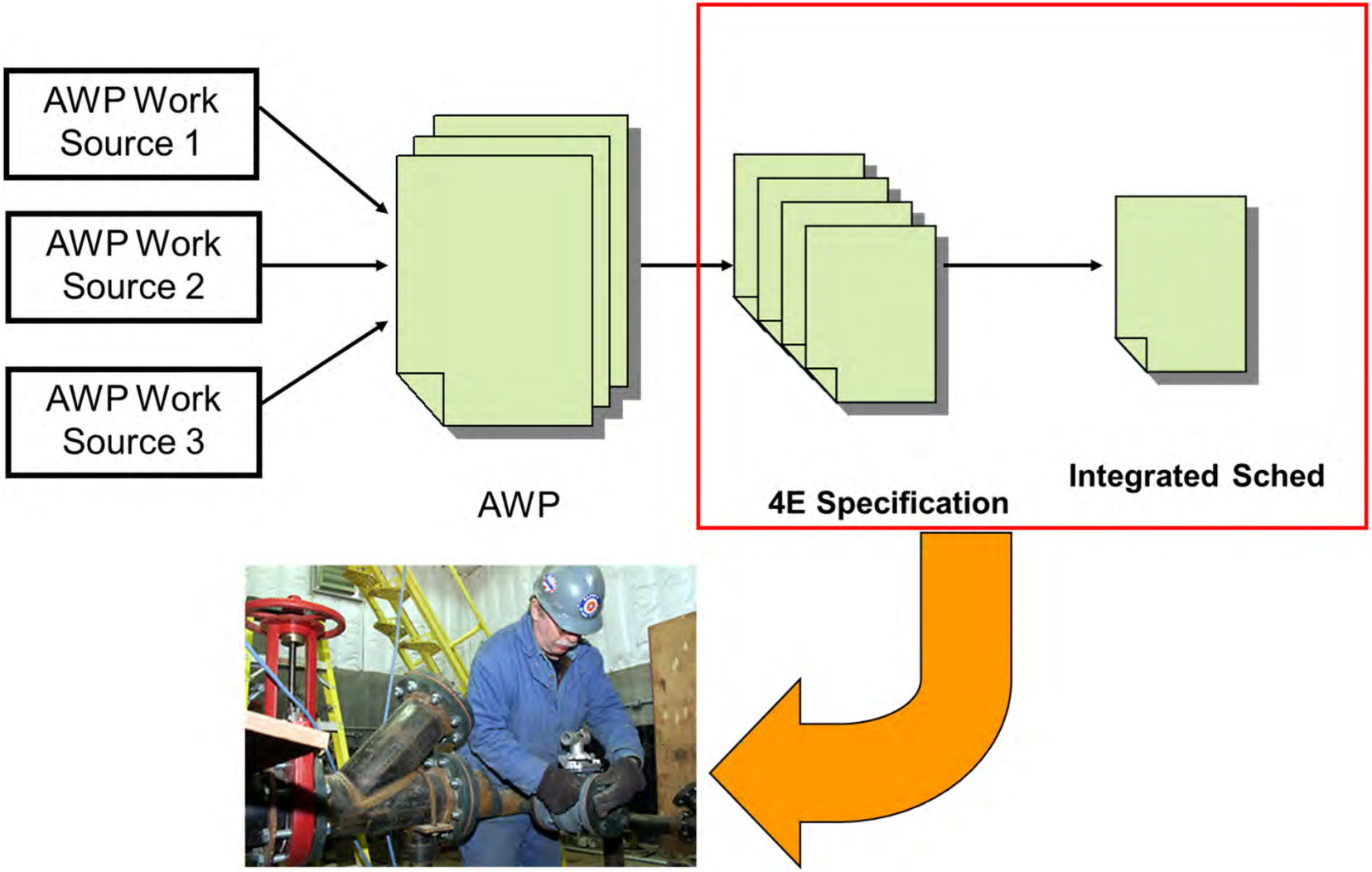
- Critical Path
  - A sequence of discrete work packages and planning packages (or lower-level tasks/activities) in the network that has the longest total duration through an end point
    - Discrete work packages and planning packages (or lower-level tasks/activities) along the Critical Path have the least amount of float/slack (scheduling flexibility) and cannot be delayed without delaying the finish time of the end point effort
  - The path that determines the minimum project length

- Controlling Path
  - This term is sometimes used to refer to paths that have a few units of float more than the critical path
  - Activities that, by virtue of scope, material requirements, complexity, or other considerations, have a significant potential for impact on the scheduled project Key Events or completion of the availability
  - These activities are critical to meeting specific milestones or target dates within the project

Key Event Schedule

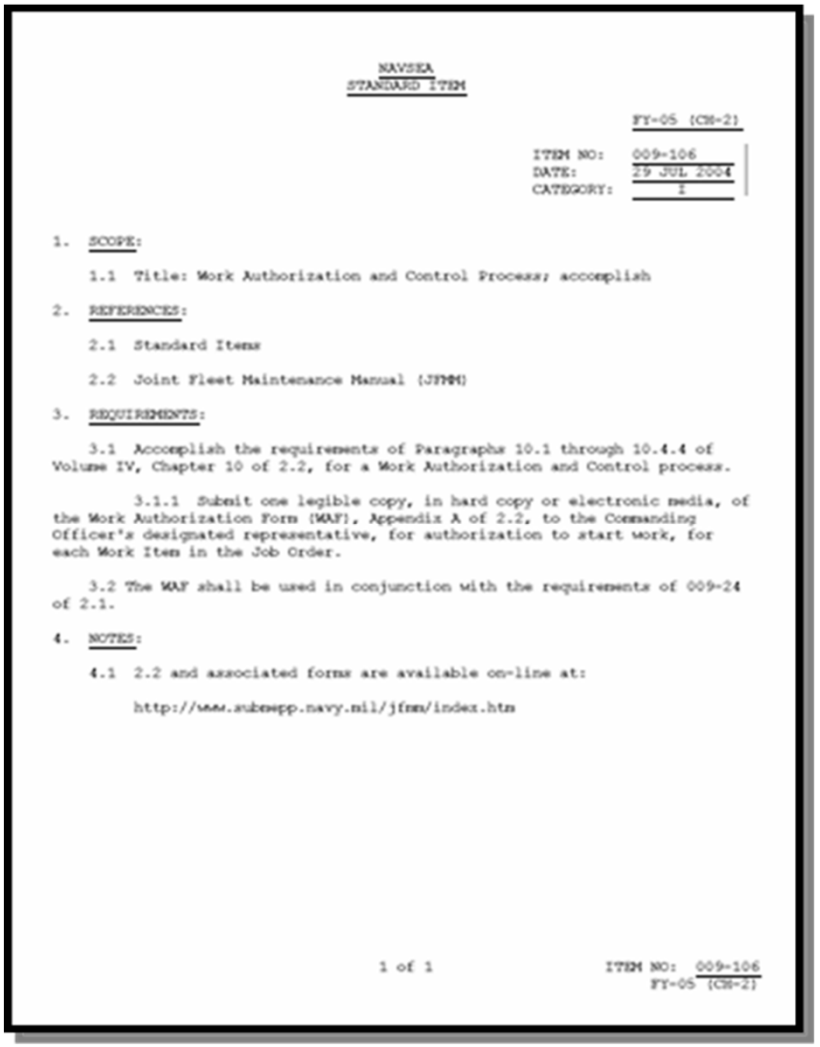
ID	Key Event Title	Date	ID	Key Event Title	Date
PS00	Planning Start		SH00	Start Hot Ops, Plt #1	19-Oct-15
PU00	Stand-up Initial Project Team.		CH00	Complete Hot Ops, Plt #1	27-Oct-15
PB00	Plan for Planning Brief.		MP00	Complete Mast And Periscope Installation	25-Sep-15
WN00	Conduct Final Planning Meeting.	7 Jul 2014	CW00	Start Command And Control System Testing	2-Oct-15
RL00	Complete Resource Leveled Schedule.	6 Sep 14	HB00	Crew Move Aboard (Subs: Habitability)	21-Nov-15
JS00	Complete Approval of Job Summaries.	29 Jul 14	CT00	Complete Combat Systems Dockside Testing (CSA Complete)	4-Dec-15
SA00	CNO Start Date	30-Sep-14	SP00	Propulsion Plant Testing	8-Dec-15
DD00	Dock Ship	25 Jan 15	CP00	Complete Propulsion Plant Testing	12-Dec-15
NN01	Services to Start Availability/ Start Production	1 Feb 15	DT00	COMPLETE DOCK TRIALS	18-Jan-16
RM00	**Complete R/O of Major Components.**	28-Apr-15	FC00	Start Fast Cruise	2-Feb-16
SC00	Start Cold Ops, Plt #1	9-Aug-15	ST00	Start Sea Trials	8-Feb-16
CC00	Complete Cold Ops, Plt #1	16-Aug-15	CA00	Complete Availability	1-Mar-16
UD00	Undocking	13-Sep-15	EG00	End Guarantee Period	1-Jun-16
SS00	Start Engine Room Testing, Plt #1 (Subs: Readiness to Steam)	17-Oct-15			

RMC Work Definition



RMC Work Definition

- Work Item Specifications (4E Specs)
  - An individual set of work requirements written in a standard format to accomplish a specific alteration or repair
  - Specifications must be developed for each specific repair work item or alteration included in the work package
  - Specifications are the contractual vehicle that are used to define work in the Master Ship Repair Agreement or Agreement for Boat Repair
  - Tells what needs repair, but not how to accomplish work



NAVSEA
STANDARD ITEM

FY-05 (CH-2)

ITEM NO: 009-106
DATE: 29 JUL 2004
CATEGORY: I

1. SCOPE:

1.1 Title: Work Authorization and Control Process; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 Joint Fleet Maintenance Manual (JFMM)

3. REQUIREMENTS:

3.1 Accomplish the requirements of Paragraphs 10.1 through 10.4.4 of Volume IV, Chapter 10 of 2.2, for a Work Authorization and Control process.

3.1.1 Submit one legible copy, in hard copy or electronic media, of the Work Authorization Form (WAF), Appendix A of 2.2, to the Commanding Officer's designated representative, for authorization to start work, for each Work Item in the Job Order.

3.2 The WAF shall be used in conjunction with the requirements of 009-24 of 2.1.

4. NOTES:

4.1 2.2 and associated forms are available on-line at:

http://www.subsepp.navy.mil/jfmm/index.htm

1 of 1

ITEM NO: 009-106
FY-05 (CH-2)

A 4E work specification is a statement of work (SOW)

RMC Integrated Schedule

- Define the Authorized Work Package (AWP)
- Develop ***Work Specifications***
- Establish ***Key Events***: High level breakdown of principle activities with hard dates set for completion
- Establish phases of major work
- Establish ***Milestones***: Lower-level event that is tied to a specific Key Event and must be completed prior to meeting/completing the Key Event
- Create Network Diagram: The order that work phases, milestones, and key events will be performed
- Integrate Ship's Force, Contractor, and AIT work items into the network
- Estimate resource requirements
- Estimate time/duration and cost
- Determine ***Critical Path***: Longest sequence of related phases of work through the network diagram
- Develop ***Integrated Schedule***
  - Integrated Schedule for surface ship availabilities is generated and maintained by the Lead Maintenance Activity (LMA)
  - It is contracted through NAVSEA Standard Items 009-60
  - The RMC has responsibility to review, accept, and provide feedback on required changes

Similarities & Differences Across Platforms

- AWP development begins with a Baseline AWP (planning requirements), maintained by:
  - Subs - SUBMEPP
  - Carriers - CPA
  - Surface - SURFMEPP
- Organizations that plan, sequence, and schedule the work
  - Subs and Carriers: Public/Private Shipyard
    - Job Summaries, Task Group Instructions
  - Surface: Contractor or 3rd Party Planner know called Specification Development & Availability Execution Support (SDAES)
    - Work Item Specifications – “4E Specs”
- Same sources of work apply for all availabilities
- Planning timeline differs across platforms

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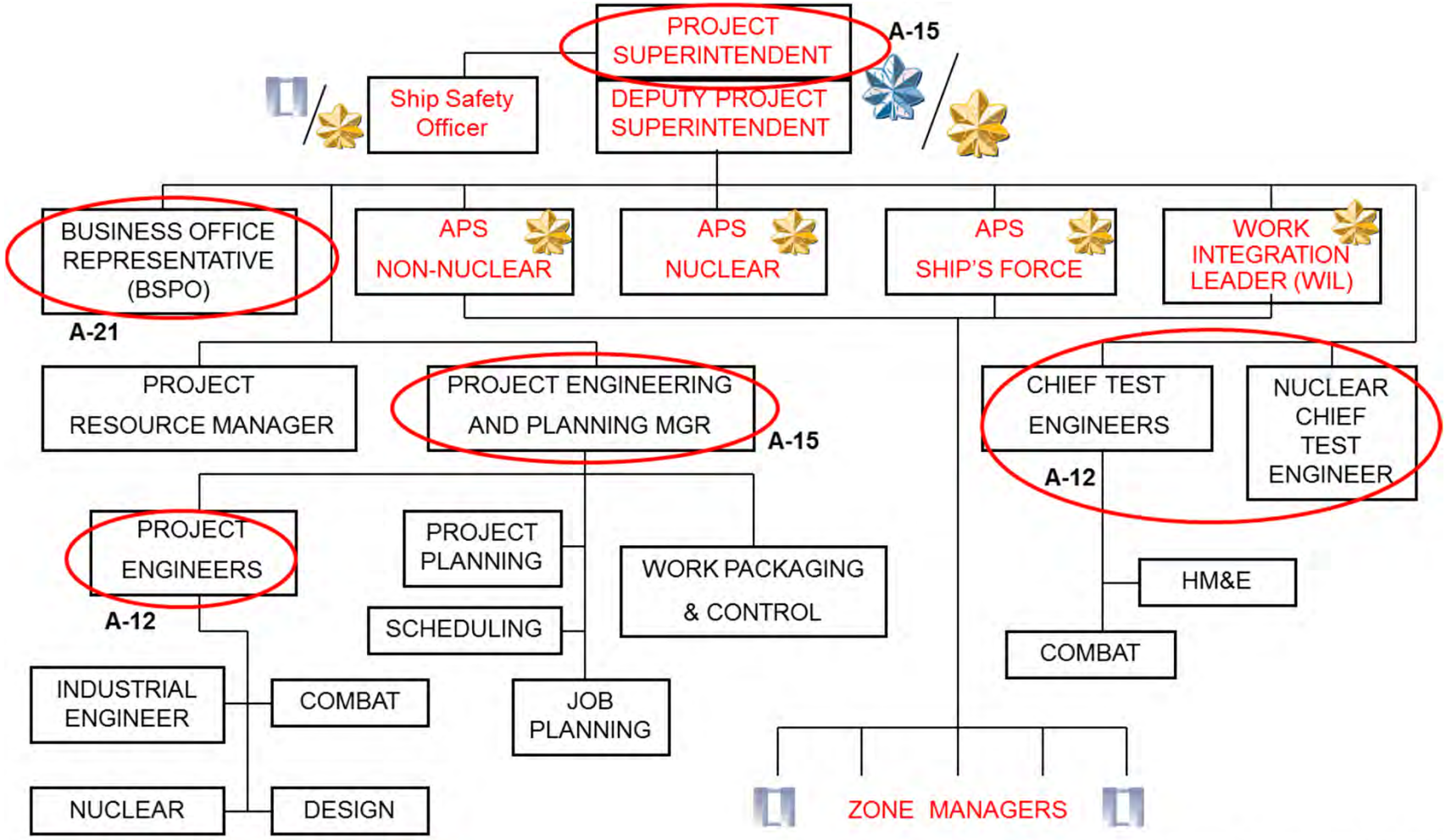
Public Shipyard Project Management

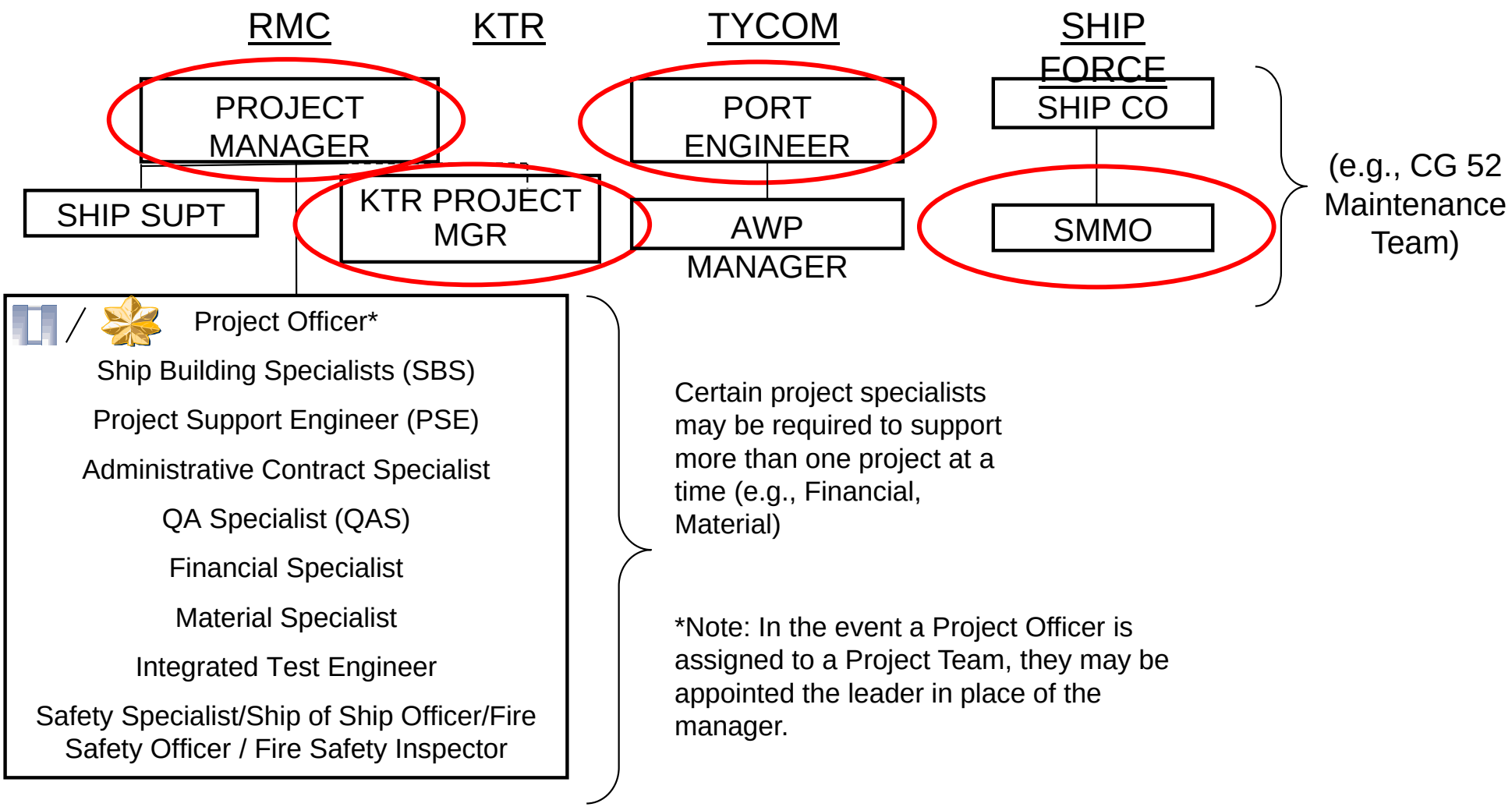


CORE PROJECT MANAGEMENT TEAM MEMBERS IN RED CIRCLES

Public Shipyard Project Management Roles

- Business & Strategic Planning Office Rep (BSPO)
  - First person assigned to project
  - Provides customer interface
  - Obtains project funding
  - Authorizes the expenditure of funds
  - Assist in determination and processing of new work
  - Acquiring new funding
- Project Superintendent
  - Develops project strategies
  - Total responsibility for all aspects of the project: cost, schedule, and performance
  - Supervises development of project planning & management and project sequence & scheduling
  - Leader of management team
- Project Engineering & Planning Manager (PEPM)
  - Key project team member during the planning phase
    - Principal planner directs planning process
  - Oversight and development of Job Summary (JS) boundaries, JS development and groupings
  - Identification of reusable planning products from previous projects
  - Oversight of personnel from engineering and scheduling departments
- Project Engineers/Test Engineers
  - Assigned part time to assist with project planning and sequencing

RMC Project Management



CORE PROJECT MANAGEMENT TEAM MEMBERS IN RED CIRCLES

RMC Project Management Roles

- Port Engineer
  - Screens work to appropriate maintenance organization
  - TYCOM representative
  - Helps ensure proper work is getting done and planned correctly
- Project Manager
  - First person assigned to project for RMC
  - RMC organization lead
  - Assists in screening work to contractor
  - Ensures all funds are available for advance planning
  - Approves the use of advance planning funds
  - Assist in determination and processing of new work
- Lead Maintenance Activity Project Manager (Contractor
  - POC between maintenance team and contractor work force
  - Leads the development of the integrated schedule during planning phase
  - Coordinates with the RMC Project Manager
- Ship's Maintenance & Material Officer (SMMO)
  - Ship's Force POC for all maintenance items
  - Liaison between ship, maintenance activity, and RMC
  - Assists in screening work and 2-Kilo (2K) development during planning phase

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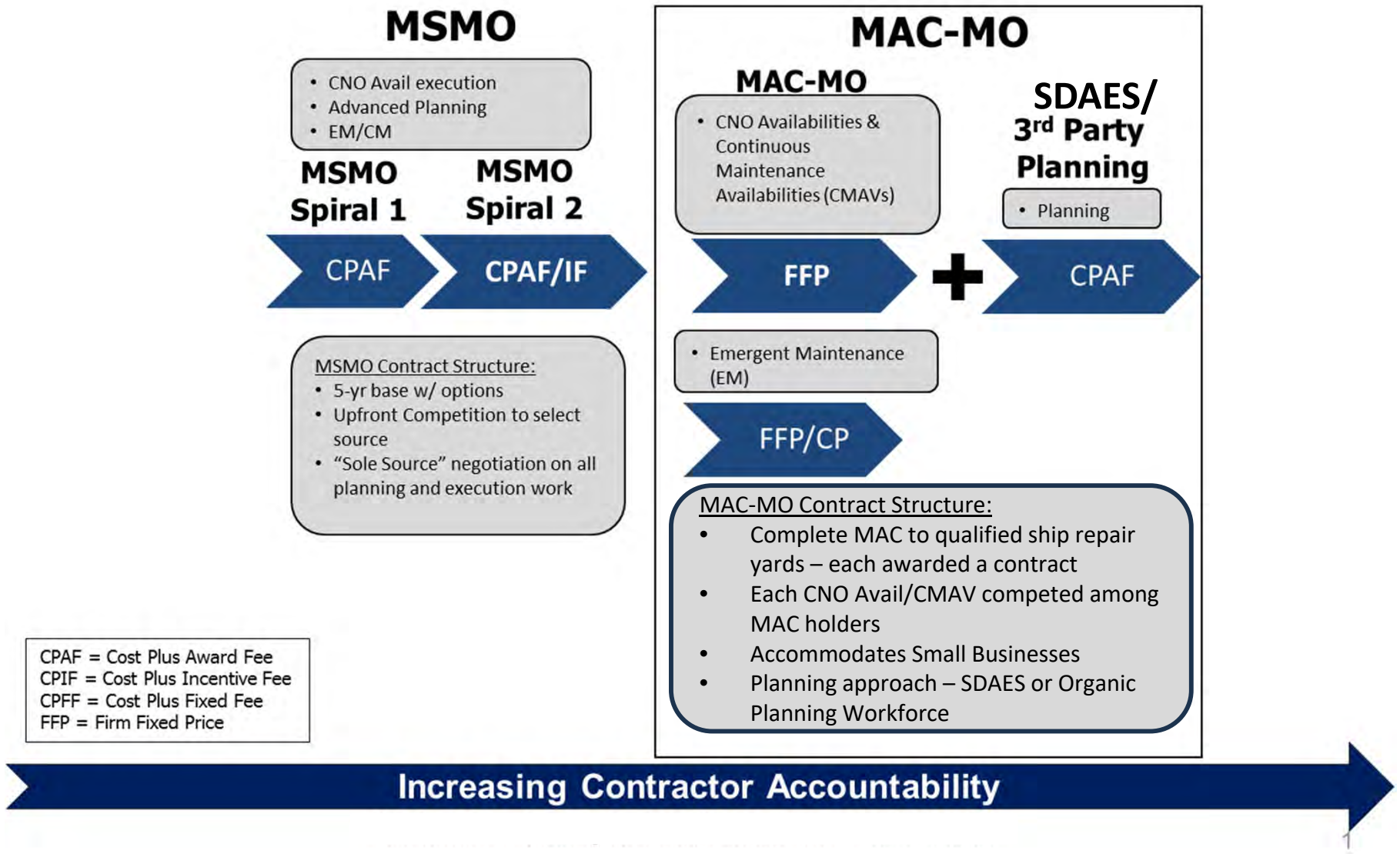
RMC Contracting Strategy

- Multi Award Contract Multi Option (MACMO)
  - Awards ***firm-fixed-price*** contracts for surface ship repair
  - Separates the planning activity and the executing activity
    - Conducted by awarding planning contracts to a 3rd party known as Specification Development & Availability Execution Support (SDAES)
    - Conducted by organic planning workforce within the RMC (SRF-JRMC, HRMC)
  - Implements a "family" of contract strategies ***maximizing competition***
  - Use of fixed price type contracts to encourage ***work package discipline*** and effectively balance risk between the Navy and Industry
  - Increased competition will provide the Navy ***competitive pricing and create enhanced competitive accountability for schedule & quality performance***
- In limited cases ***cost-plus*** contracts are being awarded (e.g. DDG's undergoing AN/SLQ-32 SEWIP Block 3 upgrades)
  - Potential changes to contracting vehicles are actively being explored

Evolution of Contracting Strategy (Legacy MSMO to MAC-MO)

Planning Approach - 3rd Party or Organic Planning Workforce



RMC Contracting Strategy

Requirement	Execution
CNO ≥ 10 Months	FFP award with Coast-wide competition
CNO < 10 Months	FFP award within homeport
Continuous Maintenance, Complex	FFP award within homeport
Continuous Maintenance, Non-complex	FFP award for Small Business Set Aside
Emergent Maintenance	Three options: 1) Complete as new work with existing contractor already conducting work 2) Compete work if not required to commence immediately (i.e., within 24 hours) 3) If work needs to start within 24 hours, IDIQ-MAC contractors will be offered the emergent work on a clearly defined, rotational basis

Indefinite Delivery Indefinite Quantity - IDIQ

Implement a "family" of contract strategies, utilizing fixed-price where possible, to meet surface ship maintenance, repair & modernization requirements

Summary

- What are the five sources of AWP work candidates?
- Who produces the Baseline AWP for submarines, carriers, and surface ships?
- What is the most important product of the planning process?

Summary

- What is a component unit (CU)?
- Who is the major Public Shipyard management team member during availability planning?
- What are the planning goals to be met prior to starting an availability?

Summary

- Why did surface ship maintenance contracting revert to FFP under the MACMO construct?