



Affording the U.S. Navy of the Future

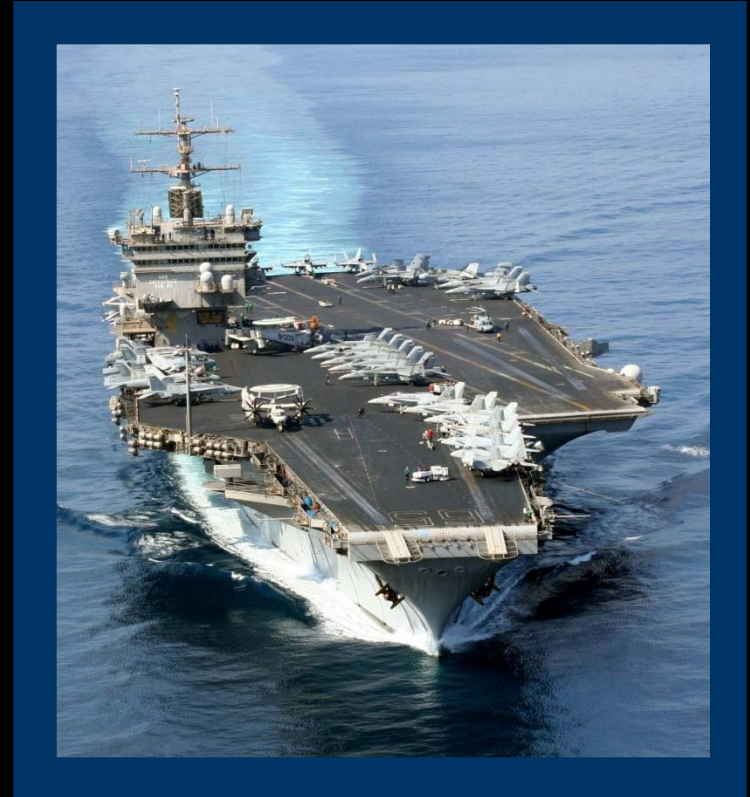
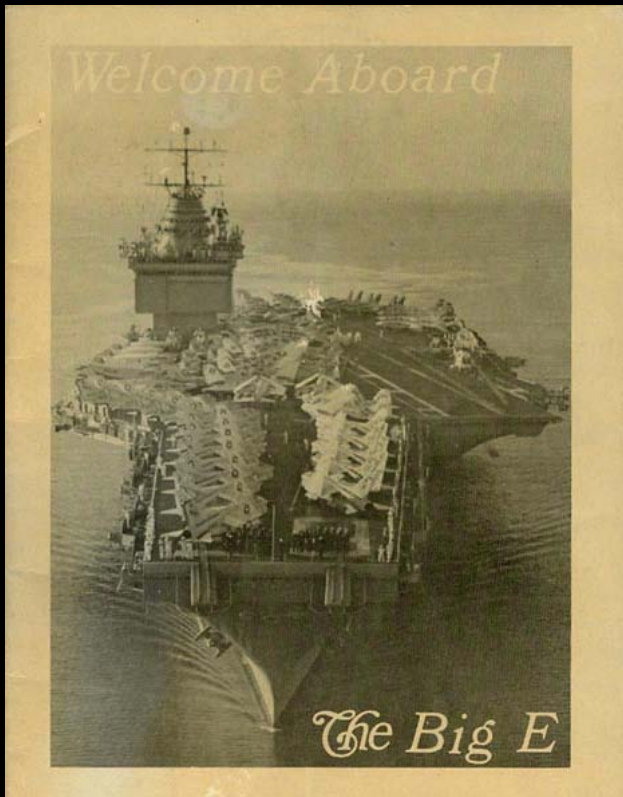


Marion Eggenberger
Acquisition Logistics & Total Ownership Cost Branch Head
29 July 2010



Historical Challenges

- Always deployed
- Across 5 oceans
- All Resources are precious commodities
- Capital investment - long service life Force





Challenges of Today: Fiscal & Logistical

- Always deployed
- Across 5 oceans
- All Resources are precious commodities
- Capital investment - long service life Force

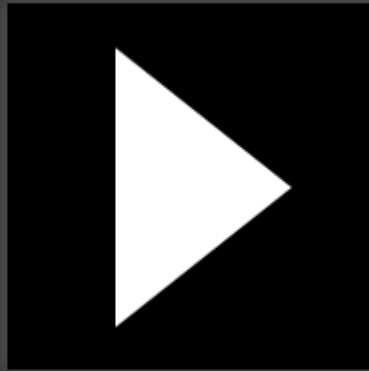
And...

- Fighting two wars
- Majority of 2020 Battle Force exists today
 - Older ships / more frequent maintenance
- Cost to own & operate our Fleet growing faster than inflation
- Limited Budget; likely decrease





USS INDEPENDENCE (LCS-2) Video

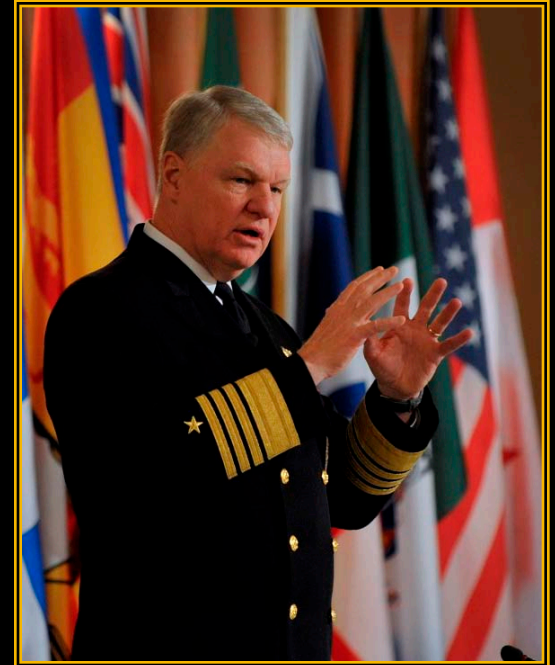




Total Ownership Cost Philosophy

“I tell my leaders if we’re going to talk about a program or policy we’re going to start with the discussion of total ownership costs before we get on to anything else.

That’s absolutely key.”



Chief of Naval Operations,
Admiral Gary Roughead
3 May 2010



Total Ownership Cost

“Total Ownership Cost includes all costs associated with research, development, procurement, operation, logistical support and disposal of an individual weapon system including the total supporting infrastructure that plans, manages and executes that weapon system program over its full life.”

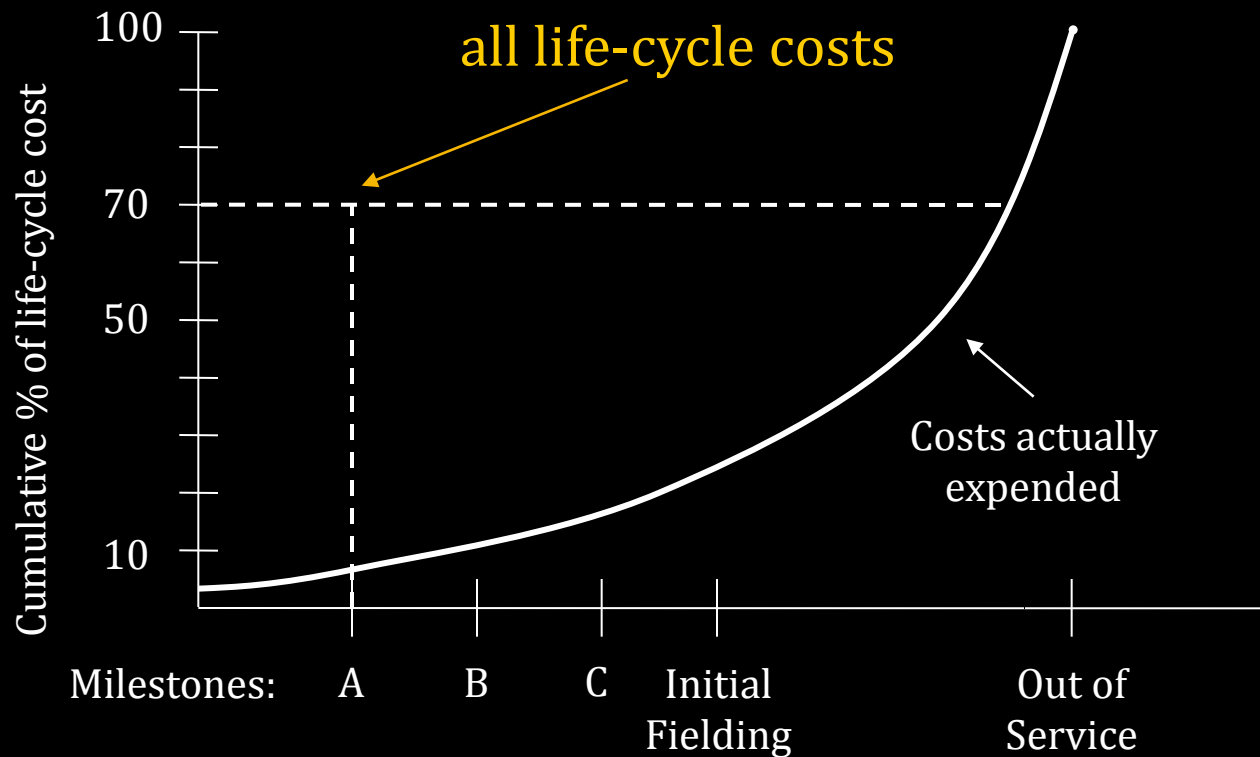
Source: VCNO, ASN(RDA), and Assistant Commander of the Marine Corps (ACMC) jointly signed letter dated 29 July 2009.





System Support Consideration

Design decisions by Milestone A
"lock in" & dictate 70% or more of
all life-cycle costs



Costs "locked in"
as a function of design

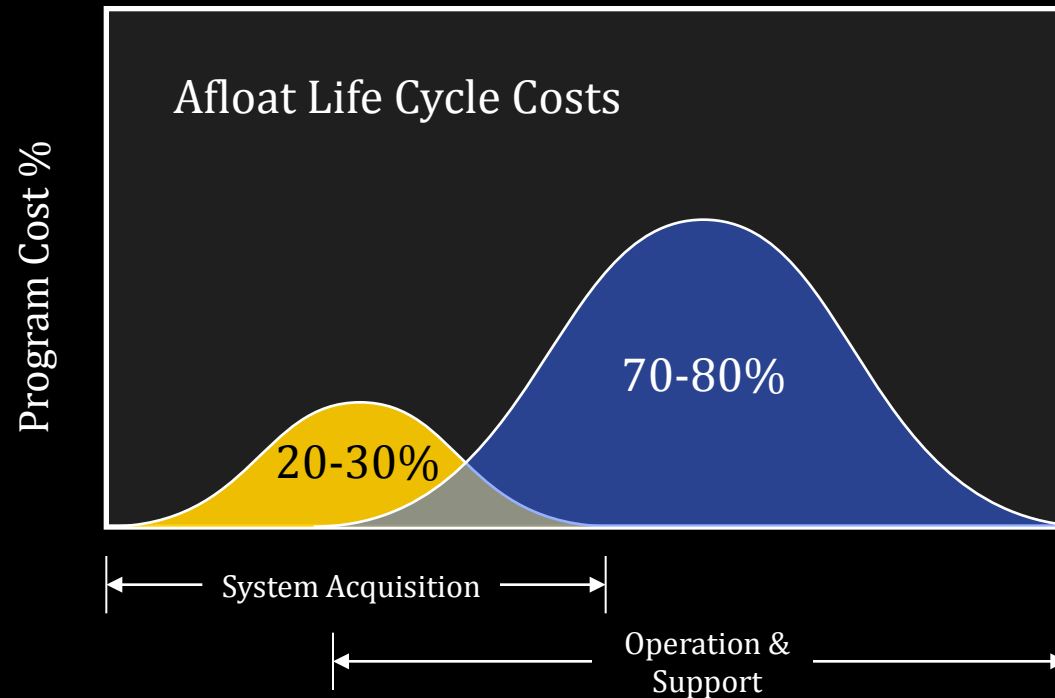


Critical that System Support be Considered Early and Continuously



Life Cycle Costs

- O&S accounts for 70-80% of system's entire cost
- Consider system support early in design process





Affording the Fleet We Have

- Cost reduction = reducing the Navy's Total Obligational Authority
 - Reduce the cost to own & operate the Navy
- Cost Avoidance \neq Cost Reduction
 - Avoidance means more capacity*
 - Avoidance means more throughput*
 - Avoidance serves to reduce workload backlogs*

*Cost Avoidance does not result in cash
to reduce cost to own and operate the Navy*

Cost Avoidance Does Not Get CNO a More Affordable Navy



Total Ownership Cost (TOC)

- TOC Reduction not a budget drill
 - Impact cost over long haul
- Cost to own & operate Navy currently exceeds projected future budgets
- TOC must be consideration in meeting all warfighter capability gaps
- Real Cost Savings required to reduce the TOC

Honest, Objective Assessment of Navy's Portfolio Required



Challenge: F-35 Integration

- JSF Integration Challenges onboard CVN-68 class carriers:
 - Jet Blast Deflector (JBD)
 - Spare Engines & UNREP
 - Shuttle Connecting Crewmen
 - STOVL (F35B) & Amphibs

Design for Integration





Design for Affordability: Flex Lab

Flexible Infrastructure for CVN-78

- Re-configurable space supports changing missions/ lifecycle refreshes
- Facilitates training prior to install
- Maximizes development time
- Flexible Concepts/Systems include:
 - Deck Mounting System & Raised Decking
 - HVAC
 - Overhead Mounting System
 - Bulkhead Mounting System
 - Power Distribution
 - Lighting Arrangements

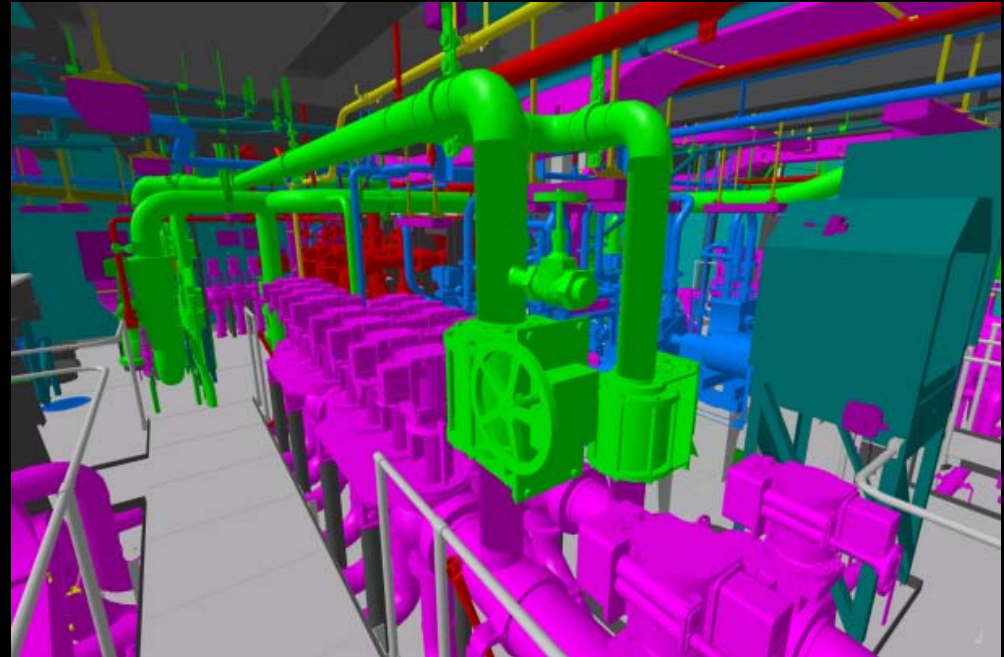


Flexibility Inherent in Design



Design for Affordability: ROVR 3D

- >2 million man hours saved on CVN-78
- 3D shows system interrelations
- Facilitates maintenance
- Just-in-time technology



Bring Shipbuilding into 21st Century

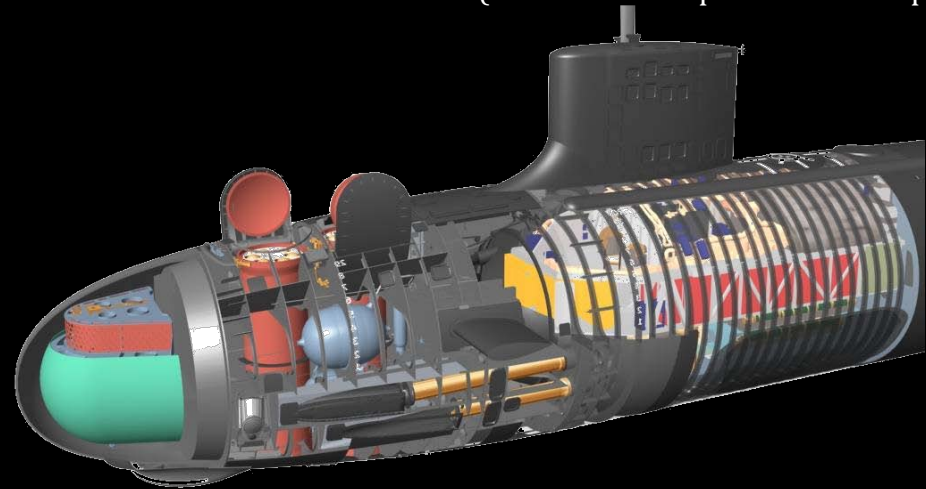


Design for Affordability: VA Class

- Two contractors:
Inherent Modularity
- Modular construction
benefits
- Design/build engineering
teams
- 3D electronic drawings



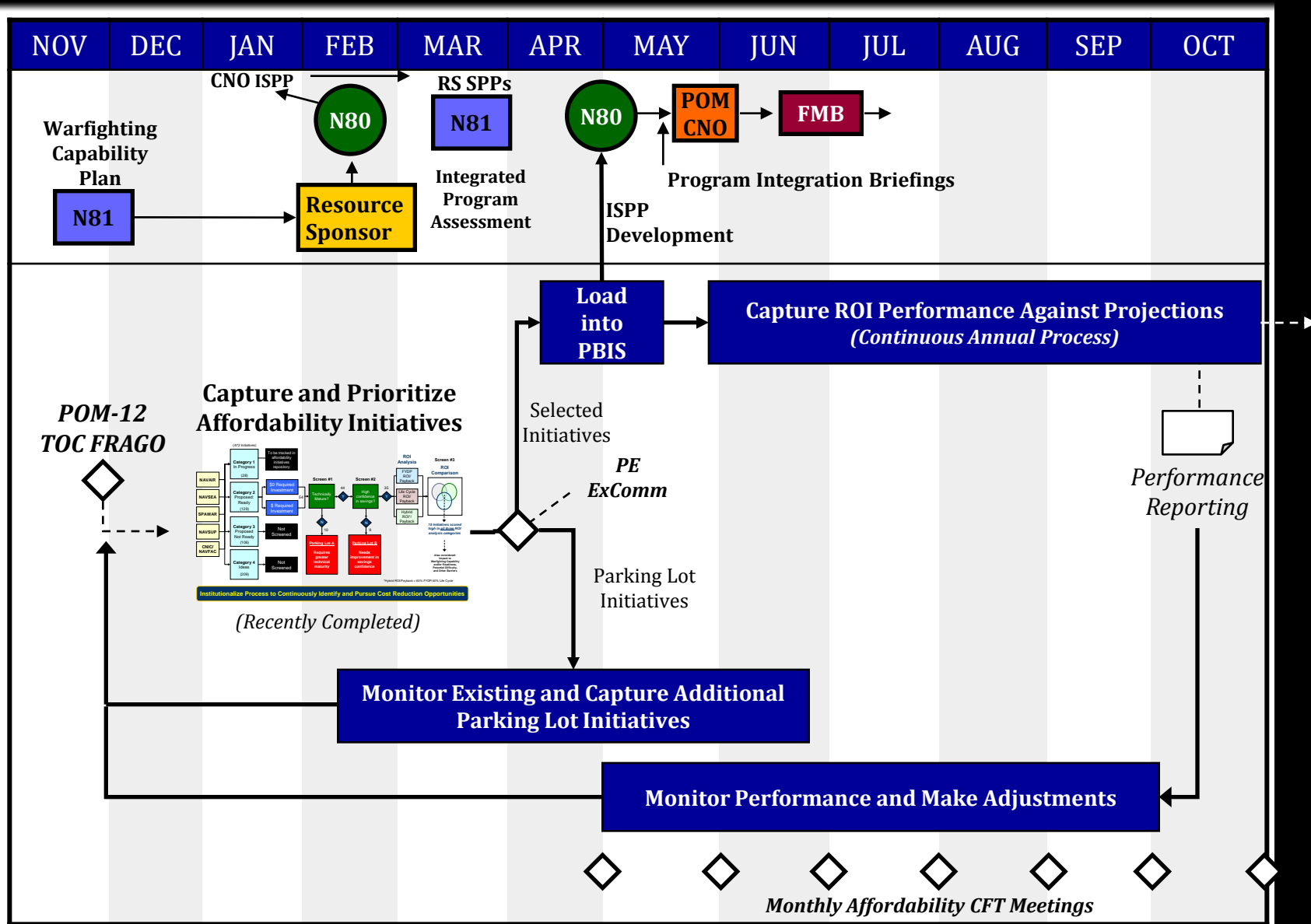
Modular construction at Northrop Grumman Newport News' Virginia Class facility.
(Credit: Northrop Grumman Shipbuilding.)



New Approaches Yield Huge Benefits



POM12 Affordability Process





So, What Can I Do?

- Current operations provide insight and lessons learned on performance:
 - How are we incorporating lessons learned into future designs?*
 - Experience: USS Freedom fuel consumption at high-end speeds*
- Software: Agile and responsive refresh approach required
 - DDG-51 Class & Aegis: Multiple software flights*
 - Periodicity/Combat System Component Mix*
- Open Architecture / Modularity
 - Modular design and design disclosure*
 - Reusable application software*
 - Interoperable joint war fighting applications and secure information exchange*
 - Life cycle affordability*
 - Improved competition and collaboration*



Innovative Methods Required to Design in Affordability



Way Ahead

- Think well past current budgets... create and exploit every opportunity to reduce cost
- Design in flexibility... utilize common architecture and easily refreshed systems
- Leverage lessons learned

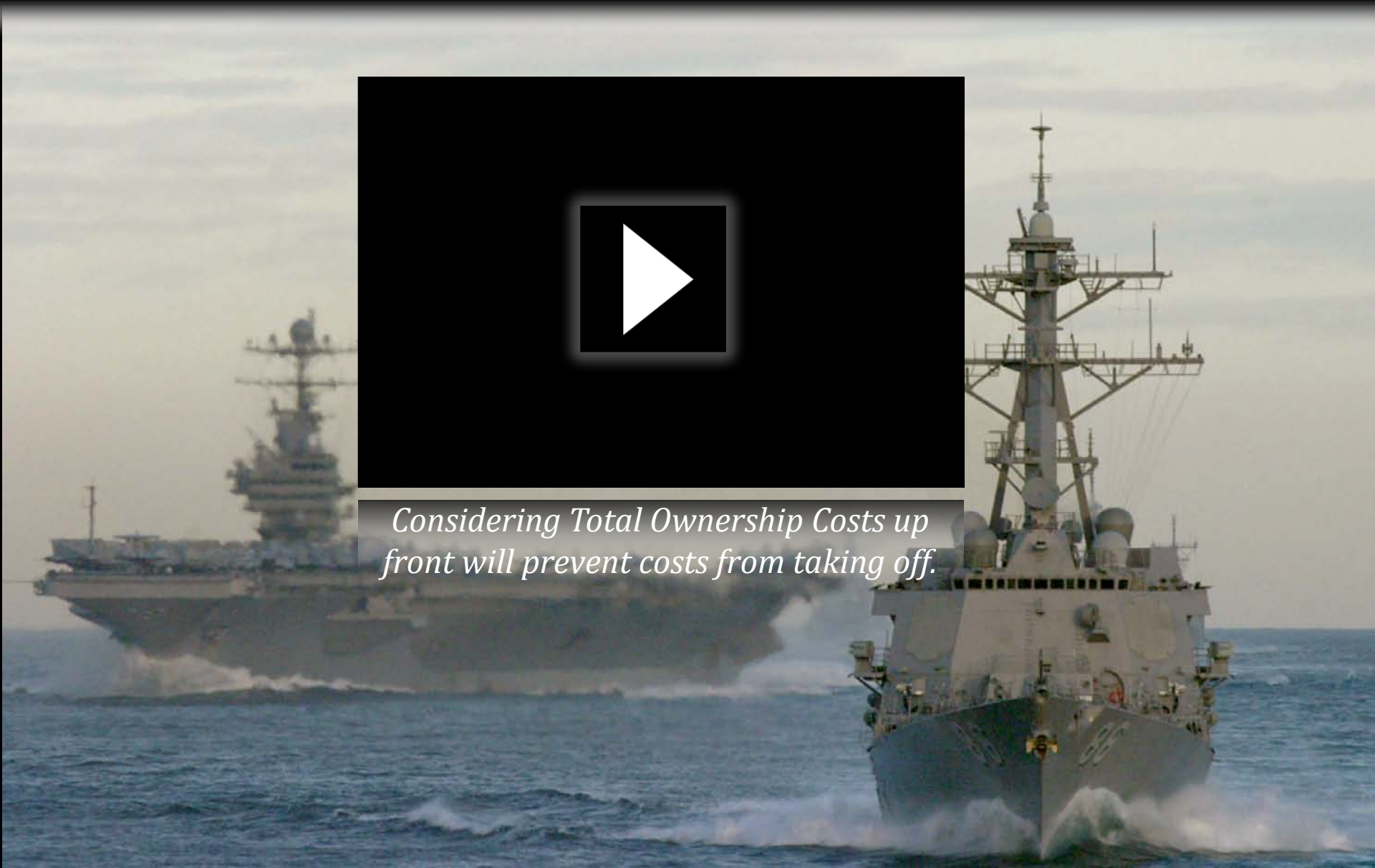
We Won't Get There Without Innovation!



Questions



Considering Total Ownership Costs up front will prevent costs from taking off.





Backup



Design for Affordability: Flex Lab

Flexible Infrastructure for CVN-78



Deck to Deck Stanchion & Flex Seating



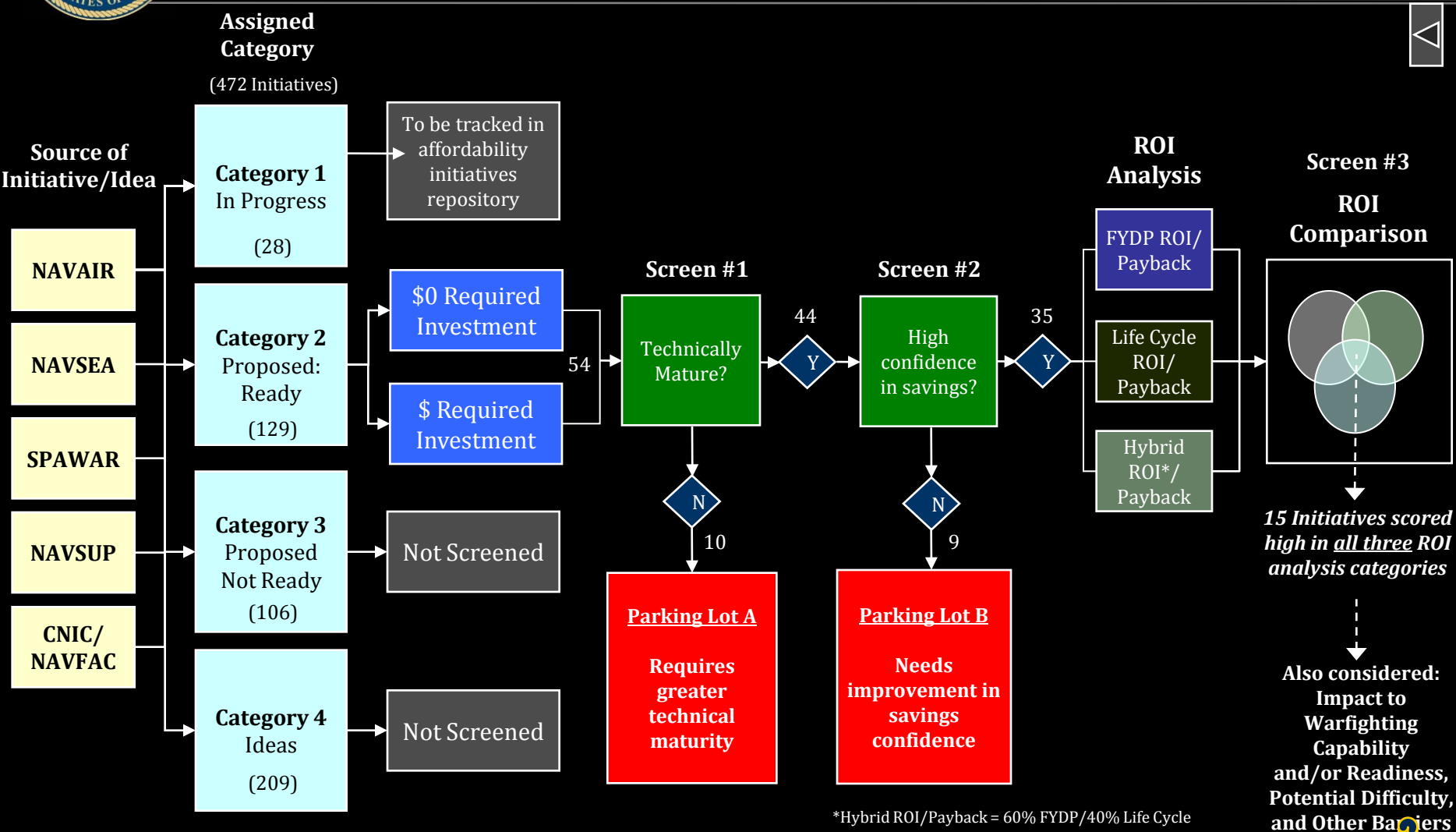
Deck Track System &
Deck Tiles/ Rail Covers



Innovative Methods Required to Design in Affordability



Process to Capture and Prioritize Affordability Initiatives



Institutionalize Process to Continuously Identify and Pursue Cost Reduction Opportunities