Army Research Laboratory -Orlando TSIS 2017

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The Nation's Premier Laboratory for Land Forces

Army Science and Technology (S&T)

U.S. ARMY RDECOM • ARL • 25 YEARS 1992-2017

	Near		Mid		Far
Timeframe	Near		Mid		Far
Window	Quick Reaction: 1-2 Years	Experimental Prototyping: 2-4 Years	Innovate Technology Options: 4-8 Years	Investigate Technology: 6-15 Years	Fundamental Research: 10-30 Years
Focus examples	- COCOM Need - Time Critical Gap - Disruptive Opportunity	- Improve Current System - Drive Down Technical Risk - Inform Requirements - Reduce Life Cycle Costs	- Technology Demonstrators - Technology Insertion for PEO / PM - Technology & Operational Concepts for TRADOC	- Technology Opportunity from Science - Technical Challenge for Emerging Concepts - Advanced Models and Methods	- Physics & Chemistry - Biology & Psychology - Math & Analysis - Engineering

Enterprise* : Industry   Consortium   AICT & STTC   ARL Corporate   Universities

Roles : Transition   Innovate   Discovery

Budget : Advanced Component Development & Prototypes   Advanced Technology Demonstrations   Applied Research   Basic Research

TRL**	7		6	5	4	3	2	1
IRL***	6	5	4	3	2	1		

*While all enterprises can operate across the technology and time spectrum, this general linear alignment is representative.
**TRL = Technology Readiness Level. These are common approximations, and not absolute
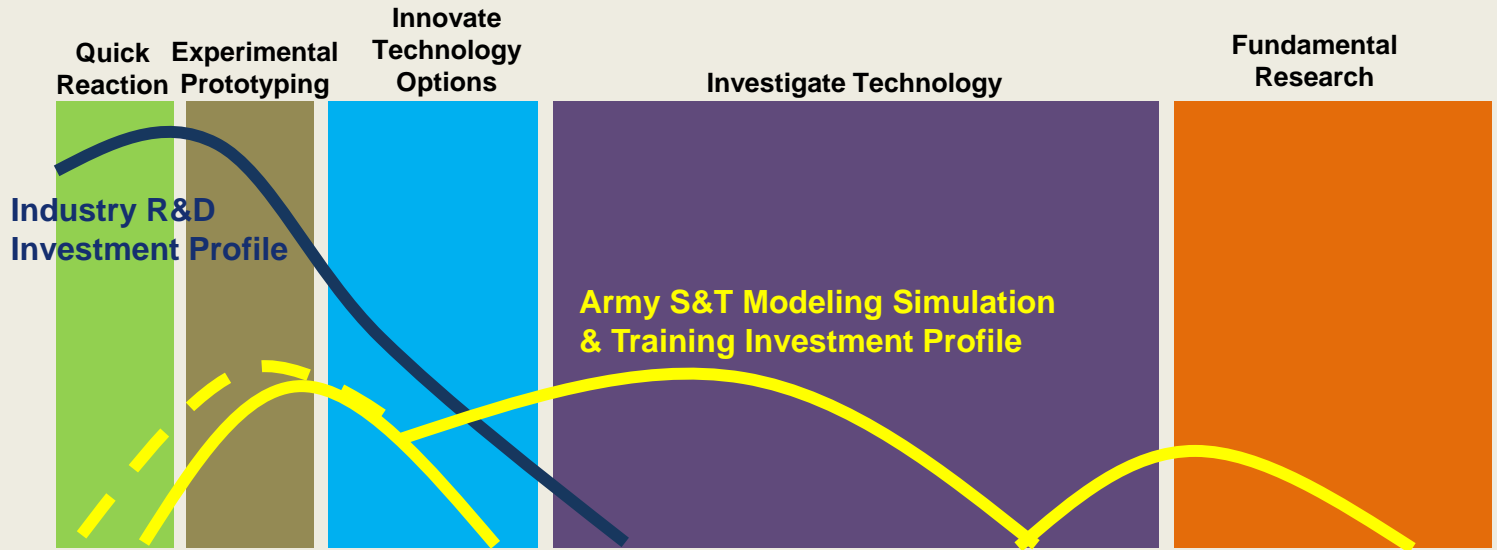***IRL = Integration Readiness Level. These are general approximations and not absolute.

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Potential R&D Opportunities

What R&D do we anticipate from Industry?

What R&D do we think will require collaboration?

What R&D do we expect is primarily government?

Quick Reaction · Experimental Prototyping · Innovate Technology Options · Investigate Technology · Fundamental Research

Industry R&D Investment Profile

Army S&T Modeling Simulation & Training Investment Profile

Technology	Potential Industry Opportunities	Potential Consortium Opportunities
Synthetic Environment	Game Engines and Image Generators	Scaling above Company-level
Reconfigurable Interfaces	Platform Specific Interfaces	Reconfigurable Transportable Engineering
Intelligent Tutoring		Training Effectiveness Measures
Artificial Intelligence	Knowledge Representation	Natural Language Processing, Neural Networks
Augmented & Mixed Reality	Mounted Augmented Reality	Dismount Display Solutions
Virtual Humans	Realistic Expression and Gestures	Realistic Role Playing
Next Generation Live Training		Weapon Pointing and Orientation

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Gartner Hype Cycle

DISMOUNTED AUGMENTED REALITY

COMMERCIAL AUGMENTED REALITY

VIRTUAL REALITY FOR TRAINING

PEAK OF INFLATED EXPECTATIONS

PLATEAU OF PRODUCTIVITY

VISIBILITY

SLOPE OF ENLIGHTENMENT
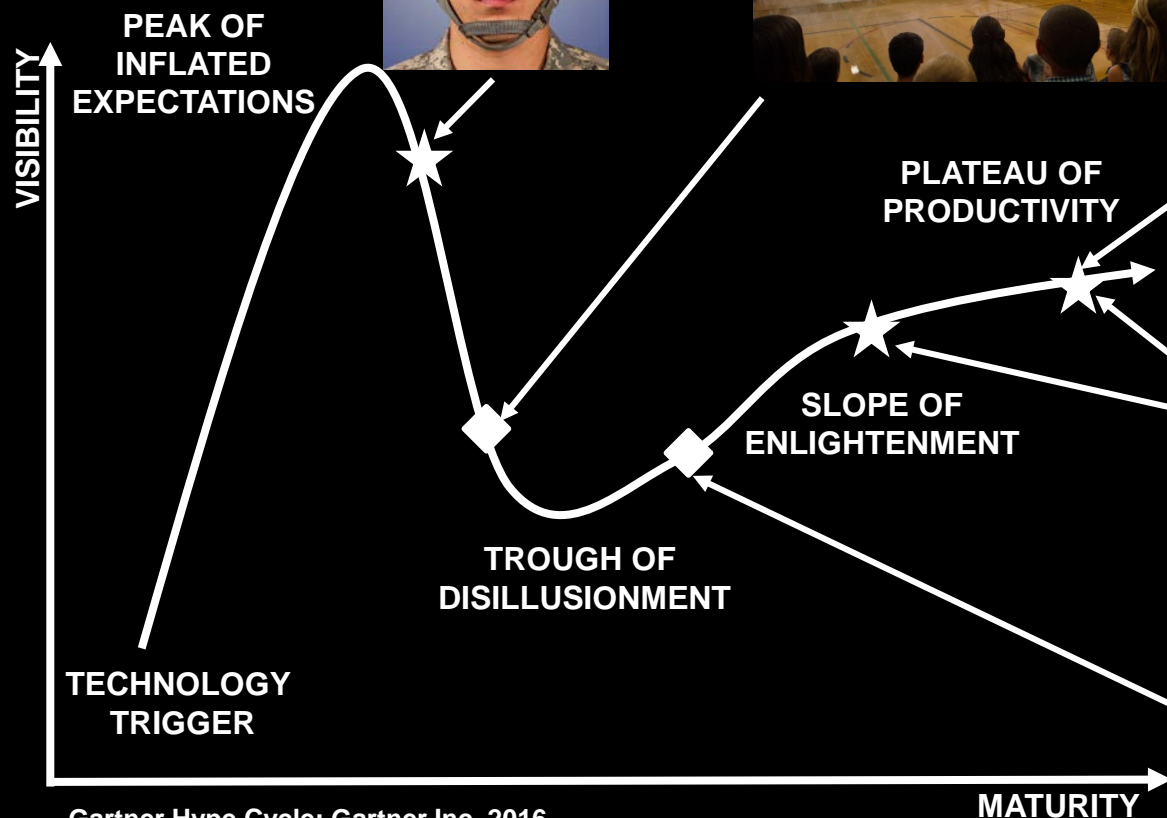
PLATFORM AUGMENTED REALITY

TROUGH OF DISILLUSIONMENT

TECHNOLOGY TRIGGER

MATURITY

COMMERCIAL VIRTUAL REALITY

Gartner Hype Cycle: Gartner Inc. 2016

Opportunities

(1) **Broad Agency Announcement (BAA)**
     http://www.arl.army.mil/www/default.cfm?page=8

(2) **Grants (www.grants.gov : CFDA = 12.431)**

(3)   **Cooperative Agreements http://www.arl.army.mil/www/default.cfm?page=14**

(4) **Contracts**

(5) **Sub-Contracts via Prime Contractor**

(6) **Collaborative Technology Alliances**
     http://www.arl.army.mil/www/default.cfm?page=93

(7) **Conferences, Symposia, Open Campus – Open House**

(8) **Science, Technology, Engineering, and Mathematics Educational Outreach Funding**

(9) **Small Business Innovative Research Proposals**

(10) **PEO STRI Procurement Administrative Lead Time (PALT) (Quarterly Meetings)**

(11) **Team Orlando, National Center for Simulation, Trade Organizations**

(12) **University Affiliated Research Center: Army's Institute for Creative Technologies**

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S&T Transition

General Technology Development Curve

1. Point of Maximum Transition Benefit
2. Transition Inflection Point
3. Point of Diminishing Economic Benefit

Program Management Trade Space

Industry Optimization Space

PM Transition Space

Army Acquisition, Logistics and Technology

S&T Transition Space

Science and Technology Innovation Space

TEST FIELD OPERATION IMPROVEMENT

DISCOVER   INNOVATE   DEMONSTRATE TRANSITION   TRANSITION   TEST ENGINEERING   TEST MANUFACTURING

CAPABILITY

FY 17 BUDGET   FY 18 BUDGET

6.1   6.2   6.3   6.4   6.5   6.6   6.7

TECHNOLOGY READINESS   BUDGET ACTIVITY

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