

Cross-Command Collaboration Effort (3CE)



3 October 2008

Purpose and Agenda

- **Purpose: Provide information on the Cross Command Collaboration Effort (3CE).**

- **Agenda:**

- **Background and Overview**

- **Capability**

- **Network**
 - **Knowledge Repository**
 - **Requirements Identification and Decomposition**
 - **Systems Engineering Process**
 - **Documents: Processes and Procedures**
 - **Planning: Cross Command M&S Investment Strategy**

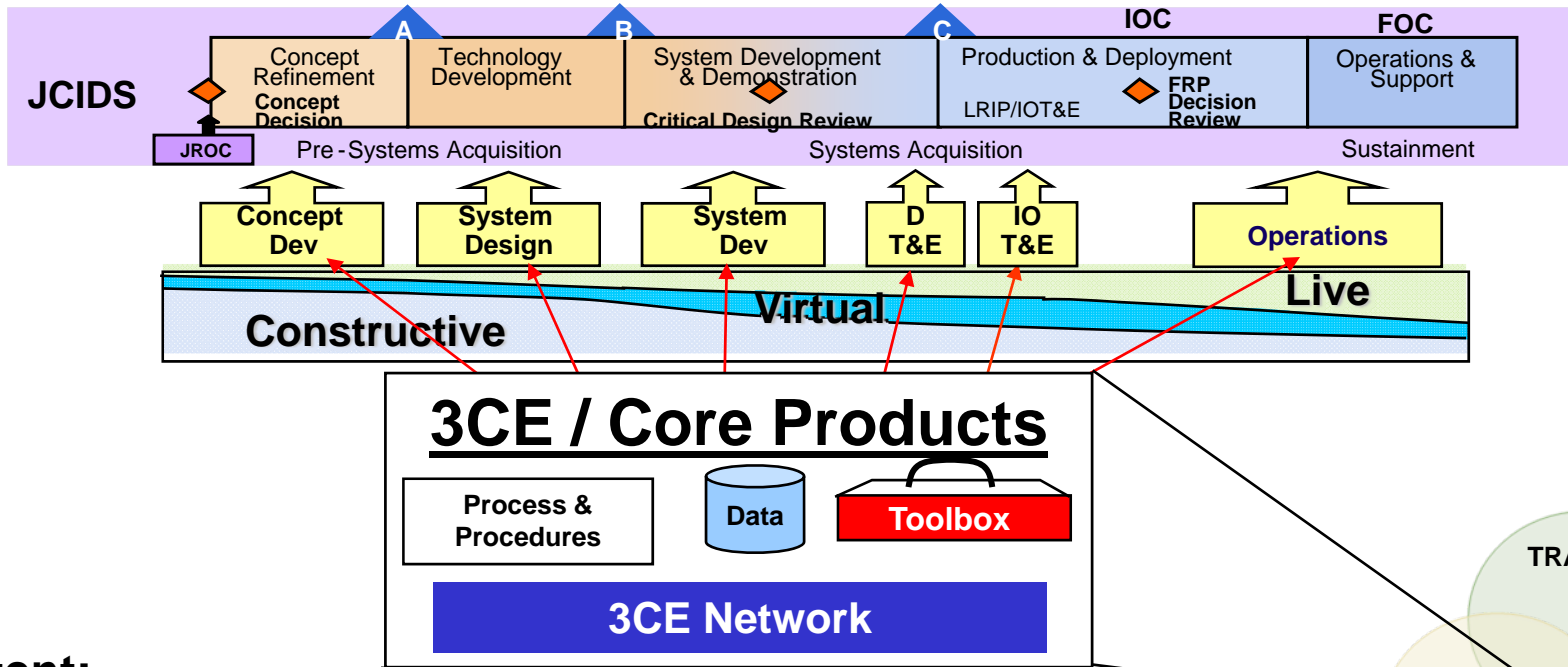
- **Application**

- **FCS Spin Out**
 - **Tools**

- **Summary and Way Ahead**

What ... 3CE Mission and Intent – Unique Capability

Mission: Develop a cross command Army M&S and data environment for design, development, integration, and testing of capabilities, systems, and prototypes.



Intent:

Key Tasks: Identify, develop, and maintain a **core set of M&S tools, data, and business processes** that provide interoperable connectivity that links the participating organizations, to include providing a common 3CE environment and expertise for the Army to leverage.

End State: A 3CE **environment that meets the common requirements** of all three commands and Army PMs to conduct distributed DOTMLPF development.

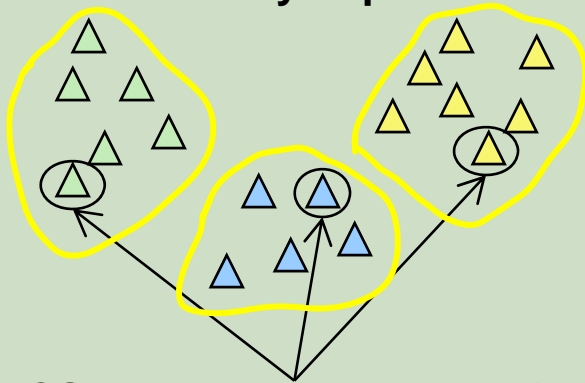
Program Life Cycle Support ... a Paradigm Change

The 3CE is focused on **identifying and developing** an M&S environment that meets the **common requirements** of all three commands and PM FCS BCT to conduct distributed DOTMLPF development.

Current Operations

There are numerous, independent command analytic activities.

MoM decomposition is a basic component of the analytic process



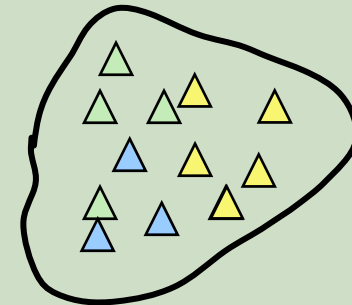
PM FCS may leverage some of these activities in support of time sensitive, **program specific decisions**.



The independent activities lead to discrete tool (e.g. M&S) capability development; sufficient to satisfy the immediate decision requirement and often not capable of supporting reuse requirements.

Future Operations

Integrated analytic activities conducted IAW standard operating procedures.



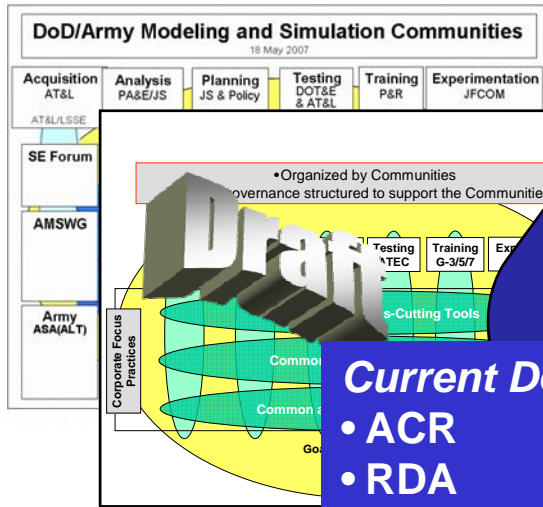
PM FCS leverages 3CE to develop a reusable M&S environment that is capable of supporting **life cycle program decisions**.



Standard processes, procedures, and a common M&S environment provides the means to conduct more integrated and collaborative DOTMLPF development.

3CE is the agent of change

3CE ... How is This Effort Different?



Current Domains

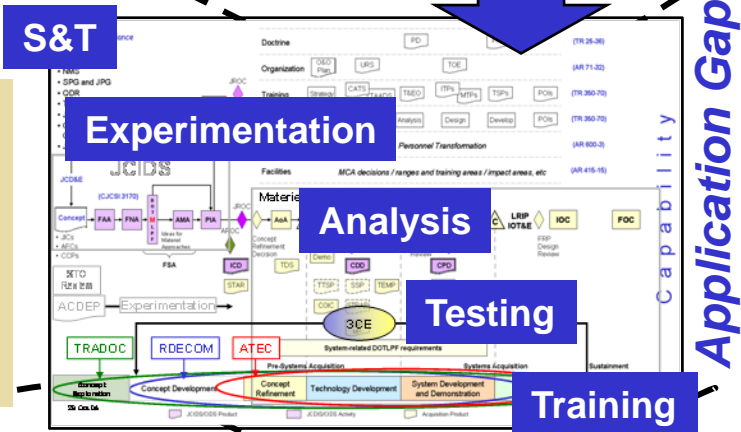
- ACR
- RDA
- TEMO

Problem: At DoD, Joint, and Service level, there exist M&S concepts, strategies, and policies to enable an “integrated M&S and data vision” ... no resources are allocated for delivering an integrated solution set across the program lifecycle – currently have stovepipe solutions for S&T, experimentation, analysis, testing, and training.

Application Gap

COA: To fill the “gap of integrated solution application,” 3CE enables:

- Horizontal integration across M&S communities.
- “Fuzed application” of M&S and data solutions.
- Program lifecycle application
- Cooperative implementation – 3CE Network.



Envisioned Benefits of 3CE to...

The Army

- Provides consistent representation through common tools and data IAW established standards and best practices.
- Provides the capability to leverage a single event for multiple purposes.
- Provides and develops environment capabilities that are traceable to user needs and design requirements.
- Enhances current M&S capabilities and reuse.
- Provides a leave behind capability to support future SoS acquisition programs.

<u>ATEC</u>	<u>RDECOM</u>	<u>TRADOC</u>	<u>Program</u>
<ul style="list-style-type: none"> • Provides a consistent environment for M-T-M • Reduces preparation time for a test • Provides reusable and consistent metrics from development to test • Enhances training proficiency on test equipment 	<ul style="list-style-type: none"> • Enables consistent data from field tests • Reduces the number of data requests • Enables leveraging operational capabilities for engineering and performance tests 	<ul style="list-style-type: none"> • Enables VV&A to test standards for M-T-M • Reduces time to obtain characteristic data from the program • Leverages multiple events for training • Provides a single environment for analysis, test, and training 	<ul style="list-style-type: none"> • Provides a single POC for GFX selection • Leverages command events for multiple purposes • Reduces the M&S and data coordination requirements • Reduces funding for duplicative M&S efforts

Roles of 3CE

3CE will:

- Support FCS program acquisition decisions.
- Enable AETF application.
- Assess current capabilities to satisfy requirements; identify potential M&S solution providers and capability gaps.
- Integrate and configuration manage M&S capabilities that are common across commands into the Bliss-WSMR LVC environment.
- Provide a means to collaborate cross-command and cross-domain capabilities.
- Establish and share a set of standards, best practices, and expertise.
- Provide a leave-behind capability for future analytic, training, and testing support to acquisition programs.

3CE will not:

- Replace a command's unique mission roles and responsibilities.
- Replace a command's unique M&S capabilities.
- Replace a command's unique data capabilities.
- Impose 3CE capabilities on command unique missions.
- Operate, maintain, or manage a command's distributed network.

As the integrator of an environment, 3CE focuses on common and consistent capabilities to enable cross command collaboration, synergy, and reusability.

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3CE Network

- **Network**

- **Established 3CE network consisting 52 total nodes built from 4 “Command” networks**
 - **TRADOC- BLCSE (Battle Labs and Analysis Centers)**
 - **ATEC- ATIN (Test Centers)**
 - **RDECOM- DVL (Research labs)**
 - **PM LSI – Sys of Systems Integrated Labs**
- **Provides capability to conduct distributed experimentation, testing and analysis.**
 - **Extensible to other activities**
- **Provides collaboration services**
 - **VTC**
 - **Voice over IP**
 - **Data and file storage**
- **Persistent Network available 24/7/365**

Updating Network MOAs and Accreditation to support select Multi National participants in Army directed events.

3CE Network ... A Proven Capability

The 3CE network is a proven capability that has demonstrated success:

- Collaborative – facilitated SO1 planning and 3CE characterization activities
- Distributed – enabled distributed testing for 8 SO1 integration events
- Persistent – maintained greater than 99% availability
- Secure – accredited on the DREN and supported numerous events
- Extensible – linked BLCSE, ATIN, DVL, and SoSIL environments



Why the Need for a Knowledge Repository (KR)?

The 3CE KR is needed by multiple users to enable mission execution ...

3CE Team Members (Internal Users)

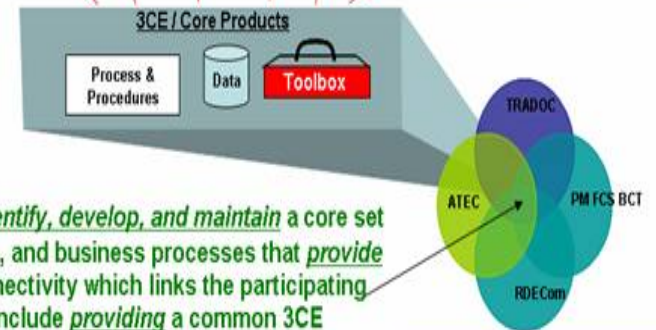
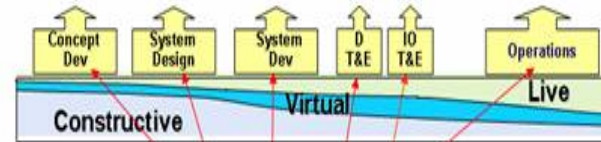
- Facilitate team member coordination
- Enable development, test, and integration activities relating to 3CE's mission and intent.
 - Enable Collaboration
 - Enable Document Sharing
 - Establish processes and procedures to ensure KR contains current and validated information

3CE Commands & PMs (External Users)

- Satisfy information needs
 - 3CE capabilities (tools, network)
 - 3CE processes
 - 3CE data
- Satisfy event coordination needs
 - Support the planning, development, execution, and reporting of events
 - Facilitate cross command data visibility and accessibility

3CE Mission and Intent

Mission (Vision): Develop a cross command Army M&S and data environment for design, development, integration, and testing of capabilities, systems, and prototypes.



Intent:

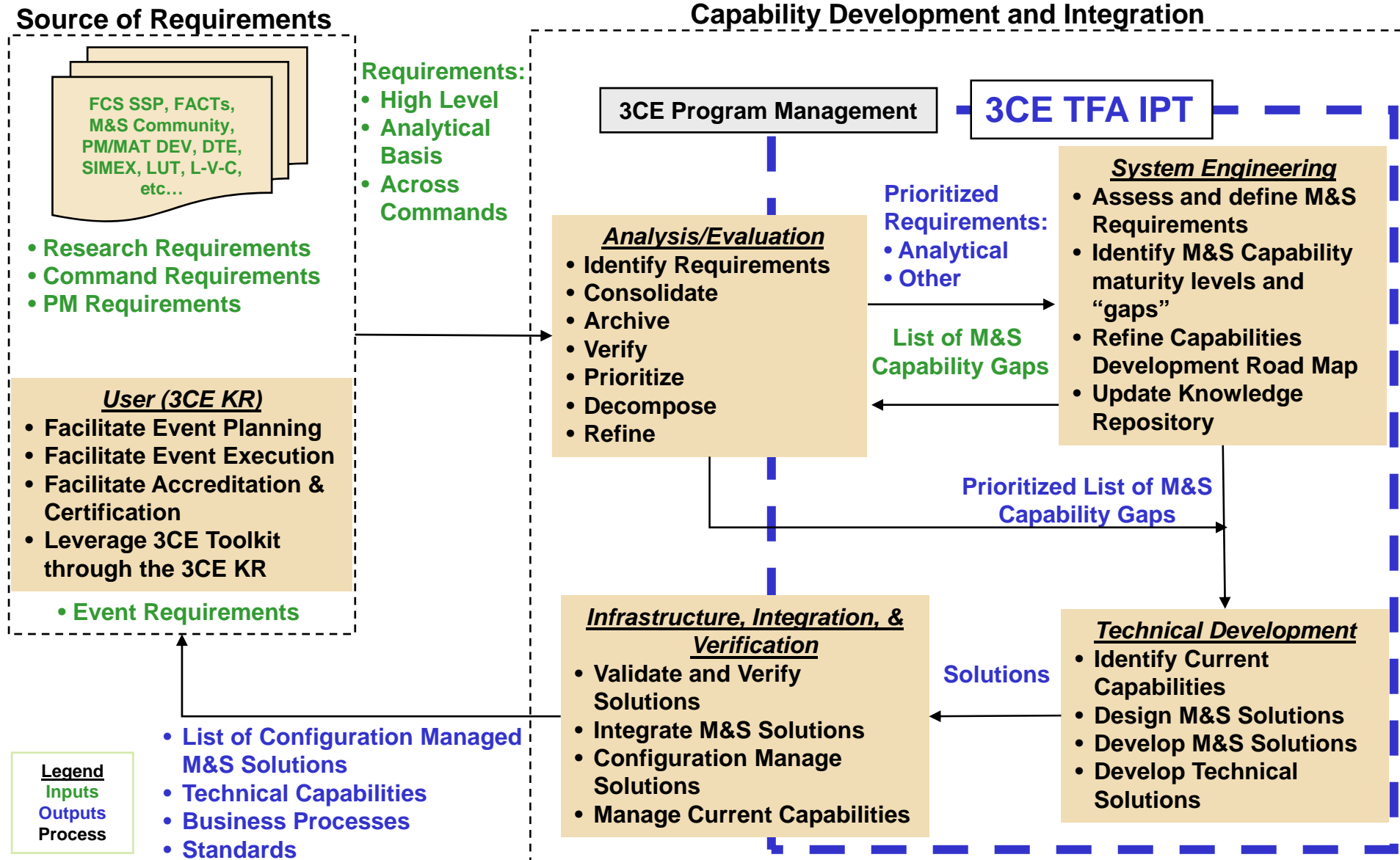
Purpose: Identify, develop, and maintain a core set of M&S tools, data, and business processes that provide interoperable connectivity which links the participating organizations, to include providing a common 3CE environment and expertise for the Army to leverage.

End State: A 3CE environment that meets the common requirements of all three commands and PM FCS BCT to conduct distributed DOTMLPF development.

... its demand has a proven reputation for enabling mission success.

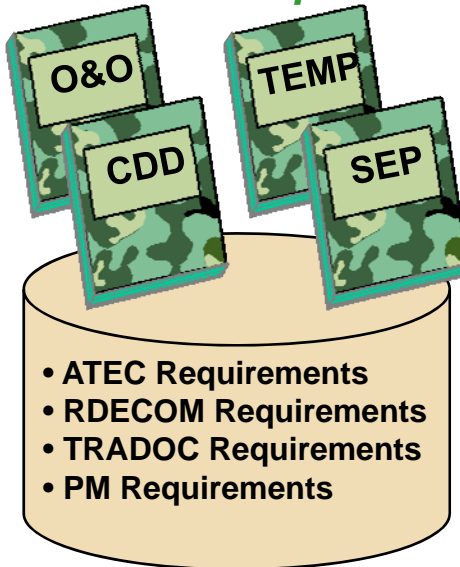
How do We Function? ... 3CE Overarching Process

The overarching process describes how 3CE will execute its mission...



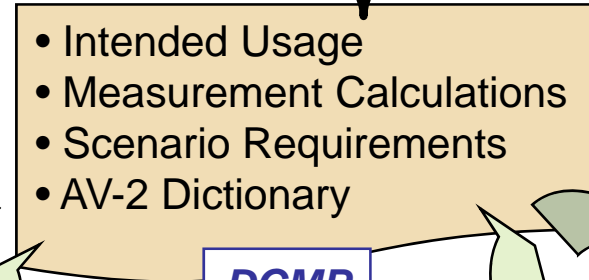
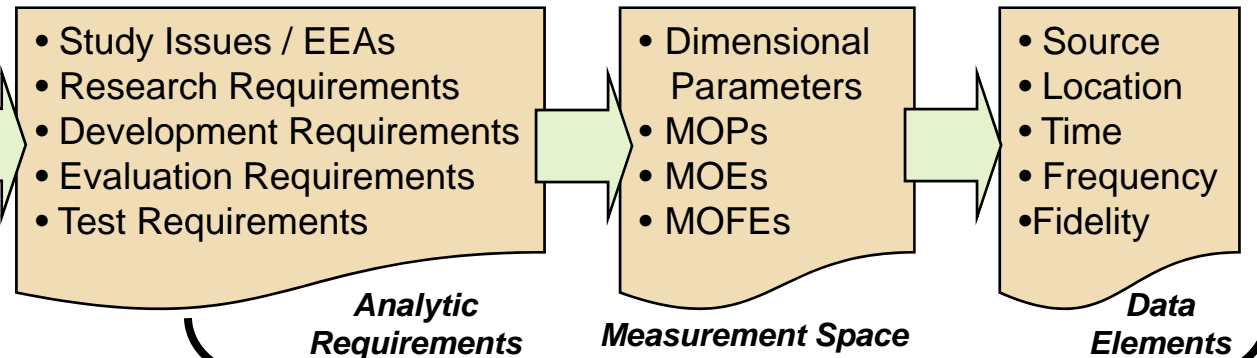
Analyst/Evaluator Requirement Decomposition

Authoritative Source Documents for A/E Requirements



Database of Prioritized A/E Requirements (DOORS)

Decomposition Process



Enable M&S capability gap determination.

Provide measures to Users



Refined requirements from user planning and execution.

Refined data element fidelity.



Legend
 Inputs
 Outputs
 Process

Requirement Types

User Requirements

CDD/ORD Requirements

Ends

Verify that the material solution must be capable of detecting a minefield 90% of the time.

Mission Need

A/E Requirements

Analytic Requirements

Ways

- **MOE/MOP**
 - # of mines detected
 - % of mines detected
 - # systems destroyed
 - % of systems destroyed

Capability

M&S Requirements

Capability Requirements

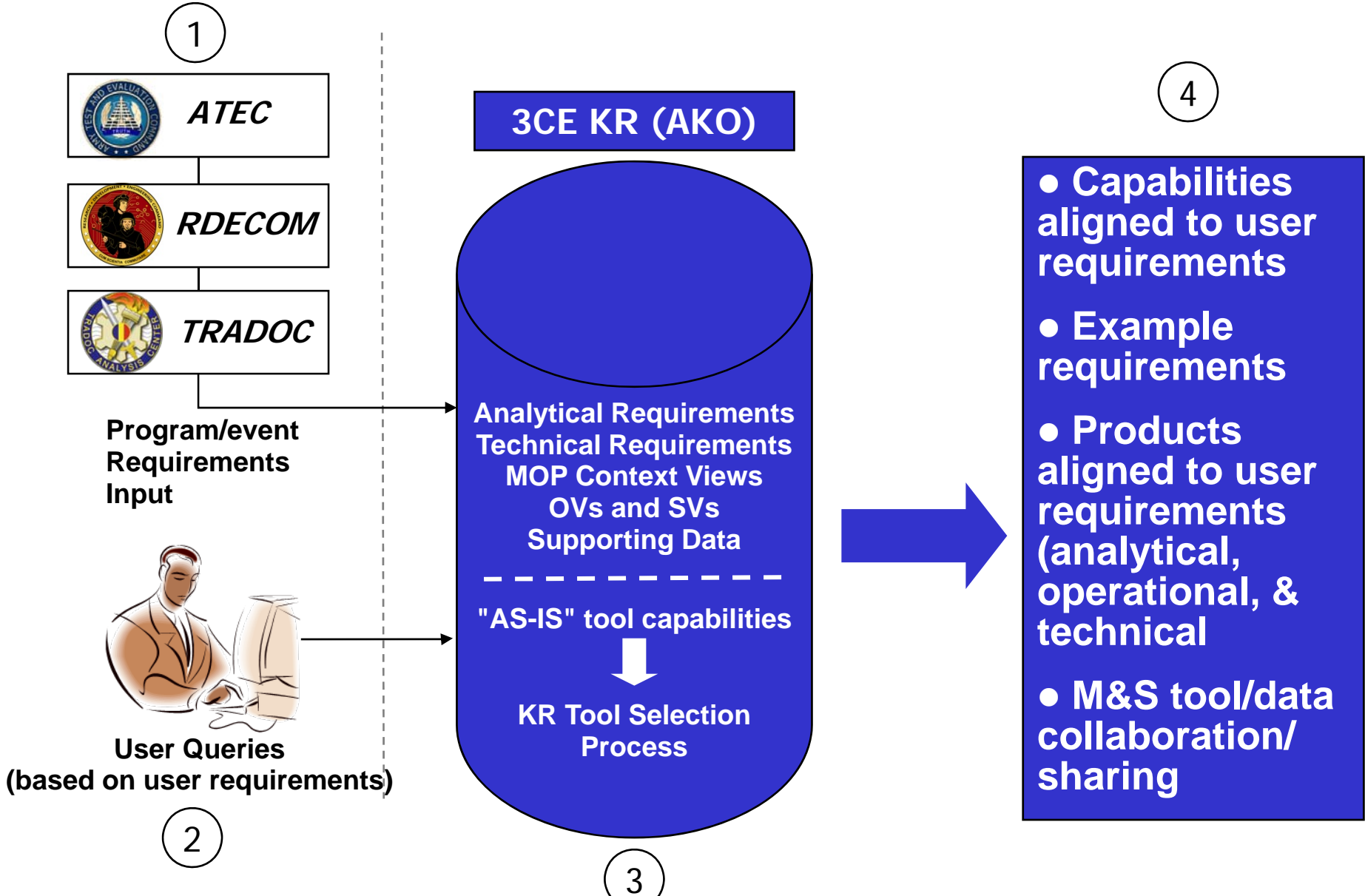
Means

The test system shall simulate minefield detection and breaching.

Requirement

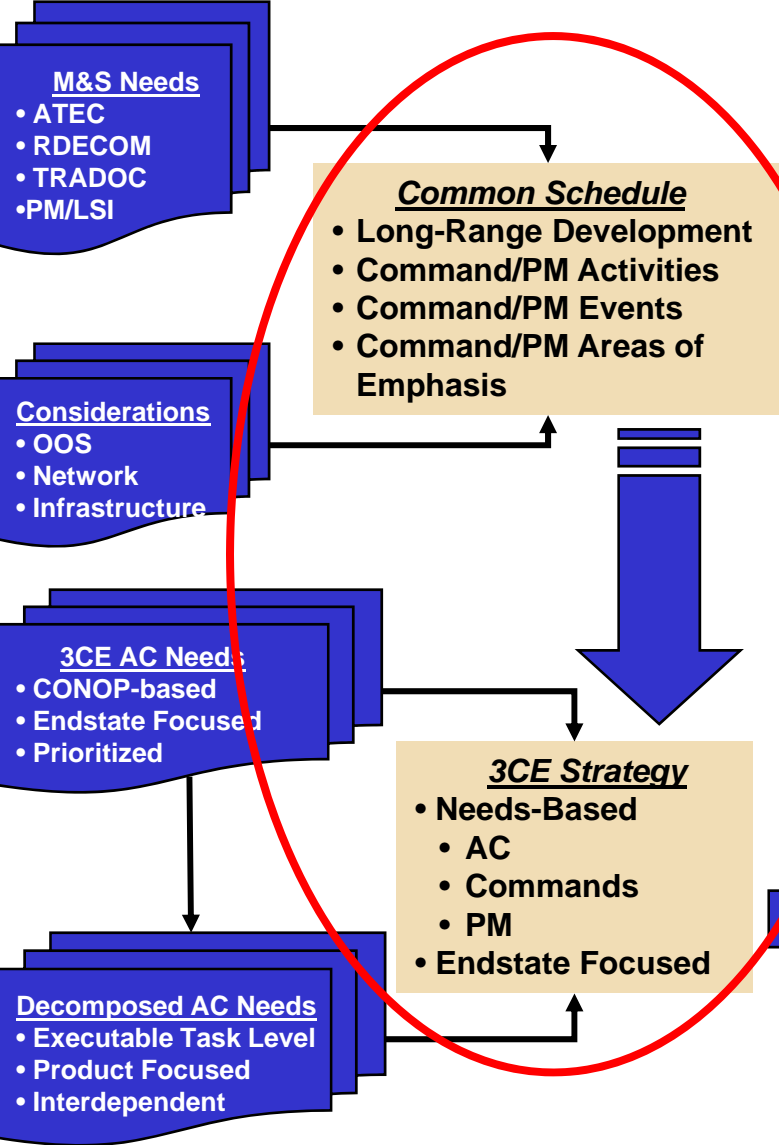
What “requirements” are we identifying?

Tool Selection Using the 3CE Knowledge Repository

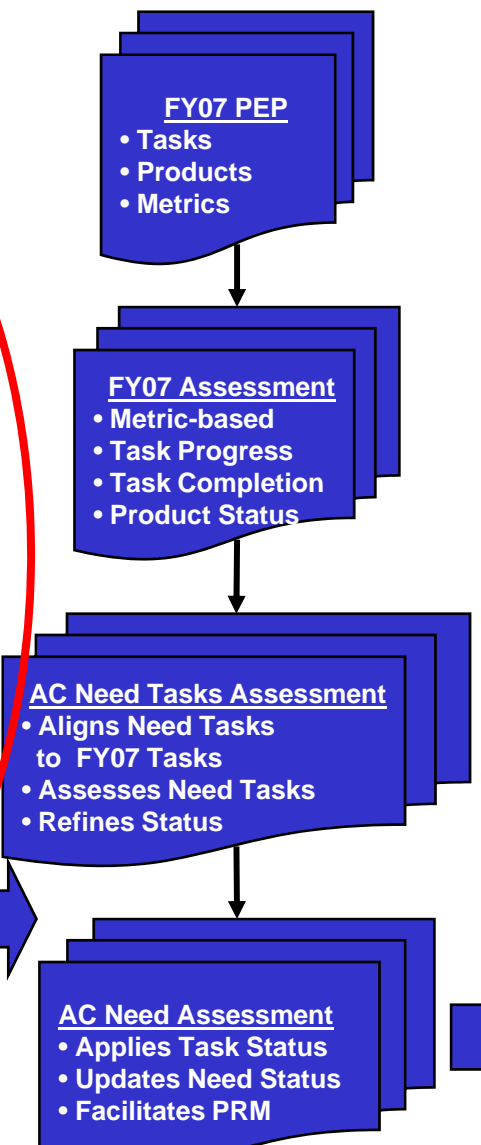


How Do We Involve the M&S Community?

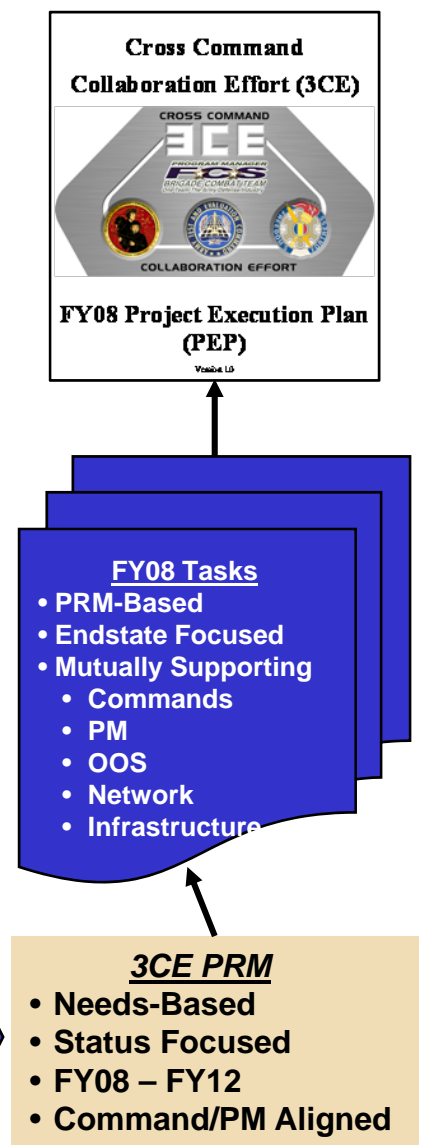
1 Endstate



2 Current State



3 Future State



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Accomplishments to Date for FCS

Event Support

– Experiment 1.1

- Linked over 3CE sites
- Provided live video and AAR for experiment
- Ability to share lessons learned throughout Army real time.

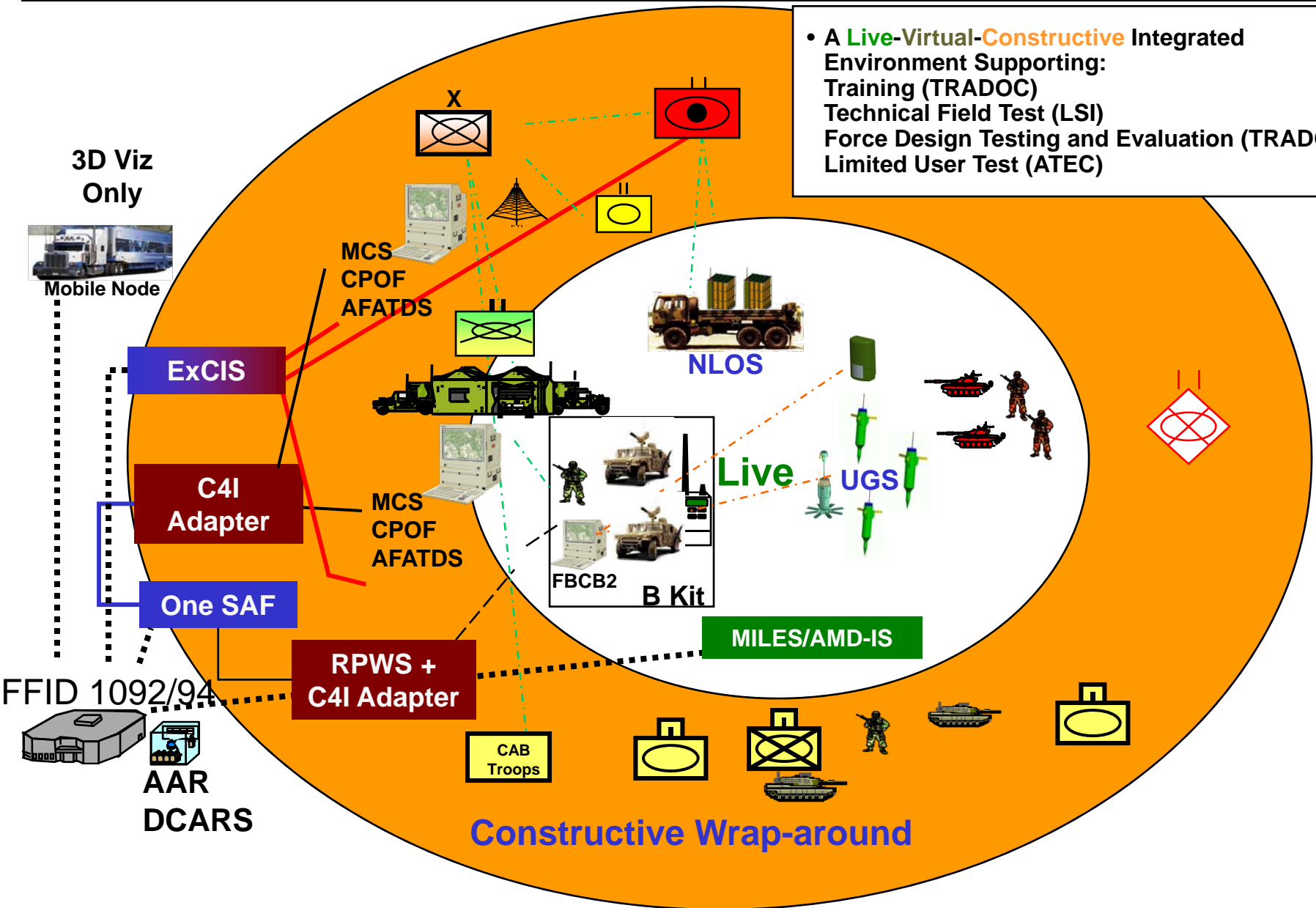
– SO simulation federation

- Identified requirements
- Identified solutions
- Conducting integration to provide common solution to 4 events.

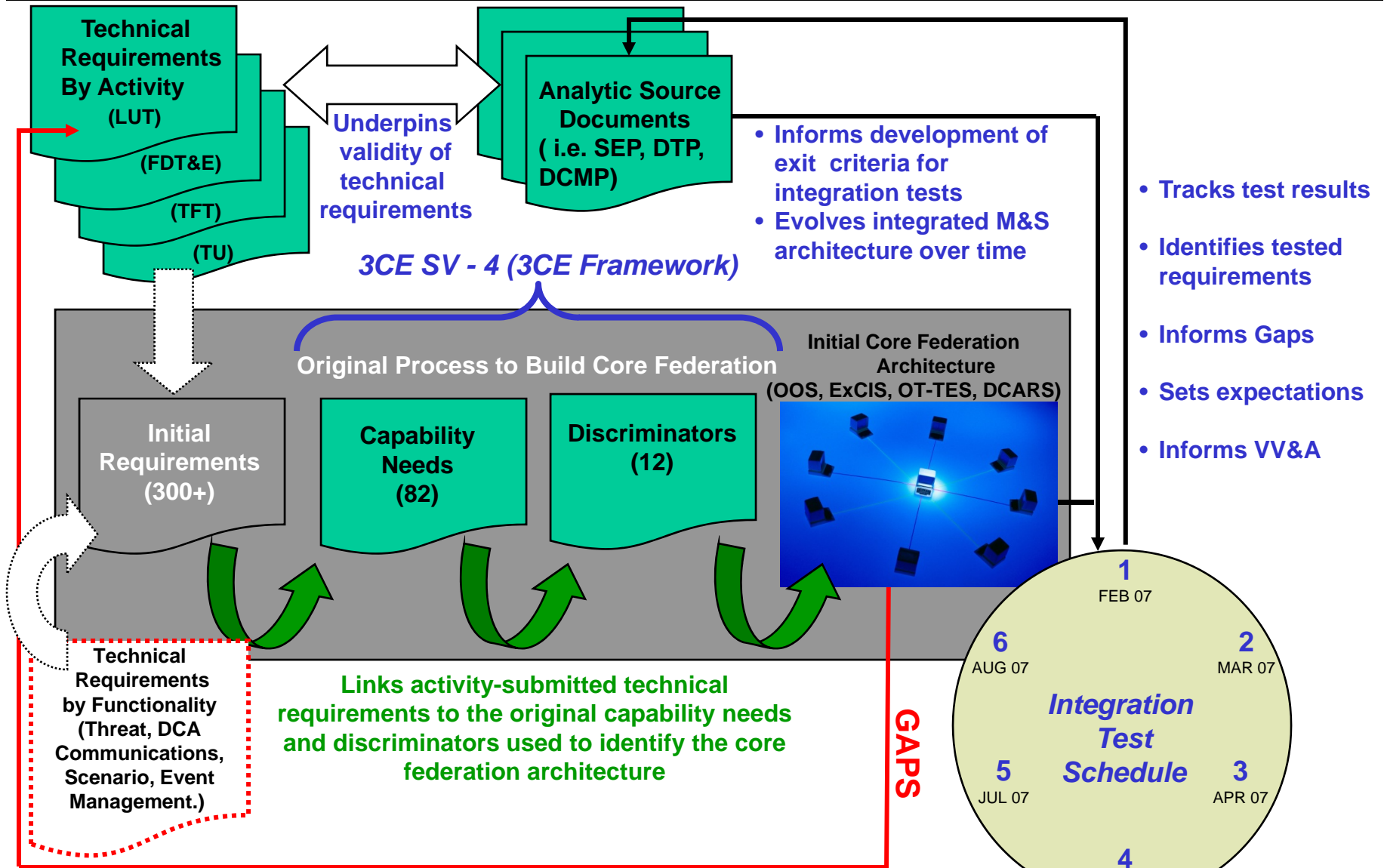
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An Applied Example ... 3CE Supporting SO

- A **Live-Virtual-Constructive** Integrated Environment Supporting:
 - Training (TRADOC)
 - Technical Field Test (LSI)
 - Force Design Testing and Evaluation (TRADOC)
 - Limited User Test (ATEC)



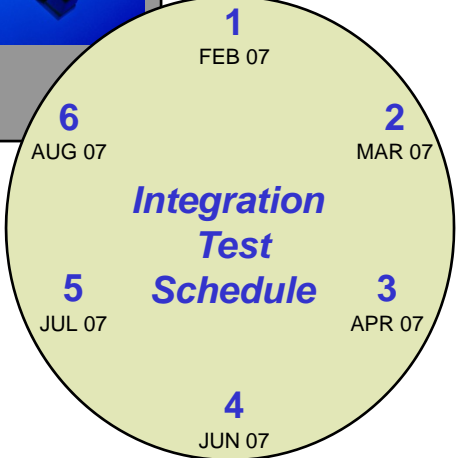
Enabling SO1 Integration ... Requirements Focused



Underpins validity of technical requirements

- Informs development of exit criteria for integration tests
- Evolves integrated M&S architecture over time

- Tracks test results
- Identifies tested requirements
- Informs Gaps
- Sets expectations
- Informs VV&A



Potential GAPS of technical requirements will inform the ability to achieve analytic requirements

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... through the activities in support of SO integration, 3CE will have an instantiation of this capability to support future user activities across the Army.

- Provide a core federation with supporting functional, interoperability, event management, and data collection and analysis tools.
- Provide an accessible knowledge repository that provides the processes, procedures, standards, and expertise to leverage 3CE capabilities.
- Provide a persistent and secure network that enables collaboration and interoperability across the commands and the PM/LSI.