



# **Evolving CBM+ for USMC Light Armored Vehicles**

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**27 October 2008**



# Agenda

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## ✦ **PM LAV:**

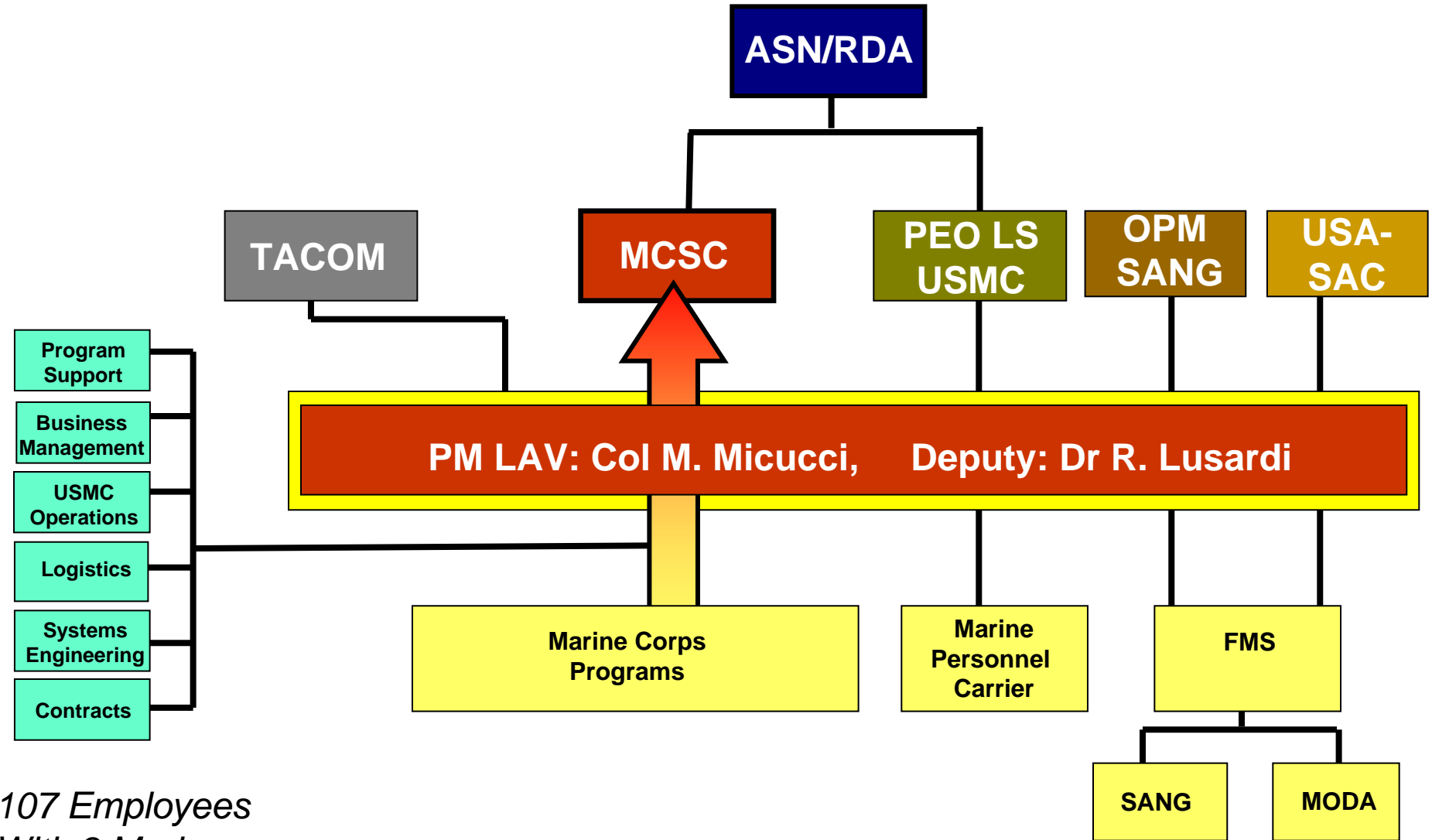
- Who We Are
- The Platform
- TLCSM Vision

## ✦ **Sense & Respond Logistics**

- Implementing the Vision
- Integrating the Elements



# PM LAV T/O



107 Employees  
With 9 Marines

*PM LAV...Global Vision - Global Mission*



# USMC Family of Light Armored Vehicles



LAV-C2



LAV-25



LAV-L



LAV-M



LAV-R

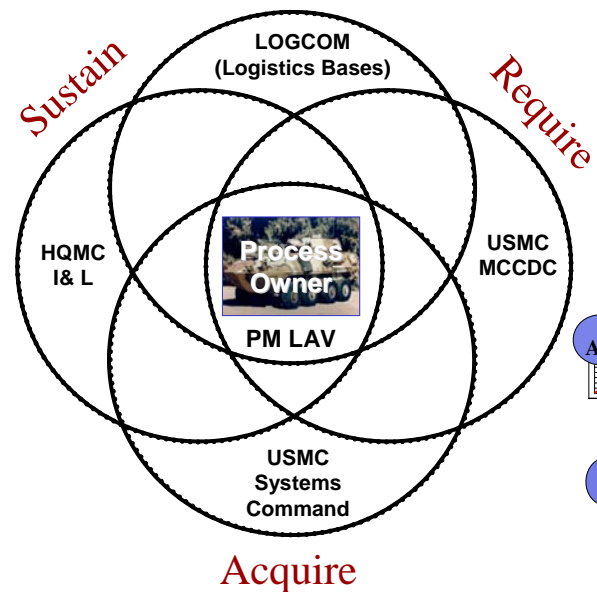


LAV-MEWSS

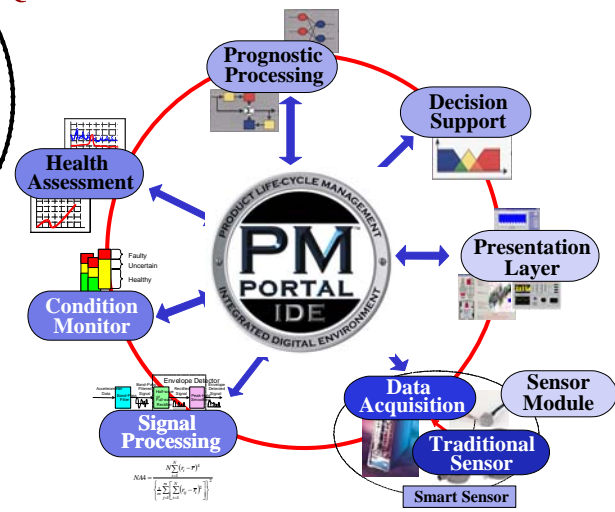


LAV-AT

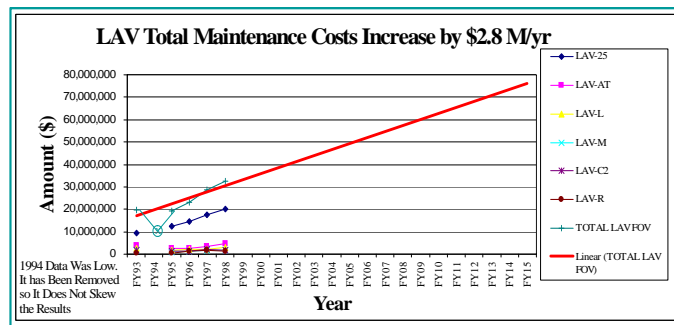
# Integrating Acquisition & Sustainment Processes to Enable Total Life Cycle Management of Legacy Assets



**A  
Platform-Centric  
Approach**



**Enabled by  
Technology**



**Driven by  
Legacy System  
Sustainment Costs**



# Asset Information Management Supports Focused Maintenance Operations

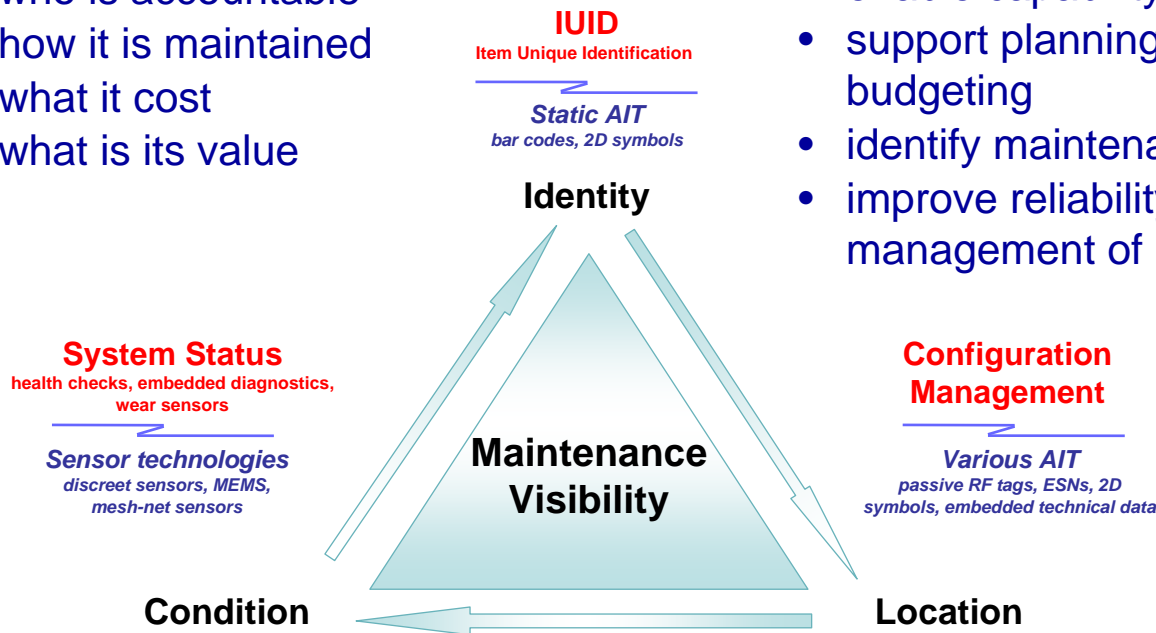
## The Challenge:

### Know...

- where it is
- who has custody
- who is accountable
- how it is maintained
- what it cost
- what is its value

### In order to...

- improve maintenance processes
- reduce repair cycle time
- enable capability-based readiness
- support planning, forecasting, and budgeting
- identify maintenance capability gaps
- improve reliability and warranty management of repair parts

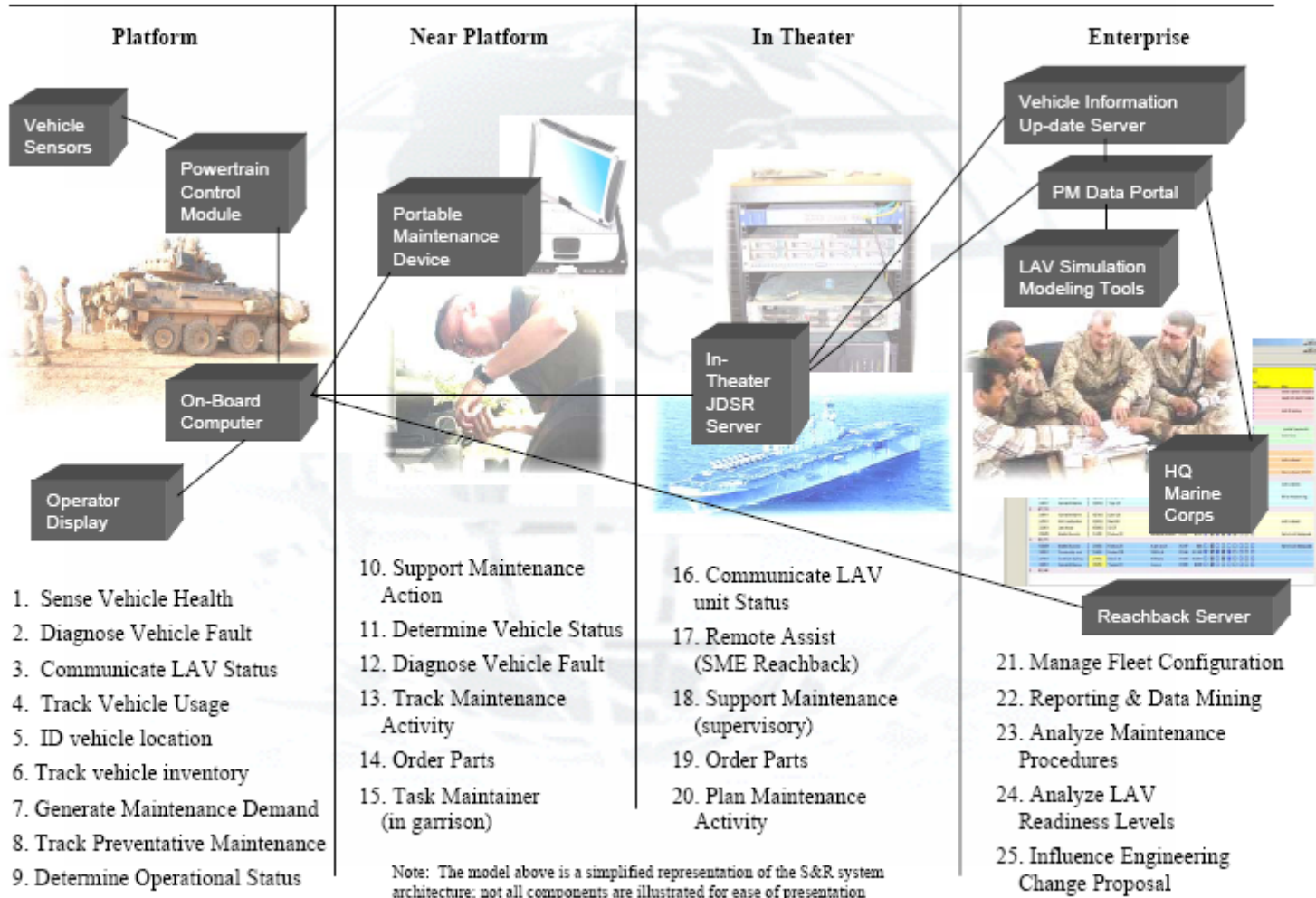


Source: Pauling, CTMA, March 2007



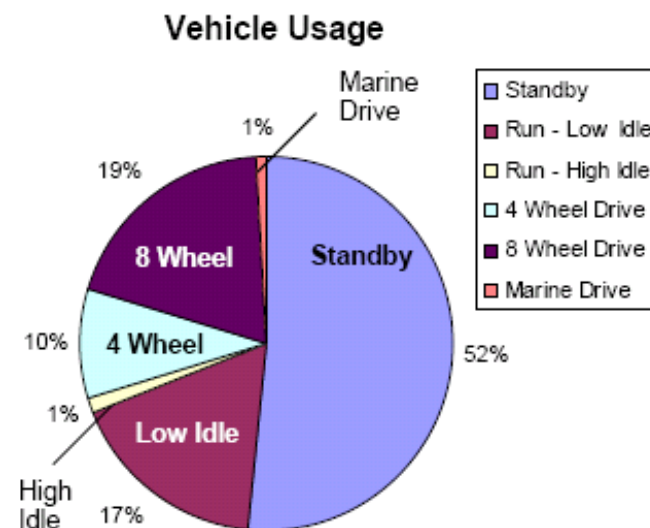
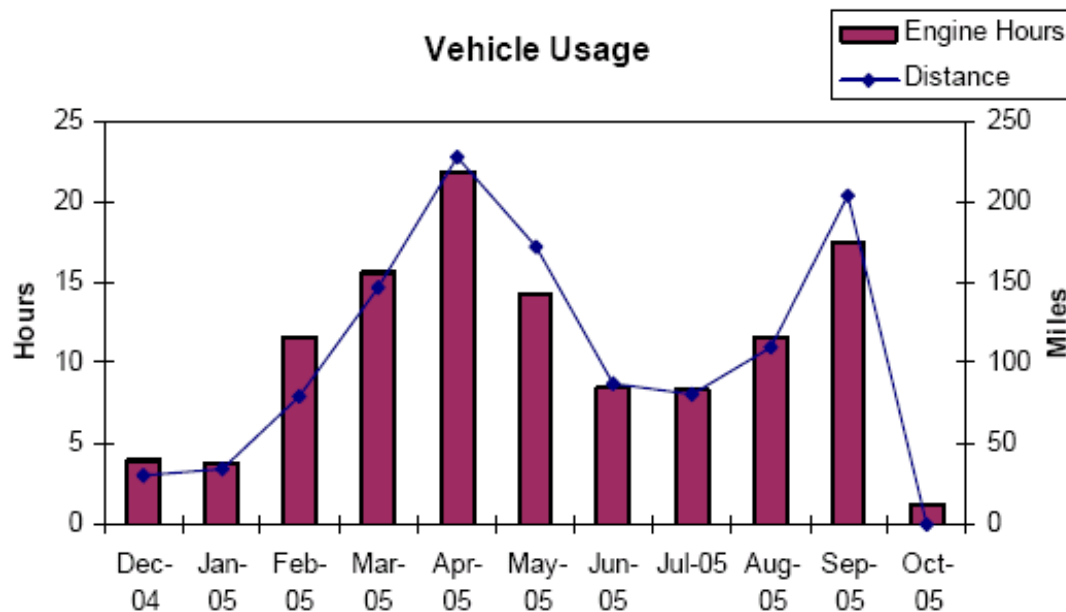
# S&R Architecture

## USMC PM LAV Sense & Respond... Putting it all together





# Field Results from One Vehicle from Phase 1 of the NCMS Study



## TOP VEHICLE ANOMALIES OVER PERIOD

1. High coolant temperature (Deadlining)
2. Planetary overheating
3. High engine oil pressure

## OPERATION OUTSIDE SUGGESTED PARAMETERS

1. Vehicle at low idle for more than 2 minutes
2. Engine RPM's exceed 2800
3. Vehicle driven below 180° F
4. Vehicle started without priming

## Quantifiable Examples of Impact on TLCSM

1. Planetary overheating was noted prior to failure, corrective action taken by maintainers prevented having to replace failed components.
2. Continued operation at low idle accelerates ring and cylinder wear reducing engine MTBF.
3. Continued starting without priming accelerates wear of the Turbo and reduces MTBF.

Source: RIT CIMS

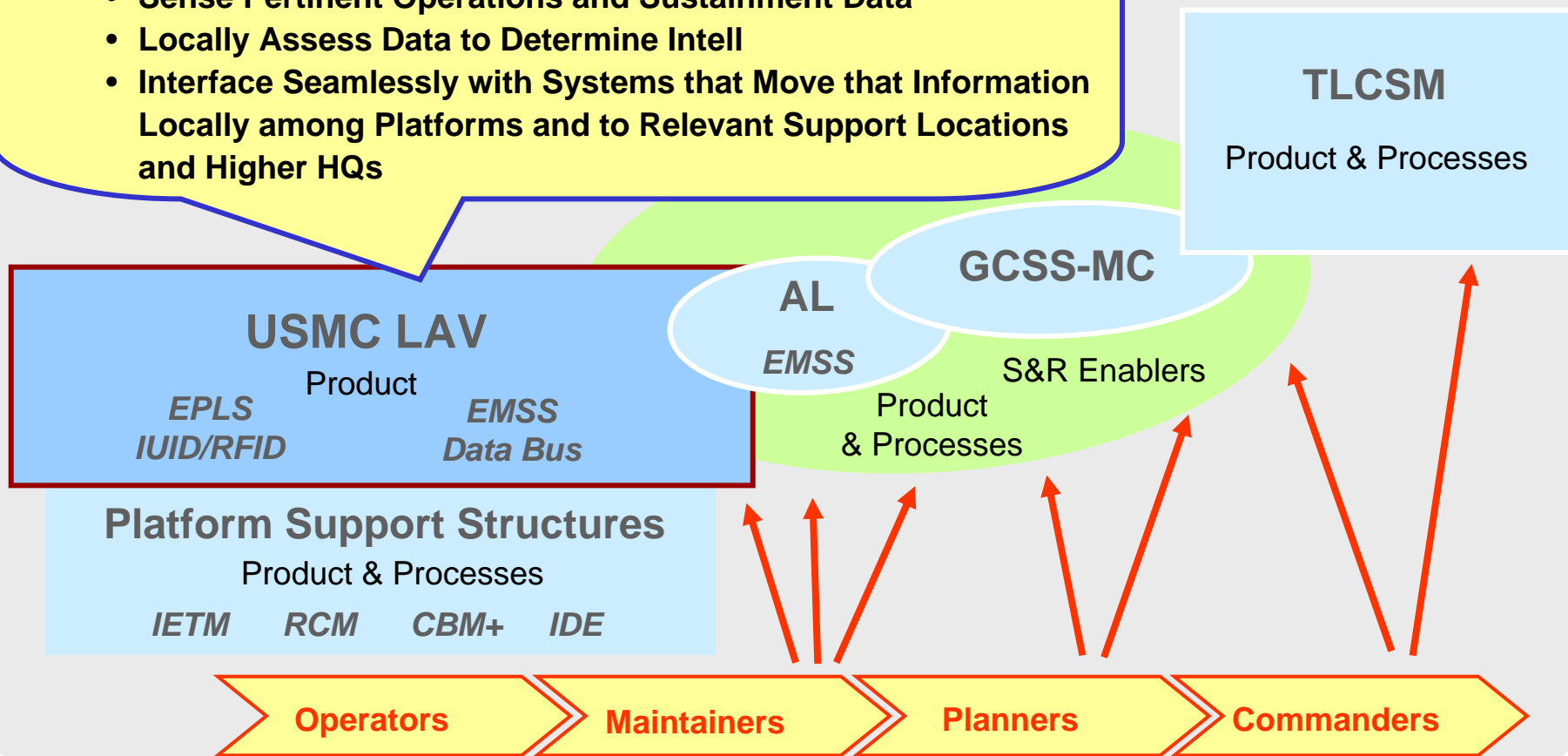


# The Foundation for Sense & Response Logistics is the “Smart” Platform that Integrates with Corporate Technology Enablers to Connect All Stakeholders within the Enterprise



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

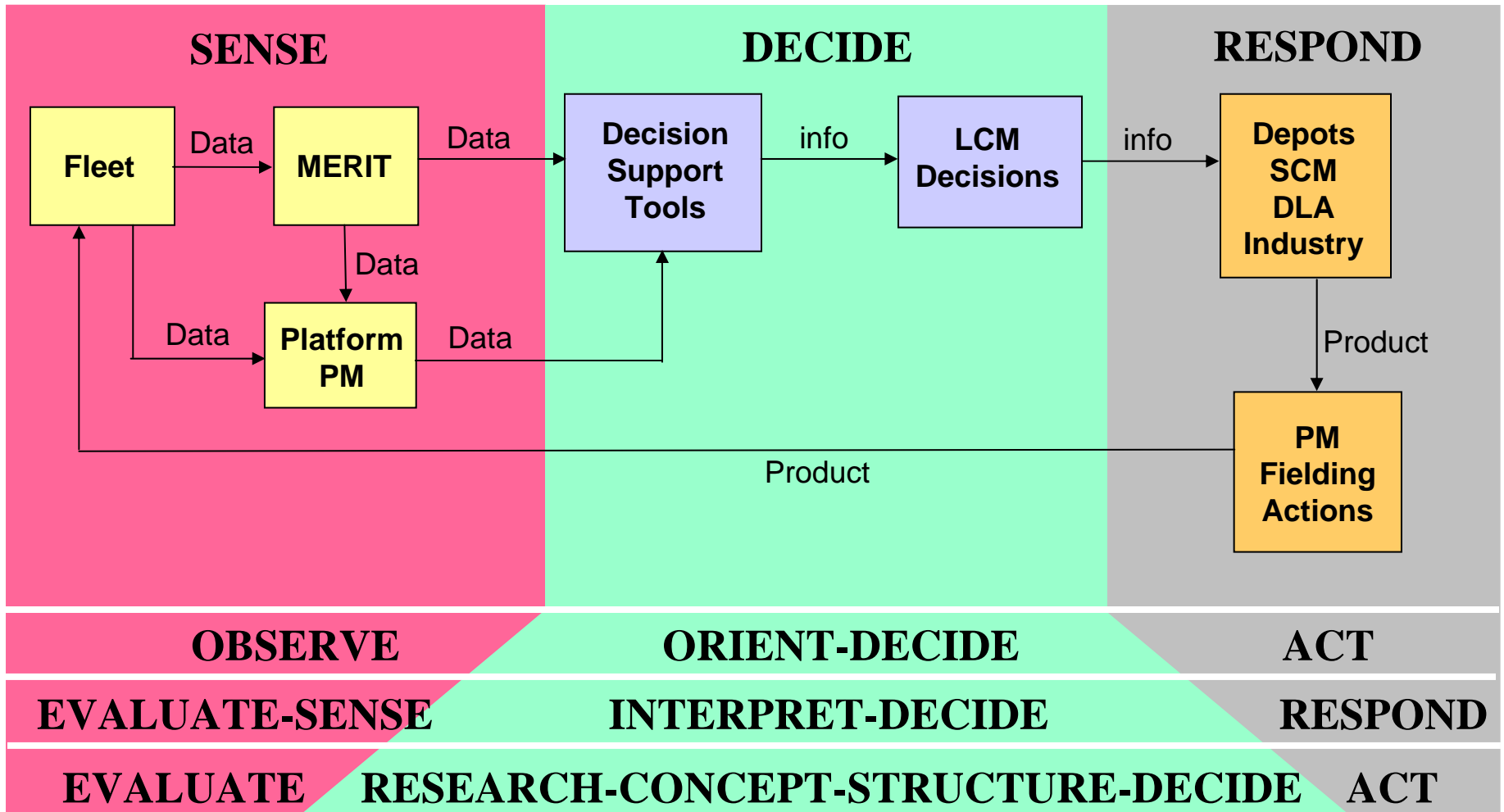
- Sense Pertinent Operations and Sustainment Data
- Locally Assess Data to Determine Intel
- Interface Seamlessly with Systems that Move that Information Locally among Platforms and to Relevant Support Locations and Higher HQs





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

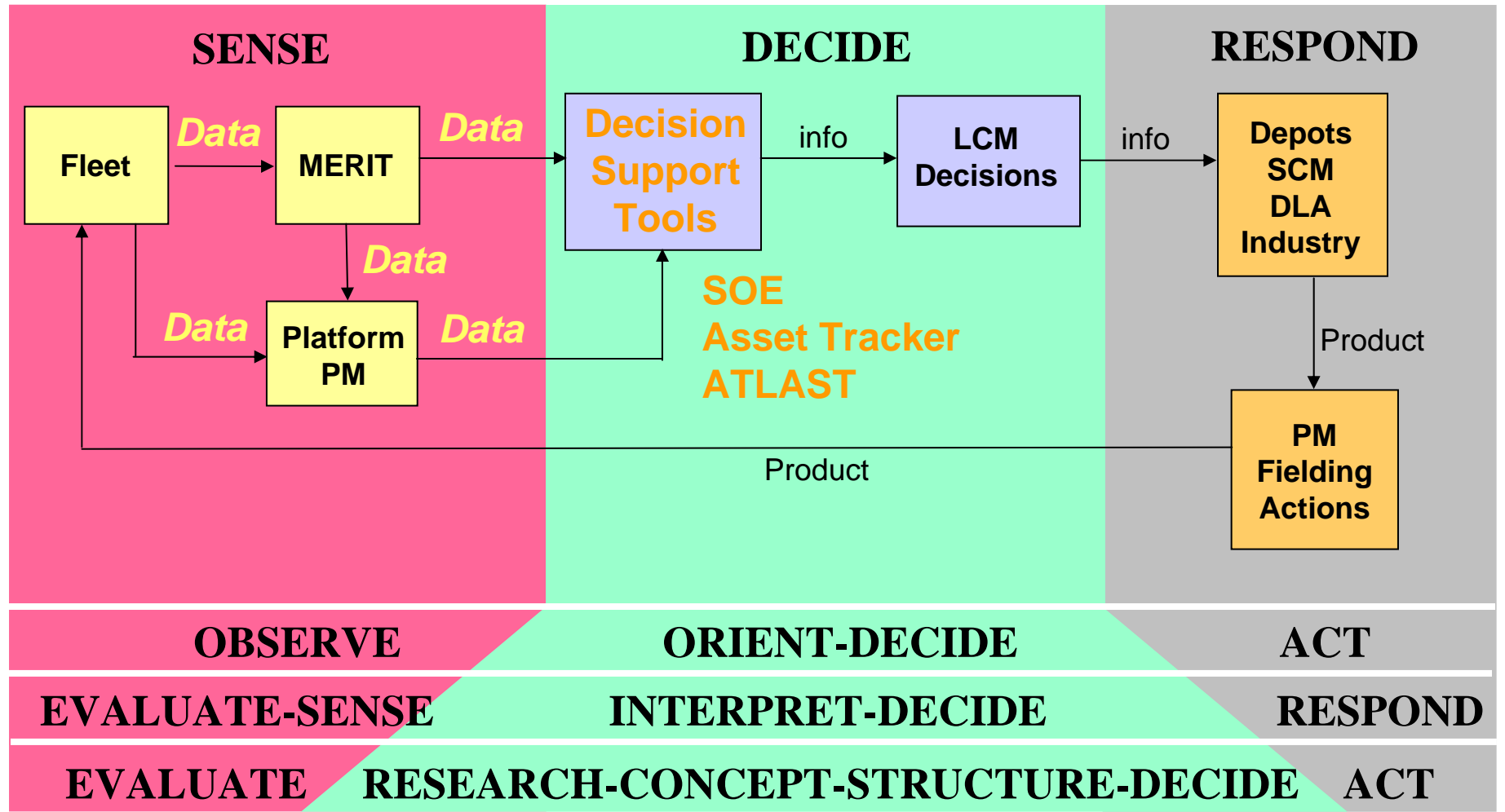
## Enterprise TLCSM of MC Ground Equipment





# It's All About the Data & the Toolset

## Enterprise TLCSM of MC Ground Equipment

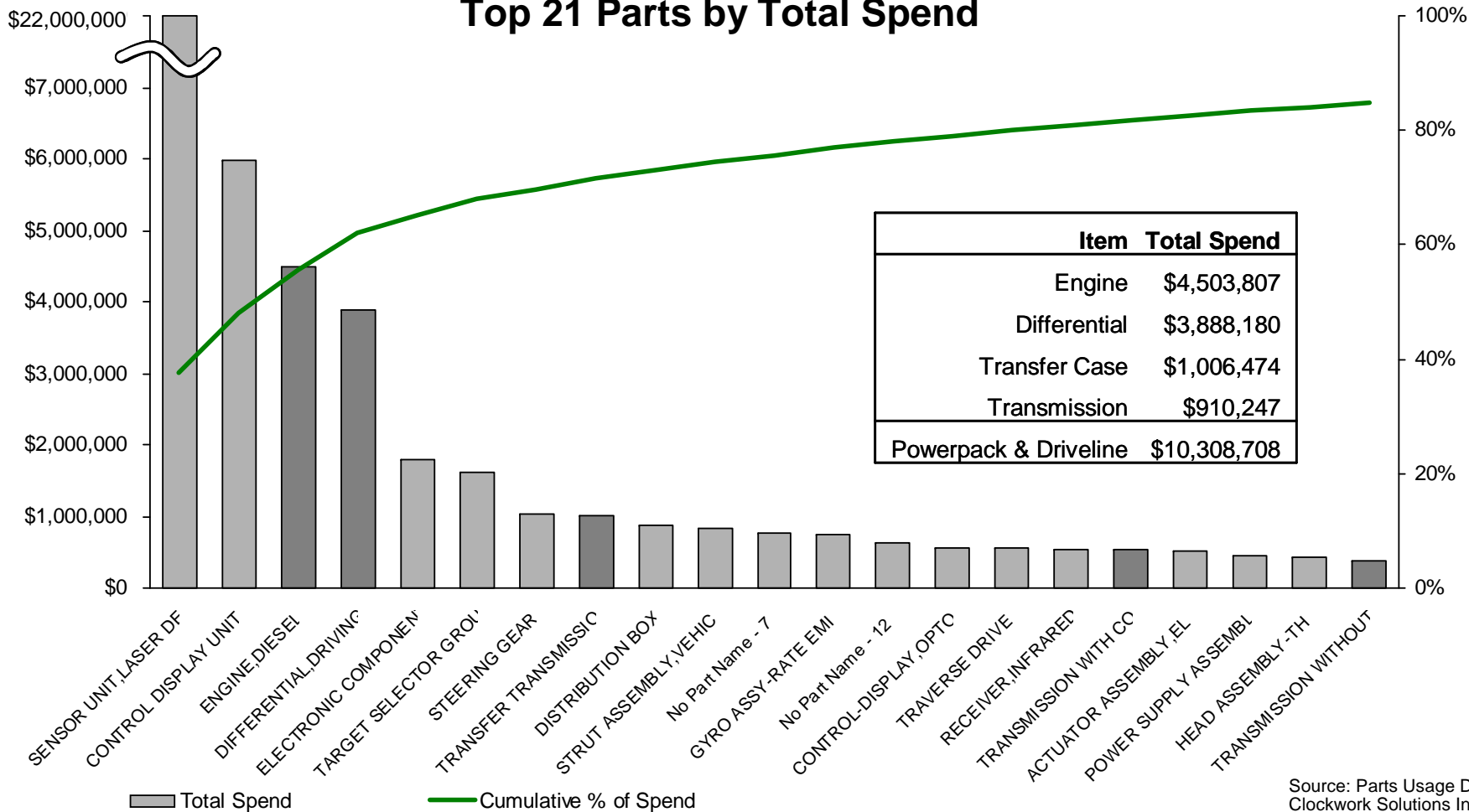


*PM LAV...Global Vision - Global Mission*



# Top 10 NSNs by spend accounted for over 75% of total repair costs from 2004-2008

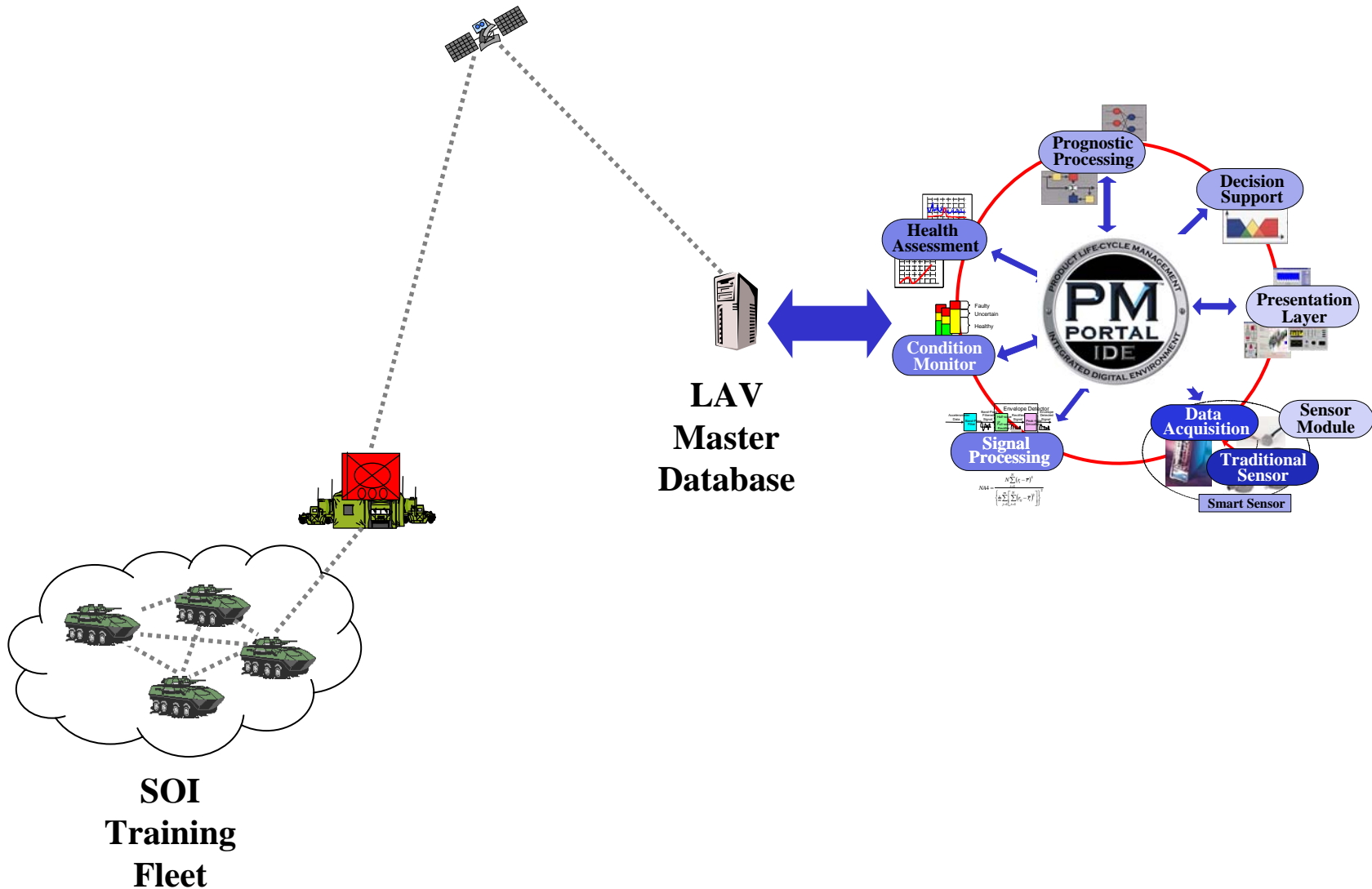
## Top 21 Parts by Total Spend



Source: Parts Usage Data, Clockwork Solutions Inc. (does not include repair parts spending by Depots)

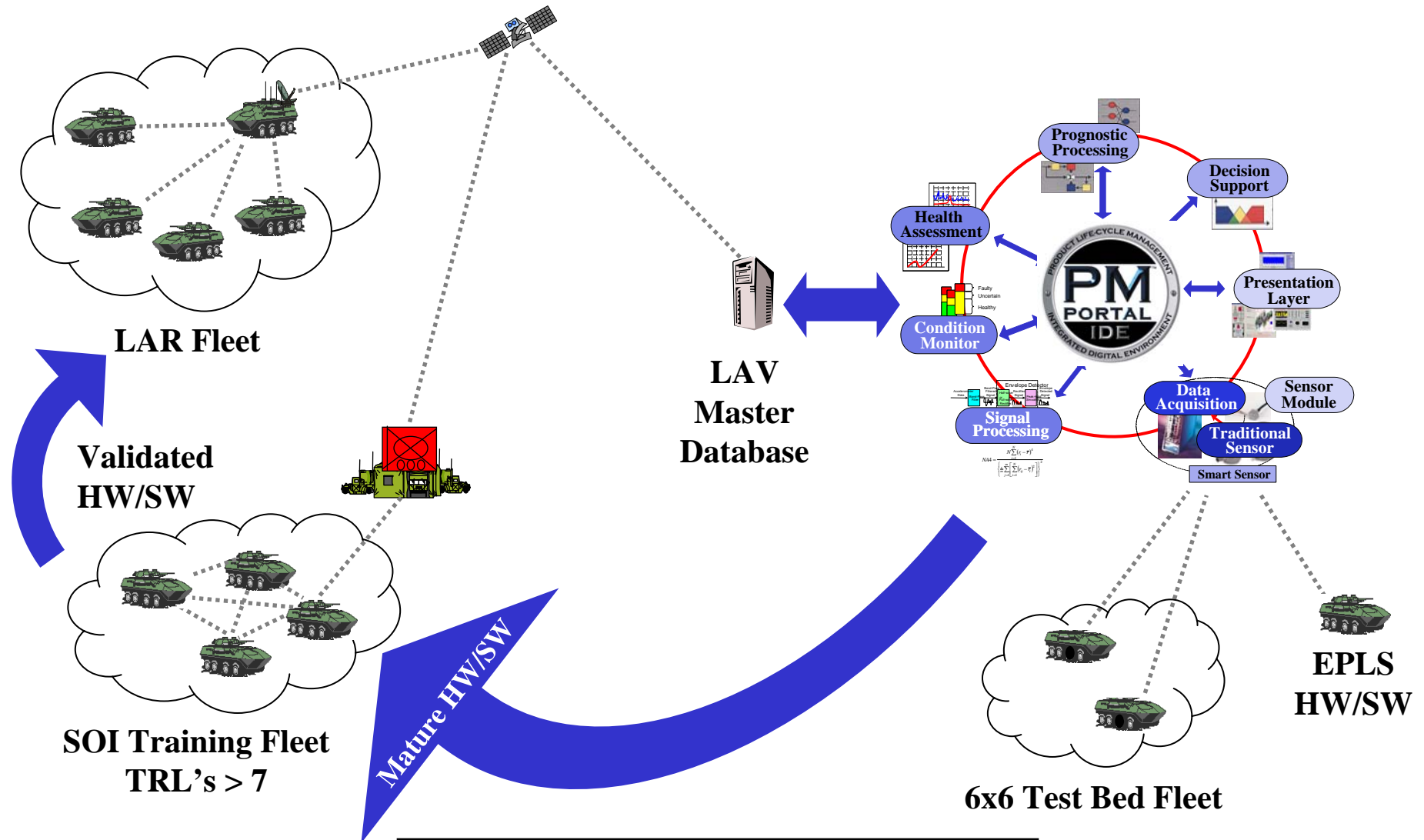


# Evolving Data Collection for the LAV Fleet





# Evolving Data Collection for the LAV Fleet





# Summary: Lessons Learned

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## ✦ **Evolutionary Approach Works Best**

- Bridge Technologies Are a Foundation
- Open Systems Are Required
- A Web 2.0 Evolutionary Buildout

## ✦ **S&R Is Platform Centric**

## ✦ **PM must take the Lead**

## ✦ **Independent Benefits at Every Stakeholder Level**

- Operator
- Maintainer
- Commander
- Enterprise



# Questions?