

Transitioning DE Technology

*There are few unexpressed thoughts ...
Especially toward the end of the conference.*

Lawrence M. (Mark) Fleenor

505.980.2401

M.Fleenor@SolOriensLLC.com

An Unclassified Presentation



A New Kind Of Weapon From The Pages Of Science Fiction

With A Whole List Of Real or Perceived Issues

Deep Magazine

- Lots of Shots based on Fuel Consumption

Balancing legacy and new requirements

Speed of Light

Misunderstood requirements

Paradigm Shifts

- Immediate attack from tactical to strategic ranges
- Impossible to outmaneuver

Questionable cost-benefit

Precision Engagement

- High value, selectable targets
- Rapid retargeting

Competition with conventional programs

Controlled Effects

- Minimum collateral damage
- Ability to work in a non-lethal effects space

Sketchy direction

A Basic Communications Challenge



Management of Technology Transition

- Balancing Tech push & User pull
- Consciously moving from basic to applied technology development, then refinement and packaging
- Forming and living up to expectations
- Matching capability with requirement
- Crafting demonstration programs
- Showing Military Utility
 - Multi-function / multi-role weapons system
 - Earning a place on a weapons platform

There has not always been a common frame of reference linking Technologists and Warfighters

“*Crossing the Chasm*” seems a pretty good paradigm for this sort of technology development

A Reasonable S&T Budget

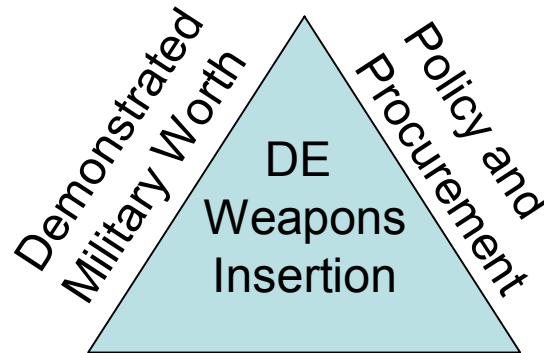
	\$M	FY06	FY07	FY08	FY09	FY10	FY11	06-11 Total	TRL 6 Date
Concept-Guided Technology									
ATL-Spiral 1 (USSOCOM)	61.0	44.0	88.0	75.0	75.0	46.0	389.0	2011	
Airborne Tactical Laser (AF)	11.6	27.9	27.7	27.4	28.5	29.3	152.4	2009	
GBL Counterspace Tech (AF)	8.4	8.7	7.9	8.1	7.9	8.0	49.0	2009	
ABL Tech (AF)	5.2	6.1	6.4	6.7	7.4	8.1	39.9	2005,9	
Relay Mirror Tech (AF)	7.8	8.7	8.5	8.4	8.4	8.6	50.4	2014	
Laser Technology Prog (MDA)	43.5	48.1	48.8	50.4			190.8	2006,7	
Ground Mobile Tactical HEL (Army)	29.1	35.4	41.5	47.6	47.4	50.5	251.5	2015	
Ground Mobile Electronic Attack (Ar)	9.0	14.4	22.0	18.6	10.6	11.0	85.6	2012	
Countermine/Counter IED (Army)	6.1	7.7					13.8	2007	
Vehicle Stopper/Area Denial (Army)		4.2	10.7	18.2	12.7	9.5	55.3	2012	
Anti-Sensor Tech (AF)	10.4	4.2					14.6		
Airborne Electronic Attack (AF)	17.4	17.8	17.7	18.6	18.9	19.2	109.6	2012	
Airborne Active Denial (AF)	11.4	17.4	14.8	12.9	4.9	5.0	66.4	2011	
FEL Scaling (Navy)	10.0	10.0	10.0	10.0	10.0	10.0	60.0		

...and Some Demo Programs

DE System Development Programs	FY06	FY07	FY08	FY09	FY10	FY11	06-11 Total	Demo Date
Airborne Laser (ABL) (MDA)	555.0	609.0	471.0	454.0	461.0	470.0	3020.0	2008
Advanced Tactical Laser ACTD (USSOCOM)	61.0	12.0					73.0	2007
Active Denial System ACTD (JNLWD)	4.3						4.3	2005

How Do You Get DE into DoD Inventory?

Established Need
Military Worth Assmt.
Capability Awareness
Measured Robustness
Measured Effectiveness
CONOPS
BDA-effect verification
Favorable Cost/Benefit
Training and Logistics



Funding
•S&T
•ACTD
•Directed
•POM
Human Effects
•Enemy
•Friendly
•Noncombatant
JAG Review
Policy Matters
T & E

Technology Development

*Some Claim
They've Done It*

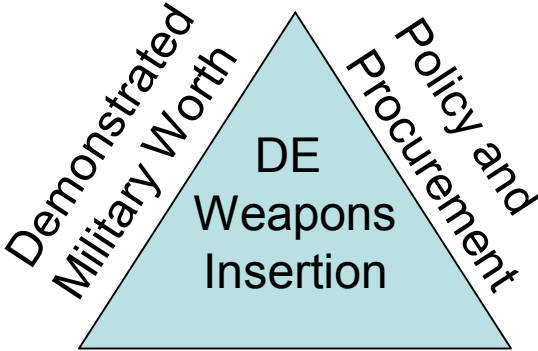
*Applicability
Maturity
Attribute Mix
Show Effectiveness*

*Some Claim It's
Impractical or
Impossible*

Does This Look Like Any Other Hi-Tech Weapons Program ?

So What's Harder About Fielding DE?

Established Need
Military Worth Assmt.
Capability Awareness
Robustness
Effectiveness
CONOPS
BDA-effect verification
Favorable Cost/Benefit
Training and Logistics



New Start

- ACTD
- Directed
- POM

Human Effects

- Enemy
- Friendly
- Noncombatant

JAG Review
Policy Matters
T & E

Technology Development

There is still a basic tech maturity and product development timeline

*Applicability
Maturity
Attribute Mix
Interoperability
Show Effectiveness*

There are some recent Transition success stories

Evidence of Forward Progress

– as measured by recent talks at DEPS

- DE Bio-effects Overview
- Active Denial Program
- RF DE Against IED
- The NIRF System
- SPARROW Portal Protection System
- HPM Counter-Manpads Effects
- Models and Predictive Capabilities for Assessing Computer Systems
- Round-to-round Comparisons of Susceptibility Measurements for a Missile Seeker
- Vehicle Engine Stopper Historical efforts Summary
- DTRA Counter-HPM Program
- Virtual Prototyping of an HPM System



Success Path

- Continuing to target mature, useful technologies with an arguable case for military worth – and a committed early-adopter for the military capability
- Adeptness at matching non-conventional war-fighter requirements to appropriate DE Solutions
- Continuing advances in BDA, user confidence, and budget/ policy acceptance
- Executing compelling military worth demonstrations with clear and reasonable evaluation criteria
- Technology transition with appropriate emphasis on –ility issues

- Technology insertion, weapons system procurement, and fielding

Adaptability and Some Measure of Patience are Required

Summary

- Transition - Not Easy but Doable
- Steady advances in technology, military worth, and policy
- DE in sensible niches
- Patience and adaptability
- Enough experience to take the long view