Armament Technology – Focusing on "Joint Munitions and Lethality Life Cycle Management Command"

Program Executive Office
Ground Combat Systems

Acquisition Excellence

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Ground Combat Systems

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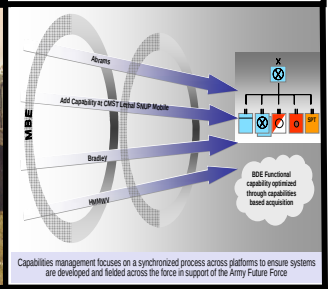
Program Executive Office Ground Combat Systems

Program Executive Office
Ground Combat Systems

Stryker Brigade Combat Team	Heavy Brigade Combat Team • Abrams Tank • Bradley Fighting Vehicle • Paladin / FAASV • M113	Joint Robotics Systems (Army & Marine)	Joint Lightweight Howitzer 155mm (Army & Marine)	Modular Brigade Enhancements
				

PEO GCS maintains a total Army perspective in managing the development, acquisition, testing, systems integration, product improvement, and fielding that places the best ground combat systems in the hands of our soldiers

PM Heavy Brigade Combat Systems

Program Executive Office
Ground Combat Systems

8,453
Abrams FoV

3,962
Fire Support
Platforms

13,943 M113
6,452 Bradley

29,373 in Active Use

Stryker Family of Vehicles

Commander's Vehicle (CV)

Fire Support Vehicle (FSV)

Infantry Carrier Vehicle (ICV)

Commonality

Common Operating Picture

Common Chassis & Drive Train

Common KPP's

Common Survivability

Common TMDE, Spare Parts, Tools & Skills

Mobile Gun System (MGS)

Reconnaissance Vehicle (RV)

NBC Reconnaissance Vehicle (NBCRV)

Medical Evacuation Vehicle (MEV)

120mm Mounted Mortar Carrier (MC-B)

Engineer Squad Vehicle (ESV)

Anti Tank Guided Missile (ATGM)

Note: Red – LRIP

PM Joint Lightweight 155

M119

M198

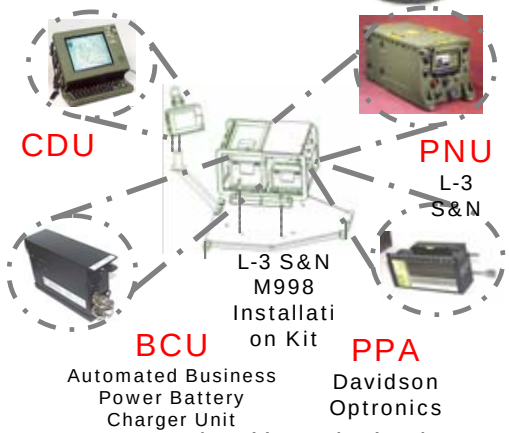
M777E1 Howitzer

Joint Programs

US Army & USMC

XM777 LW155

Towed Artillery Digitization



Improved Position and Azimuth Determining System (IPADS)

Gun Laying and Positioning System

Projected End State Total (FY09) (AAO):

M777A1:	273 Army / 380 USMC
M198:	741 Production Complete
M119:	389 Production Complete
IPADS:	327 Army / 60 USMC
GLPS:	511 In Final Production

PEO GCS
Robotic Systems JPO

Program Executive Office
Ground Combat Systems

Army & USMC Programs


Abrams Panther (6)


Mini-Andros (20)

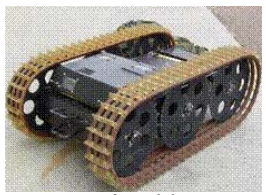

Matilda (35)


Assault Breaching Vehicle (ABV) (33)

Joint Programs

US Army & USMC


DOK-ING MV-4 (21)


Urbot (2)

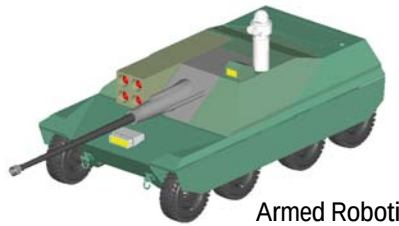

Mini-Flail (21)


Vanguard (58)


Gladiator (2)


PackBot (22)

FCS Programs


Armed Robotic Vehicle (ARV)


Autonomous Navigation System (ANS)


Small Unmanned Ground Vehicle (SUGV)


Multifunction Utility / Logistics & Equipment (MULE)

MRAP Vehicle Categories

MRAP CAT I

Support operations in an urban environment and other restricted/confined spaces; including mounted patrols, reconnaissance, communications, and command and control

- 4x4
- 6 pax
- GFE Integration
- Curb Wt: 21,000 – 32,000 lbs
- GVWR: 31,300 – 52,000 lbs
- Reserve Payload*: 0 – 6,000 lbs

All services and USSOCOM

MRAP CAT II

Provide a reconfigurable vehicle that is capable of supporting multi-mission operations such as convoy escort, troop transport, explosive ordnance disposal, ambulance, and combat engineering.

- 4x4 and 6x6 variants
- 10 pax
- GFE Integration
- Curb Wt: 26,600 – 40,000 lbs
- GVWR: 31,300 – 52,000 lbs
- Reserve Payload*: 0 – 7,000 lbs

Army includes Ambulance variant

MRAP CAT III

Provide mine/IED clearance operations, giving deployed commanders of various units, and EOD/Combat Engineer teams survivable ground mobility platforms.

- 6x6
- 12 pax
- Curb Wt: 45,000 lbs
- Cmbt Wt: 80,000 lbs
- Payload: 38,000 lbs

Navy and Marine Corps only

* Reserve Payload = avail payload after full compliment of personnel, gear, and GFE

Some Thoughts on Life Cycle Management Execution

- Set Priorities
- Link priorities to Army campaign Plan
- Execute in an A,L&T integration construct
- Execute in a disciplined and deliberate way
- Good Systems Engineering/Lean Six sigma
- Army Force Generation Model is a good synchronization model
- Need to be brigade and capability focused

Program Priorities

- **Support our Soldiers and GWOT**
- **Modularity, Reset, Recap**
- **Spiral Integration**
- **Ground Combat Investment/Modernization and Sustainment Strategy**
- **Balance long-term goals and objectives and near-term challenges**

NONE OF THESE ARE MUTUALLY EXCLUSIVE

What Drives us. . .Army Requirements

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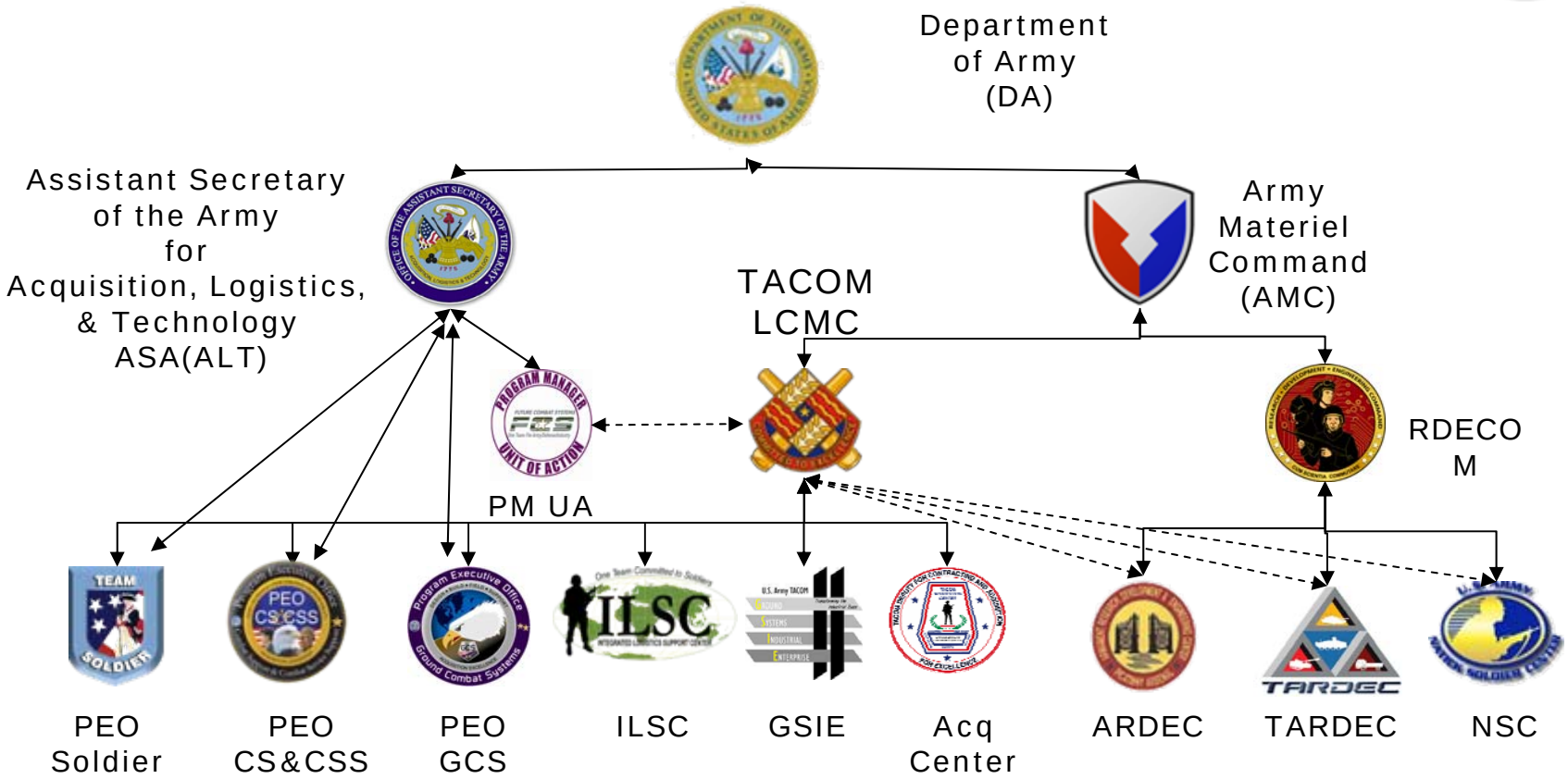
Army Campaign Plan → **PEO GCS Campaign Plan**

- • Build the Formation – Not the Platform
- • Focus on The Army's Campaign Plan and
- the Desired Endstate
- • Support the Fight
- • Sustain BCTs
- • RESET and Recap – Are They Working?
- • Integrated Management-OEM partnership
- • Build the Future
- • Establish RDTE
- • Obsolescence
- • Commonality
- • Training Devices
- • Formation Health Management
- • FCS and FCS Spin-outs

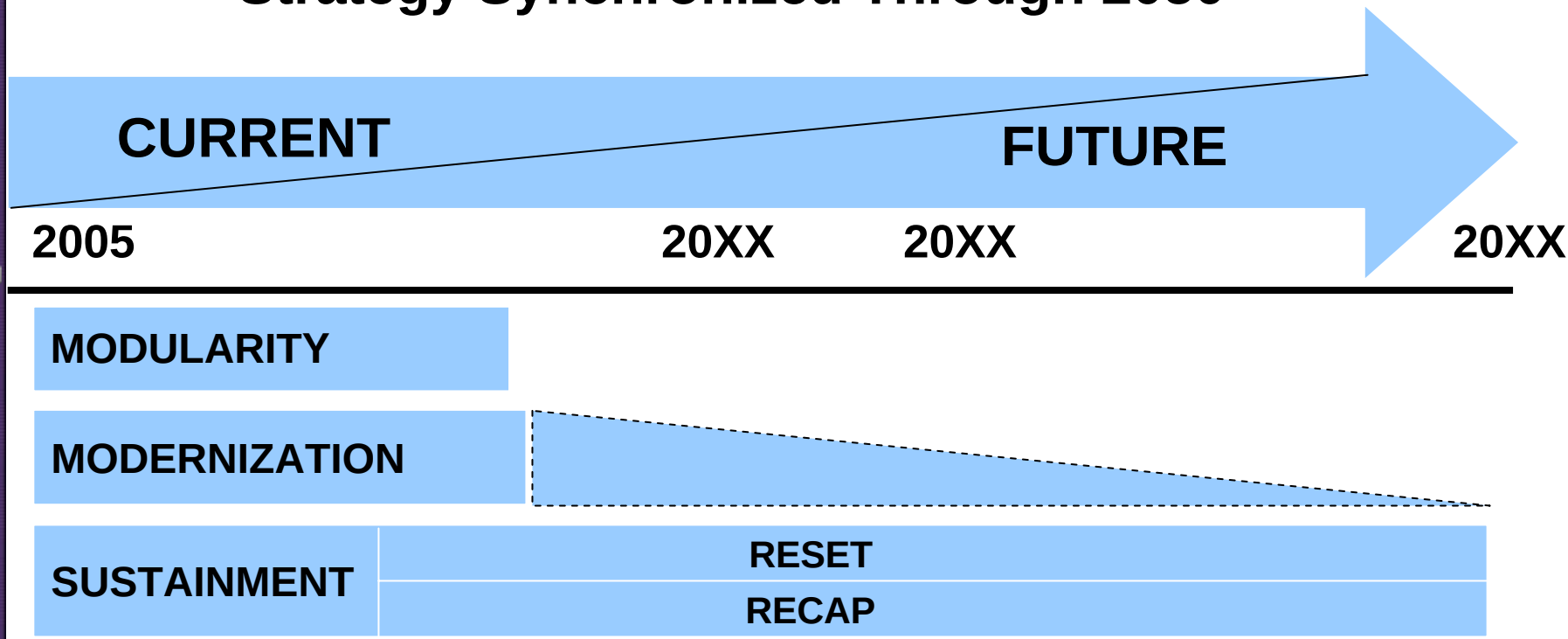
Nested Requirements Mapped to ACP Drive Objective Fleet

TACOM LCMC



The TACOM LCMC unites all of the organizations that focus on Soldier and Ground Systems. The PEOs and PMs are able to work as an integral part of the Logistics and Technology efforts of the LCMC, while enterprise level partnerships are maintained with the Research, Development, and Engineering Centers (RDECs).

Notional Fleet Management Strategy Synchronized Through 2050



- Requires Partnerships with Industry and RDECOM
- Requires Centralized Management and Oversight
- Requires Balance between Current and Future
- Requires Centralized Funds Management (OMA and PAA)

PEO GCS Approach to Fleet Management

- Balanced Across the Fleet of Systems
- Requirements/Capabilities Based Submission
- Linked to Army Goals for Transformation
- Approached from a Life Cycle Perspective
- Business Case/Fact Based Analysis of Alternatives
- Tempered by Affordability Constraints
- Tied to Force Operational Cycle
- Seamlessly Links Modernization and Sustainment
- Focused on System Relevance through 2050
- Types of Initiatives Considered in Scope for Most Systems (Modularity, FCS Spin Outs, RECAP, RESET, Systems Rearchitecture, Technology Insertion, Sustainment/Overhaul, Army Policy Mandates)

PEO GCS Systems Engineering (SE) Approach

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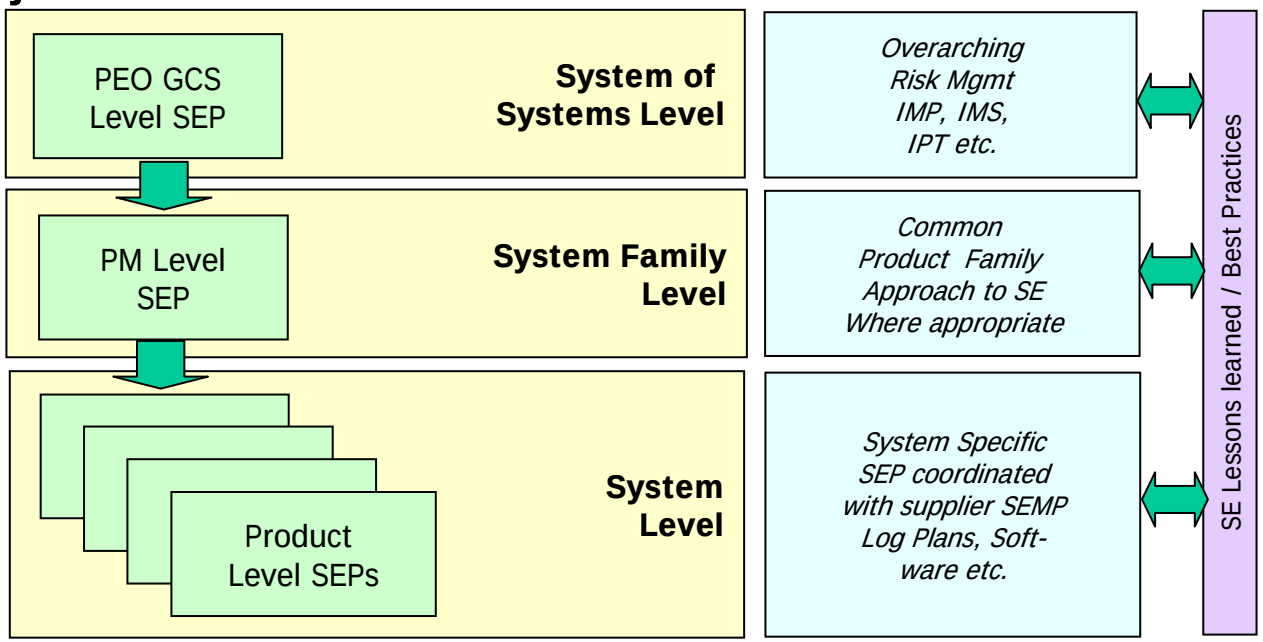
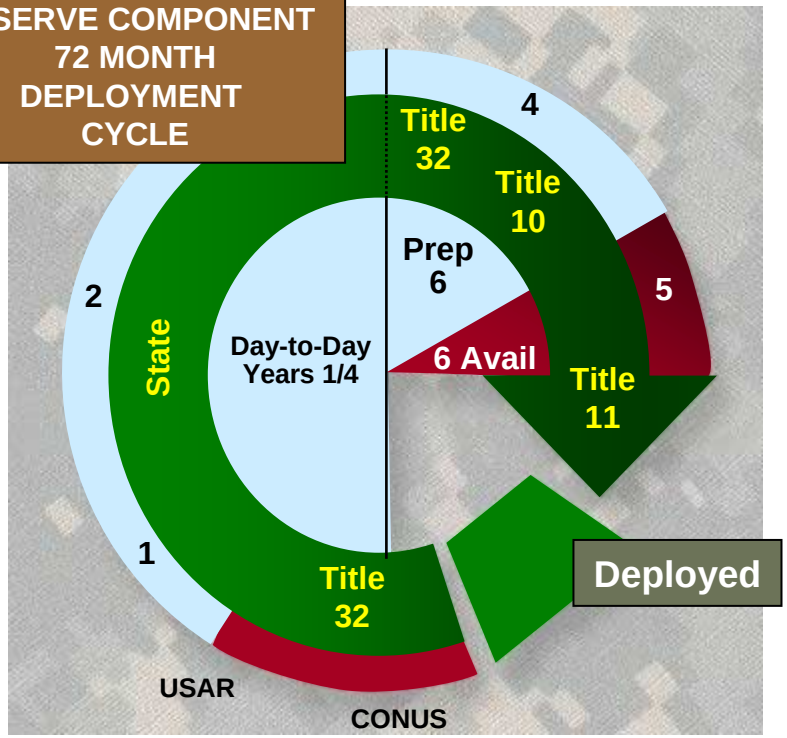
... *Overarching SEP Development Status*

- Delivering an overarching PEO GCS SEP
- Developing Product Level SEPs
- Identified SE gaps are being closed with Green Belt Projects

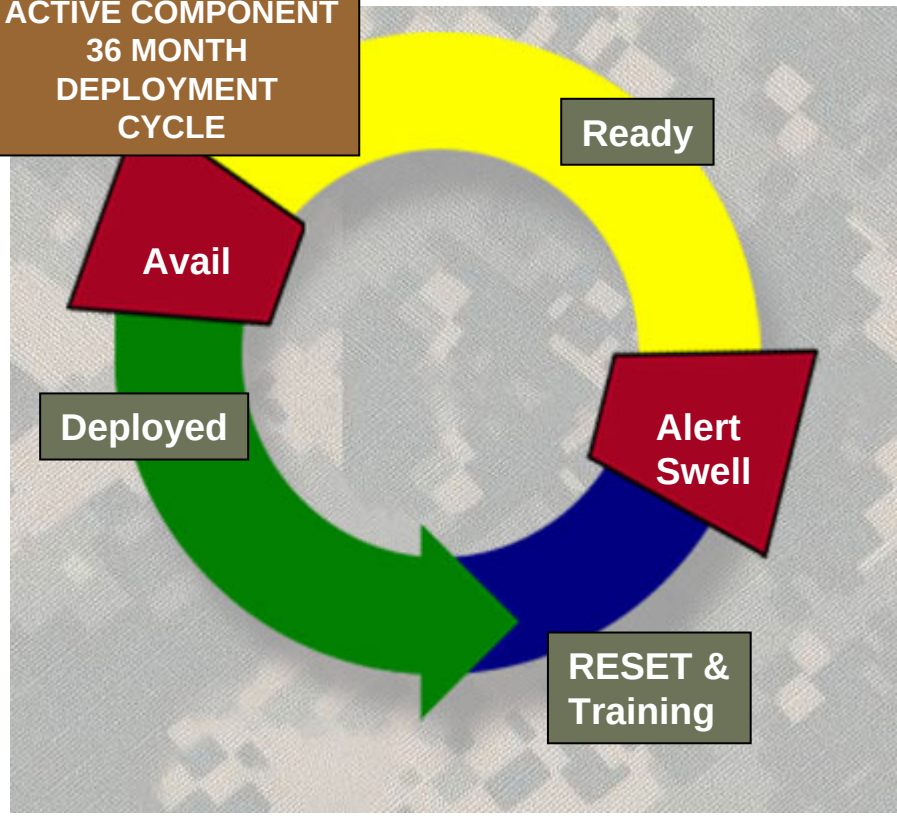


Army Forces Generation Model
ARFORGEN

RESERVE COMPONENT 72 MONTH DEPLOYMENT CYCLE



ACTIVE COMPONENT 36 MONTH DEPLOYMENT CYCLE



Synchronizes the Right Force Mix with the Right Equipment Mix at the Right Time
PM Objective is to "ONLY TOUCH THE UNIT ONCE"

Army Force Generation Model

MACRO… Synchronize G8 Priorities, FORSCOM Priorities and AMC Priorities to Support Dynamic Theater Environment

MACRO… Establish Planning and Execution Baselines that serve as BCT Horse Blanket for All to Follow

MICRO… Synchronizes LCMC Major Item Management Business Process and Life Cycle Management with Combat Vehicle Fleet Strategies

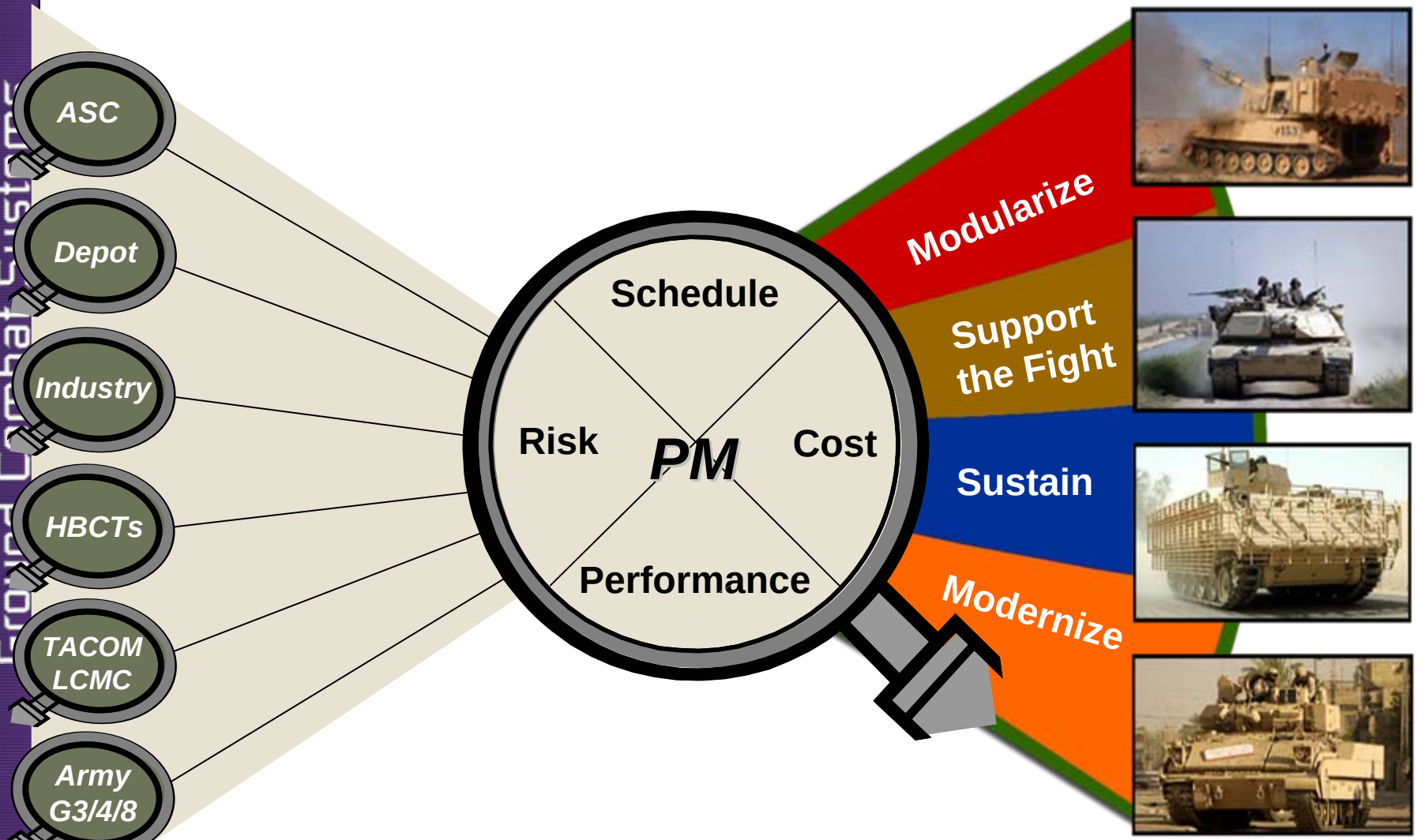
MICRO… Improves Support to Unit ARFORGEN Cycles (Reset, Train and Deploy)

ARFORGEN cont…

PMs (Life Cycle Managers) have the Best View of the Battle Field…

- ✓ **SA on available Resources to Execute all Elements of LCM**
- ✓ **Develops and Negotiates Reset Schedules (TPF, NET, LBE, equipment swap)**
- ✓ **Determines Depot and OEM Workloads through P3 (Reset and Recap)**
- ✓ **Determines and applies Modernization, Sustainment and Modifications**
- ✓ **Works with G8 and User to determine ONS Impacts…(AR2B Decisions)**
- ✓ **Clearing House with G8 and G3/G4 for Synchronization of Reset and Recap Dollars (OMA and Procurement)**
- ✓ **Serves as a feeder to Army Field Support Commanders**

Supporting the BCT Through ARFORGEN
Viewing the Battlefield



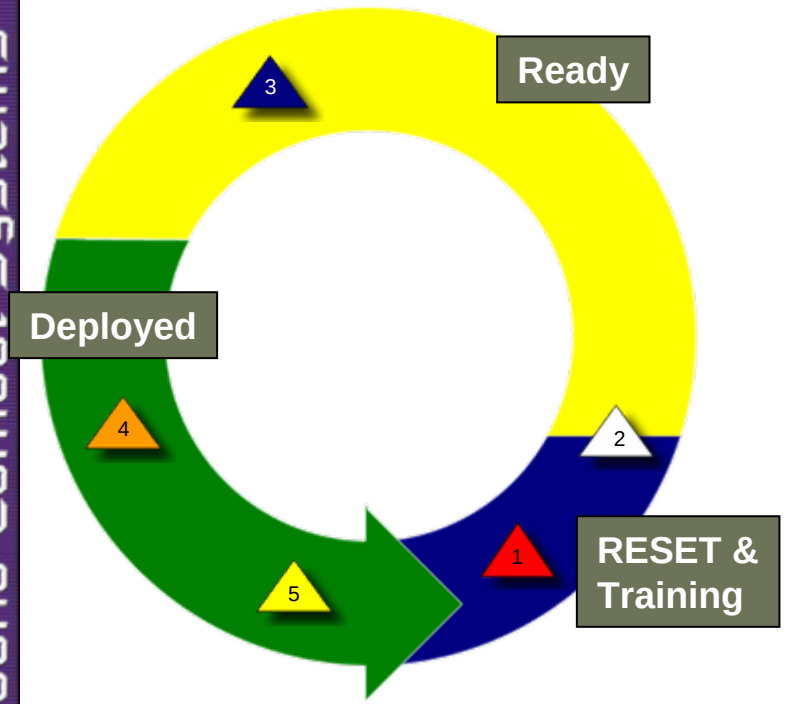
LCMC Major Item Management for the Brigade Combat Team

Desired End State

One Fleet, One Life Cycle
Full Implementation across the Formation

ARFORGEN Support Cycle

Touch Points Overview



1. RESET Planning Conference
2. Training Support Planning Conference
3. Deployment Planning Conference
4. Fleet Performance Update
5. Redeployment Conference

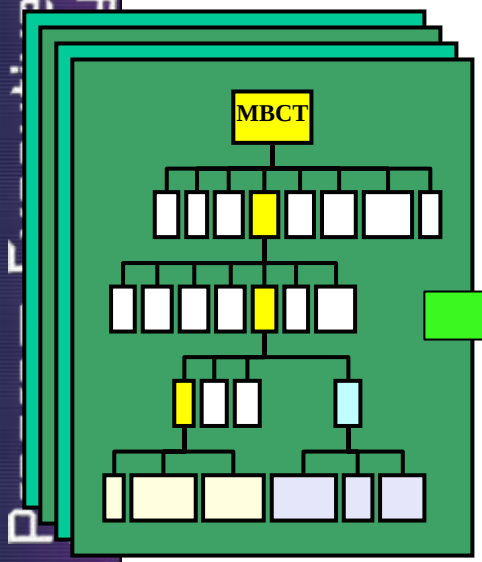
~ 6 Months	~ 18 Months	~ 12 Months

Five Critical Interactions between PM, Divisions and BCTs

PEO Fleet Management and Modernization Analysis Framework

Current Force BCT Structures & Platform Functional and Capability Decomposition

Current Force vs. Future Force Req. Capabilities



BCT Capabilities (CF)

1. ID Capability Diff / Gaps
   - **CF/FF Difference Assessment**
   - **Integrate TRADOC Gap Analysis**
2. Prioritize Gaps -> Create Index
3. Identify Options/Alternatives

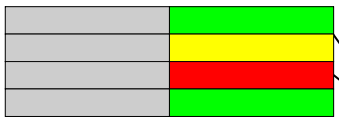
4. Evaluate Alternatives
   - **Simulate capability**
   - **Optimize objectives**
   - **Rank Alternatives**
   - **Alternatives vs. Budget Constraints**
5. Select/Prioritize Alternatives
6. Develop Evolution Strategy

Required Capabilities (FF)

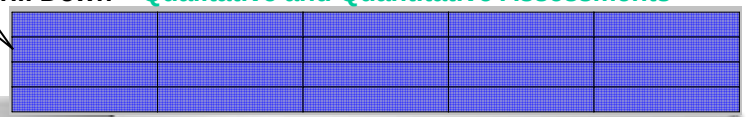
FCS KPPs, Specs, O&O Missions, Force Operating Capabilities (FOCs), CNA

Capture Info in SoSAT/CASTFOREM

BCT vs. Mission



Drill Down – Qualitative and Quantitative Assessments



Abrams Projected Improvements

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- Improved Combat Identification
- Improved Target Recognition
- Improved Ammo
- Improved Accuracy
- Improved Fire Suppression System
- Active Protection and Threat Warning System
- Improved Ballistic Protection

Lethality
Sustainment
Survivability

- More Reliable Power Train
- More Reliable Track and Road-wheels
- Embedded Vehicle Health Management System
- Improved Silent Watch
- Dismounted Soldier Battery Charger
- Improved Side and Rear SA
- Integrated JTRS / FCS Spinouts
- Improved CRBN System
- Improved Frontal Armor
- Improved IED Survivability

Develop an Integrated Fighting System that will Overmatch Future Threats Across the Full Spectrum Warfare

My View of the Acquisition Landscape

- We have to figure out how to really partner with industry while maintaining competition integrity
- We have to be process and data focused and force fact based decisions
- Good discipline and sound systems engineering is critical throughout the acquisition life cycle
- We have to figure out how to make life cycle management a reality and partner with industry consistent with that construct
- Use data and contract performance to dictate long-term partnerships
- Every portfolio will have a hard time when the funding begin to decline
- We have to figure out how to establish requirements and manage acquisition by BCTs and not individual programs

Major Challenges

- Many Priorities, but the war is number one with everything else a distant second. This makes it extremely hard to strategically look towards the future.
- Things to ponder
  - What happens after the war, are we prepared. . .NOT
  - We always prepare for the next war based on the last and we are in a non-kinetic, close quarters, urban environment.
  - Funding amounts and priorities will change, just not certain when or how
  - The worst thing we all do is downsize in a logical disciplined way
  - Politics. . .
  - We all do a terrible job telling the leadership what is important
  - My plan is to focus on establishing a sound process and baseline data so that I can help leadership make fact based decisions. My OEMS are part of this effort, it is not progressing to my satisfaction, but on the right track!!!

Summary

- We are working hard to re-energize Systems Engineering and institutionalize Lean/Six sigma in the way we are doing business, already seeing results
- We are trying to look at acquisition management by brigades and across brigades from a life-cycle management perspective
- Spending significant effort of managing the fleet of vehicles and being as prepared as possible for after the war and budget reductions

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BACKUP

Bradley Projected Improvements

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Increased Lethality
Commander Self Defense Weapon
Combat Identification
Improved Ammo

Target Designation Aided Target Recognition

Carry 9 Combat Equipped Soldiers

IED Electronic Counter Measures
JTRS/ FCS Spinouts
Signature Management

Lethality
Sustainment
Survivability

Improved IED Survivability
Improved Crew and Soldier Protection

Improved Rear Ballistic Protection
External Fire Suppression

Environmental Conditioning Battery Charger

Overhead Wire Protection Spotlight

Improved Vehicle Health MGT & Embedded Electronic Technical Manuals

Improved Mobility

Rearward and Side Looking Vision Systems

Active Protection Threat Warning System

Paladin Projected Improvements

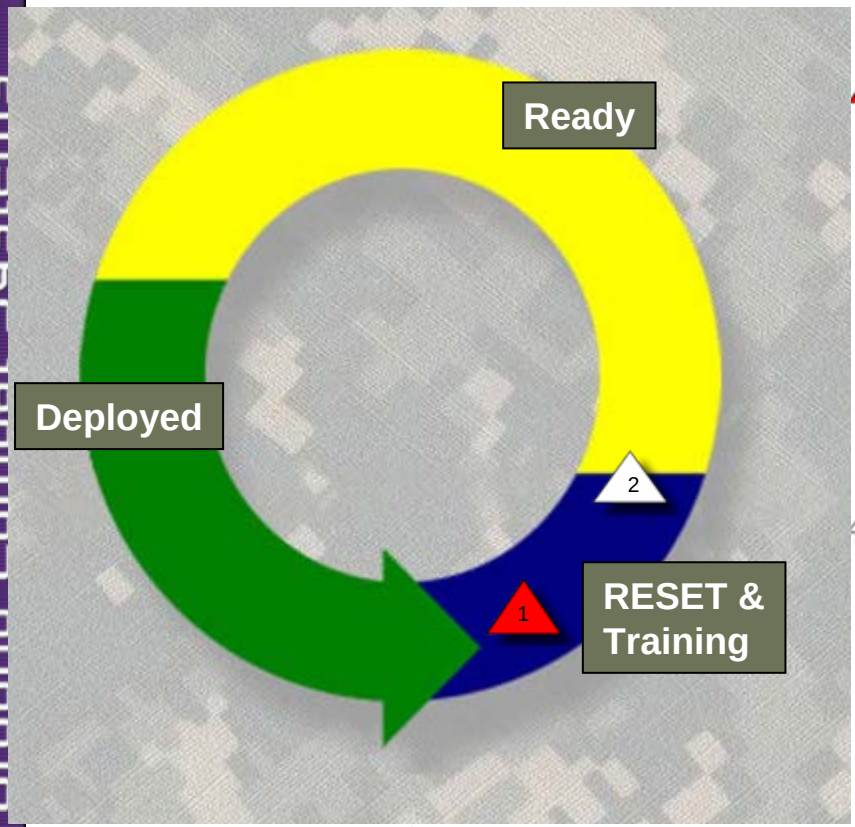
- Armament
- Ammunition Storage
- Improved Fire Control and Ammunition

- IED Electronic Counter Measures
- JTRS/ FCS Spinouts
- Signature Management
- Improved Crew Survivability
- Active Protection Threat Warning System

Lethality
Sustainment
Survivability

- Driver Compartment
- New Chassis
- Improved Suspension & Track
- Improved Vehicle Health MGT & Embedded Electronic Technical Manuals
- Improved Electrical System
- Improved Power train

RESET and Training Phase



1 RESET Planning Conference

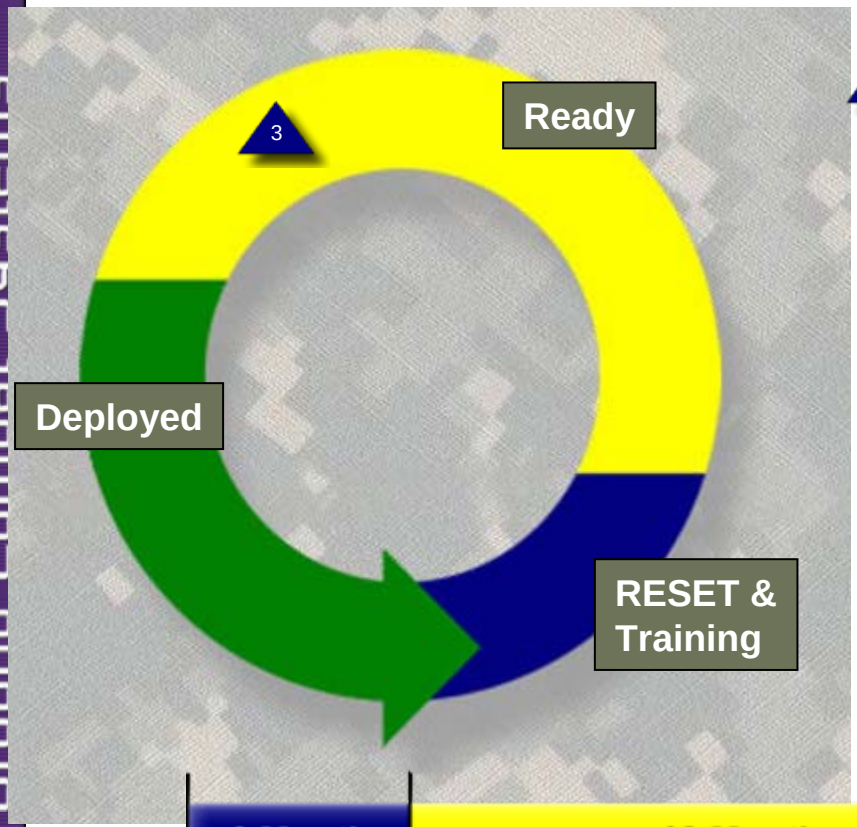
- Review Unit and PM HBCT ARFORGEN Cycles and Training Calendars
- Review Modularity Requirements & Impacts
- Conduct RESET Overview & Status Briefing
- Coordinate Fielding & Training Schedules
- Review ARFORGEN Activities Next 6 Months

2 Training Support Planning Conference

- Review Unit and PM HBCT ARFORGEN Cycle & Training Calendars
- Review Equipment RESET Status
- Coordinate Support During Ready Phase
- Review ARFORGEN Activities Next 12 Months

PM's R-Date is when 85% of the Unit's Equipment Arrives at the RESET Location

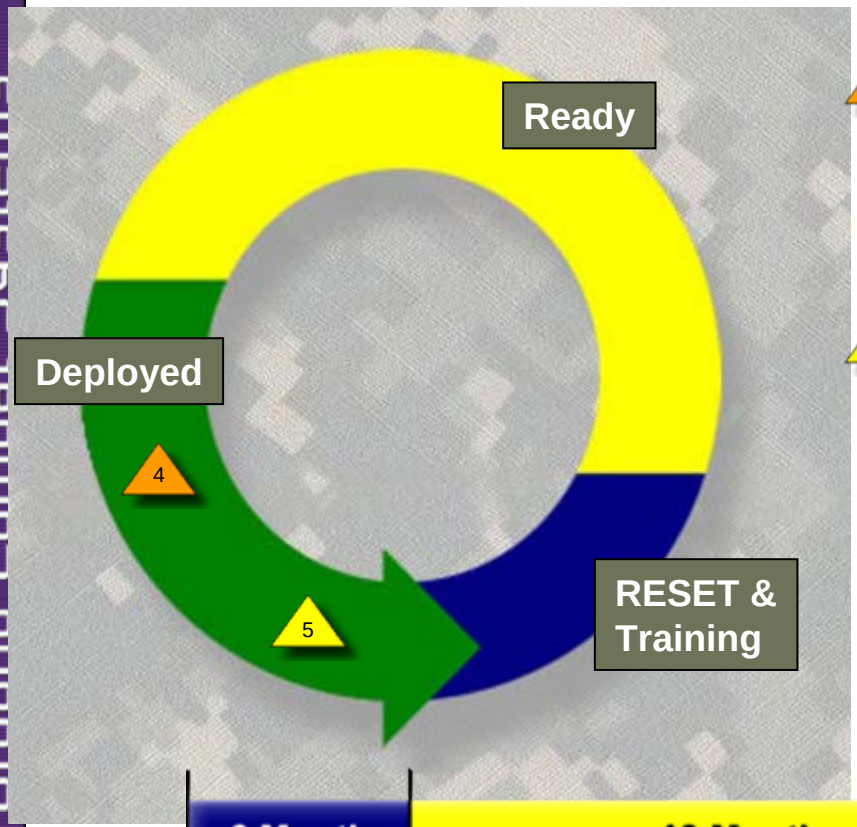
Ready Phase



3 Deployment Planning Conference
• Brief Deployment Support Available
• Identify MWO and Retrofit Requirements
• Discuss Theater Provided Equipment (TPE)
• Discuss Leave Behind Equipment (LBE)
• Discuss HBCT / LCMC Support Capability in Theater
• Discuss the Roles of FSRs & LARs and Link them up with the Unit
• Review ARFORGEN Activities Next Six Months

R-Day Marks the Transition from the RESET & Training Phase To Ready Phase
Collective Training Becomes the Focus

Deployed Phase



4

Fleet Performance Update

- Review Equipment and Maintenance Issues and Gather Performance Trend Data
- Review ARI List & Redeployment Load Plans

5

Redeployment Conference

- Provide Final Disposition Instructions
- Begin Pre-RESET Inspections
- Coordinate RESET Plan

Redeployment Planning and Execution Requires Most Improvement