

Empowering Integrated Project Teams: Lessons from Submarine and Fighter Programs

ProjectChat 2024 –

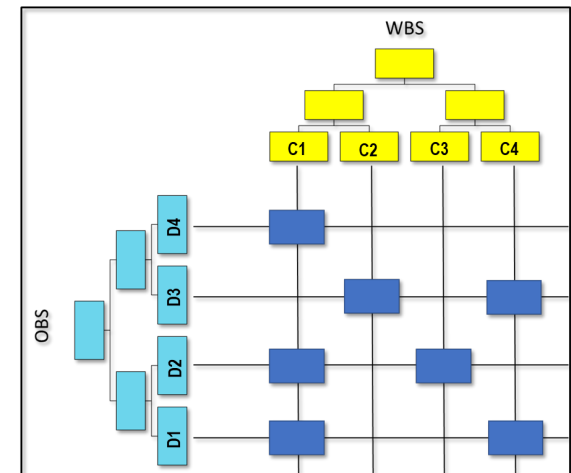
Adelaide, SA 18th – 20th March 2024

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I am NOT a Project Controller

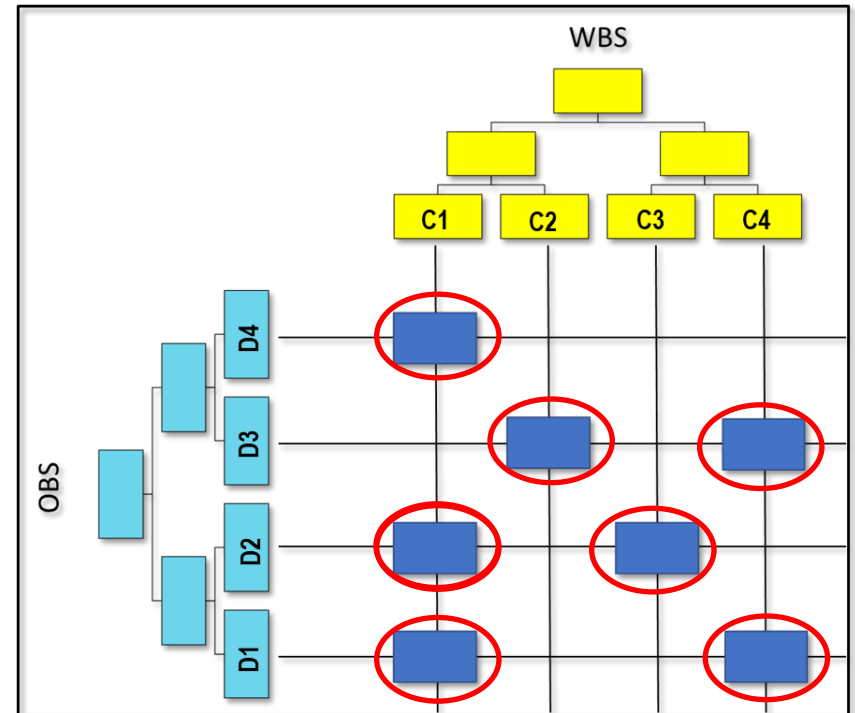
So, when I was first introduced to WBS (I know that one), OBS (I know that too) together creates the RAM (the what??)



Ahh, the Responsibility Assignment Matrix

Let's Analyse this RAM

Responsibilities	Observation
Division 4 (D4) is only responsible for Component 1 (C1)	Goodness
Divisions 1 and 2 (D1) and (D2) are also responsible for C1	Who does what for C1?
C2 is only the responsibility of D3	Goodness
D3 is also responsible for C4	Not a problem for C2 but D1 is also responsible for C4
C3 is only the responsibility of D2	Goodness but D2 is also responsible for C1



Could lead to a good deal of confusion about who does what / when

Is there a better way?

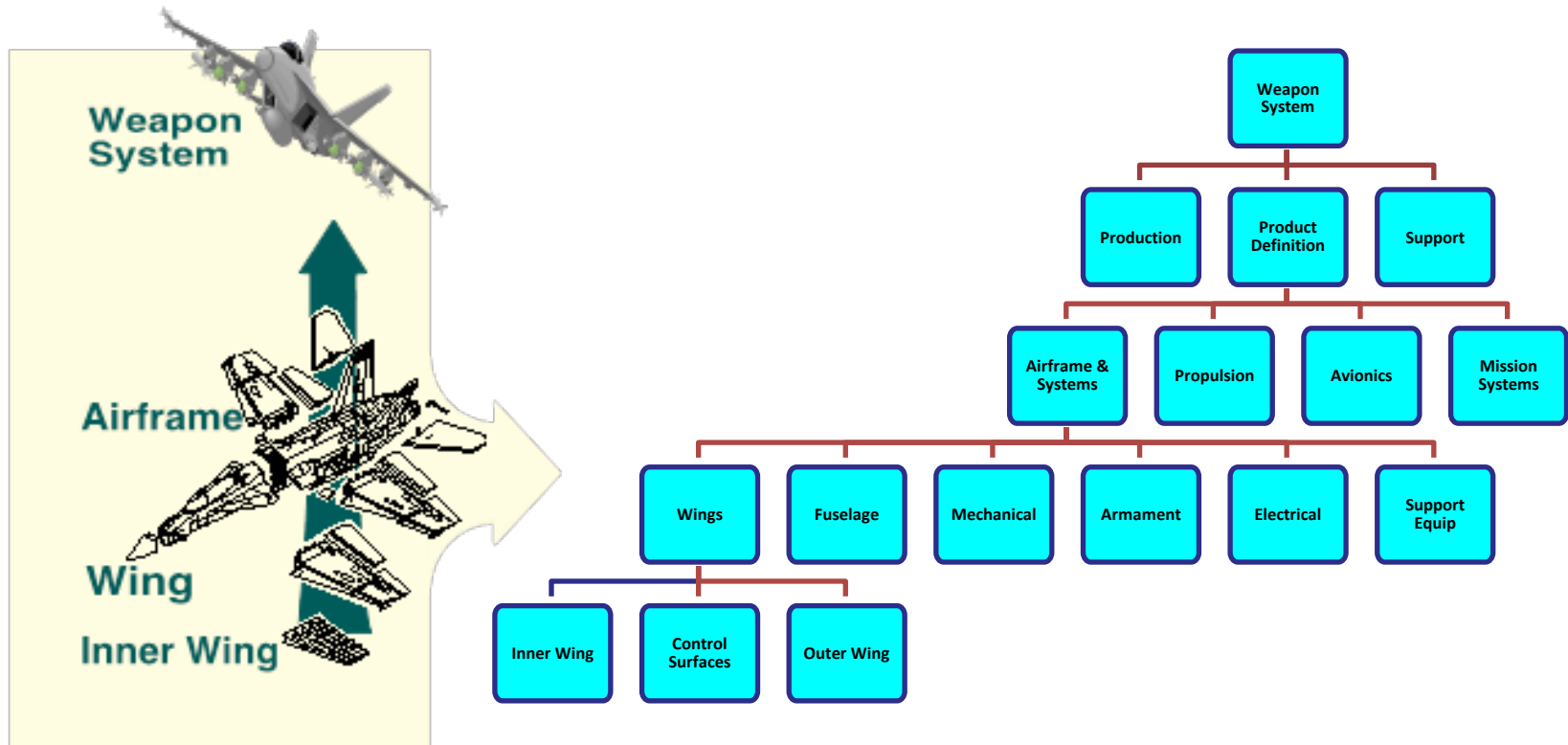
- ▶ In the late 1990s, the Institute for Defense Analyses commissioned Elizabeth (Betsy) Clark to write up a Case Study on a successful program.
- ▶ She selected the F/A-18E/F Super Hornet as successful military acquisition program
 - The first flight was 1 month early
 - No cost overruns
 - The aircraft weight was 1000 lb below the specification
 - The program office was organised around Integrated Product Teams (IPTs)



Betsy Clark, Director
Independent Project Review Institute

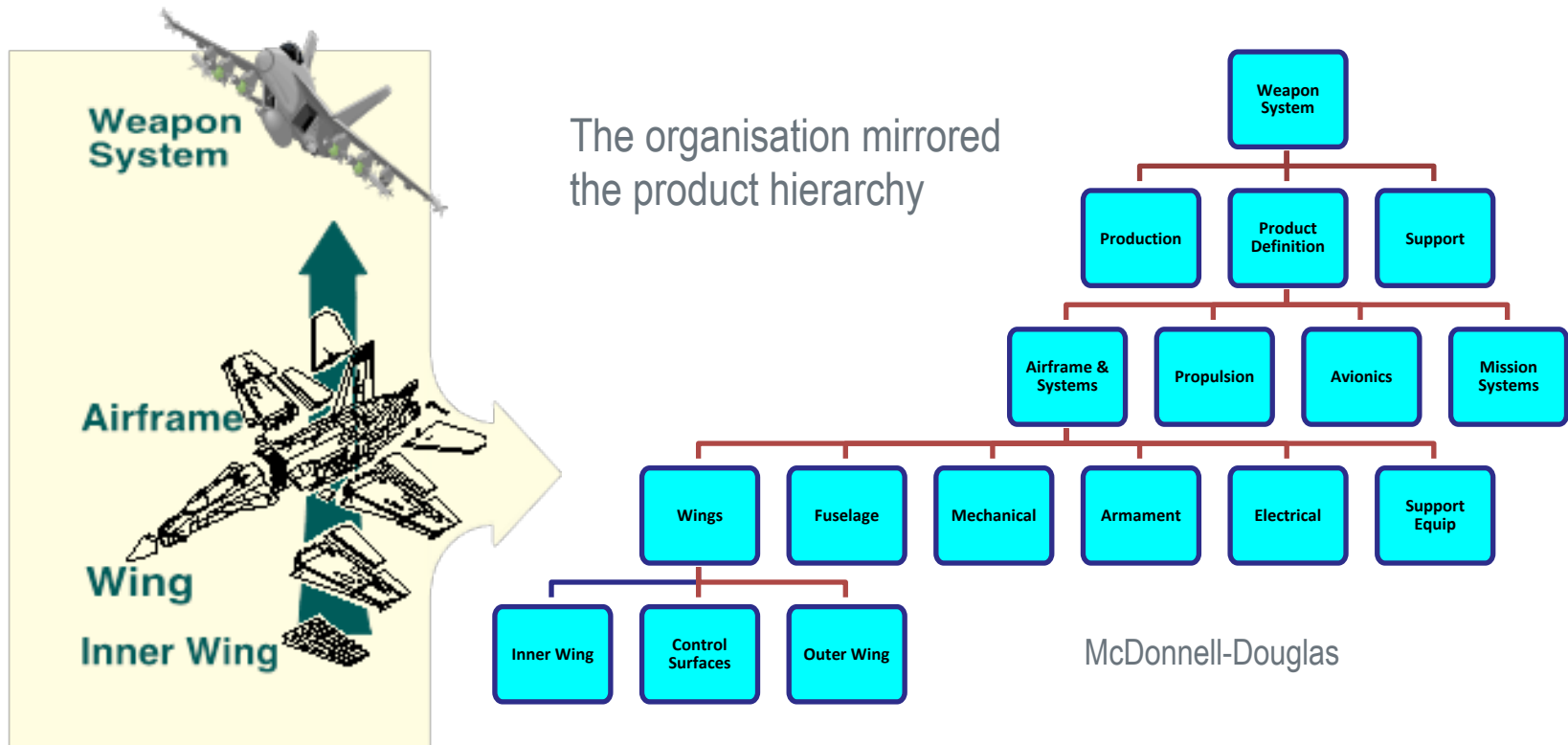
Work Breakdown Structure (WBS)

- ▶ F/A-18 E/F Super Hornet implemented a product-based WBS



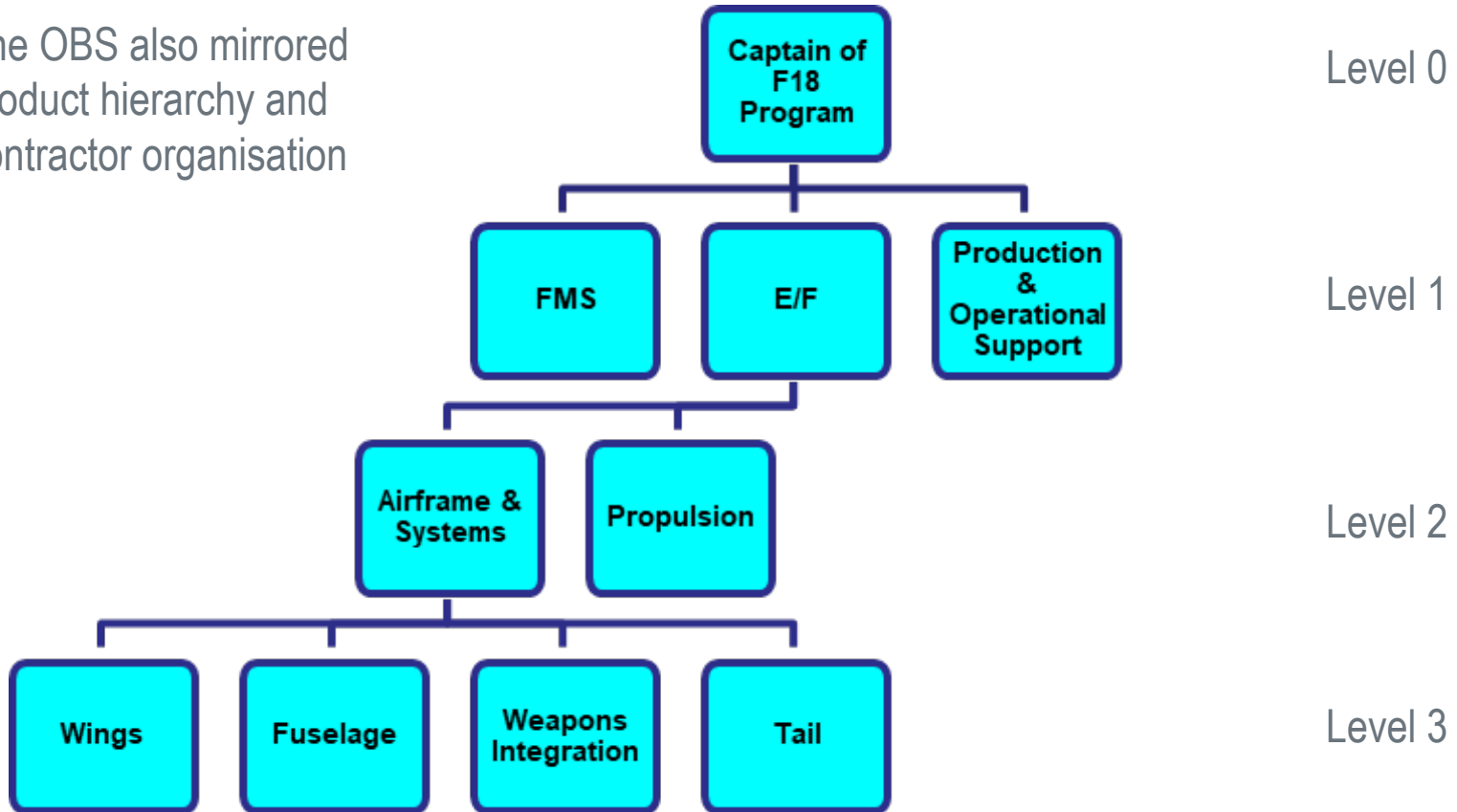
Organisational Breakdown Structure (OBS)

- ▶ Their OBS was identical to their WBS
 - Each box in the diagram represented both a WBS element and an Integrated Product Team (IPT)



Government (OBS)

The OBS also mirrored product hierarchy and contractor organisation



But we're not planning to build Aircraft in Australia



- ▶ But we are planning on building submarines
- ▶ Betsy researched a further paper by Robert I. Winner, *The Virginia Class Submarine Program: A Case Study*

General specifications: Virginia-class submarines

Builder: General Dynamics Electric Boat Division and Huntington Ingalls Industries Inc. (Newport News Shipbuilding)

Propulsion	: One nuclear reactor, one shaft	Armament	: Tomahawk missiles, 12
Length	: 114.8 meters; 140.5 meters with VPM		VLS tubes (SSNs 774-783) or two
Beam	: 10.36 meters		VPTs (SSN 784 and above); and
Displacement	: Approximately 7,900 tonnes submerged; 10,364 tonnes with VPM		four additional VPTs (SSN
Speed	: 46.3+ kph		803 and beyond); MK-48 ADCAP
Crew	: 132		torpedoes, four torpedo tubes

SSN: nuclear-powered attack submarine
VLS: vertical launching system

VPM: Virginia Payload Module
VPT: Virginia Payload Tube

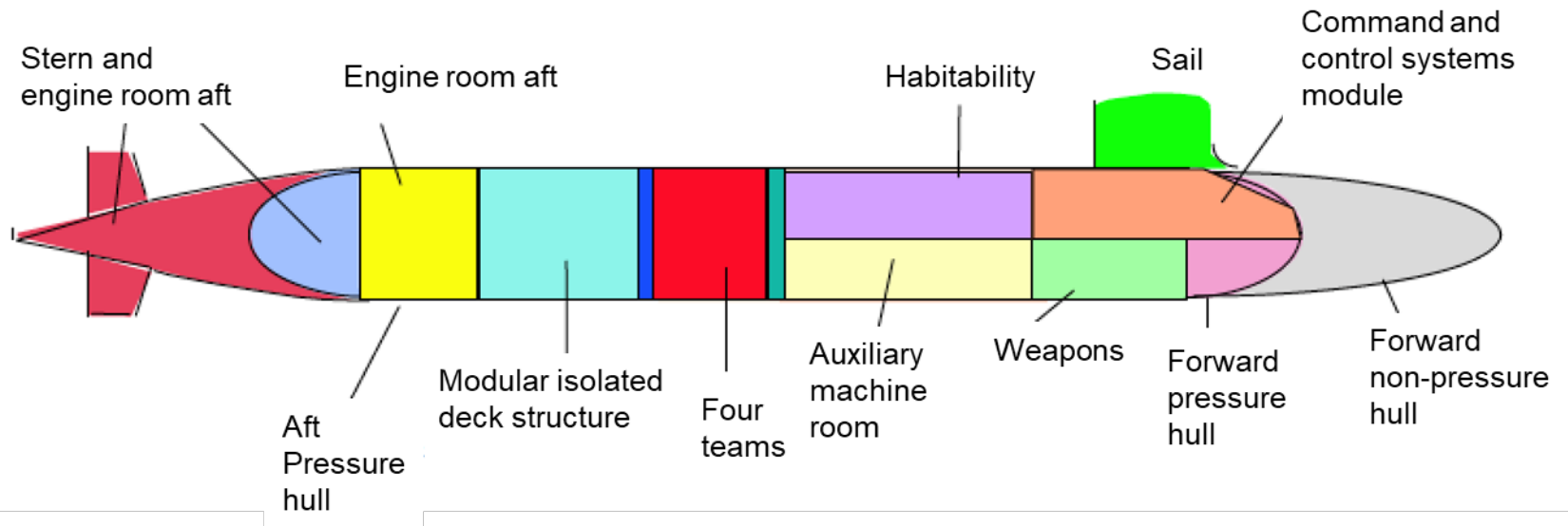


Source: navy.mil

JP/Swi Handono



Virginia Class Submarine



From *The Virginia Class Submarine Program: A Case Study* by Robert I. Winner

Virginia Class Submarine

15 Major Area Teams (MATs)

- ▶ MATs were cross-functional Integrated Product Teams focused on physical areas of the submarine
 - Decisions reflect simultaneous consideration from all relevant functional disciplines to ensure appropriate tradeoffs are being made
- ▶ Co-chaired by an Engineering and by a Production Team Lead
 - Downstream impacts considered in design
- ▶ Each MAT had US Navy representation
 - Drastically reduced approval times
 - Focus on insight rather than oversight



15 Major Area Teams (MATs)

- ▶ There were System Integration Teams and Process Integration Teams that went across MATs
- ▶ There was a Major Area Integration Team that sat over the MATs
 - Responsible for systems spanning multiple areas (e.g., hydraulics)
 - Whole of platform trade-offs and difficult problems were escalated up to the MAIT
 - Served as arbitrators across MATs
- ▶ The prime contractor led the transition to cross-functional teams and was then mirrored by the Navy Program Office

Critical Success Factors: Virginia Class Submarine and F/A-18 Super Hornet

- ▶ Team leads were empowered within clearly defined roles and responsibilities
 - given resources, authority and accountability
- ▶ Problems were surfaced early and openly and were solved within the team
 - Not once did the Government PM feel it was necessary to change the decision of a team
- ▶ Correspondence between
 - Work Breakdown Structure
 - Organisational Breakdown Structure
 - Earned Value Management System
 - Measurements (including Technical Performance Measures)
- ▶ Enabled visibility into the impact of problems and risks on the product being delivered and the Team Lead (and team) responsible for making it right

More Information

- ▶ If you're interested in learning more contact us
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Any questions?



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