

Systems Engineering the New Paradigm

January 2012



**RIPE for A Systems
Engineering Assessment**

Network Integration Evaluation of the “The Army’s Tactical Network”

A network is composed of “N” nodes, each context-sensitive (implicitly inter-affecting other nodes). Visualization will entail tools for depicting continuous, mutual morphing in pursuit of satisfying Commander’s Intent.



Directed Initiatives & Concepts

Directed Paradigm Initiatives

Regional Training Facility

Brigade Modernization Command Standup

Network Integration Evaluations

Army Evaluation Task Force

Fast Lane; Concept to Speed Up Acquisition, Test, and Evaluation Processes

Chart Capability Gaps for BCTs; Bring Advanced Technology and Concepts To Bare to Resolve Gaps

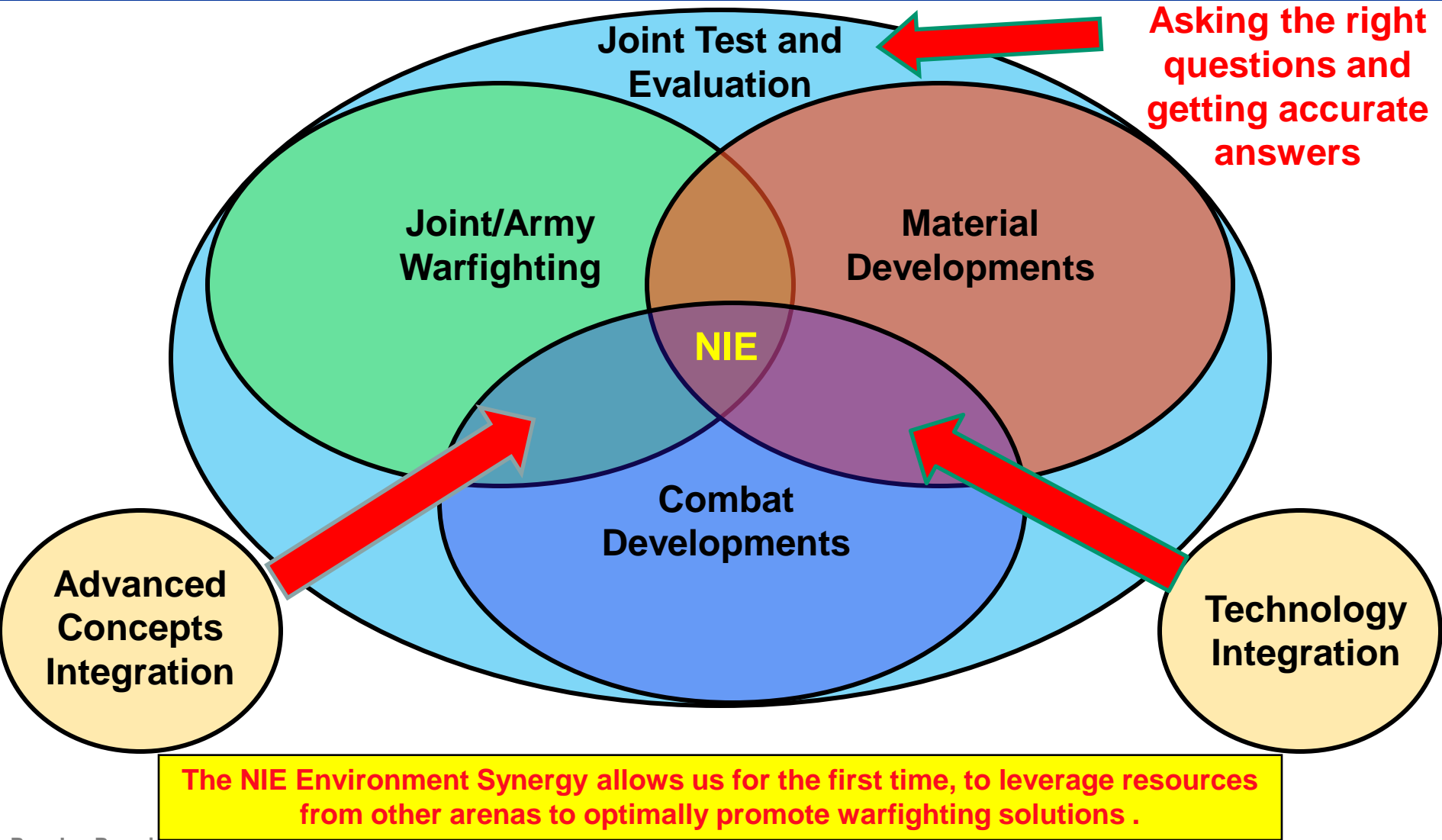
Involve Testers as part of the solution

“Strategic Corporal” ; a new reality in combat decision making

*Not Technical Solutions in 5 to 10 Years but **Optimal Warfighting Solutions in 6 Months !!!***



Network Integration Evaluation (NIE) Synergy



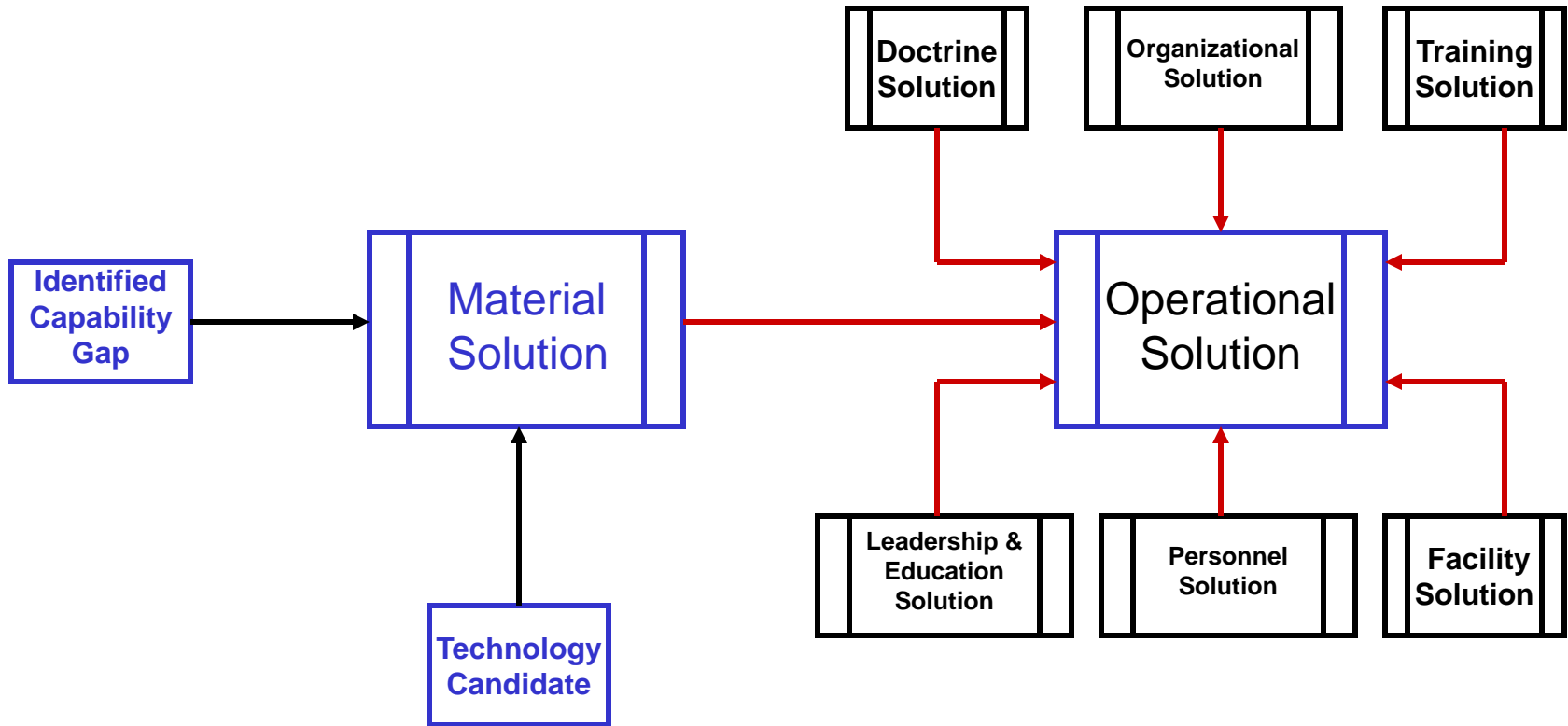


What Defines a **Warfighting Solution**

- **Doctrine:** the way we fight, e.g., emphasizing maneuver warfare combined air-ground campaigns.
- **Organization:** how we organize to fight; divisions, air wings, Marine-Air Ground Task Forces (MAGTFs), etc.
- **Training:** how we prepare to fight tactically; basic training to advanced individual training, various types of unit training, joint exercises, etc.
- **Materiel:** all the “stuff” necessary to equip our forces, that is, weapons, repair parts and supplies, etc. so they can operate effectively.
- **Leadership and Education:** how we prepare our leaders to lead the fight from squad leader to 4-star general/admiral; professional development.
- **Personnel:** availability of qualified people for peacetime, wartime, and various contingency operations
- **Facilities:** real property; installations and industrial facilities (e.g. government owned ammunition production facilities) that support our forces.



Army's CD Methodology



Technical Solution

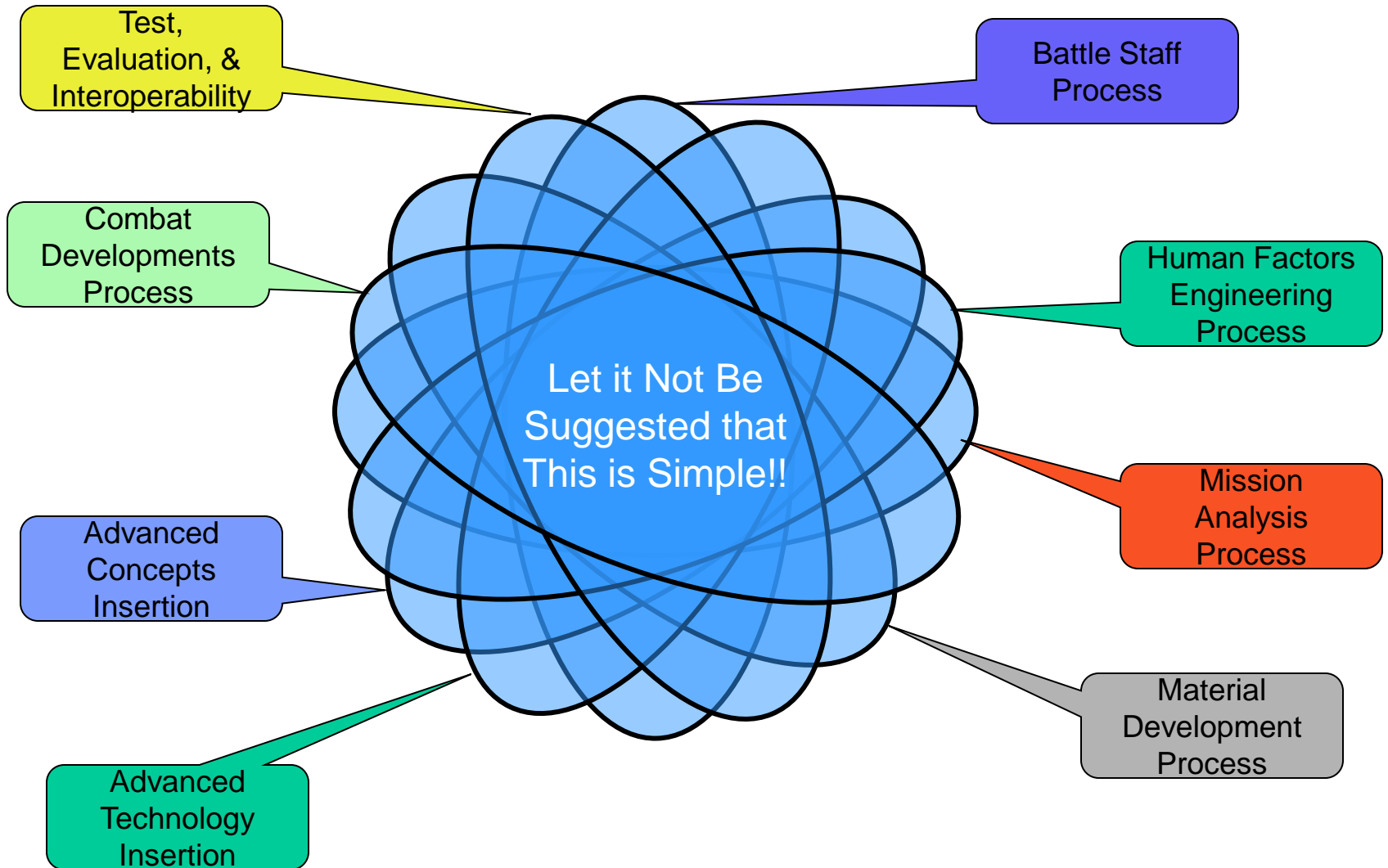


Warfighting Solution

NIE's Critical Mission Focus is the Development of Optimal Warfighting Solutions !!!



NIE Process Integration

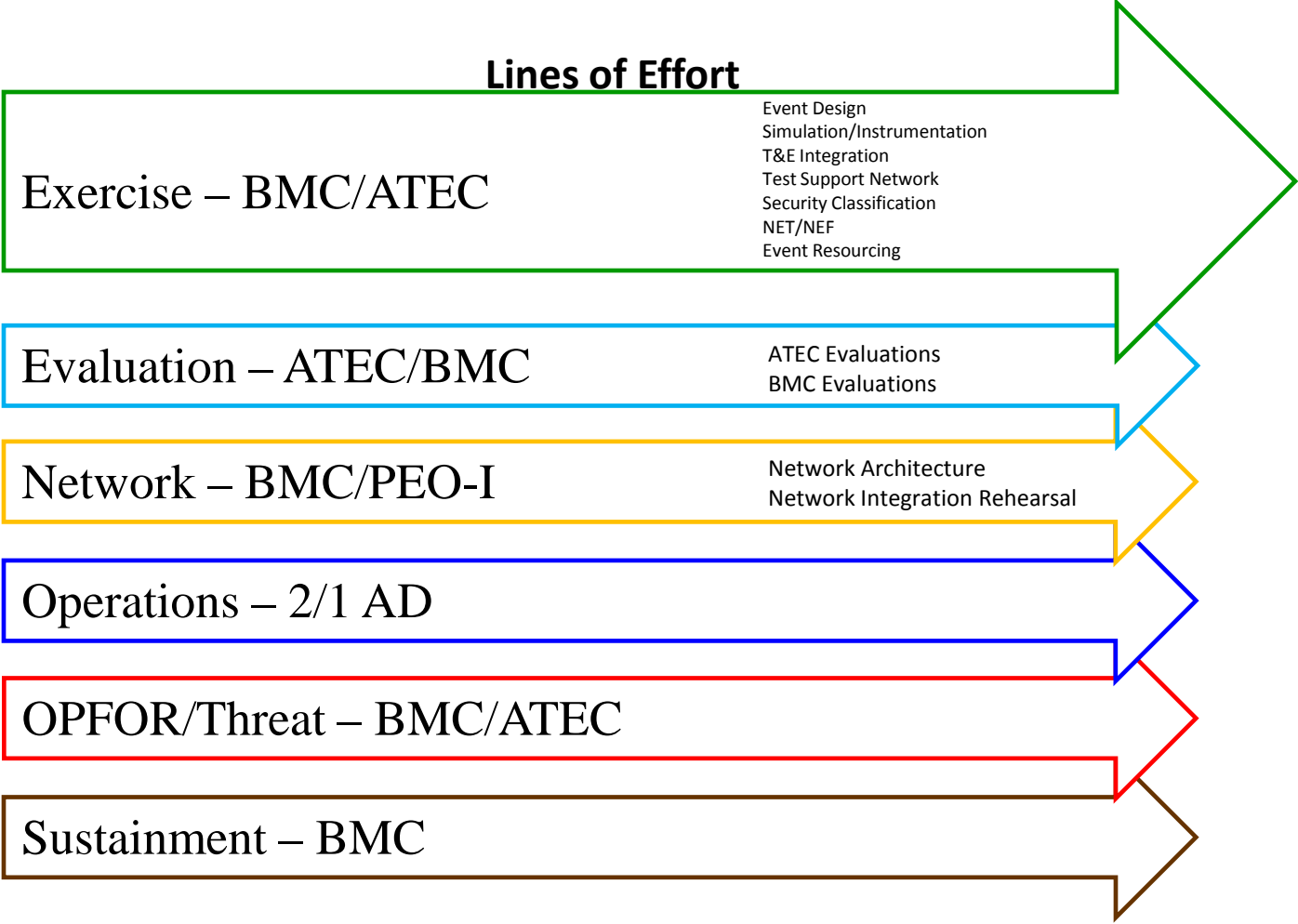




ATEC/TRIAD LOEs

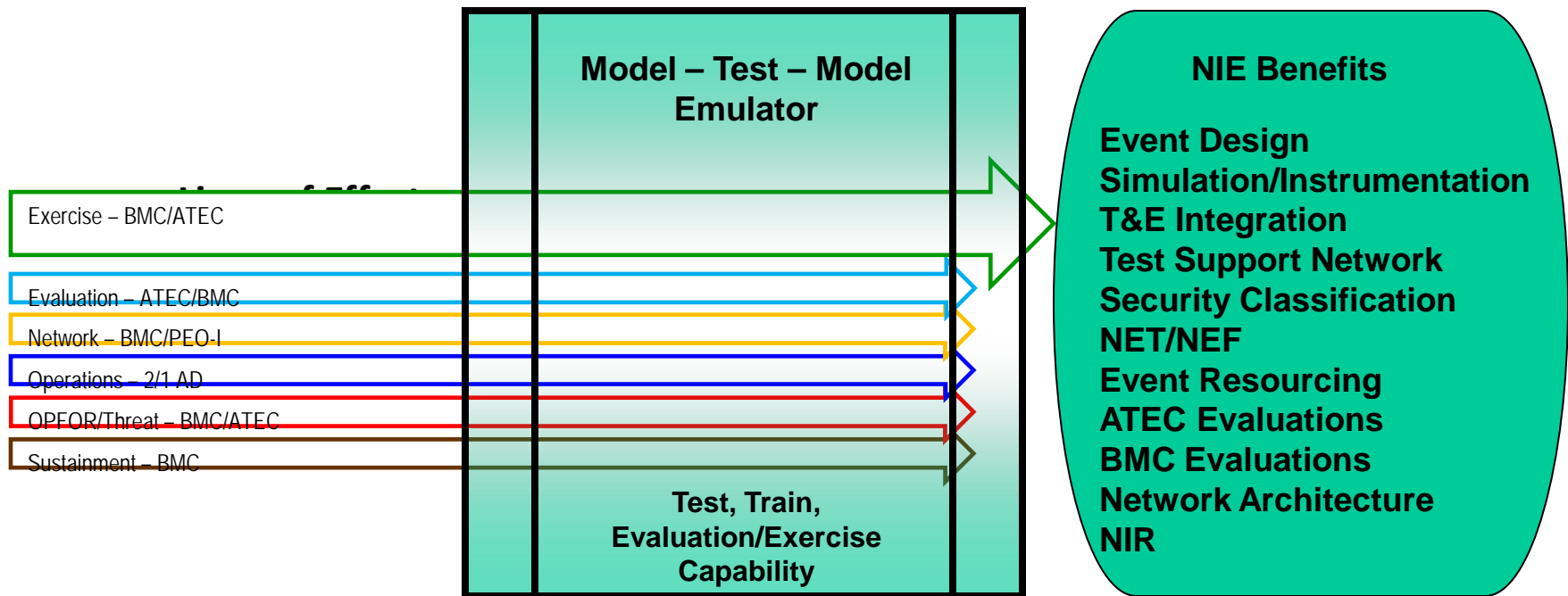


Lines of Effort





ATEC/NIE TRIAD LOEs



TTEC Applied as an System Engineering Tool To Advance the Mission Set of the TRIAD and the Objectives of NIE While Developing a Lean Six Sigma Baseline

The RAM TSC Team



Army Systems Engineering Tools

- **Mission Analysis Process**
- **Joint Decision Making Process**
- **Human Factors Engineering Assessments**
- **JCIDS Joint Capabilities Integration Developments System**
 - **Combat Developments Process Assessment**
 - **Material Developments Process Assessment**
 - **Advanced Concept and Technology Process Assessment**
 - **Battle Staff Process Assessment**



NIE Targets For Systems Engineering Assessments

- **System of Systems Test and Evaluation Methodology**
- **NIE AGILE Process Validation**
- **NIE Process Methodology Validation**
 - **Combat Developments Process Assessment**
 - **Material Developments Process Assessment**
 - **Advanced Concept and Technology Process Assessment**
 - **Battle Staff Process Assessment**
 - **Human Factors Engineering Assessment**

*A Systems Engineering
Assessment Team Approach Will
Baseline the NIE Methodology
with a Lean Six Sigma*

Foundation

*Continuous Evaluation of
Processes
Continuous Evaluation of
Methodologies
Application of Metrics*



Foundations For Warfighting Solutions For BCTs

**Lean Six Sigma:
Continuous Evaluation of
Processes
Continuous Evaluation of
Methodologies
Application of Metrics**

*BCT
Operational
Solutions*

*Battle Staff
Processes*

*DOTMLPF Integrated
Solution Set*

*Network Integration
Evaluation Methodology*

*Systems Engineering
Tools*

Systems Engineering the New Paradigm



OTIS FERGUSON
Colonel, US Army - Retired
Senior Military/Systems Analyst
RESEARCH ANALYSIS AND MAINTENANCE, INC.
CORPORATE OFFICE
9440 Viscount Blvd. Suite 200
El Paso, Texas 79925-7054
PHONE (915) 595-7047 FAX (915) 595-0559
Cell (719) 659-2271
Email: fergusono@ramincorp.com

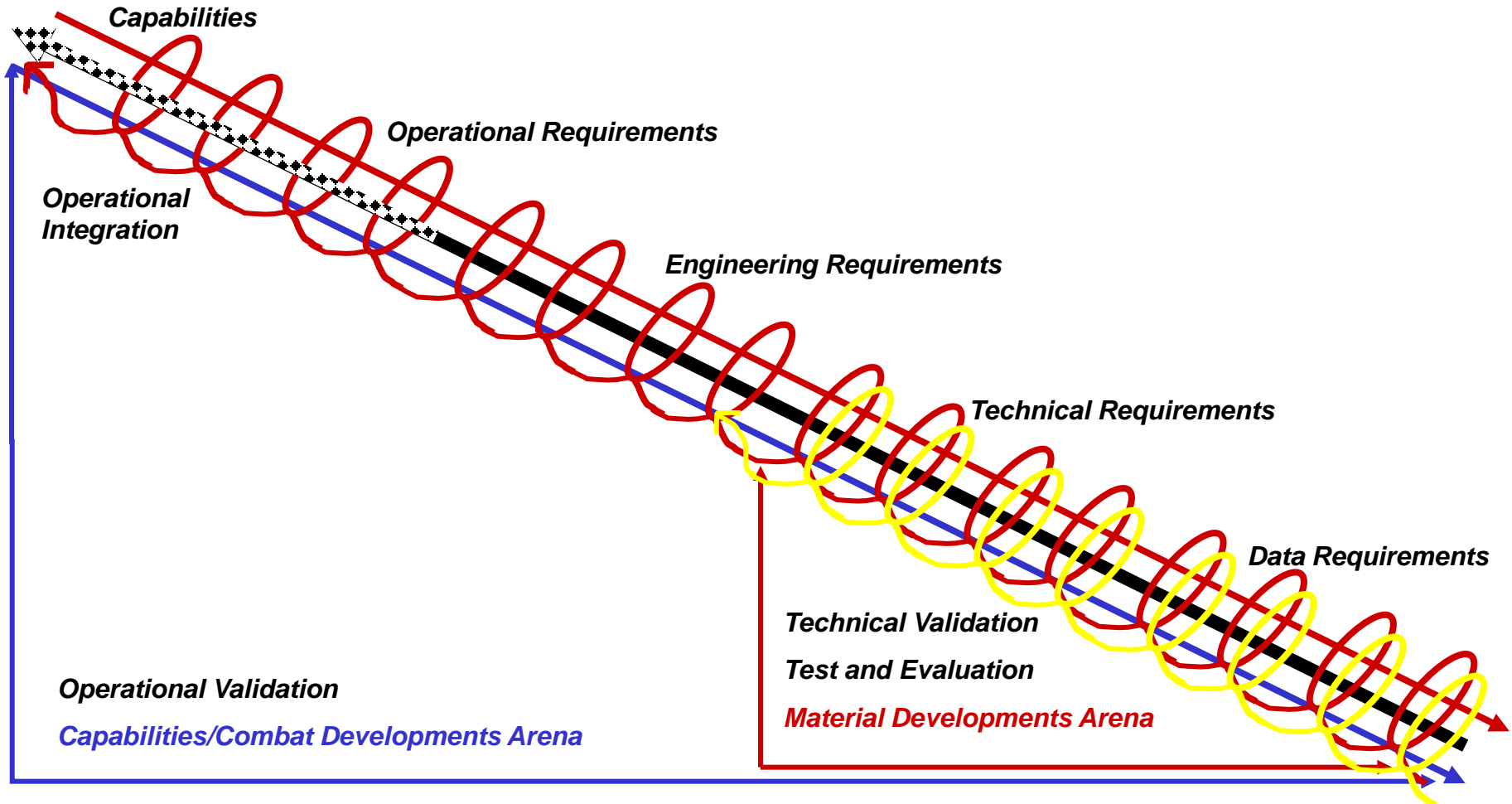
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Backup Slides



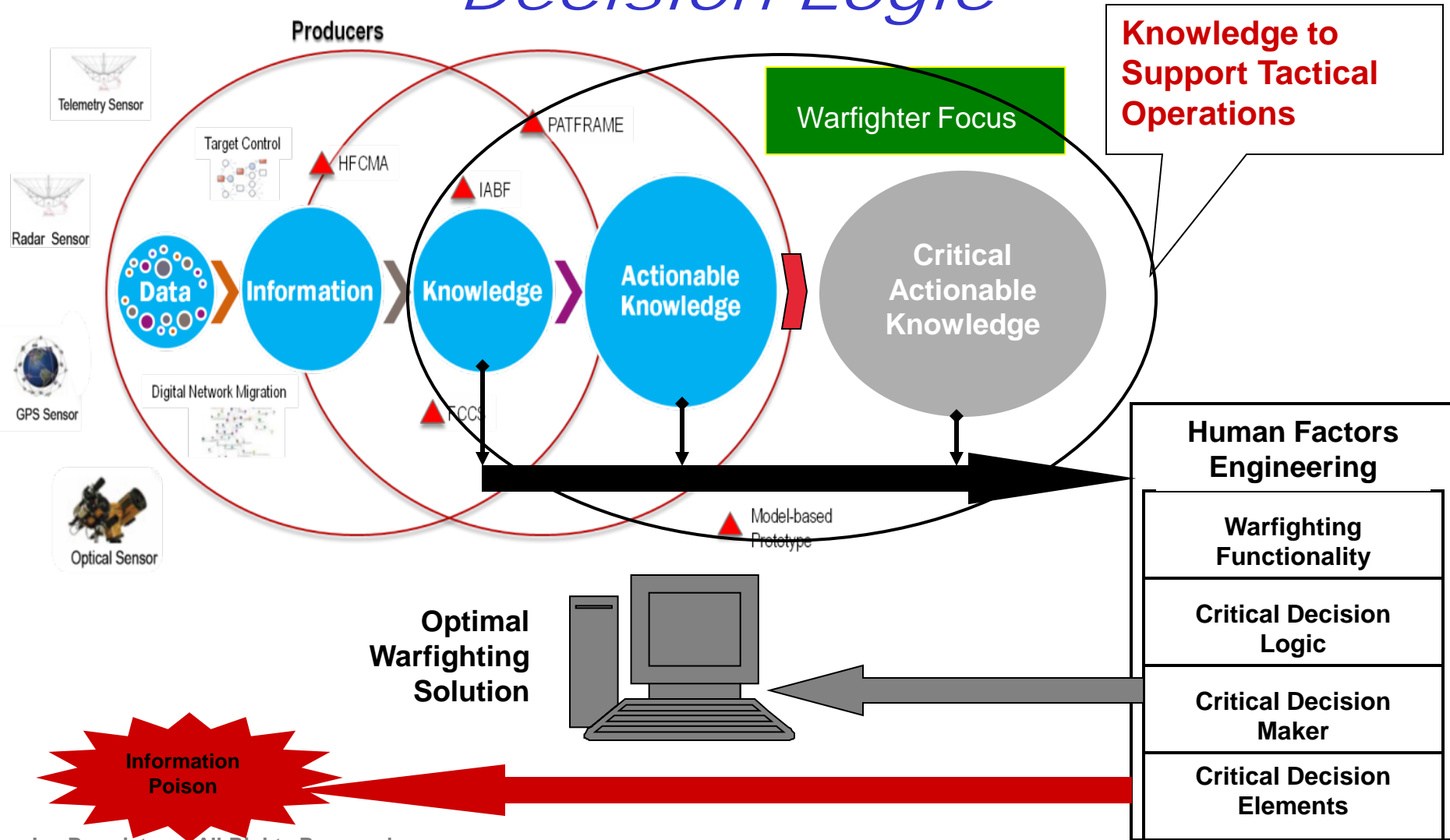
JCIDS Program Concepts



Understanding Capabilities, Requirements, and Logic Mapping



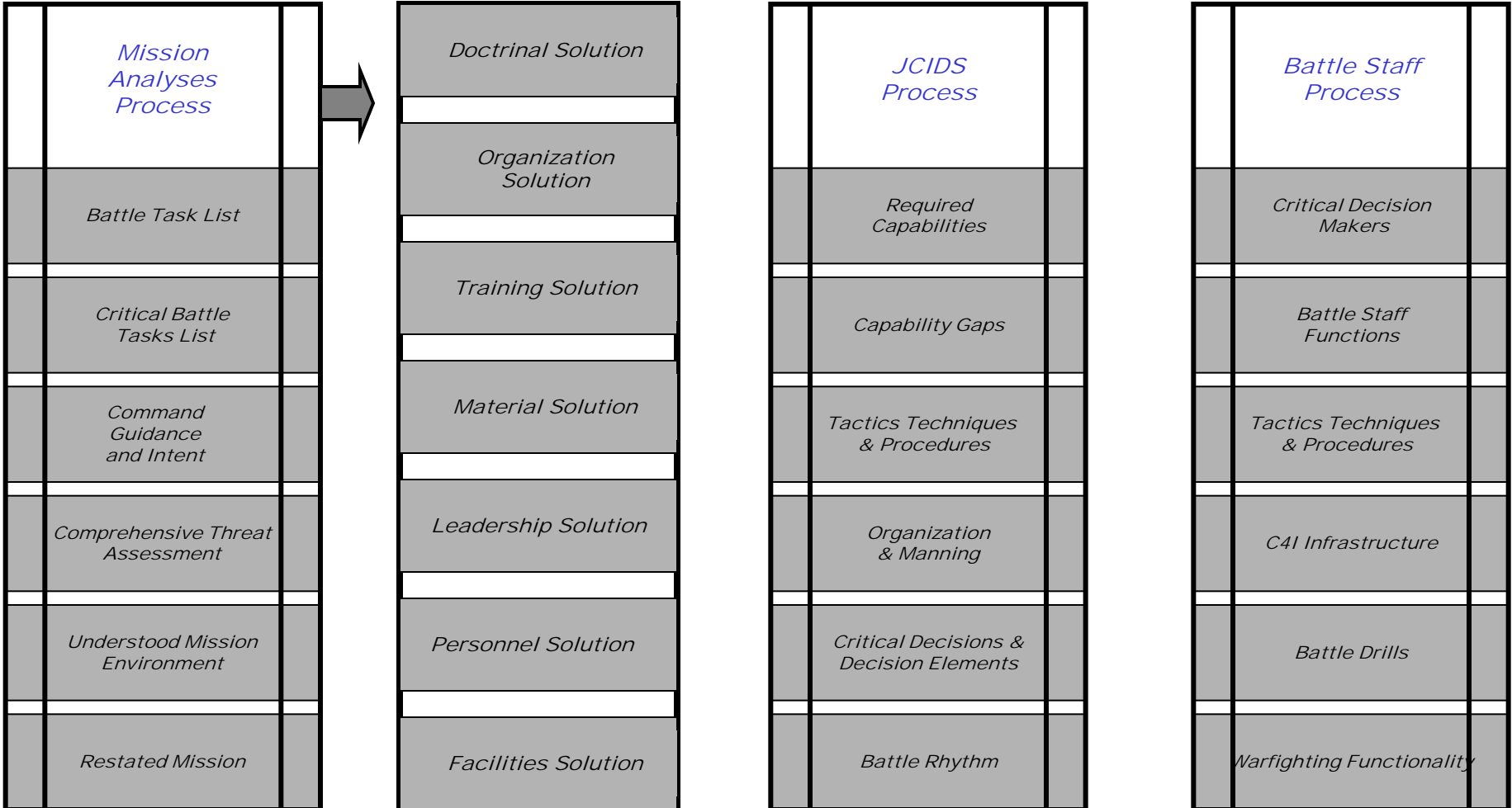
Critical Actionable Knowledge & Warfighting Decision Logic





Critical Mission Products / Processes

The Products and Processes Critical to RTC & NIE





Critical Mission Products / Processes

The Products and Processes Critical to NIE

<i>Mission Analyses Process</i>		
<i>Battle Task List</i>		
<i>Critical Battle Tasks List</i>		
<i>Command Guidance and Intent</i>		
<i>Comprehensive Threat Assessment</i>		
<i>Understood Mission Environment</i>		
<i>Restated Mission</i>		

<i>JCIDS Process</i>		
<i>Required Capabilities</i>		
<i>Capability Gaps</i>		
<i>Tactics Techniques & Procedures</i>		
<i>Organization & Manning</i>		
<i>Critical Decisions & Decision Elements</i>		
<i>Battle Rhythm</i>		

<i>Battle Staff Process</i>		
<i>Critical Decision Makers</i>		
<i>Battle Staff Functions</i>		
<i>Tactics Techniques & Procedures</i>		
<i>C4I Infrastructure</i>		
<i>Battle Drills</i>		
<i>Warfighting Functionality</i>		

<i>Evaluation and Test Planning Process</i>		
<i>Objectives of Test</i>		
<i>Asset Integration</i>		
<i>Test Design Plan</i>		
<i>MOPs</i>		
<i>MOEs</i>		
<i>Test Scenario</i>		