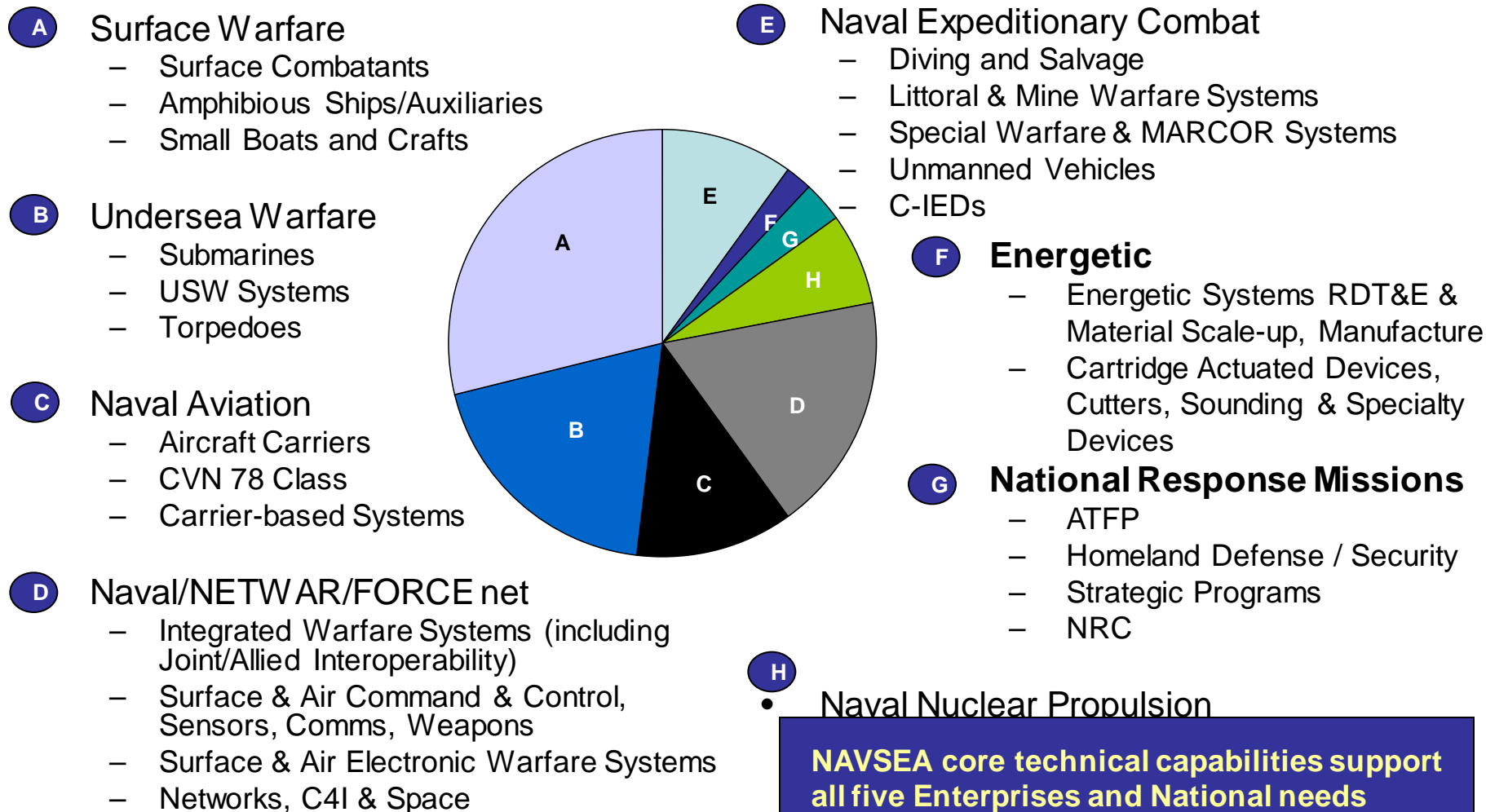# Thinking Outside of the Hull

Presented to:
2012 NDIA Expeditionary Warfare Conference
Panama City, Florida

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Naval Sea Systems Command
12 September 2012

NAVSEA Product Lines

A Surface Warfare
- Surface Combatants
- Amphibious Ships/Auxiliaries
- Small Boats and Crafts

B Undersea Warfare
- Submarines
- USW Systems
- Torpedoes

C Naval Aviation
- Aircraft Carriers
- CVN 78 Class
- Carrier-based Systems

D Naval/NETWAR/FORCE net
- Integrated Warfare Systems (including Joint/Allied Interoperability)
- Surface & Air Command & Control, Sensors, Comms, Weapons
- Surface & Air Electronic Warfare Systems
- Networks, C4I & Space

Shown is a percentage of FY 08 dollars executed

E Naval Expeditionary Combat
- Diving and Salvage
- Littoral & Mine Warfare Systems
- Special Warfare & MARCOR Systems
- Unmanned Vehicles
- C-IEDs

F **Energetic**
- Energetic Systems RDT&E & Material Scale-up, Manufacture
- Cartridge Actuated Devices, Cutters, Sounding & Specialty Devices

G **National Response Missions**
- ATFP
- Homeland Defense / Security
- Strategic Programs
- NRC

H
- Naval Nuclear Propulsion

NAVSEA core technical capabilities support all five Enterprises and National needs

NAVSEA Key Success Factors

War-Fighter Focus

Innovation

Talent

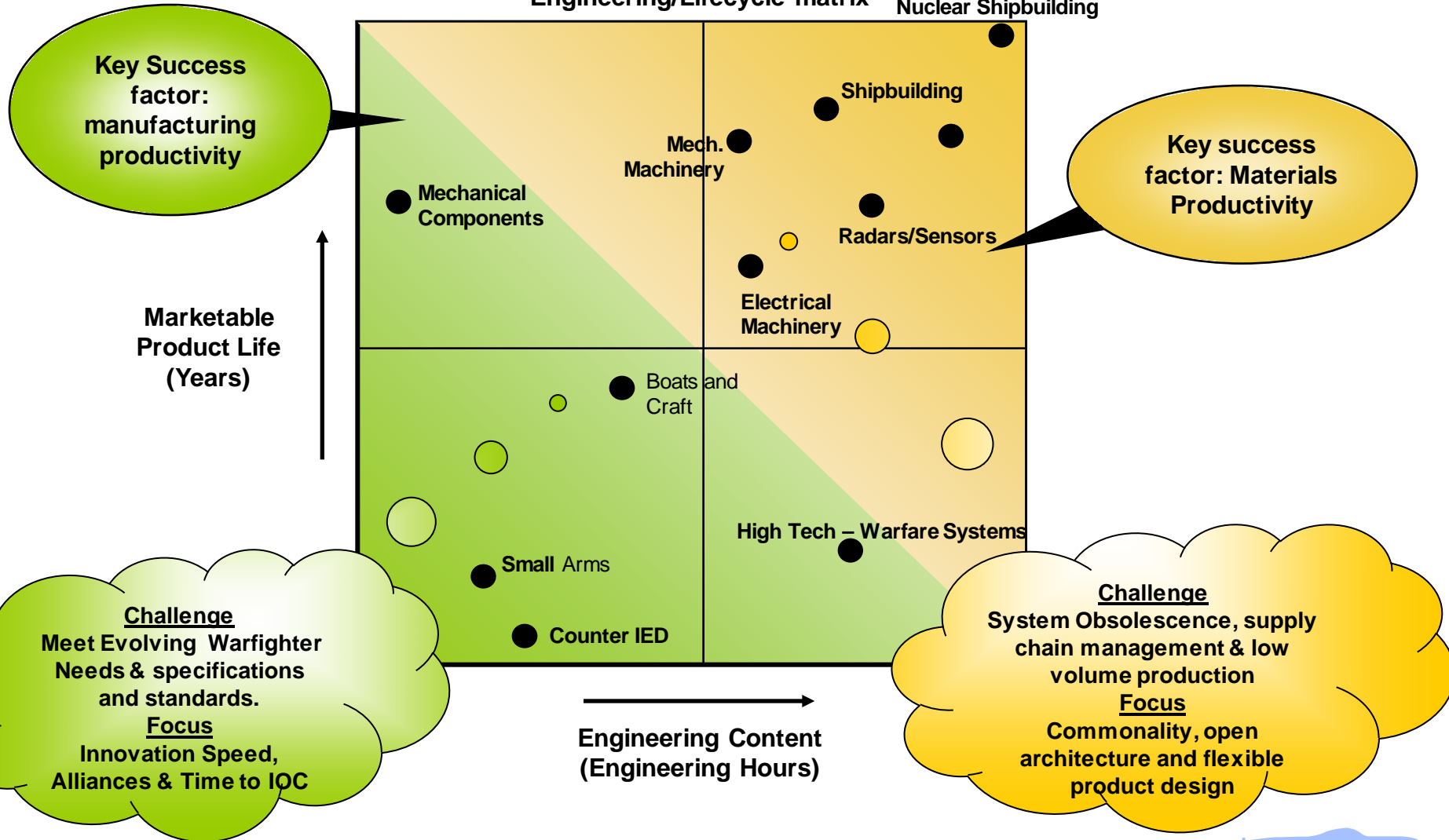**Stewardship**

Technical Excellence

Lean Thinking

Execution Excellence
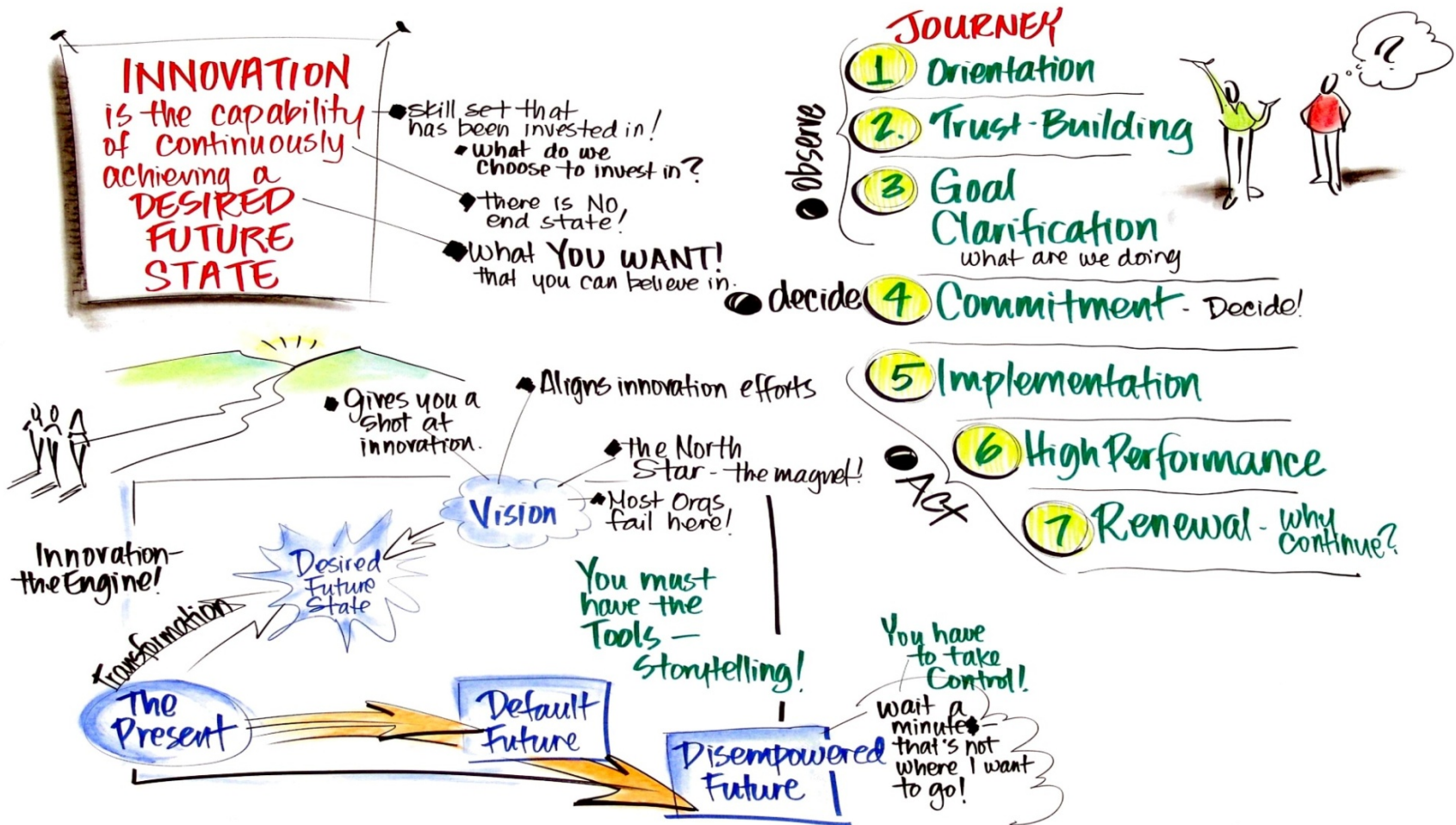
Innovation Leadership: Developing the ability for an organization and its people to adapt to waves of disruptive change brought on by new business models, demographic and geopolitical shifts, and by new and emerging technologies.

Key Success Factor: Technical Excellence

Engineering/Lifecycle matrix

Key Success factor: manufacturing productivity

Key success factor: Materials Productivity

Nuclear Shipbuilding

Shipbuilding

Mech. Machinery

Mechanical Components

Radars/Sensors

Electrical Machinery

Marketable Product Life (Years)

Boats and Craft

High Tech – Warfare Systems

Small Arms

Counter IED

Challenge
Meet Evolving Warfighter Needs & specifications and standards.
Focus
Innovation Speed, Alliances & Time to IOC

Challenge
System Obsolescence, supply chain management & low volume production
Focus
Commonality, open architecture and flexible product design

Engineering Content (Engineering Hours)

NAVSEA
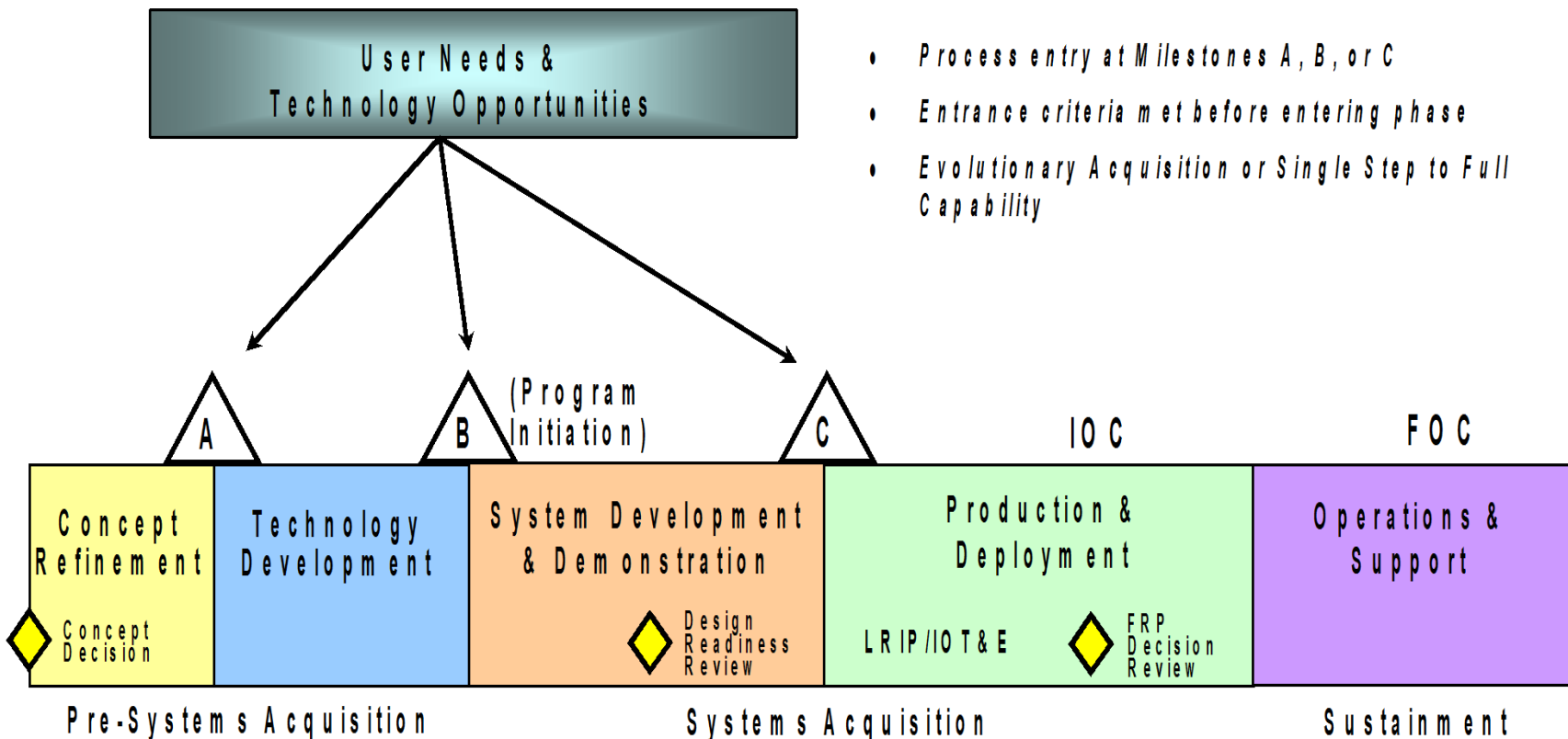NAVAL SEA SYSTEMS COMMAND

What Does That Mean for Expeditionary Warfare??

- Agile
- Reliable
- Lethal
- Durable
- Light
- Ease of Use
- Repairable

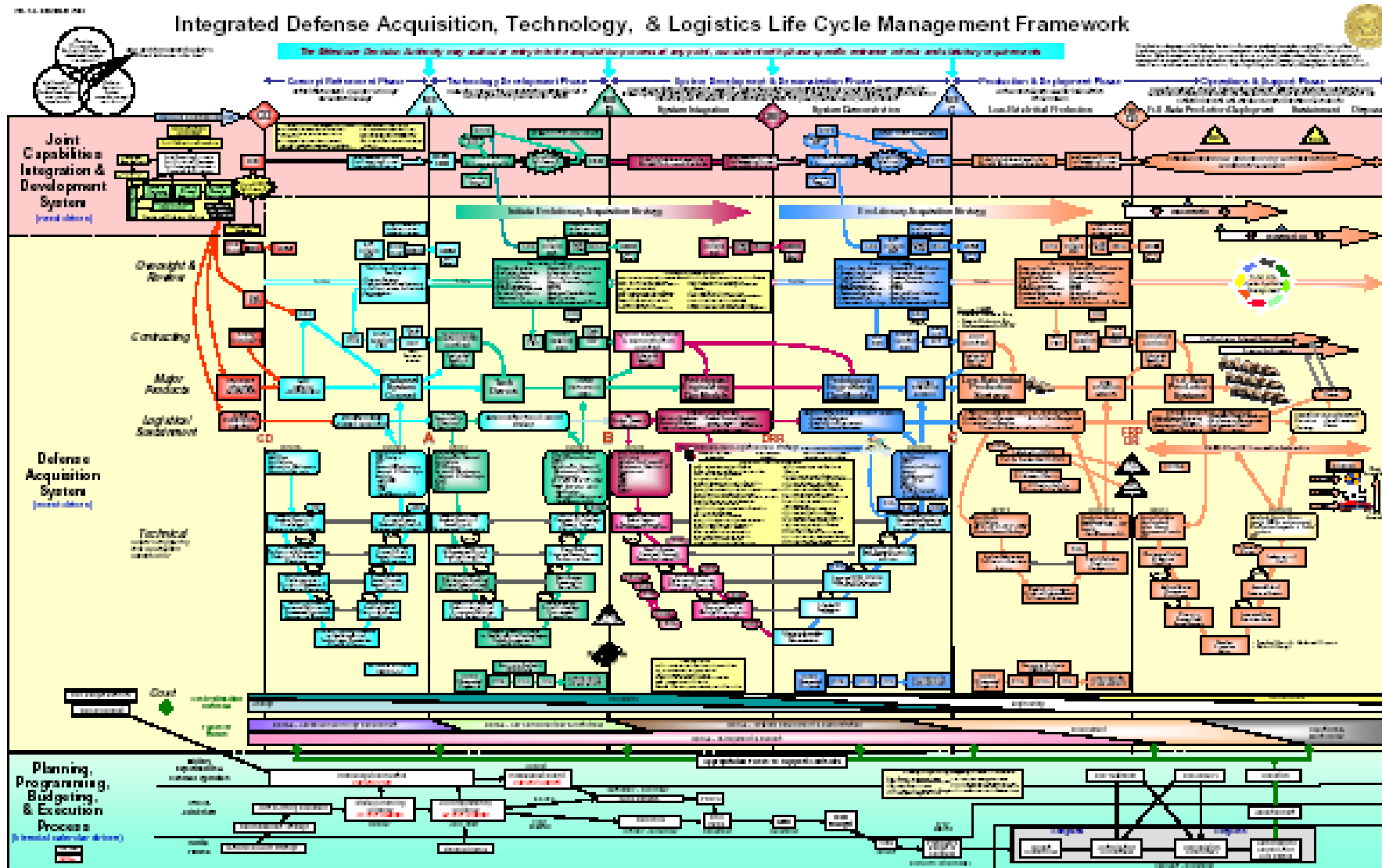**Product versus Process: What is Good Enough?**

NAVSEA
NAVAL SEA SYSTEMS COMMAND

Weapons Proliferation

Non-State Actors

Transnational Actors

Weapons of Mass Destruction

Terrorism

Peacekeeping

Failed States

Information Security

DoD Acquisition Process Life Cycle

- DoD Instruction 5000.2 (2003)

Integrated Defense Acquisition, Technology, & Logistics Life Cycle Management Framework

IMPROVED SYSTEM ENGINERING PROCESS

AS IS

Concept Refinement | MS-A | Technology Development | MS-B | System Development & Demonstration | MS-C

SRR SFR PDR CDR TRR FRR SVR / PRR
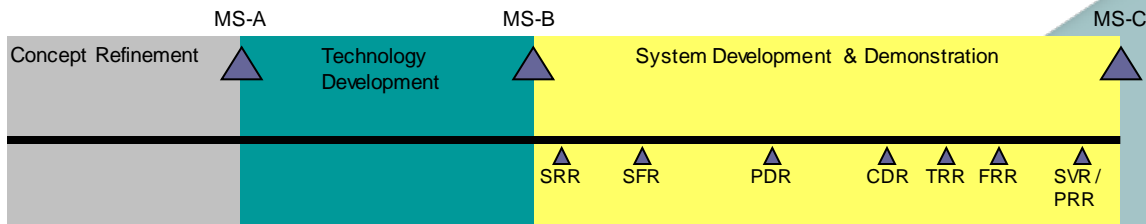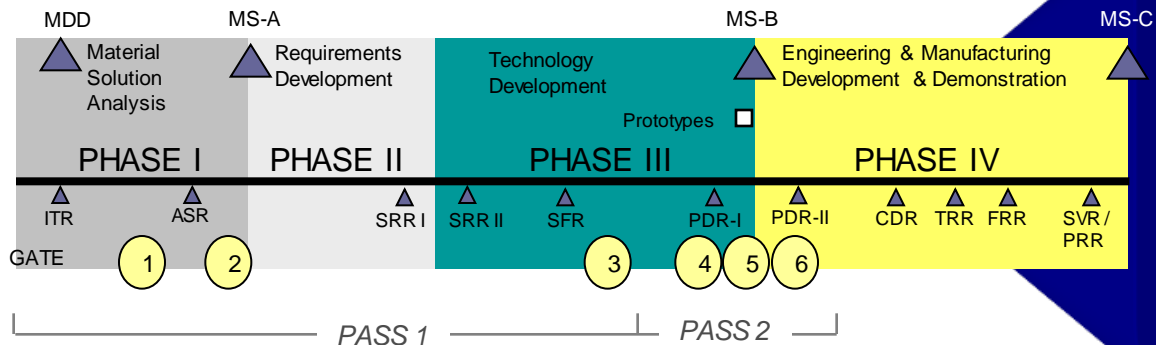
- ENTER MS-B WITH AN IMMATURE SYSTEM SPECIFICATION
- RESULTS IN LESS INFORMED MILESTONE DECISIONS
- FOSTERS POORLY DEFINED PROGRAM ASSUMPTIONS & BASELINES
- LEADS TO COST / SCHEDULE GROWTH DURING EXECUTION

TO BE…

MDD — Material Solution Analysis | MS-A — Requirements Development | Technology Development | MS-B — Engineering & Manufacturing Development & Demonstration | MS-C

Prototypes

PHASE I | PHASE II | PHASE III | PHASE IV

ITR ASR SRR I SRR II SFR PDR-I PDR-II CDR TRR FRR SVR / PRR

GATE

(1) (2) (3) (4) (5) (6)

PASS 1 — PASS 2

- OUTPUT OF EACH PHASE MEETS INPUT CRITERIA FOR GATE REVIEWS
- GREATER OPPORTUNITY FOR MATURING CRITICAL TECHNOLOGIES
- ALLOWS FOR COMPETITIVE PRESSURES TO BETTER OPTIMIZE COST/SCHED/PERFORMANCE
- GREATLY IMPROVED LIKELIHOOD OF MEETING COST/SCHED

START "SLOW" TO GO FAST!

IMPROVEMENT OPPORTUNITIES