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5 Years In the War... A Perspective of Where We've Been and Where We Are Going



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TARDEC's Business Portfolio

- Combat and Tactical Vehicles
- Logistics Equipment
- Water Generation and Purification
- Fuels and Lubricants
- Military Bridging
- Fuel and Water Storage, Distribution and Quality Surveillance Equipment
- Countermine Equipment



TARDEC is responsible for research, development and engineering support to more than 2800 Army systems and many of the Army's and DoD's top joint warfighter development programs.



Report Documentation Page

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INSIGHT INTO ARMY GROUND VEHICLE BUSINESS

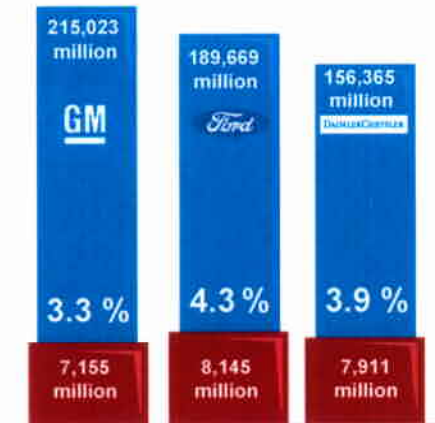
TACOM LCMC (2007)*



*Source Data: TACOM Business Management Office

US AUTOMOTIVE INDUSTRY

(2007 Dollars based on 2004 figures at a rate of inflation of 3.25%)**



Other US INDUSTRY

(2007 Dollars based on 2004 figures at a rate of inflation of 3.25%)**



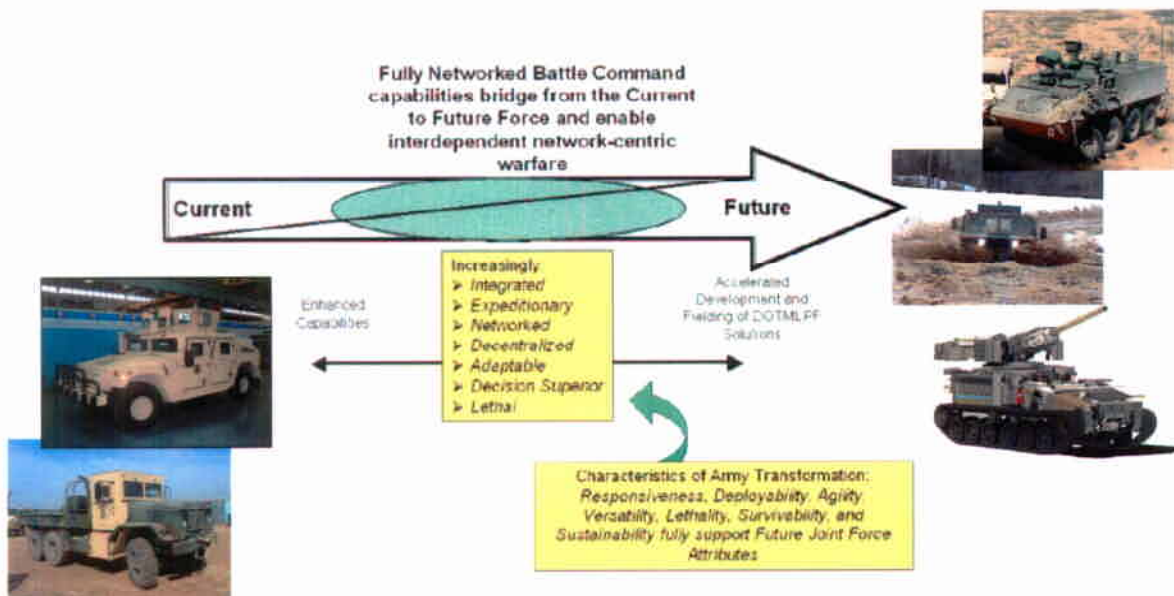
**Based on 2004 Annual Reports

4/3/2007

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TARDEC Technologies a Part of Army Transformation

Transforming technology for the future while serving the forces in contact.



4/3/2007

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TRENDS IN SYSTEM ACQUISITION



- Moving from **serial, phased milestones** to addressing full lifecycle, parallel events
- Moving from the age of creating information to the age of leveraging information, data, and expertise ----**GLOBALIZATION**
- Moving from **physical and virtual prototypes** to collaborative product commerce
- Moving from **drawing and document creation** to information reuse and management

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Trends on the Systems – Estimated Miles Per Year

COMBAT SYSTEM		
SYSTEM	PEACETIME ANNUAL OPTEMPO	ANNUAL OIF (Operation Iraqi Freedom) OPTEMPO
M1126 STRYKER ICV	N/A	13000
M1A2 ABRAMS	736	3600
M3A3 BRADLEY	786	10000
M113A3 APC	287	900
TACTICAL VEHICLES		
M1114 - Up Armored HMMWV	5464	30000
M998 HMMWV	2165	10000
M915A3 Line Haul	6621	21000
M1070 HET	1069	17000
M1075 PLS	1572	3000

82% Increase in OIF Annual OPTEMPO Usage over peacetime use



Source of Data - Army Theater Part Usage Reports and Cost Database.
 Peacetime Data reflects 2002 timeframe. SDC Data is based on data being collected in theater from 2004 to August 2006 timeframe.

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Strains on Our Current Systems



- Extreme environmental temperatures leading to excessive engine temperatures and fuel consumption
- Excessive weight from the Add-on-Armor
- Excessive amounts of dirt and sand interfering with system operations
- Excessive speeds over rough terrain
- Excessive idling of vehicles based on mission profiles required to meet mission needs
- Lack of scheduled maintenance or incomplete maintenance
- Rough terrain resulting in obstacles impact damage
- Vehicles taking large amounts of ballistic damage

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Evolving Threat – An Enemy That Adapts and Learns

- Asymmetrical Tactics
- Urban/Guerilla Warfare
 - Hide in plain sight
 - Use of hostages
- Insurgent Weaponry
 - Improvised explosive devices
 - Rocket-propelled grenades
 - Blasting caps
 - Small Arms
 - Anti-tank weapons
 - Biological and chemical weapons
 - Chlorine
 - Precision weapons
 - Automatic and self-loading rifles



"...Insurgents are always 'seeking to achieve higher levels of effectiveness' and these new tactics are part of the normal 'evolution of sophistication.' "

- Associated Press



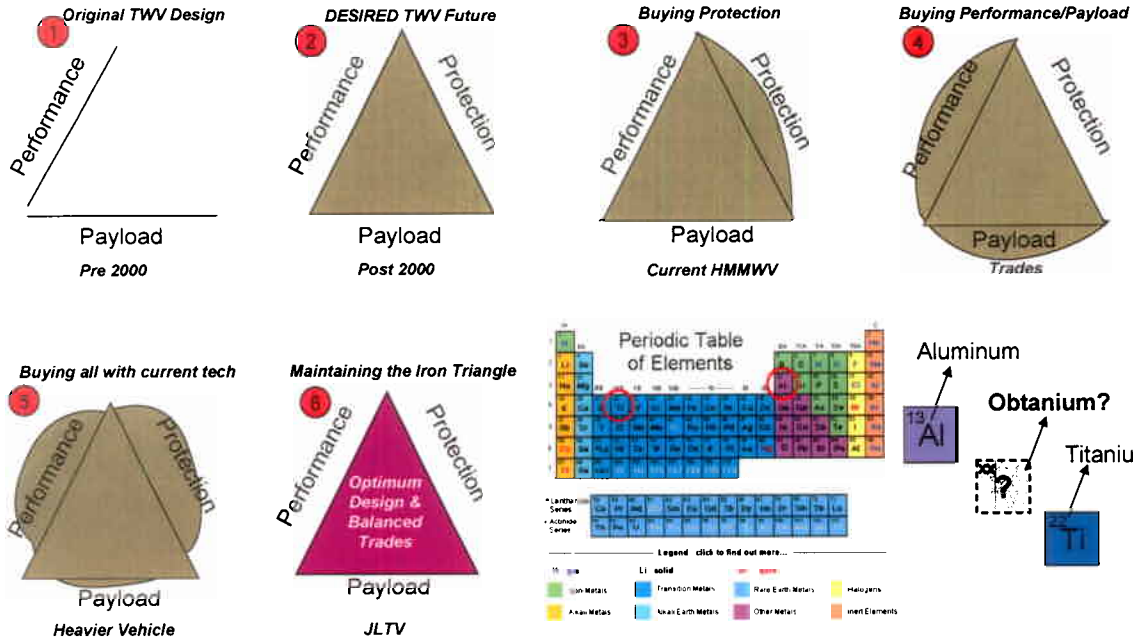
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Constant Need to Balance System Performance, Protection, and Payload

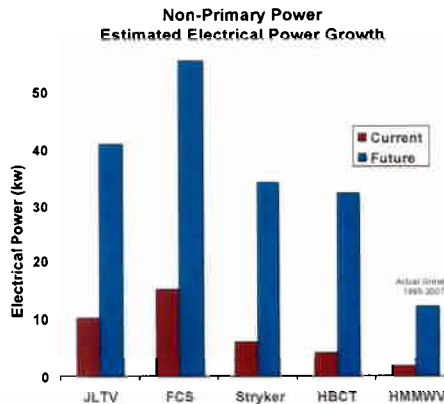


S&T needs to define/achieve "Obtanium" for Light Weight Armor that is affordable or an Integrated Approach

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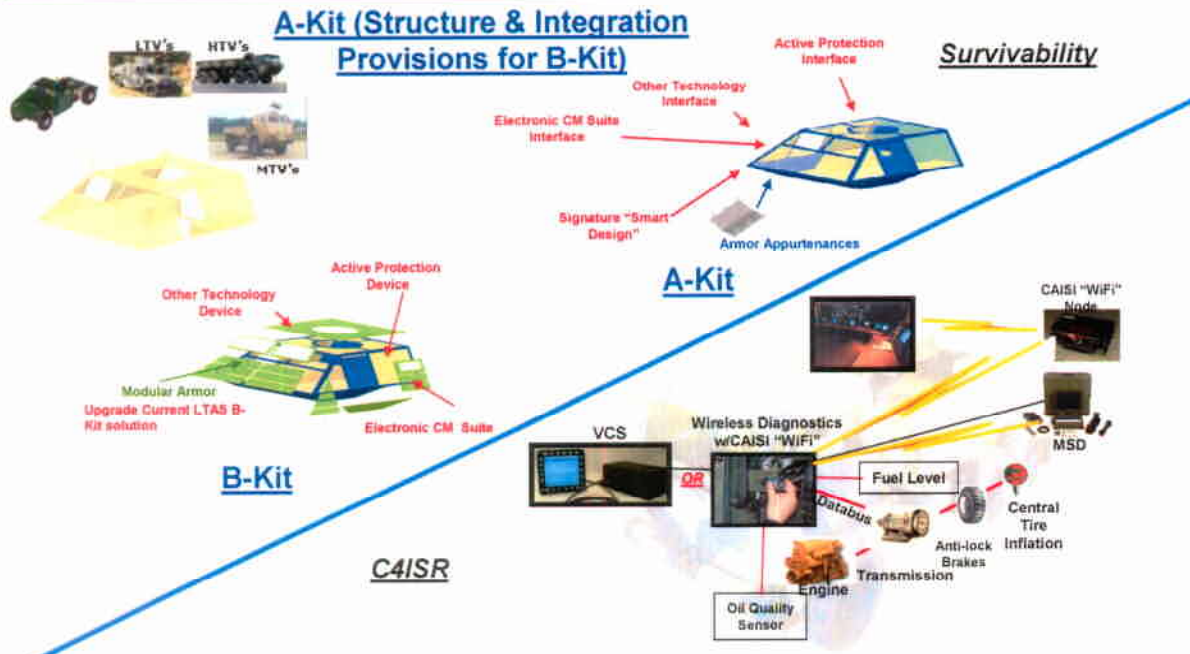
Additional Demands for Ground Vehicle Power and Energy



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Modularity – Design Approach



"Giving the Commander in the Field the Ability to Adapt to Changes...to Mission...to Threat...to Technology!"

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Ground Vehicle Systems and Support Equipment – For Today and Tomorrow



Current

- 70 Ton Main Battle Tank
- Unarmored Tactical
- 100% Manned Systems
- Conventional Power Trains
- Passive Suspension
- Steel Track
- Periscopes
- Conventional Armaments
- Point-to-Point Voice Communication

Enabling the Current Force
Enabling the Future Force

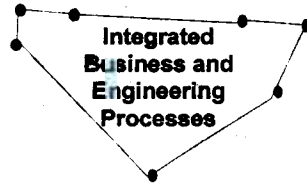
Future

- 25-30 Ton Manned Ground Vehicle (FCS (BCT))
- Armored Tactical
- Combined Manned/Unmanned Capabilities
- Hybrid Electric Systems w/Exportable Power
- Active Suspension
- Segmented Band Track
- Indirect Vision Driving
- High Power (EM) and Laser Weapons
- Shared Common Operating Picture
- Onboard Water Generation
- Fire-Resistant Fuels
- Laser Protection
- Diagnostics/Prognostics
- Integrated CAISR



Global Problems Need Global Solution Sets

- NGIC, Field Issues, Data Collection
Test Lesson Learned
- Near real-time access to theater data
- Ability to assess trends and respond



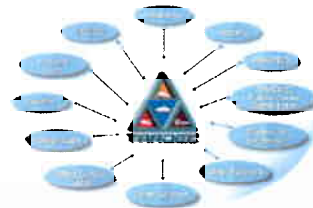
Integrated Data

- Information and data easily located and accessible - especially needed when communicating and collaborating among globally diverse organizations
- Types of information – product, program, M&S and analysis, SME, Technology
- Requires Government to negotiate access and visibility to all information
- Accessible data from multiple, distributed sources

Integrated Tools/Processes



Integrated People/Expertise



Quick ability to adapt to changes in threat, changes in advances and changes in technology.

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So how do we get
there?

YOU & Partnerships

TARDEC BOOTS
ARE ON THE GROUND

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