



U.S. ARMY TANK AUTOMOTIVE RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

Advancing the TWV Fleet

10 May 2016

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Systems Integration and Engineering



Mission and Vision



MISSION:

Develop, integrate and sustain the right technology solutions for all manned and unmanned Department of Defense(DOD) ground systems and combat support systems to improve Current Force effectiveness and provide superior capabilities for the Future Force.

VISION:

The first choice of technology and engineering expertise for ground vehicle systems and support equipment – today and tomorrow.

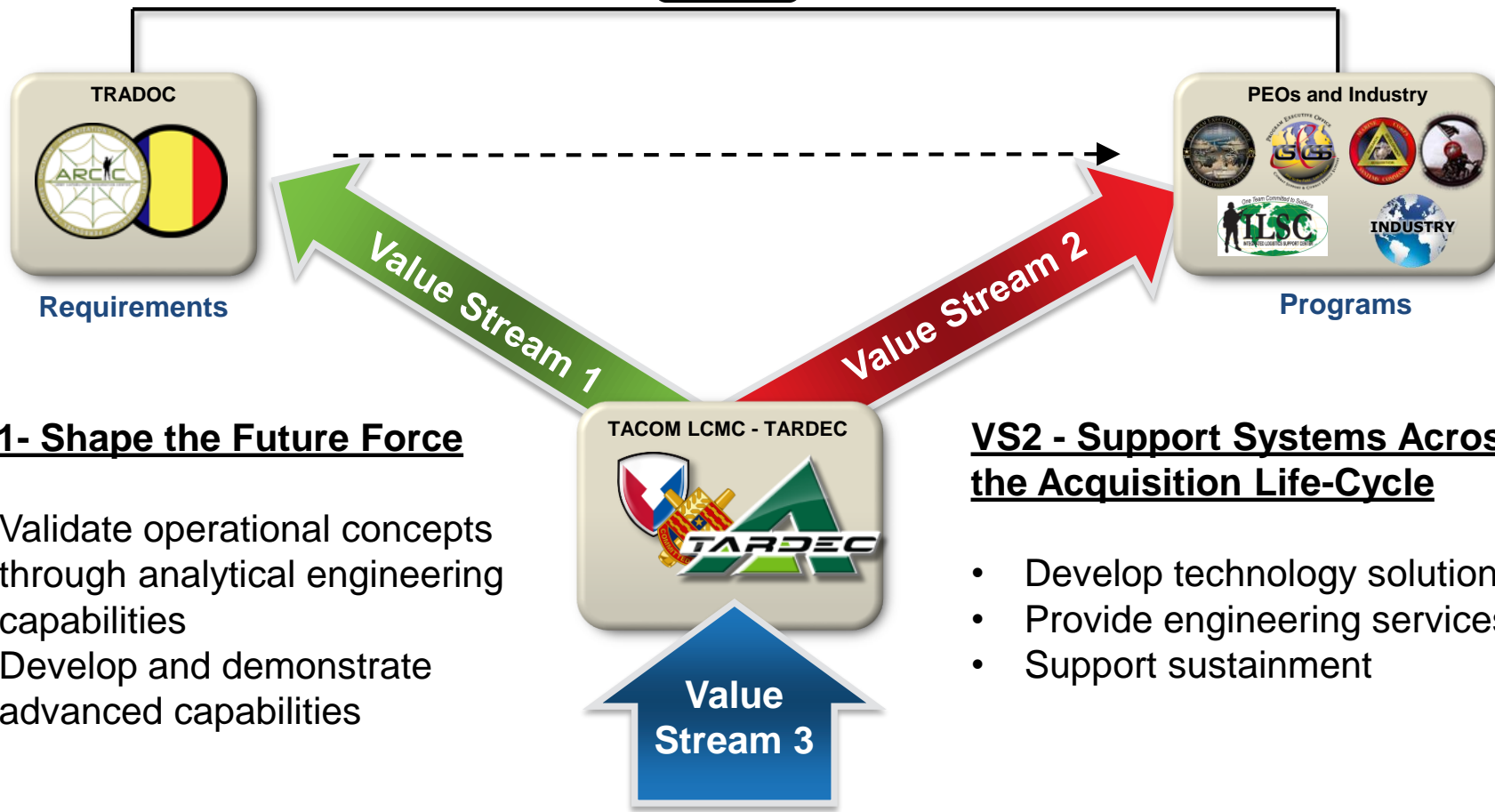
We help our Warfighters succeed and come home alive

Shaping the Future – TARDEC's 30 Year Strategy



Utilizing Army doctrine and strategic documents that provide the Army with modular, flexible, adaptable, and smart S&T capabilities.

TARDEC's Support to the Army



VS1- Shape the Future Force

- Validate operational concepts through analytical engineering capabilities
- Develop and demonstrate advanced capabilities

VS2 - Support Systems Across the Acquisition Life-Cycle

- Develop technology solutions
- Provide engineering services
- Support sustainment

TARDEC's vision is to be the first choice of technology and engineering expertise for ground vehicle systems and support equipment – today & tomorrow.



Digital-Physical Thread (DPT)



TARDEC's DPT Accelerates Innovation by Enabling Rapid Development of Future Capabilities

TARDEC Efforts Supporting the TWV Fleet



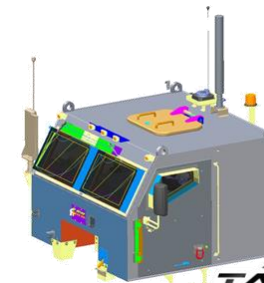
VALUE STREAM 1:
Shape the Future Force

VALUE STREAM 2:
Support Systems Across the
Acquisition Life Cycle

VALUE STREAM 3:
Strengthen Foundational
Competencies

Autonomy-
Enabled Manned /
Unmanned
Vehicles

HET Urban
Survivability kit
(HUSK)



VALUE STREAM 1:
Shape the Future Force

VALUE STREAM 2:
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Systems
Integration Labs
(SIL)



JTTS Modular
Chassis Concept
Approach



VALUE STREAM 1:
Shape the Future Force

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Strengthen Foundational
Competencies

Leveraging TARDEC's Core Competencies/Technical Authority to:

- Expand internal capabilities while fostering strong public-private partnerships
- Accelerate development of autonomous technologies and platforms
- Enable rapid fielding of lessons learned from theater
- Reduce costs through common modular interfaces and components

Strategically Committed to Advancing TWV Capabilities

Shaping the Future of Autonomous TWV



2006-2012
Army S&T Convoy Active
Safety Technologies



**Tech Development /
System Concepts**



2008-2012
USMC S&T CargoUGV

2012-2014
Autonomous Mobility Applique System
Joint Capability Technology Demonstrator

**Driver Warning /
Driver Assist**



**Technology
Demo 2013**

**Teleoperation
WayPoint
Leader/Follower**



**Technology
Demo 2014**

**Driver Warning /
Driver Assist &
Leader/Follower**



**Operational
Demo 2014**

Leader/Follower



**Extended
Warfighter
Experiment 2016**

**Manned Leader /
Unmanned
Follower**



**Operational
Evaluation 2017**

**Autonomous
Convoy**



**Operational
Evaluation 2019
Operational
Evaluation 2021**

System Design / Fabrication / System Test and Evaluations

VALUE STREAM 1:
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Ongoing - Future

TBD Future Programs: Leader/Follower and Autonomous Convoy Operations



Inform feasible and achievable Requirements development for future capabilities
Informs performance specifications for Future Programs of Record (PoR)

Placing Systems in User's Hands to Gain Experience & Enhance Operational Utility

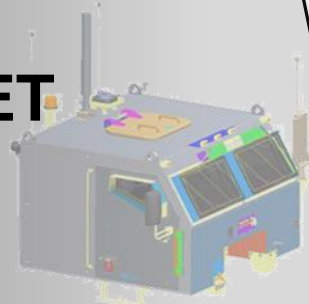
HUSK - Enhancing the Existing Fleet



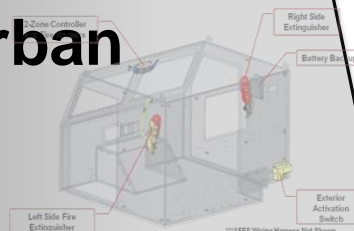
**Heavy Equipment
Transporter A1 (HETA1)**



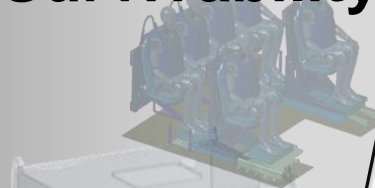
HET



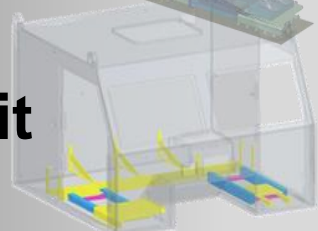
Urban



Survivability



Kit



- TARDEC developed solution to bring MRAP CPD 1.1 protection level to existing HETA1 chassis
- Aluminum monocoque design integrates armor into structure
- Saves 2,500 lbs over original B-Kit design intent
- Remains compatible with all HETA1 mission-essential equipment
- Developing complete developmental Technical Data Package (TDP) to allow PM to solicit industry for future production needs
- Incorporates suite of survivability technology developed by TARDEC S&T

MRAP protection

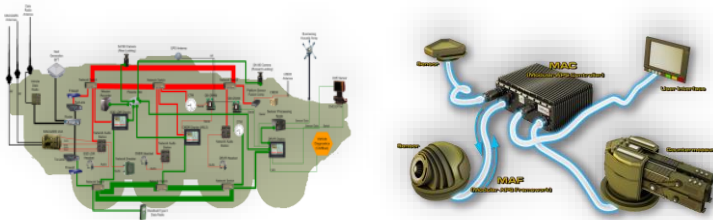


Strategically Partnered with PMs to Integrate Best of Breed Technology on Legacy Platforms

System Integration Labs Bring Strategy to Life



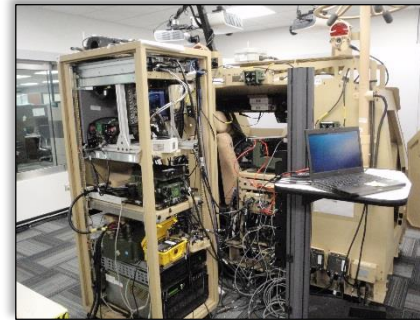
Research SIL Capabilities



Utilized for
technology
development:

- Evaluate production systems before build
- Test emerging technologies
- Ensure hardware and software compliance

Platform SIL Capabilities



Conducted
on existing
platforms
to:

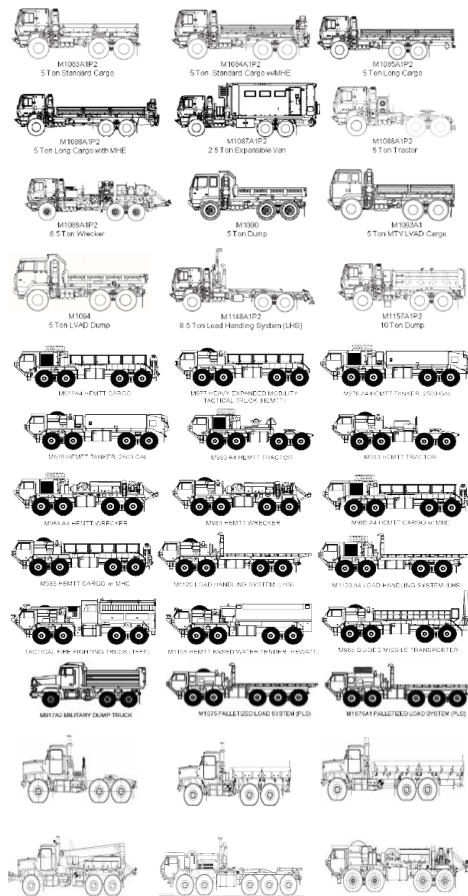
- Test upgraded technology
- Validate interoperability of equipment
- Provide spare part options

TARDEC SILs are the Army's hub for ground vehicle integration and entry points for Industry partnerships.



Joint Tactical Transport System (JTTS) Concept

Today



Five (5) Families of Vehicles, 40+ Unique Mission Variants

- FMTV
- MTVR
- HEMTT
- LVSR
- PLS

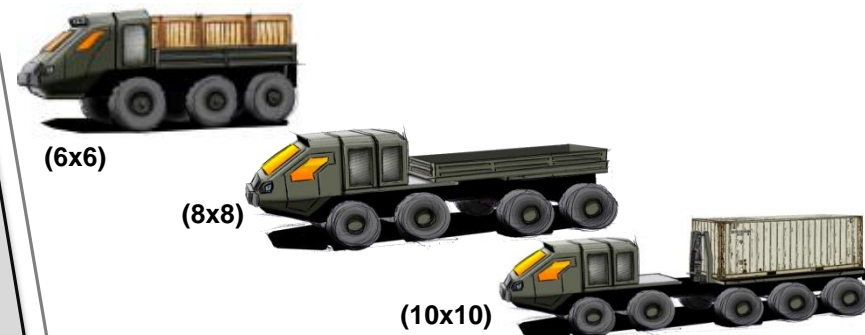


JTTS Capability Enhancements

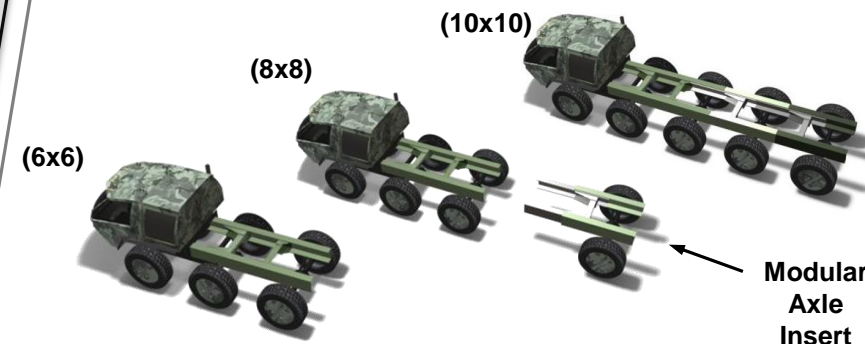
- Improved SoS Fleet Affordability / Logistics Footprint
- “Best of the Best” Automotive & Mobility Performance of Current Fleets
- Efficient Integration of Autonomy
- Enhanced Survivability & Crew Protection
- VICTORY Compliant C4ISR Infrastructure
- Enhanced Condition Based Maintenance Plus (CBM+) Support
- Exportable Power Generation

Beyond 2025

Approach 1: Common Chassis Feasibility Concept Multiple Chassis w/ Max Component Reuse (Commonality)



Approach 2: Modular Chassis Feasibility Concept Single Chassis w/ Modular Axle Inserts (Modularity)



One Common / Modular JTTS Fleet:

- Swiftly modernize current fleet capability gaps & regain growth margin
- Reconfigurable to dynamic operational mission needs
- Reduced total “System of System” cost of ownership (Better buying power, reduced log footprint)

Partner with TARDEC



Visit TARDEC's Web Site
www.army.mil/TARDEC for details:

- **TARDEC Capabilities**
- **30-Year Strategy**
- **New Opportunities**

Connect with us through our Ground Vehicle Gateway (online) to submit:

- **New Proposals**
- **Technology Plans**



**We Need Your Help to Shape the Future of the Army
 and Deliver Advanced Capabilities to the Warfighter**