



Platform Reliability

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Light Armored Vehicles

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Agenda



✦ **PM LAV:**

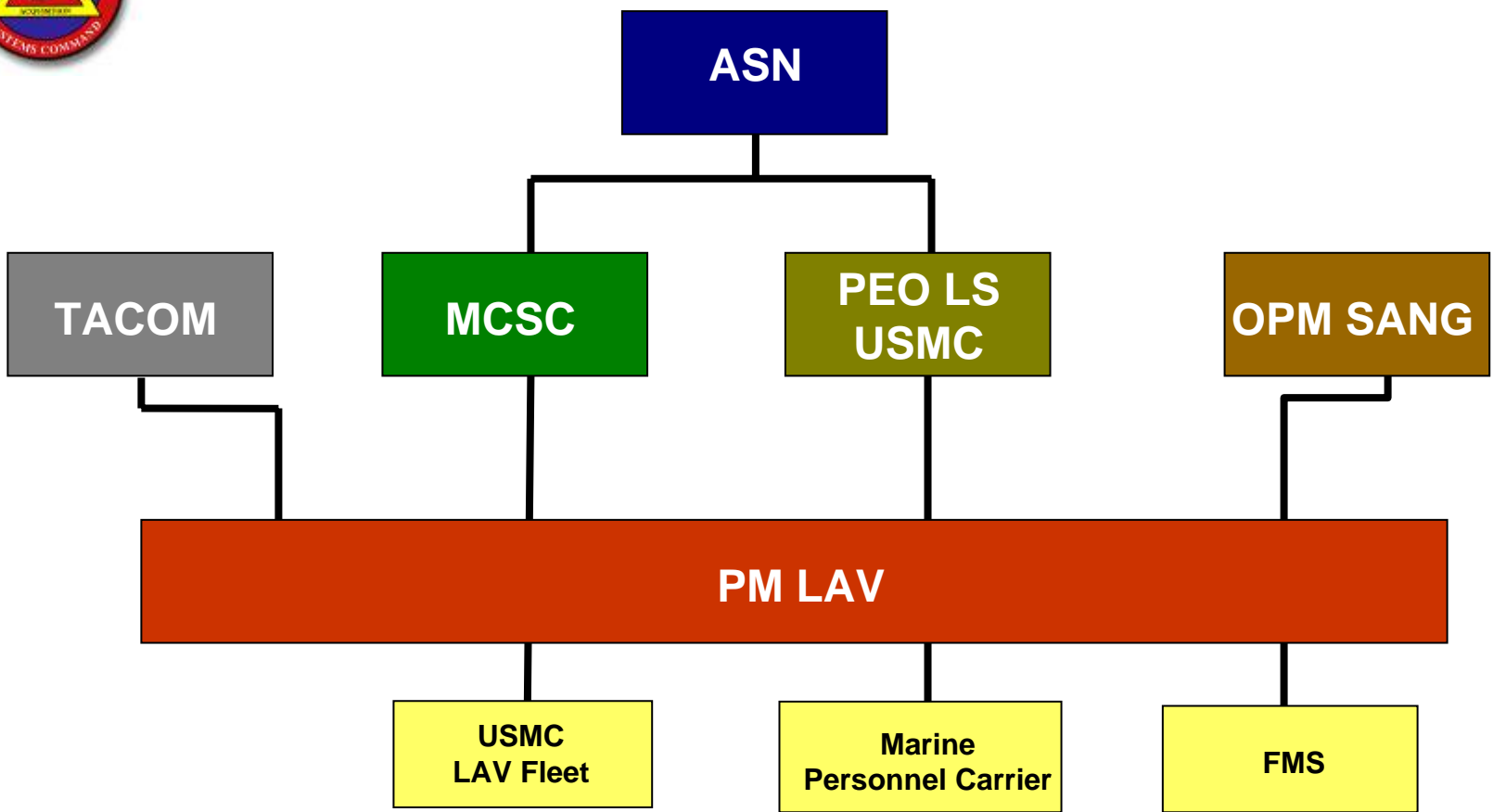
- Who We Are
- The Platform

✦ **Achieving Reliability in Platforms**

- The Reliability Metric
- Knowledge-based Acquisition
- Legacy Systems
- New Starts



PMO LAV



*96 Employees
and 10 Marines*

PM LAV...Global Vision - Global Mission



USMC Family of Light Armored Vehicles



LAV-C2



LAV-25



LAV-L



LAV-M



LAV-R



LAV-MEWSS



LAV-AT

PM LAV...Global Vision - Global Mission



Mission of the LAR Battalion

- ✦ **To conduct reconnaissance, security, and economy-of-force operations and, within capabilities, conduct limited offensive or delaying operations that exploit the unit's mobility and firepower**
 - Conduct reconnaissance for the GCE or Marine Air Ground Task Force (MAGTF) Commander in the close and deep battle space
 - Conduct security operations to protect the GCE or MAGTF
 - Win the counter-reconnaissance fight
 - Exploit opportunities with long range firepower and mobility



Why Are We Looking at Reliability?

Maintenance Needs to Transform!

OSD Strategy:

- Promote End-to-End (E2E) Materiel Readiness Value Chain Perspective across DoD
 - Balance Safety, Reliability, Maintenance and Supply Distribution activities to achieve optimal materiel readiness at best cost.
 - Optimize “TIME-ON-WING” and “TURN AROUND TIME”

▪ TLCSM

- Sustain Optimal Materiel Condition & Reliability
- Sustain Optimal Support Cost & Cycle Time

$$I + T = M$$

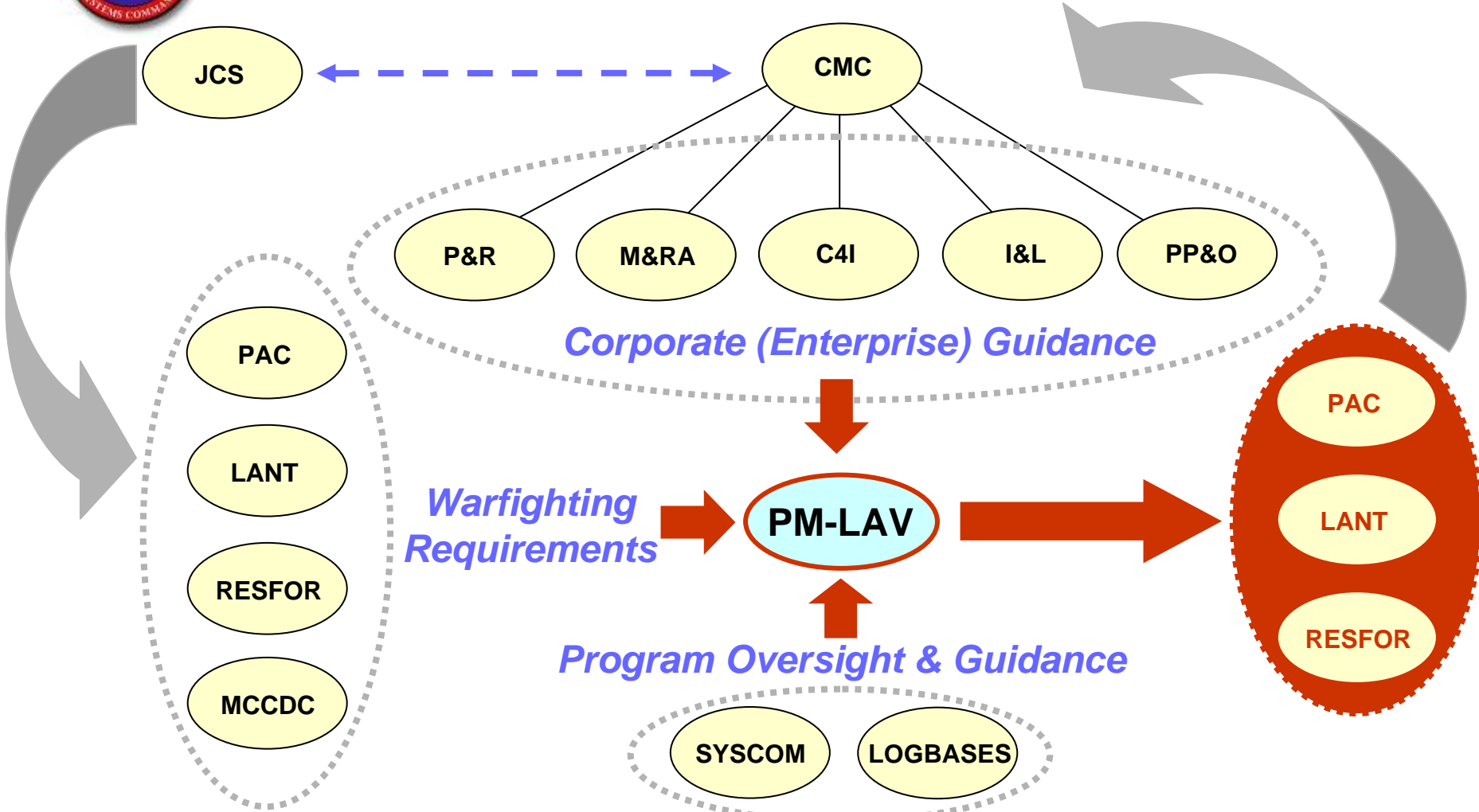
Source: Greg Kilchenstein, OSD, SIM Brief



Reliability - It Was a Necessary Evil

- ✦ Performance at Any Cost
- ✦ Check the Box
- ✦ Augustine's Laws
- ✦ Striking a Balance

A PM Must Use SE to Balance Requirements from All Stakeholders to Ensure Customer Satisfaction



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Steps to Achievement



- ✦ **Get the Requirements Right**
- ✦ **Design/Redesign for RAM**
- ✦ **Produce Reliable & Maintainable Systems**
- ✦ **Monitor Field Results & Sustain RAM Performance**

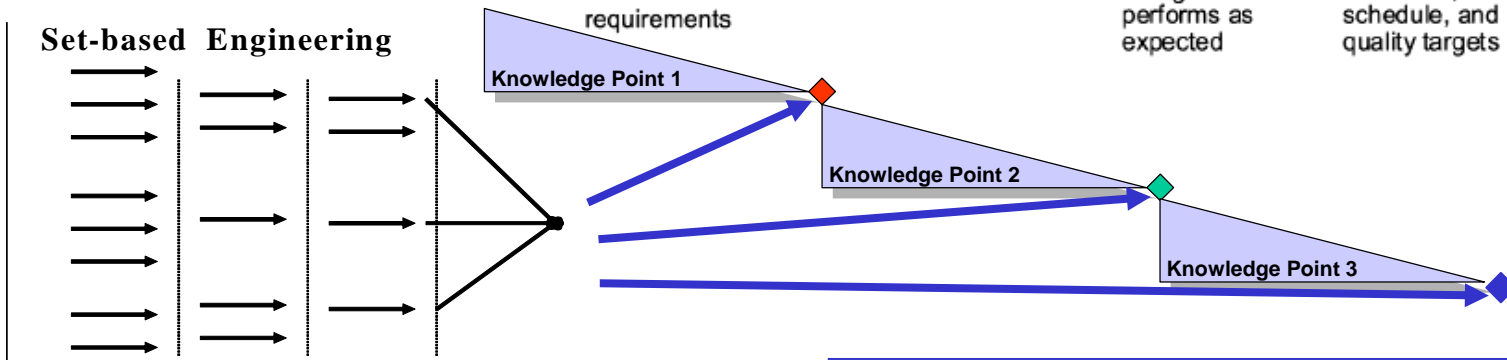
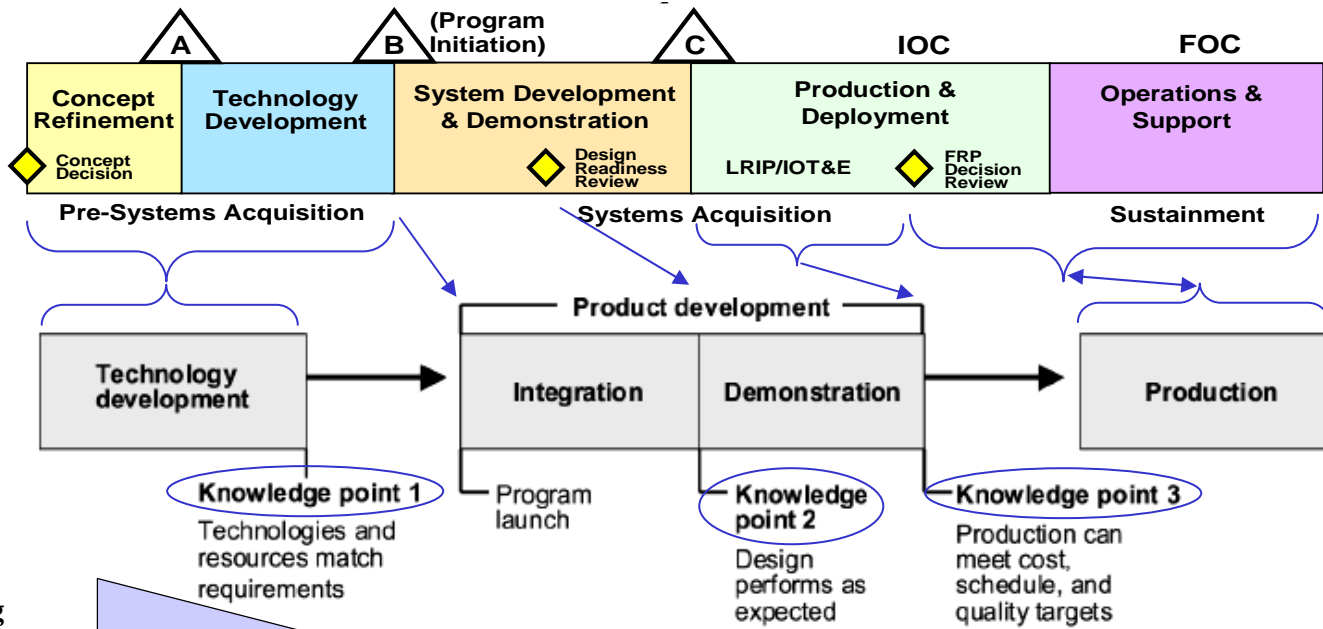
Source: DoD Guide for Achieving RAM, Aug, 2005



A Knowledge Based Approach Merged with Set-based Design Drives the Process

DoDI 5000.2
12 May 2003

GAO Best
Commercial
Practices



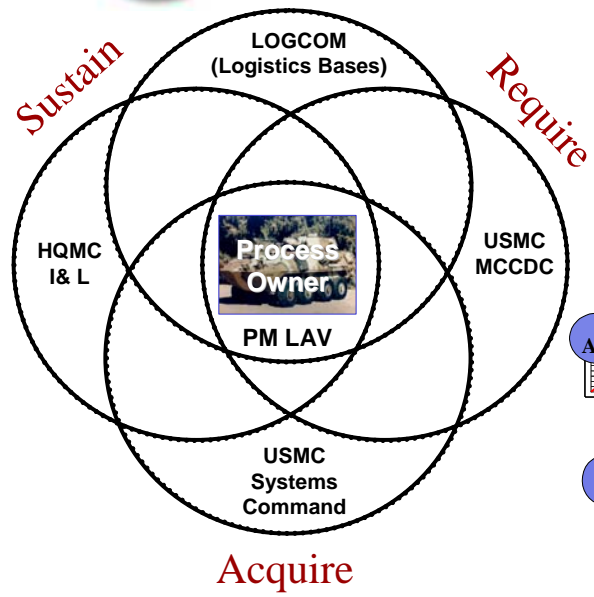
Many concepts each subsystem
Evaluate against threats and each other
Eliminate weak
Add knowledge
Combine in different ways

What Knowledge Should We Be Capturing And When?

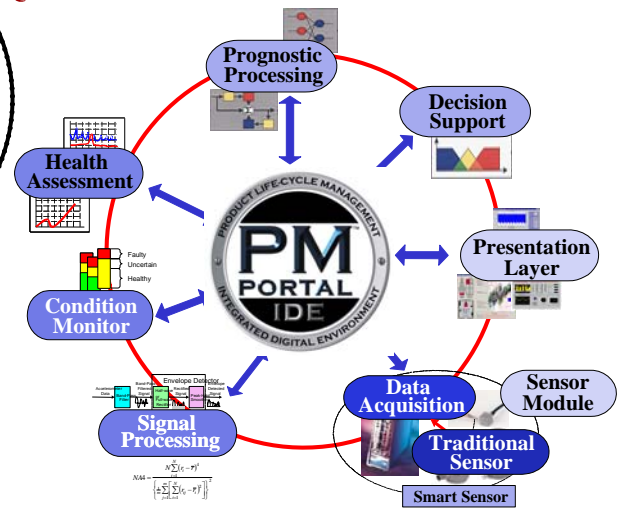
Source: NCMS



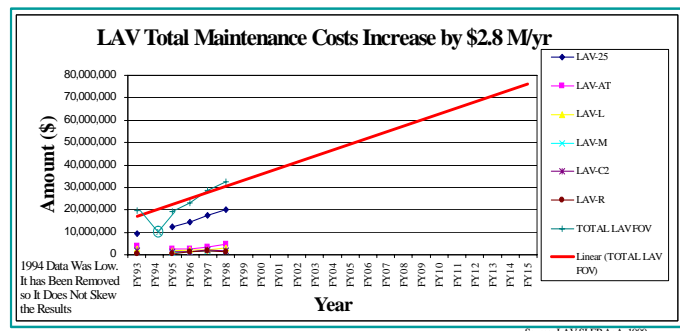
Integrating Acquisition & Sustainment Processes to Enable Total Life Cycle Management of Legacy Assets



A
Platform-Centric Approach



Enabled by Technology



Driven by Legacy System Sustainment Costs

The Foundation for Sense & Response Logistics is the “Smart” Platform that Integrates with Corporate Technology Enablers to Connect All Stakeholders within the Enterprise



The PM Provides the Capability on the Platform and within Its Required Support Structures to:

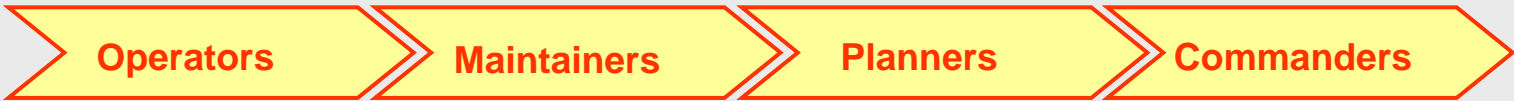
- Sense Pertinent Operations and Sustainment Information
- Locally Assess that Information as Required
- Interface Seamlessly with Systems that Move that Information Locally among Platforms and to Relevant Support Locations and Higher HQs

TLCSM
Product & Processes
ATLAST
MERIT

USMC LAV
Product
Sensors
RFID
EMSS
Data Bus

AL
EMSS
GCSS-MC
S&R Enablers
Product & Processes

Platform Support Structures
Product & Processes
IETM *RCM* *CBM+* *IDE*

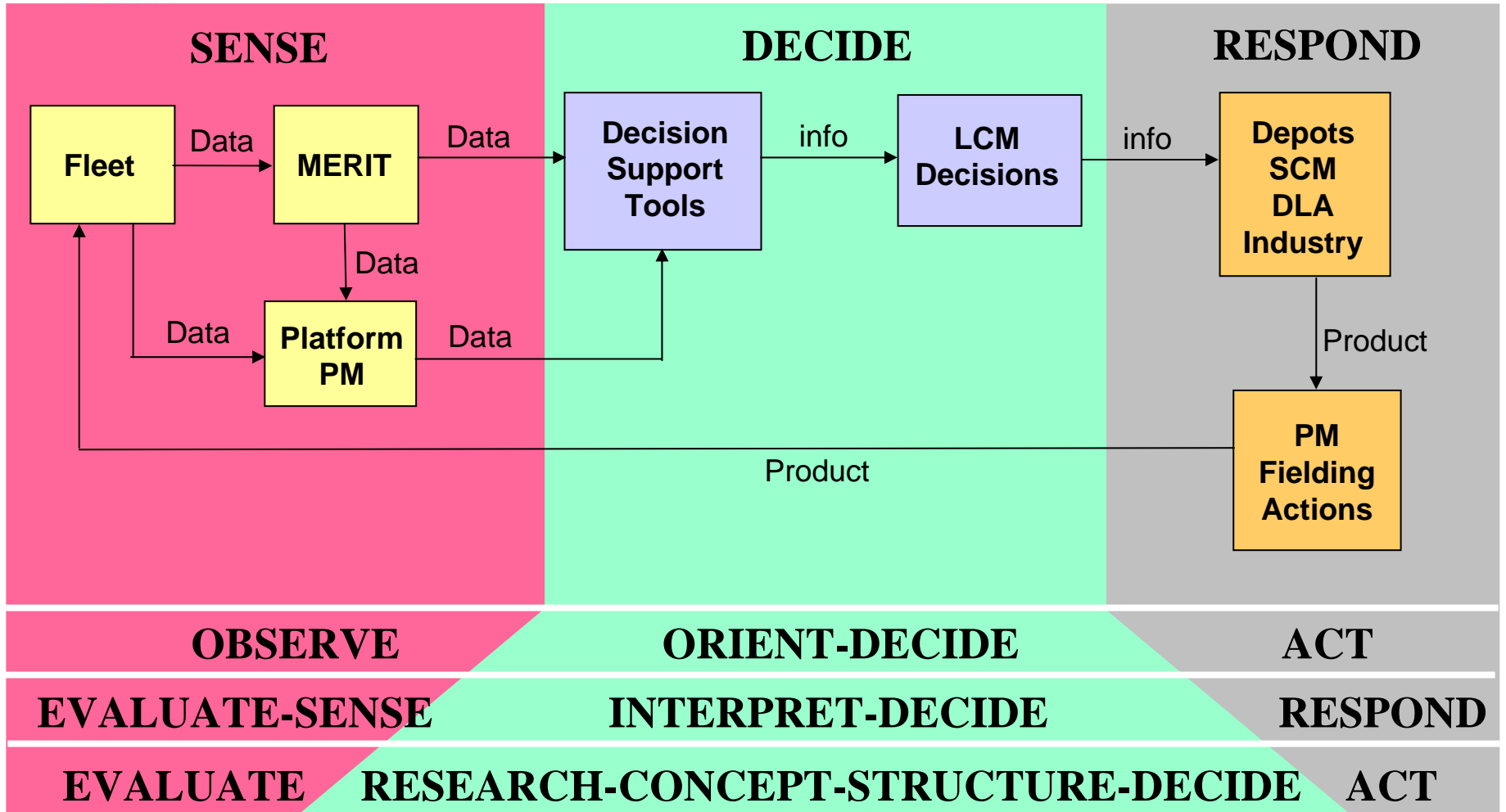


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It's Really All About Improving Decision Making for All Stakeholders!

Enterprise TLCSM of MC Ground Equipment



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An Evolving Functional Taxonomy for Combat Platforms



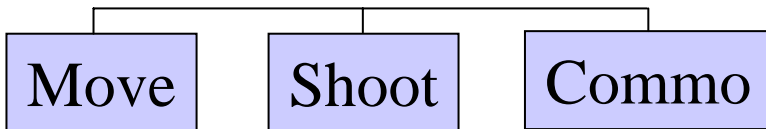
Combat Vehicle Development



Move

Shoot

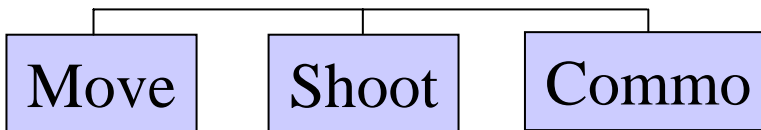
Commo



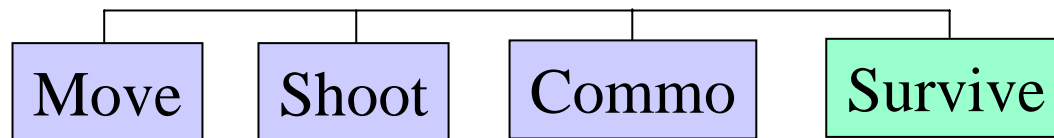
An Evolving Functional Taxonomy for Combat Platforms



Combat Vehicle Development



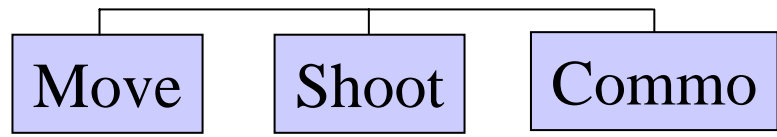
M1 Tank Development



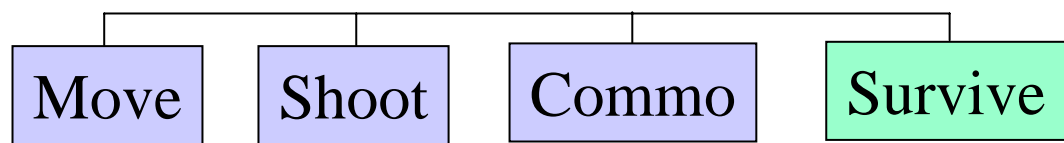
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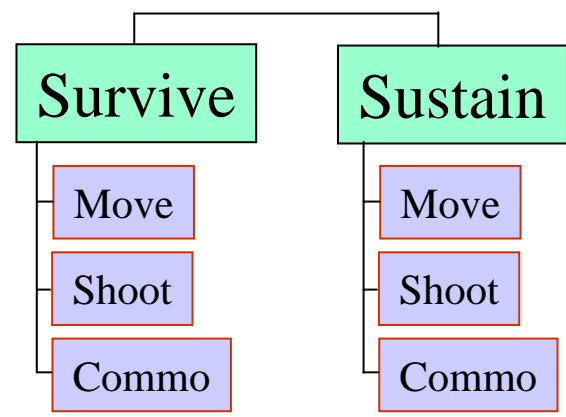
Combat Vehicle Development →



M1 Tank Development →



Future Platforms →





Focusing on Platform Reliability

- ✦ **Approach for New Start Platform Reliability**
 - Metric Treated Equal to Other KPP's
 - Oversight Must Be Maintained
 - Collect Knowledge Early and Often
 - Trust But Verify

- ✦ **Improving Legacy Platform Reliability**
 - It Can Be Done
 - Collect Data
 - Develop Knowledge to Improve Decisions

- ✦ **The challenge: Using Systems Engineering to Maintain Balanced Metrics to Achieve TLCSM**



Questions?