



Enterprise Commonality

The Link between Commonality and Standardization A Systems Level Approach

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***Presented by:
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Basic Commonality Approach

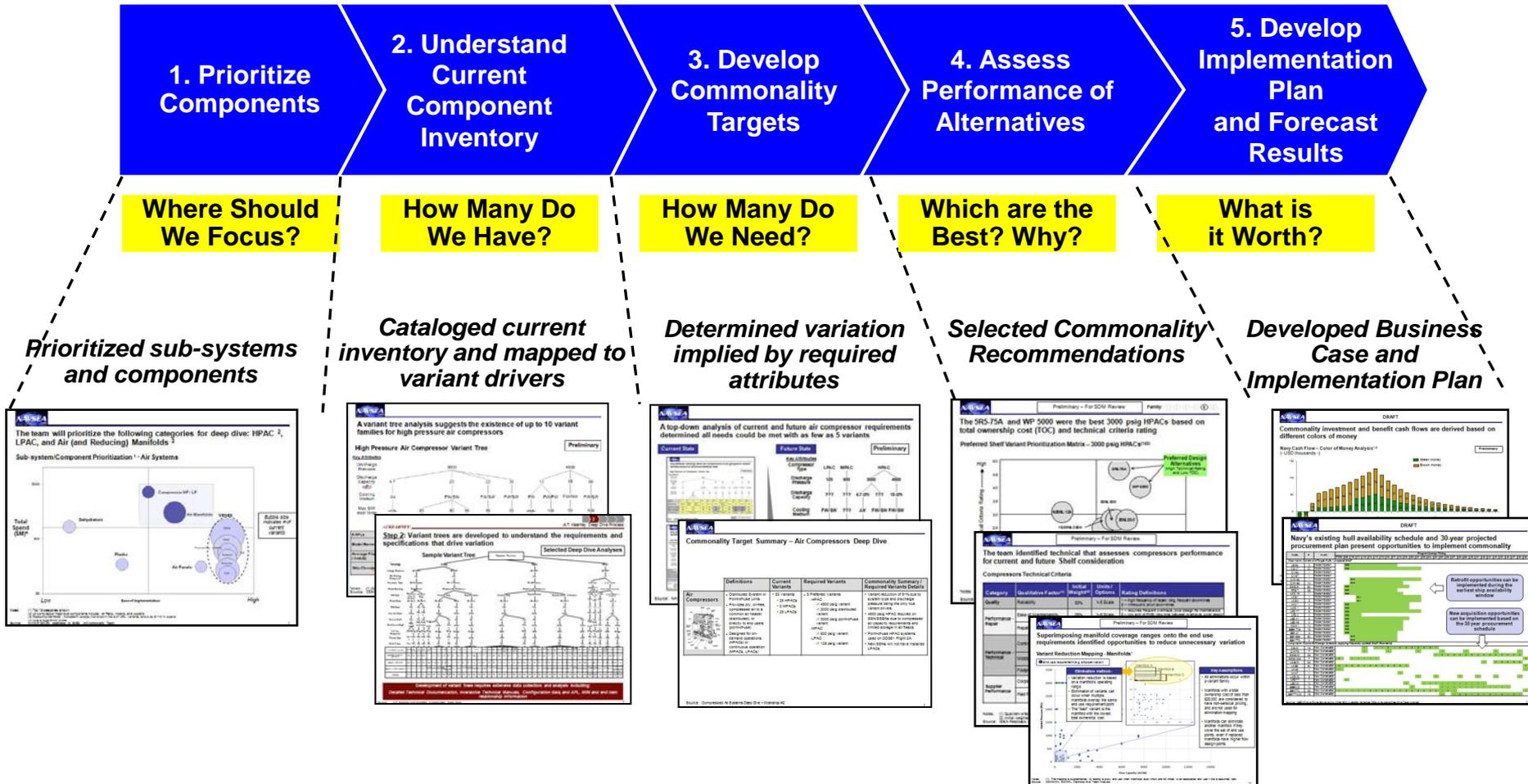
(apply a systems engineering approach to reduce variation)

What Commonality is	What Commonality is NOT
<ul style="list-style-type: none"> ▪ Reduce parts/systems ▪ Critical examination of necessary variation ▪ Applied at the logical level of design ▪ Includes Business Case Analysis 	<ul style="list-style-type: none"> ▪ Elimination of all variation ▪ Sacrifice performance, safety, quality ▪ Not applied to all levels of design ▪ Impacts every system or where there is no justification

**Reduce Variation & Maintain Performance
... But One Size Won't Fit All**

System and sub-system recommendations are developed through a validated, structured and repeatable Deep Dive process and its tools

Commonality Deep Dive Process



Component/System Management

Virtual Shelf Access

1. Register for Virtual Shelf use through DAU (<https://acc.dau.mil/join>)
2. Continue to site to provide information and create account
 - a) For request reason, provide "Virtual Shelf" which will grant access
3. Approval should take approximately one day

1

Populate The Shelf – QPL

Deep Dives

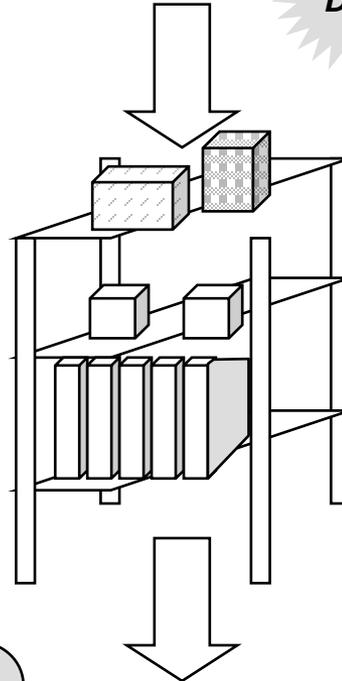
- Common Parts, Design Guidelines and Architectures
- ***IPT Leadership***

2

Manage The Shelf

Ongoing Effort

- Monitor performance and innovation requirements
- ***IPT Leadership***



3

Innovation Insertion

Ongoing Effort

- Incorporate new technology & requirements
- ***IPT Leadership***

4

Select From Shelf

For Each Program

- Meet requirements and design guidelines
- ***IPT Leadership***

1. Visit (<https://acc.dau.mil/commonality>) in order to view the Virtual Shelf user guides and access the Virtual Shelf

To date, Commonality has completed 30 Deep Dives covering 52 components across 26 systems

Spec-Based Recommendations (Identifies cost-based specification changes)

System	Sub-Systems in Scope	% Reduction in Variants
Degaussing	<ul style="list-style-type: none"> Power Supplies Controllers 	<ul style="list-style-type: none"> •77% •95%
Machinery Control Systems	<ul style="list-style-type: none"> Architectures Software 	<ul style="list-style-type: none"> •57% •Varies⁽²⁾
Elevators	<ul style="list-style-type: none"> Aircraft Elevators Cargo Weapons Elevators 	<ul style="list-style-type: none"> •Varies⁽²⁾
Load Centers / Power Panels	<ul style="list-style-type: none"> Load Centers Power Panels 	<ul style="list-style-type: none"> •Varies⁽²⁾
Generators	<ul style="list-style-type: none"> Generators 	<ul style="list-style-type: none"> •24%
Oil Based Fluids	<ul style="list-style-type: none"> Greases, Fluids, Lubes 	<ul style="list-style-type: none"> •27%
Seawater	<ul style="list-style-type: none"> Desalination Units 	<ul style="list-style-type: none"> •Varies⁽²⁾
Switchboards	<ul style="list-style-type: none"> Medium Voltage Switchboards 	<ul style="list-style-type: none"> •Varies⁽²⁾
Climate Controls	<ul style="list-style-type: none"> Duct Heaters Cooling Coils Fan Coil Units Fan Coil Assemblies 	<ul style="list-style-type: none"> •56% •67% •0% •36%
UPS & Motor Controllers	<ul style="list-style-type: none"> UPS Motor Controllers 	<ul style="list-style-type: none"> •80% •19%
Propulsion Systems	<ul style="list-style-type: none"> Main Reduction Gear 	<ul style="list-style-type: none"> •Varies⁽²⁾
Coverings/Coatings	<ul style="list-style-type: none"> Deck Coverings Interior Coatings 	<ul style="list-style-type: none"> •Varies⁽²⁾ •Varies⁽²⁾
Ship Controls	<ul style="list-style-type: none"> Software 	<ul style="list-style-type: none"> •Varies⁽²⁾
Chilled Water Systems	<ul style="list-style-type: none"> AC Plants Refrigeration Units 	<ul style="list-style-type: none"> •Varies⁽²⁾ •Varies⁽²⁾

Parts-List Recommendations (Identifies which components to buy)

System	Sub-Systems in Scope	% Reduction in Variants
Ship Controls	<ul style="list-style-type: none"> SCS Architecture Helm Console Monitors 	<ul style="list-style-type: none"> •66% •69% •73%
Interior Communications (Voice Systems)	<ul style="list-style-type: none"> Telephone Terminals ICTs CAAS PBXs 	<ul style="list-style-type: none"> •91% •33% •86% •83%
Electrical Distribution	<ul style="list-style-type: none"> Circuit Breakers 	<ul style="list-style-type: none"> •23%
Machinery Control Systems	<ul style="list-style-type: none"> PLC Cards Workstations 	<ul style="list-style-type: none"> •51% •67%
Fluid Systems	<ul style="list-style-type: none"> Centrifugal Pumps – Seawater and Freshwater 	<ul style="list-style-type: none"> •52%
Compressed Air System	<ul style="list-style-type: none"> Air Compressors Reducing Manifolds 	<ul style="list-style-type: none"> •81% •62%
Energy Generating	<ul style="list-style-type: none"> Diesel Eng. / Gas Turbine 	<ul style="list-style-type: none"> •47%
Lighting and Generator Controls Systems	<ul style="list-style-type: none"> Lighting Fixtures⁽¹⁾ Voltage Regulators Governor Controls 	<ul style="list-style-type: none"> •49% •95% •90%
Motors	<ul style="list-style-type: none"> Motors⁽¹⁾ 	<ul style="list-style-type: none"> •61%
ABTs & Power Conversion	<ul style="list-style-type: none"> ABTs⁽¹⁾ Frequency Converters 	<ul style="list-style-type: none"> •49% •56%
Valves	<ul style="list-style-type: none"> Ball Valves Butterfly Valves Gate Valves Stop Globe Valves 	<ul style="list-style-type: none"> •39% •51% •36% •55%
Voltage Conversion	<ul style="list-style-type: none"> AC/DC Power Supplies Transformers 	<ul style="list-style-type: none"> •34% •36%
Hydraulics	<ul style="list-style-type: none"> Rotary Actuators Linear Actuators 	<ul style="list-style-type: none"> •36% •39%
Positive Displacement Pumps	<ul style="list-style-type: none"> Positive Displacement Pumps⁽¹⁾ 	<ul style="list-style-type: none"> •37%

(1) Benefits are split between Parts-List savings and Spec-Based savings

(2) Multiple recommendations that narrow, widen or replace current specs to reduce TOC

Commonality

23 cost-based specifications are now being created or revised through SE/TA O&M,N – with potential benefits of \$2.2B+ over 30 yrs (supports programs getting to their “should cost” from “will cost”)

Summary of Deep Dives With Specification Changes

System	MIL-SPEC	Exp. Completion Date	30-Year Impact
Chilled Water Systems	PPD	Deep Dives recently completed – PDS/PPDs being developed	\$996M
Deck Coverings	Navy Std. Item 009-26		\$348M
Interior Coatings	Navy Std. Item 009-32		\$158M
Propulsion Systems	MIL-G-17859D		\$132M
MCS/SCS Software	Two New Specifications HMI Style Guide		\$82M
Oil Based Fluids	Ship allocation letters	30 Sep 12	\$70M
Degaussing	New Specification	22 Aug 12	\$63M
UPS / Motor Control.	MIL-DTL-2212 / 24765	06 Aug 12	\$53M
MV Switchboards	New Specification	29 Aug 12	\$43M
MCS Architecture	New Specification	24 Apr 12	\$40M
Generators	MIL-G-3124	30 Sep 12	\$35M
Aircraft & Cargo Weapons Elevators	CWE: MIL-E-17807 ACE: New MIL-Spec	29 Oct 12	\$34M
Desalination Units	New Specification	PDS being developed	\$32M
Electric Motors	MIL-DTL-17060G	To Be Assigned	\$23M
Power Panels	MIL-23928	06 Sept 12	\$16M
ABT	MIL-Spec 17773	30 Jul 12	\$12M
Energy Generating	ABS NVR	23 Jun 12	\$11M
Load Centers	MIL-DTL-16036	06 Sept 12	\$9M
Lighting Fixtures	MIL-DTL-16377J	21 Sep 12	\$5M
PD Pumps	ABS NVR	To Be Assigned	\$5M

(1) Reference materials and OQE provided in separate appendix

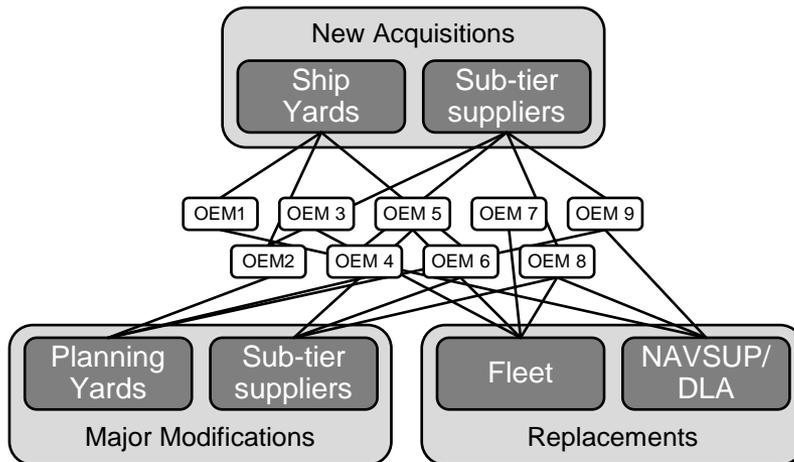
Agenda

- The Link between Commonality and HM&E Standardization

Sourcing Pilot: An enterprise-wide sourcing pilot has been launched using an alternative procurement approach

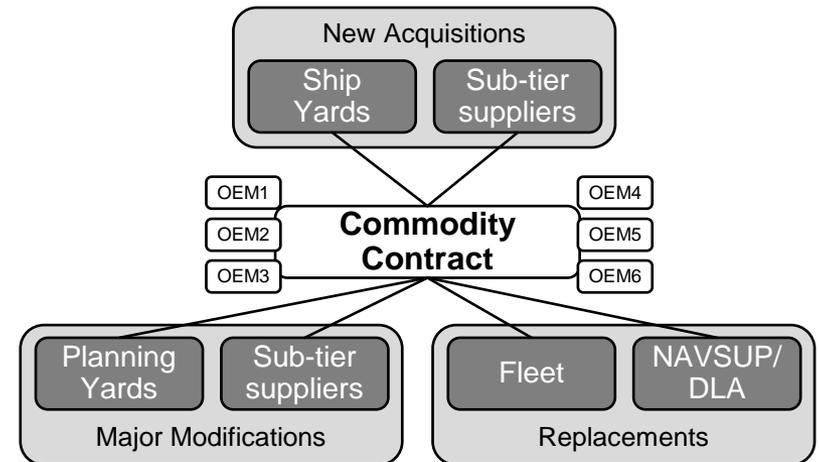
Objective: to determine if the Navy can consolidate spend and establish an enterprise-wide commodity contract with the End State Vision defined below

Current Acquisition Structure



- **Fragmented purchases** – each buyer has separate contract
- **Tactical buys** – most contracts established for a single event
- **Variable pricing** – each contract has unique pricing

End State Vision

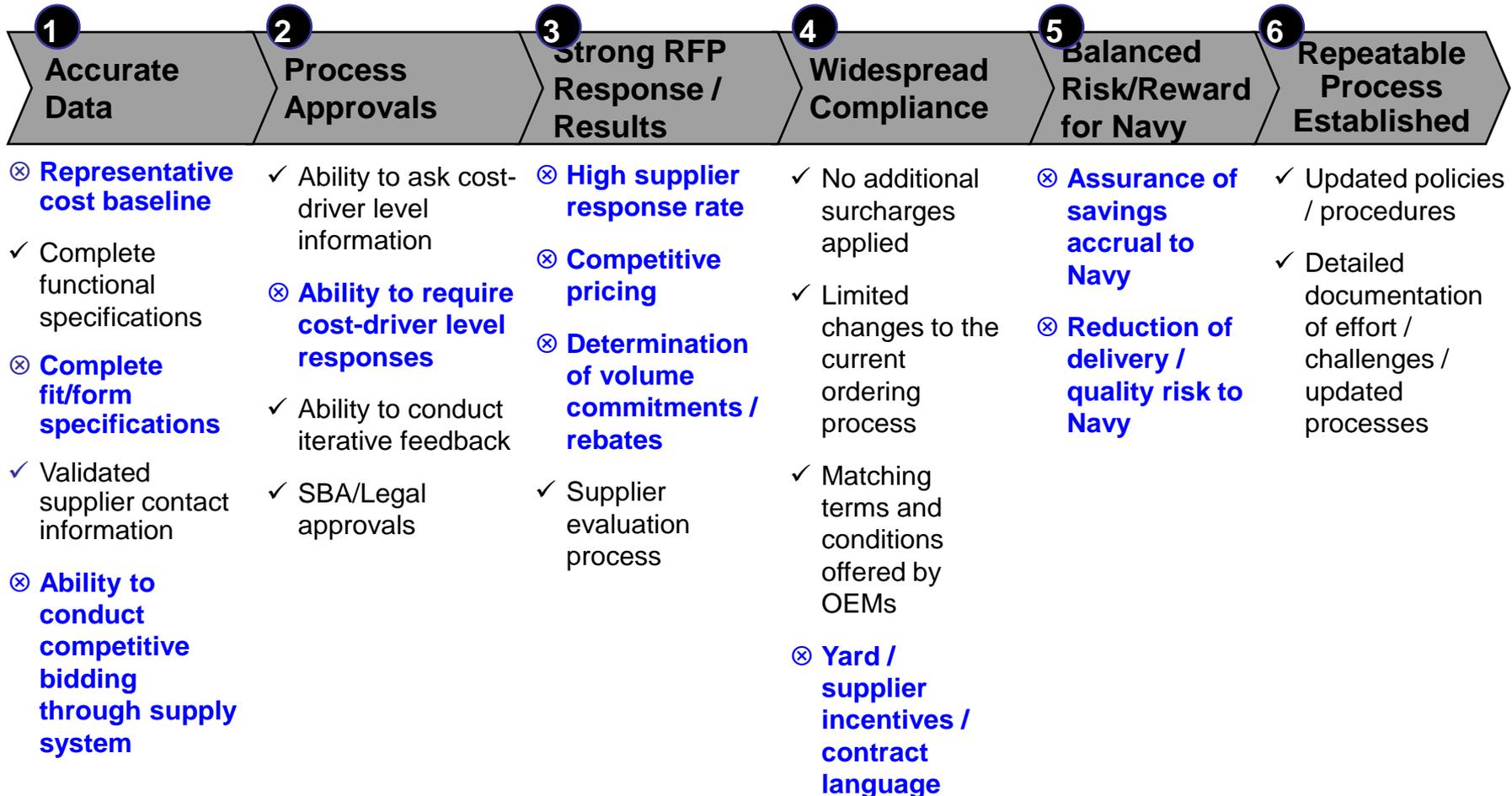


- **Consolidated volume** – one purchasing vehicle for new ship builds, mods and replacements
- **Strategic buys** – aggregated enterprise-wide 5-year purchasing volume
- **Preferred pricing** – based on consolidated volume

Throughout the process, the team has been identifying and addressing key issues (DLA, NAVSUP, NAVSEA, SEALOG)

Keys To Success And Related Challenges

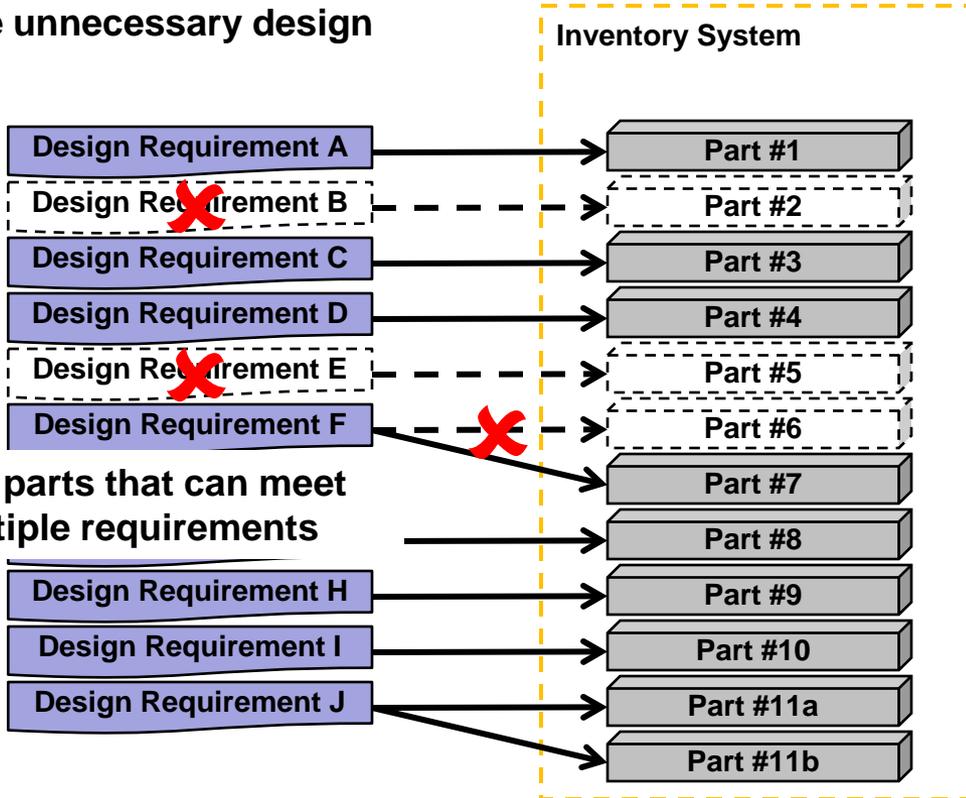
- ✓ Completed / Addressing
- ⊗ Remaining Challenges



Commonality focuses on requirements and specifications to eliminate design variation, which contributes to part number proliferation

Concept Overview – Commonality Initiative

1. Eliminate unnecessary design variation



2. Identify parts that can meet the multiple requirements

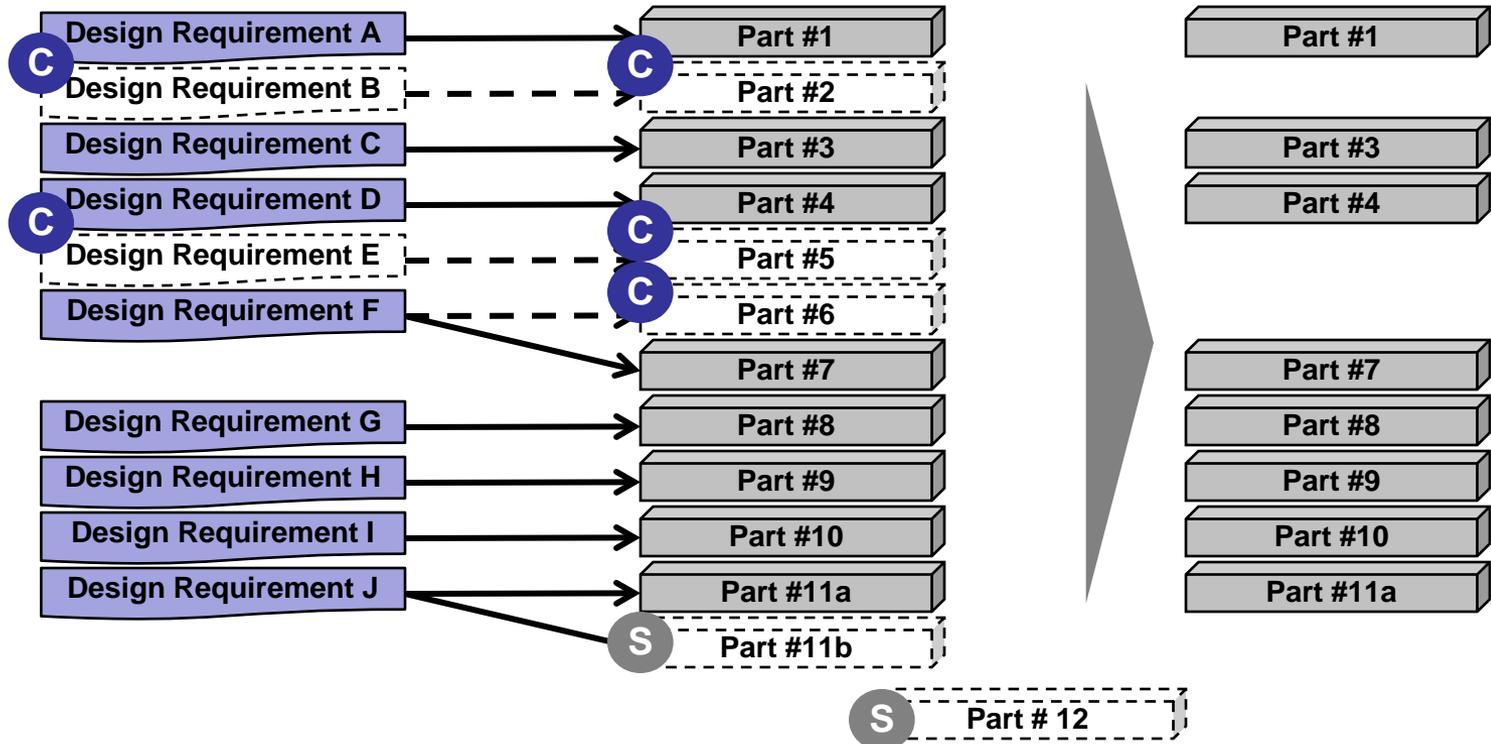
Standardization efforts can help sustain the design variation reduction driven by Commonality

Interaction between Commonality and Standardization

- C** Commonality Related
- S** Standardization Related

Commonality attacks the design decision decisions that drive proliferation

Standardization prevents further proliferation



Alignment of Commonality & Standardization

Commonality & Item Reduction Studies

Lessons Learned

- ***Pilot with DLA, Columbus related to an IR Study was initiated***
- ***Commonality defined NIIN's/APL's which did not meet Commonality Deep Dive analysis***
- ***Provided To DLA, Columbus for review/assessment of potential for removal for supply system***
- ***DLA, Columbus requested Navy Engr. Community review to support reduction of items***
- ***Process to assess engineering opportunities to remove items has taken longer than expected (significant lessons learned to effectively accomplish IR studies)***
- ***Potential manpower and cost to review and accomplish IR studies is under review but could be substantial***
- ***Analysis of time and cost to accomplish engineering analysis for IR will determine if all Commonality recommended results for NIIN/APL removal can be accomplished (ECD: May 2012)***