

Industry Days '99

Challenges for the Future



LTG Randall Rigby

**Deputy Commanding General - Futures
Headquarters Training and Doctrine Command**



AGENDA

- **Changing Missions and Requirements**
- **Geo-strategic Change**
- **Implications for Modeling and Simulation**



The Changing Threat



- Terrorism
- Guerrilla warfare
- Access to space
- Information warfare
- Ballistic missiles (vice air forces)
- Night vision equipment
- Precision munitions
- Sanctuary taken in complex and urban terrain

- Weapons of mass destruction
- Theater missile defense
- Mobile/mechanized reserves
- Complex relationships forming of terrorists, criminals, failed and non-states



The Change in Warfare



Monolithic Threats

- Large, armored standing force.
- Politically and economically capable of sustained operations.
- Potential of maintaining allies or client states.

Asymmetric Threats

- Standing force varies in size & capability.
- Capable of responding with weapons of mass destruction or biological or chemical means.
- Politically flexible.
- Able to withstand unpopular international opinion.

The US Army must continue to be organized, equipped, trained, and led to win against a threat that is capable of sustained complex military operations.



Changed Mission



- Win the Nation's wars
- Peacetime engagement



**The Army...
Transforming to meet
21st century requirements**



Requirement Has Changed

- **The *nature of land warfare has changed***
 - Potential adversaries learned from Desert Storm
 - as well as actions in Somalia & Bosnia
 - New technologies are being proliferated
- **Peacetime *security posture is active* -- many deployments**
 - Deter crisis and conflict
 - Enforce peace
 - Build confidence

***America is in the midst of change
with a force that is changing.***





Technologies with Military Impact

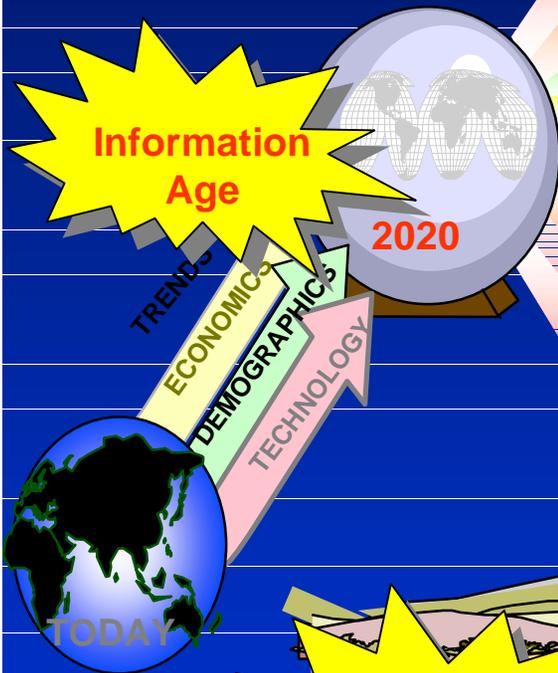
	1990's	2020	Impact
•Armor/Antiarmor Lethality	APFSDS/DU sabots	Composite, segmented sabots Electro-magnetic rail guns	↑Survivability ↑Improved Logistics w/shared power mgt
Survivability	Passive armor/ Reactive Armor	Electro-magnetic armor Active Protective Systems	-Develop tech to defeat rounds and protective systems ↑Threat to Urban Areas
•Tactical Ballistic Missiles	Inaccurate/liquid fuel/short mid range/dumb war head	Inertial/satellite guidance/multiple warheads/solid fuel	↑Need Anti-TBM system
•Directed Energy Weapons	Low energy Range Finders and Targeting Devices	Low/High power laser weapons/Microwave devices	↑Common platform with multiple use
•Microelectronics	Minicomputers, digitized C2 systems, internet	Nanotechnology/molecular memory/systems on a chip/wireless network	↑Reduced footprint ↑Inexpensive proliferable sensors & weapons
•Information Operations	Computer network attack (virus,Trojan Horse) EW, deception,destruction Psyops	Softwar Integrated strategic attack operations	↑War winning capability (strategic network control) ↑Requires countermeasure systems



Geostrategic Change and the Evolving Threat



What Sort of World in 2020?



- Continued Reliance on Fossil Fuel
- Increased Major Power Competition
- Youth Bulge
- Trend Toward Urbanization
- More Failed States
- Transparent Borders
- Cruise Missile Threat
- Transnational Threats Pervasive

Strategic Implications

Global Response

Complex web of relationships

- Multi-dimensional Foes and Alliances

Managing Instability

- Expensive, Difficult, Dangerous
- U.S. action has multiple effects

Asymmetric response -- Unpredictability

International Pressure = Global Will

- Economic balance
- Urban Warfare - likely unpalatable

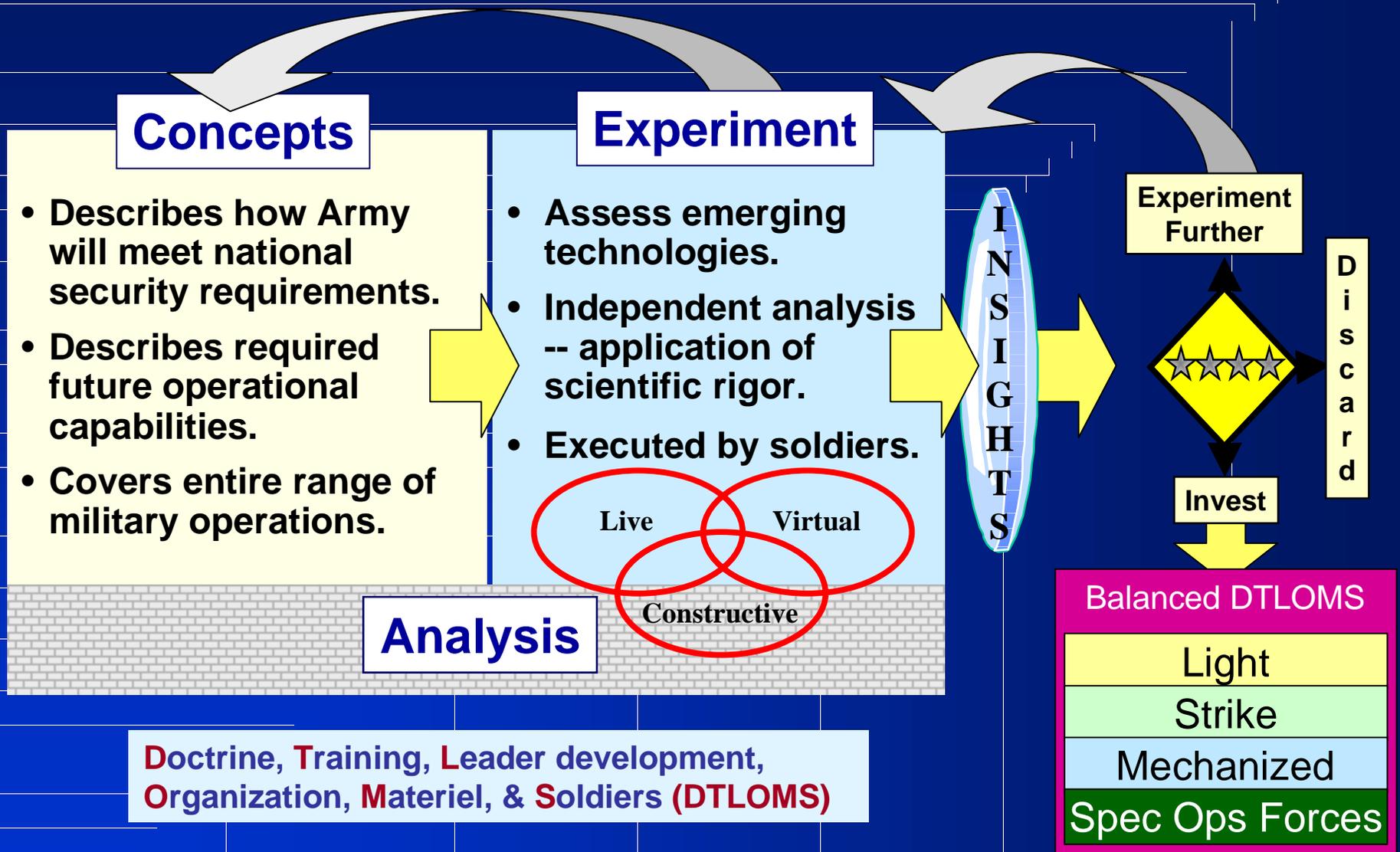
Military Implications

How will Adversaries Counter the US?





A Disciplined Approach to Change

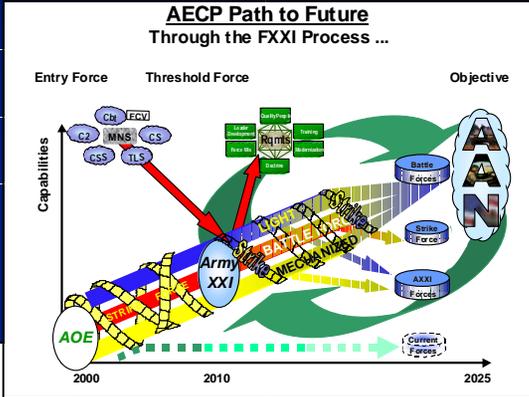




Modeling and Simulation



Support for Change...



Spiral Development Process



Interoperable Databases



C4I Interface w/Operational Systems



Web Based Training

Embedded Training





What is Needed



Asymmetric Threats

- Info Systems Attack
- Niche Technologies

Information Operations

- Modeling of Digitized Forces
- Effects of Friendly/Enemy Info Ops

Urban Operations

- Effects of Urbanization
- Mission Rehearsal

Homeland Defense

- Weapons of Mass Destruction
- Common Standard across Agencies





Transforming
to meet
21st century
requirements



America's Army

*Always trained and ready...
Win the Nation's wars...
Peacetime engagement...*