What’s on the Horizon?  *Future Capabilities through the Logistics Lens*

Army Materiel Command (AMC)
U.S. ARMY Research, Development and Engineering Command (RDECOM)
U.S. ARMY Tank Automotive Research, Development & Engineering Center (TARDEC)
Dr. Grace Bochenek, Director
**What’s on the Horizon Future Capabilities through the Logistics Lens**

Abstract:

- Provide Life-Cycle engineering support and for all DOD ground combat and combat support vehicle systems. - Develop and integrate technology solutions to improve Current Force effectiveness and provide capabilities for the Future Force.

**Subject Terms**

- [A] Public Release  
- 12 Pages
Panel Introductions

• Dr Grace Bochenek
  – Director for US ARMY Tank Automotive Research Development Engineering Center (TARDEC)
  
  *The Technology – Logistics Paradigm: Fixing Today’s Problems, Preventing Tomorrow’s*

• COL Kirk Benson for Dr Wm. Forrest Crain
  – Deputy Director for the US Army Material Systems Analysis (AMSAA).
  
  *Data-Driven Analysis for Logistics*

• Dr Vic Ramdass
  – Director for the Logistics Innovation Agency (LIA)
  
  *Addressing Logistics Up Front: More Efficiently Develop, Buy, Own, and Operate the TWV Fleet*
• TARDEC Mission

• The Logistics-Technology Paradigm – Two Facets

• Reducing Current Logistics Burdens with Technology

• Reducing Unintended Consequences in Technology Development

• Closing
Mission

- Provide Life-Cycle engineering support and for all DOD ground combat and combat support vehicle systems.

- Develop and integrate technology solutions to improve Current Force effectiveness and provide capabilities for the Future Force.
The Logistics – Technology Paradigm

The Two Facets of Future Capabilities through the Logistics Lens

Look at
Innovative ways to
Reduce Logistics Burdens

Unburden the Warfighter

Look to
Design Good Logistics In
From Start

Reduce Unintended Consequences

Unclassified: Dist A. Approved for public release per #21473
Reducing the Battery Logistics Burden

<table>
<thead>
<tr>
<th>AGM Battery Failures 2002-2008</th>
<th>~250,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect Voltage Output</td>
<td>50%</td>
</tr>
<tr>
<td>Damaged - Transport Issues</td>
<td>30%</td>
</tr>
<tr>
<td>Improper Electrical Performance</td>
<td>20%</td>
</tr>
</tbody>
</table>

Approximately 80% of incorrect voltage failures were serviceable

- **AGM = Advanced Glass Mat.: “maintenance free”**

- Annual Purchase of Vehicle Batteries: 700,000

Improved charging techniques can lead to 2X life improvement

Field Battery Maintenance & Training

- Fire Suppression
- Hit Avoidance System
- Communications Systems
- Autonomous Navigation System
- Embedded Training
- Crew Station/Displays

- Improved Charging
- Battery Management

**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**
Reducing the Fuel Logistics Burden

Modeling and Simulation: Optimize the System

Research and Testing

Demonstrate Systems and Technologies

2007 Kuwait / OIF / OEF Fuel to FOB (M Gal) 431

Number Convoys Resulting in 1 Casualty 24

Number Convoys Per Day 2.5

Days Between Casualties 10

IMPACTS of Saving 1% Fuel

$5-82B Fewer Dollars Spent on Fuel

6,444 Fewer Soldier Trips

37 Fewer Casualties

Number Convoys Per Day

2.5

Days Between Casualties

10

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Reducing the System Repair – Maintainability Burden

Condition Based Maintenance - Robust Solutions
Reduce Complexity / Improve Commonality
Develop Hardware to Improve Training and Avoid Issues

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
Design Good Logistics In
Reduce Unintended
Consequences

Moving from SWaP-C to SWaP-C+L

LOGISTICS

Commonality | Durability | Transportability | Supportability/Maintainability | Producibility

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Design Good Logistics In Predictive Reliability and Maintainability

- Reduce Time / Cost to Field
- Reduce Operations & Maintenance Costs (RAM)
- Improve Transportability
- Reduce Inventory
- Save Lives
- Reduce Injuries
- Reduce Failures
- Improve Fuel Economy
- Reduce Weight

Enforce Design Principles to TARGET Reliability
Good Systems Engineering
It’s All About the Warfighter

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
This chart goes after the last speaker