RDECOM’s Ground Combat Vehicle S&T Support Strategy: An Integrated Approach

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19 May 2010
Report Documentation Page

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Standard Form 298 (Rev. 8-98)
Prepared by ANSI Std Z39-18
Maturing RDECOM’s Integration Processes
Taking the Ground Systems Integration Domain to the Next Level
RDECOM Process Adapted to GCV
Support Across the Life Cycle
  – Pre MS A
  – Aligning the Portfolio Pre PDR
  – Aligning the Portfolio Post MS C
  – Tech Insertion Maturation and Risk Reduction
Systems Integration Across the Ground Domain Fleet
Maturing RDECOM’s Integration Processes

Continuous Integration Evolution

• Technical Expertise
• Processes
• Data
• Products

Ground Domain Planning & Integration

Joint Center for Ground Vehicles

Journey to Data Driven Systems Integration Excellence
Taking the Ground Systems Integration Domain to the Next Level

U.S. Army Training and Doctrine Command

Marine Corps Combat Development Command

Joint Center For Ground Vehicles

Process

People

Portfolio

Data

Product

Ground Domain Planning & Integration

System Integration Support

Testing

Modeling & Simulation

Analysis

Concepts

Trade-Off

Office of Naval Research

Academia

Tech Subject Matter Experts

Industry

RDECOM Technology Focus Teams & Systems Integration Domains

PEO Combat Support & Combat Service Support

PEO Integration Program Executive Offices (PEOs)

PEO Land Systems

PEO Ground Combat Support

Data Driven Systems Integration Excellence Across the Life Cycle
Integrated Capability/Needs Analysis
Integrated Strategic Planning
Integrated Decision Making
Integrated Portfolio Development

System Centric Support:
People, Process, Products, Data, Portfolio

System Technical Design & Integration constraints and opportunities

Voice of Systems
Voice of Warfighter
Voice of Programs
Communities of Influence

Soldier Needs & Wants
(primarily TRADOC), WFOs, FOCs, CNAs, 1-N, CDDs

Business parameters:
cost, schedule, performance

Joint Leadership,
RDECOM, Industry,
Academia, Innovation,
Standards & Regulatory

Integrated Analysis

Portfolio Management
Plans and Programs Management
Ground Domain Management

Resources aligned to address needs and priorities

Plans and Programs coordination to align with cost, schedule, & performance goals

Strategic Relationship Management -- RDECOM (TFTs & SIDs) and Ground Domain Stakeholders shape investment strategies

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
Life Cycle Focused Data Driven Systems Integration

Continuous Data Integration and Refinement Drives Informed Decisions

Motor Sports Industry Best Practice

Fidelity of Data - Models - Expertise

Risk

Pre MS A

MS A

MS B

MS C

OS

Building Life Cycle System Knowledge Over Time
RDECOM Process Adapted to GCV

- Repetitive, Robust Process
- Methodology to Address Gaps
- Full Transparency across RDECOM
- Drives Corporate Decision Making

Supports Building the Portfolio
Ground Combat Vehicle has become the first example of the new integrated RDECOM / GSID approach that can support a platform through its Life Cycle.
**Task Force 120:**
- Successful creation the GCV Requirement Document (CDD)
- Embedded with TRADOC MCOE and Program Office
- Utilizing M&S to quickly iterate requirements
  - Less than 24 hour turn around
- Created GCV CDD in less than 4 months

**Analysis of Alternatives:**
RDECOM created GCV Concept as a physical representation of CDD requirements for AoA Analysis
- Provides initial assessment of vehicle SWaP impacts
- Concept supported and matured with the requirements development and refinement process
Pre PDR Process – Align the Tech Base

GCV Program Schedule

Portfolio Review:
- Identify Programs Relevant to GCV
- Map Programs to GCV Schedule

Portfolio Analysis:
- Prioritize Programs Identified Against GCV Requirements:
  - Tech Maturity Assessment
  - Delivery Timelines
  - PM Identified Gaps
  - Integration Suitability

Integration Package Development:
- Combine Related Programs into Integration Packages
- Integration Packages Focus on Merging Individual Technology Efforts into Cohesive System Level Evaluations

Focusing on combining technology efforts into integration packages
Aligning the Tech Base – GCV Outcomes

GCV Program Schedule

OUTCOMES:

46 Programs across RDECOM

Pre PDR

38 Programs across RDECOM

Post MS C Product Evolution

Increased Mobility and Operational Performance through Autonomous Technologies

Collaborative Battlespace Reasoning & Awareness

Advanced Aviation Survivability

Breakthrough Antenna Technology

Alignment has Synchronized Tech Development to Program Timeline

MS A

MDD

Contract Award

GAV

GCV Outcomes

11

Pre PDR

46 Programs across RDECOM

Lightweight Laser Designator Modules

Combat Vehicle Armor Development

Kinetic Energy Active Protection System

Increased Mobility and Operational Performance through Autonomous Technologies

1st Prototype Vehicle

GCV S&T Portfolio Alignment

GSID Stage Gate Review #1

RTO Assessments

TFT Portfolio Assessment

GSID Lead Review

RDECOM BOD Review

GSID Stage Gate Review #2

RDECOM BOD Review

TPC

Mar 2010

Apr 2010

May 2010

RDECOM ATO Identification

GCV Enabled Brigade

1st Production Vehicle

1st

FRP

MS B

PDR

ICDR

CDR

PPR

FY10

FY11

FY12

FY13

FY14

FY15

FY16

FY17

FY18

FY19+

MS C

Post MS C

Product Evolution

GCV Program Schedule

Alignment has Synchronized Tech Development to Program Timeline
**Tech Insertion Maturation Process - Integration Package Development**

### GCV Program Schedule

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**Alignment Technology Programs feed iterative Integration Packages as technology matures**

- **Current Force Platform Integration**
- **Survivability Evaluation**
  - 360° SA Evaluation
  - Indirect Drive Demo
  - Survivability Test Bed
  - APS Vulnerability Assessment

**Integration Packages**

- **Integration Package 1**
- **Integration Package 2**
- **Integration Package n...**

**Aligned Technology Development for GCV**

**GSID S&T Alignment activity will identify future technology integration packages**

**Integration Packages will:**

- Inform PM in key risk areas for the program
- Combine multiple related technologies for system level evaluations
- Build integration expertise across RDECOM
- Create system test fixtures to facilitate future integration opportunities

**Building RDECOM Expertise to Support Acquisition Risk Reduction**
Post Milestone C Support: Continuous Improvement for GCV

GCV Program Schedule

- Selected contractor prototype and production vehicles are delivered to RDECOM after testing.
- Vehicle become baseline for future planned ECPs and upgrades.
- Future portfolio alignments activities will focus tech development toward selected GCV’s capability gaps.
RDECOM is preparing for the next increment of GCV by creating vehicle designs focused on integrating the next-generation of technologies for enhanced capabilities.

- Develop Organic Vehicle System Development Expertise within RDECOM
- Will Teach RDECOM how to Task Organize to take a System from Concept to Detailed Design
- Build the Processes Required to Manage a Concept Vehicle Build Program
- Opportunity to Determine Feasibility and Shape GCV CDD Objective Requirements Prior to MS B
Integration Across All Platforms in Support of ARFORGEN & Mod Strategies

Development Supports Technology Insertion (TI) Across the Fleet

Enterprise Approach Provides Strategic Flexibility

*HBCT & SBCT development programs pending approval to enter the acquisition life cycle
Providing Life Cycle Systems Integration Support to the Ground Domain

Continuous Integration Evolution
- Technical Expertise
- Processes
- Data
- Products

Joint Center for Ground Vehicles

Building a Better Way to Deliver Capability to our Soldiers