JIEDDO Test Board (JTB) Information/Knowledge Sharing Project

Scot Miller, Naval Postgraduate School

Sue Hutchins, Naval Postgraduate School

Chuck Deleot, Science Applications International Corporation

Agenda

- Historical Context and Background

- Hypothesis and Research Approach

- Research Findings and Recommendations

- Potential Follow-on Research

JTB History

- Formed in 2004; predates larger Joint IED Defeat Organization (JIEDDO)
- Initially focused at Yuma Proving Ground; for many years in complete react mode
- Formal roles assigned by DOD Directive 2000.19E in 2006
- Gradually added other ranges (China Lake, White Sands), laboratories (e.g., Point Mugu, Crane), and research activities (e.g., Georgia Tech, NPS, Draper Labs) to the enterprise

Historical Context

- NPS-JTB info exchange August 2009
  - JTB, NPS, SAIC
- NACCITEC assigned test director to NPS Master's program
- Group recognized potential info sharing issues amongst test research agencies and JTB testers
- Acting Director JTB directed info/knowledge sharing task to NPS and SAIC team
- Modest investment; started in April 2010

Hypothesis and Research Approach
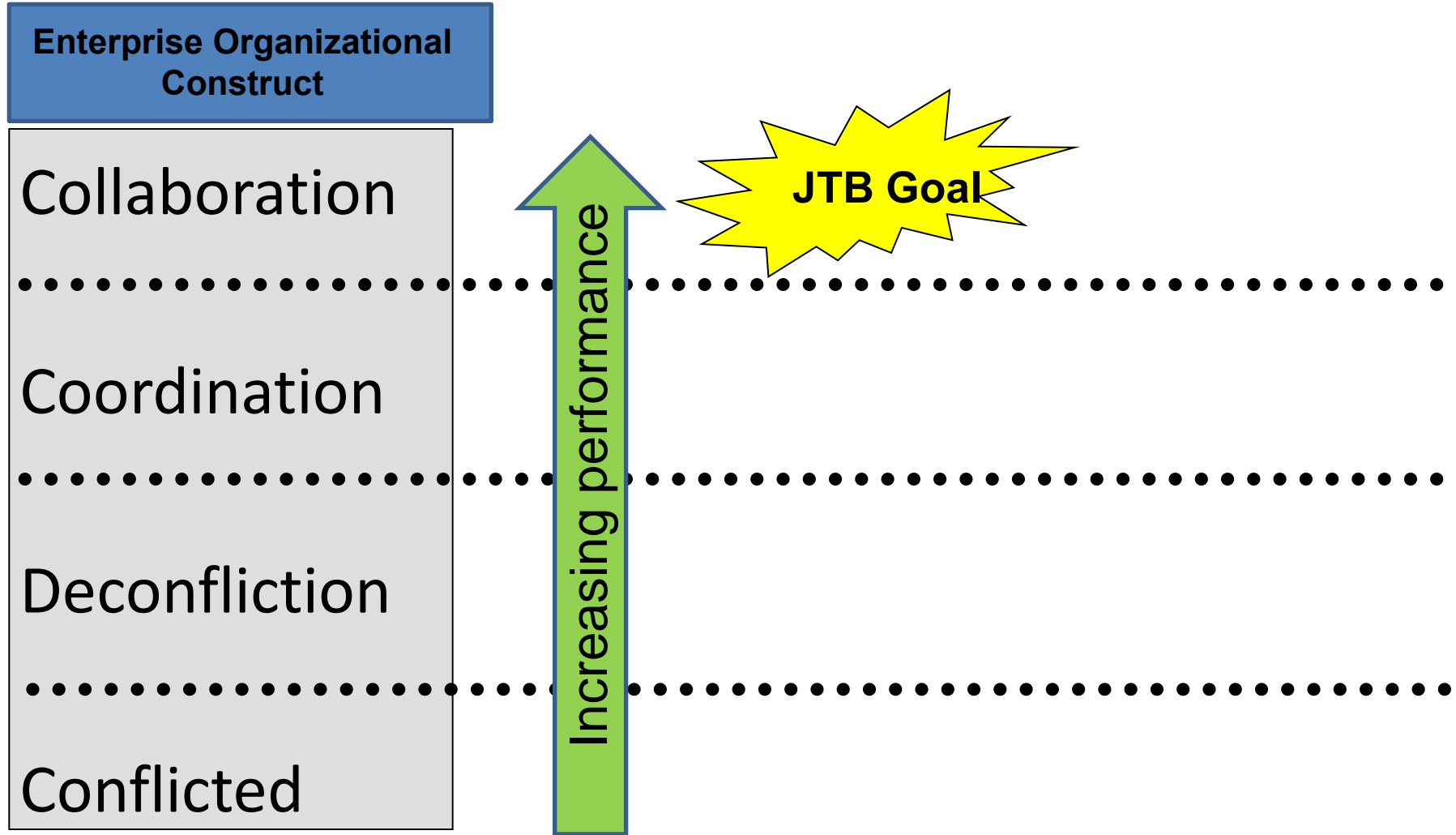
Original Hypothesis

By focusing on improvement of the management and availability of the JTB enterprise information resources (including an appropriate collaboration process and tool set) it is hypothesized that the test centers and supporting research organizations would support a more effective test process.

This process improvement would yield:

- Improved understanding of capabilities and limitations for the various IED defeat products

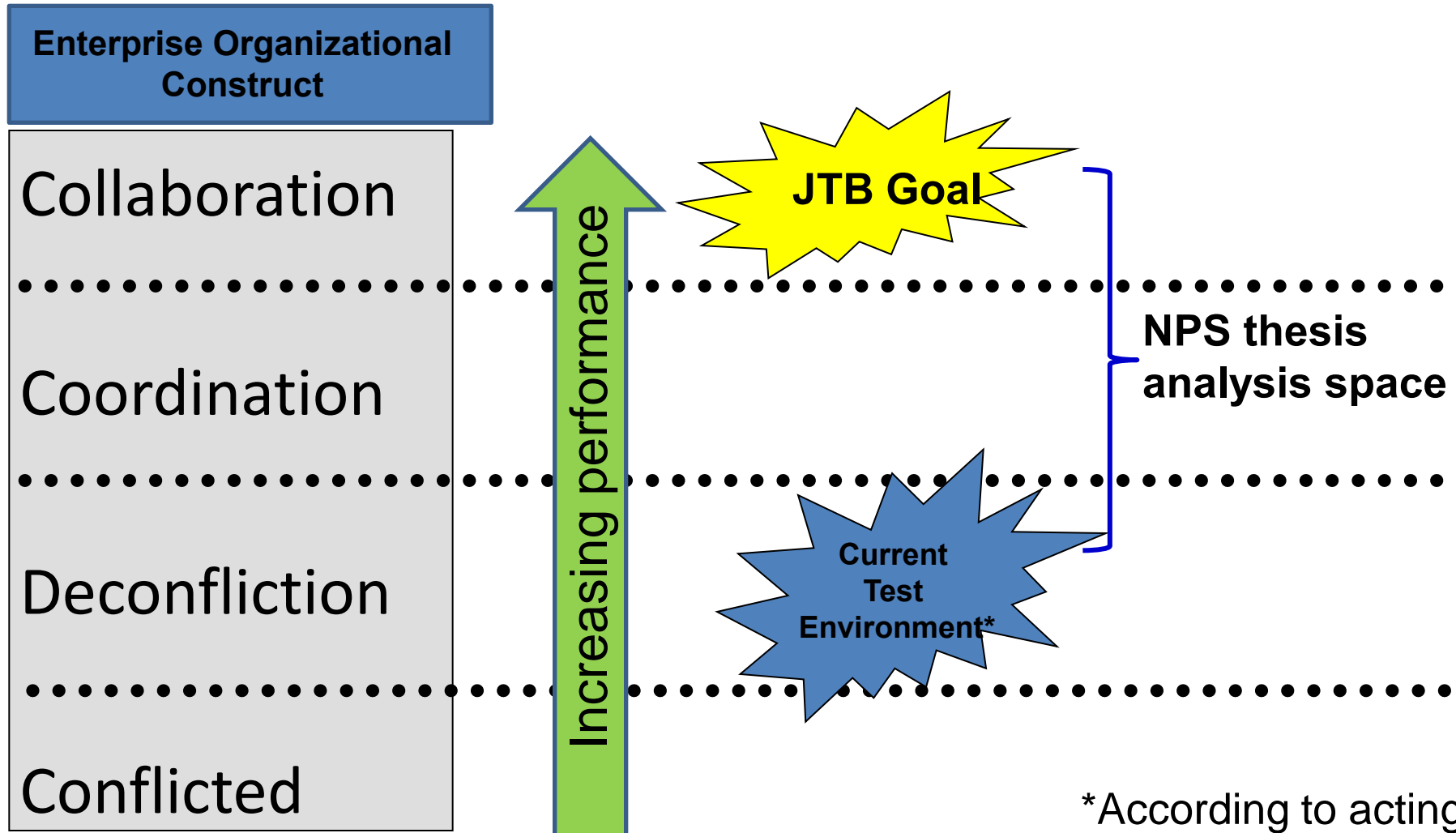- Lead to more effective IED mitigation in forward operating areas

Levels of Enterprise Effectiveness

Enterprise Organizational Construct

Collaboration

Coordination

Deconfliction

Conflicted

Increasing performance

JTB Goal

Levels of Enterprise Effectiveness

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JTB Goal

Current Test Environment*

NPS thesis analysis space
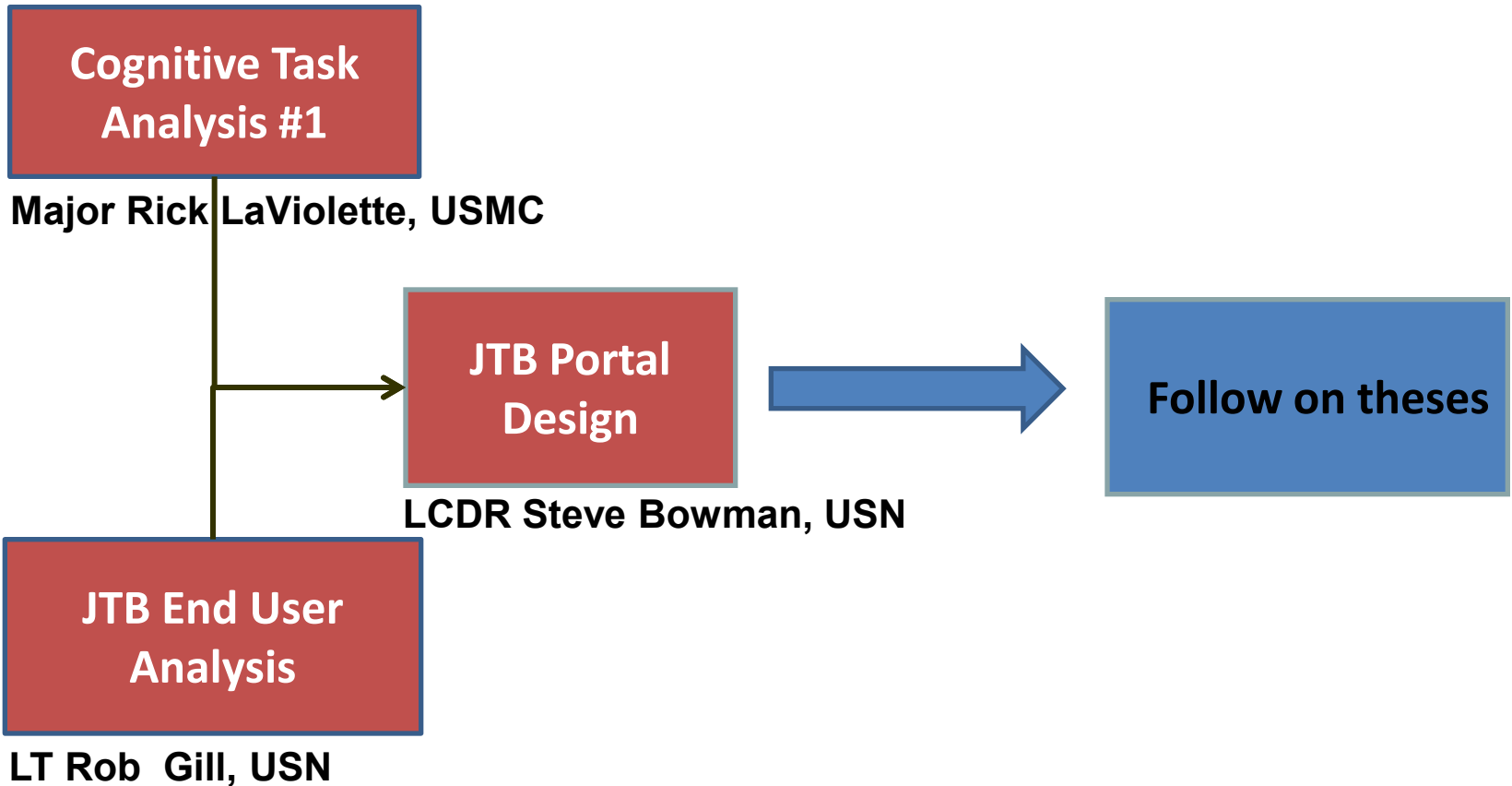
*According to acting JTB Director in 2009

Approach

- Use NPS students' Master's theses

- Access NPS research & faculty expertise

- Leverage cooperation and support from JTB KING, JTB staff, test sites, and recent operational deployers

- Execute campaign of theses designed to support continuous improvement

- Develop actionable recommendations for JTB implementation

Seek focused improvements in JTB resulting in faster and better mitigation of IED threat

Weaving Thesis Activity

Cognitive Task Analysis #1

Major Rick LaViolette, USMC

JTB Portal Design

LCDR Steve Bowman, USN

JTB End User Analysis

LT Rob Gill, USN

Follow on theses

Funded and completed (June 2011 graduation)

Awaiting funding (June 2012 graduates)

Examples from Literature Review

- Motivations for information sharing[1]
  - Intrinsic normative - sharing because one feels that it is the right thing to do
  - Intrinsic hedonic - sharing because it makes one feel good
  - Extrinsic - sharing in return for something of value
  - Implied enterprise information sharing challenge - different members are motivated by different permutations of the categories, the permutation changes for each member, and changes throughout the day

- DOD mandate[2]: "The exchange of information should be the rule, not the exception, in our efforts to combat the terrorist threat"

[1] Lam, A., & Lambermont-Ford, J. (2010). Knowledge sharing in organisational contexts: a motivation-based perspective [Electronic version]. *Journal of Knowledge Management, 14(1), 51–66.*
[2] National Security Council. (2007). National strategy for information sharing: Successes and challenges in improving terrorism-related information sharing. Washington, DC: Author.

Research Findings and Recommendations

JTB Well Positioned for Future

- **JTB-E has skilled and motivated personnel in disparate organizations; there is a wealth of embedded knowledge and expertise and distributed organizational capability**

- **JTB has a robust process for executing responsive T&E for RFIs**

- **Small investment to assess JTB Info Sharing is delivering process documentation and measurement, identifying information sharing impediments, and generating recommendations for improvement**

- **JTB Data Management Team Portal (DMT) initiatives form backbone for effectively managing distributed C-IED T&E**

- **Existing enterprise has potential to scale so as to incorporate robust T&E process for all service / agency / PM / and coalition**

JTB-e personnel care about the mission and the end user's success

RFI Process Activity Graph
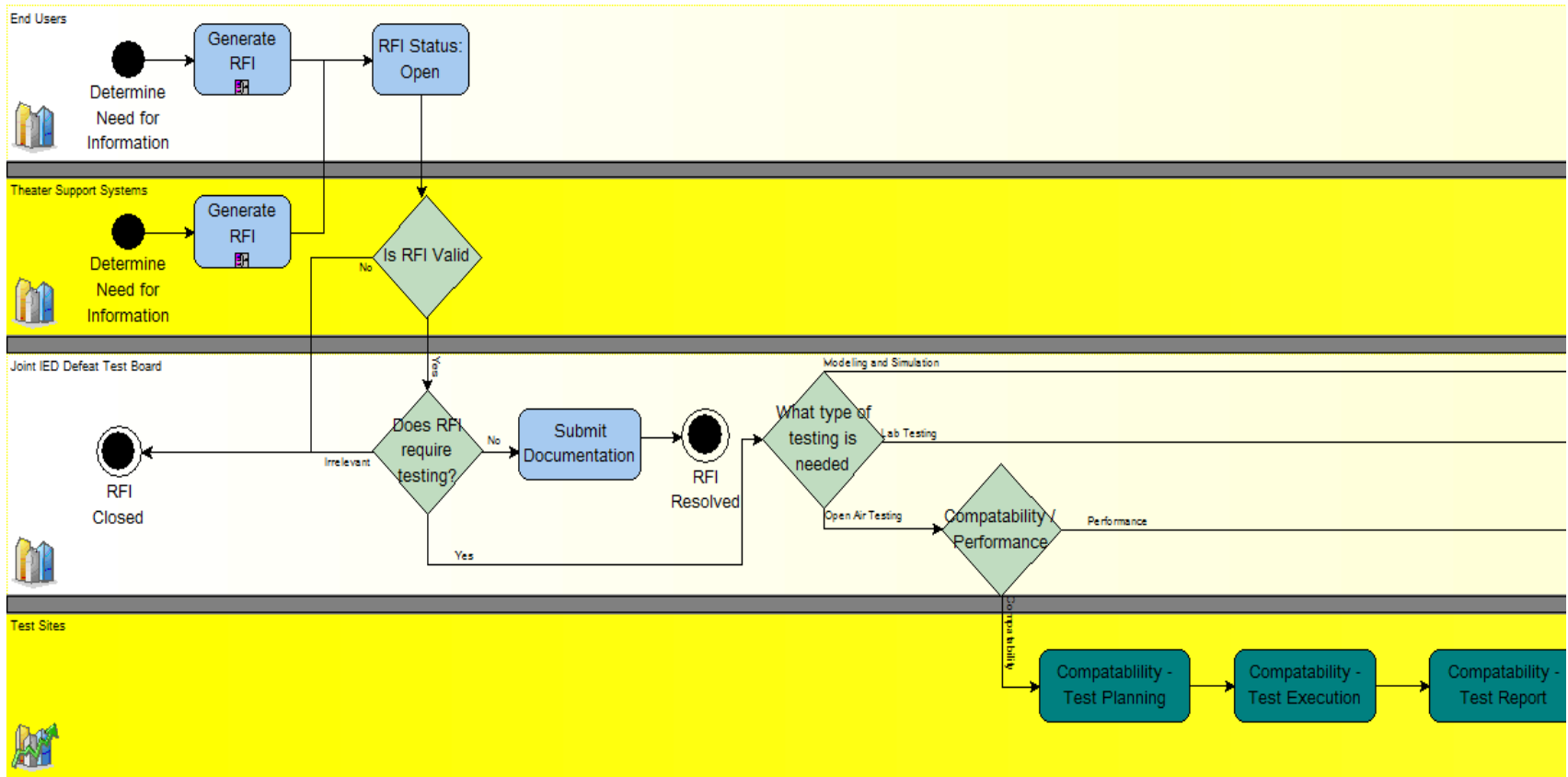
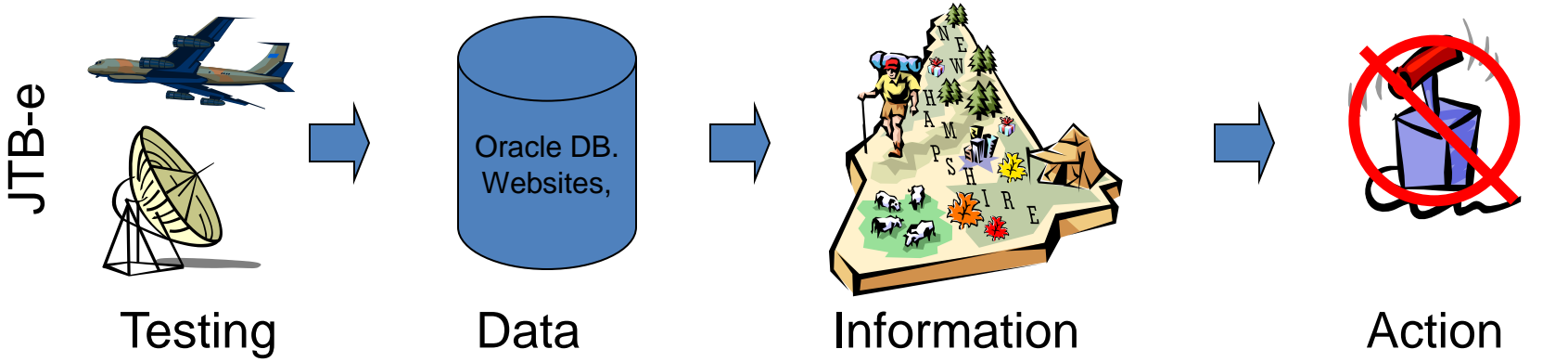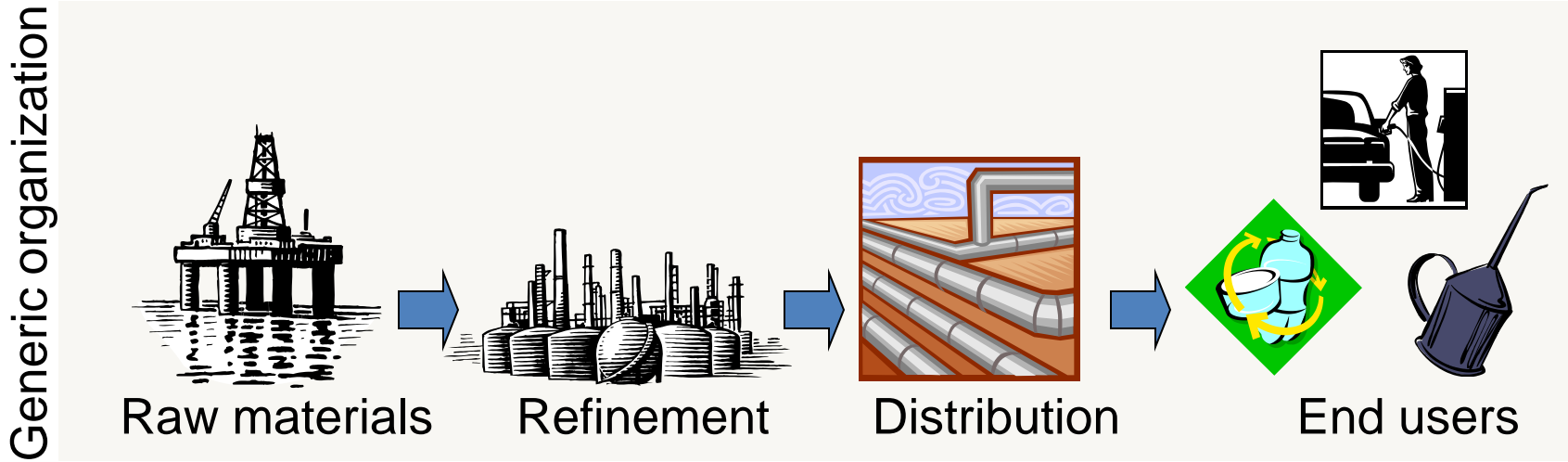Portion of JTB-e RFI Execution Activity Graph

The JTB-e is a knowledge creation, refinement, and delivery organization

Knowledge Strategy Pictured
Producing actionable information from raw data

Generic organization

Raw materials → Refinement → Distribution → End users

JTB-e

Testing → Data (Oracle DB. Websites,) → Information → Action

JTB KM Evaluation Results (min = 1, max = 5)

	People	Process	Technology
Culture	**2** Knowledge shared within parts of the JTB	**3** Workers want efficient processes	**2** Systems begin to open
Strategy	**2** KM strategy emerging and aligning with JTB goals	**2** Process improvement plan developing	**2** IT strategy considers KM
Competency	**2** KM champions emerge; Interest in KM training growing	**2** Workers consider process improvements	**3** Tool usage rises
Metrics	**2** The need to measure KM is considered	**1** No metrics to assess KM impact	**1** Any existing metrics used to measure output, not outcomes

Findings

Finding #1: Information sharing barriers exist between test centers

- Lack of trust based on working capital fund model and inter-service competition
- Absence of common information sharing tools for JTB-E
- Varying cultures, uncertainty about who the SMEs are at labs/test ranges
- Differing command structures (e.g., Navy labs led by Flag officer, Army test centers led by O-6s)
- Differing organizational structures
  - Navy lab mostly government employees, Army test centers mostly contractors
  - Navy labs are matrixed and competency aligned organizations, Army test centers line organized

Findings

Finding #2: JTB-E is a collection of independent organizations with a shared purpose but unshared organizational characteristics

- JTB and JTB-E used interchangeably, but they often are not
- JTB led by retired O-5, test centers/labs led by O-6/O-7
- Labs/test centers working capital funded; JTB mission funded
- Cultures vary across labs and test centers
- In many cases, promotion (and workers attention) is by competency, not by IPT (testing)

Finding #3: No enterprise awareness of IT strategic plan that aligns with KM strategy; no KM strategy exists

Finding #4: DODD 2000.19E requirements not met

- Lack of visibility remains for coalition, SOCOM, and other service/agency C-IED programs

Finding #5: No structured JTB-E policy/process that champions information sharing

– Billet shortfalls result in inability of JTB to meet information sharing leadership needs

Finding #6: Loss of continuity of theater personnel due to RIPTOA/turnover

– E-mails by person vice billet result in loss of key information sharing relationship

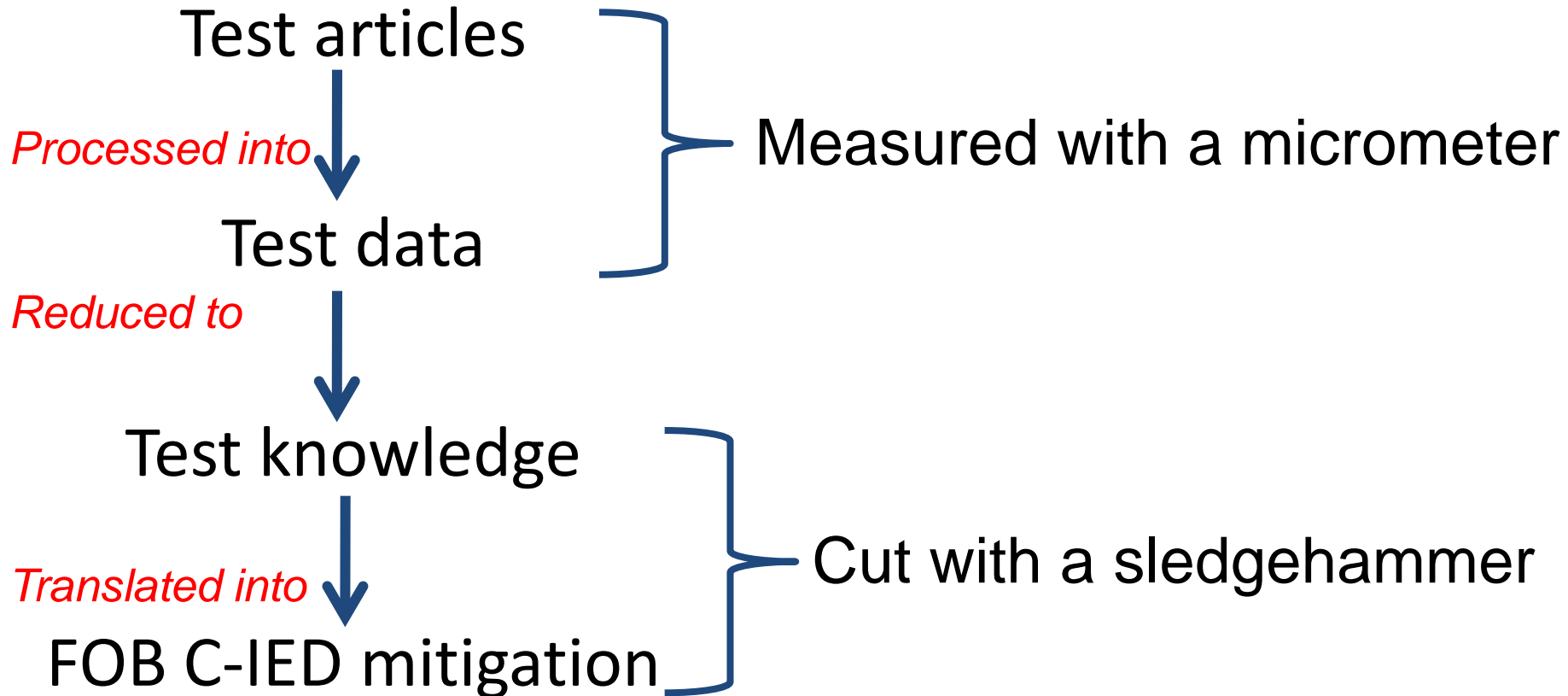Finding #7: JTB IT efforts and products have poor visibility with deployed users

- – No formal document captures the end-to-end process

Finding #8: Theater Web Support Tool unwieldy

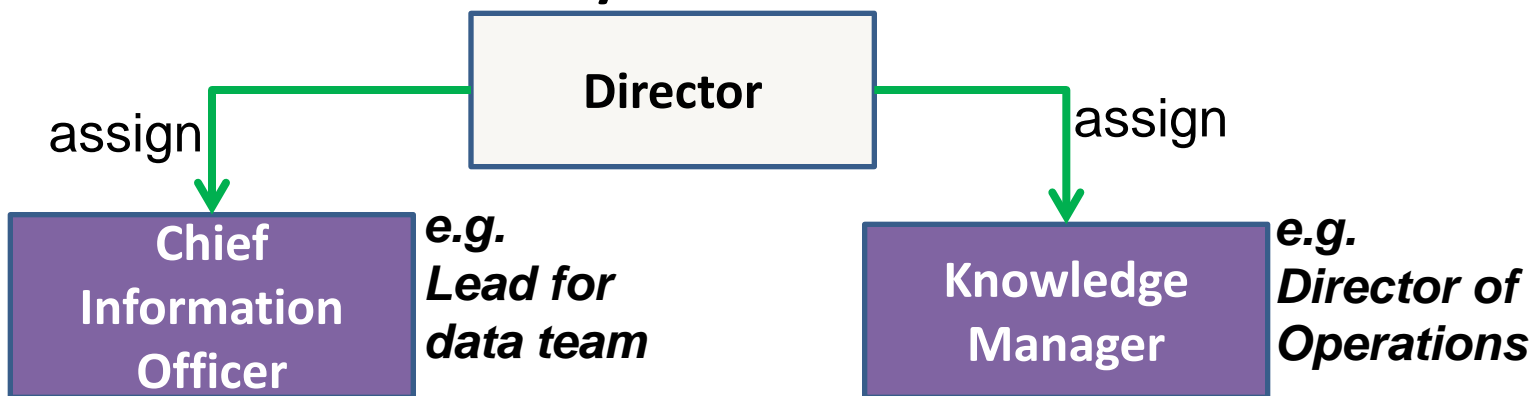- – Tabular layout makes it difficult to find answers

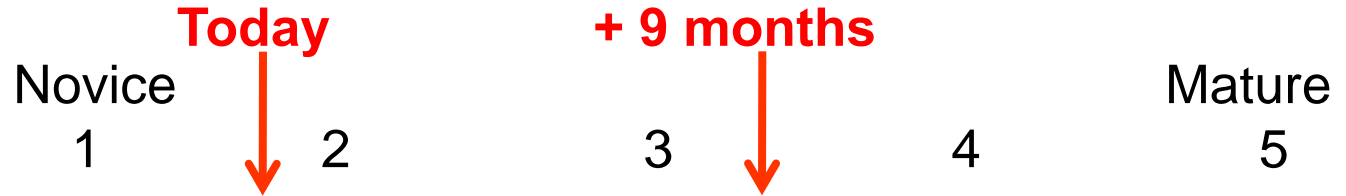# Observation: Information Content is Diluted in the Information Delivery Process

Test articles

Processed into

Test data — Measured with a micrometer

Reduced to

Test knowledge

Translated into

FOB C-IED mitigation — Cut with a sledgehammer

Summary of Recommendations

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                    ┌─────────────┐
        assign ─────┤  Director   ├───── assign
        │           └─────────────┘           │
        ▼                                      ▼
┌──────────────┐  e.g.          ┌──────────────┐  e.g.
│    Chief     │  Lead for      │  Knowledge   │  Director of
│ Information  │  data team     │   Manager    │  Operations
│   Officer    │                │              │
└──────────────┘                └──────────────┘
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- Meets requirements of Clinger-Cohen
- Draft IT strategic plan
  - Include services, SOCOM, and coalition in plan
- Obtain CIO certificate
- Develop MOPs
- With theater support team, evaluate operator info delivery channel
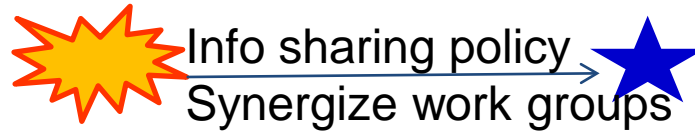 - Evolve TSWT
- Coordinate with JIEDDO CIO

- Meets requirement of AR 25-1
- Establish info sharing policy
  - Create information sharing incentives
- Develop MOEs
- Synergize working groups
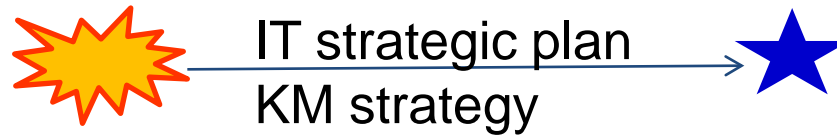- Restart range rat roundups
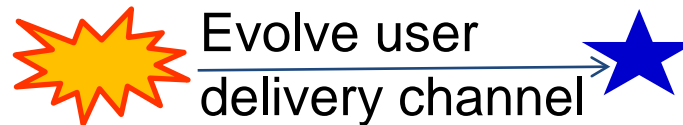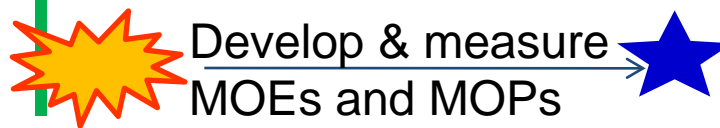- Coordinate with JIEDDO KM

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Back to KM Framework[1]

Today   **+ 9 months**

Novice   Mature

1   2   3   4   5

Culture   Info sharing policy
              Synergize work groups

Strategy   IT strategic plan
               KM strategy

Competency   Evolve user
                 delivery channel

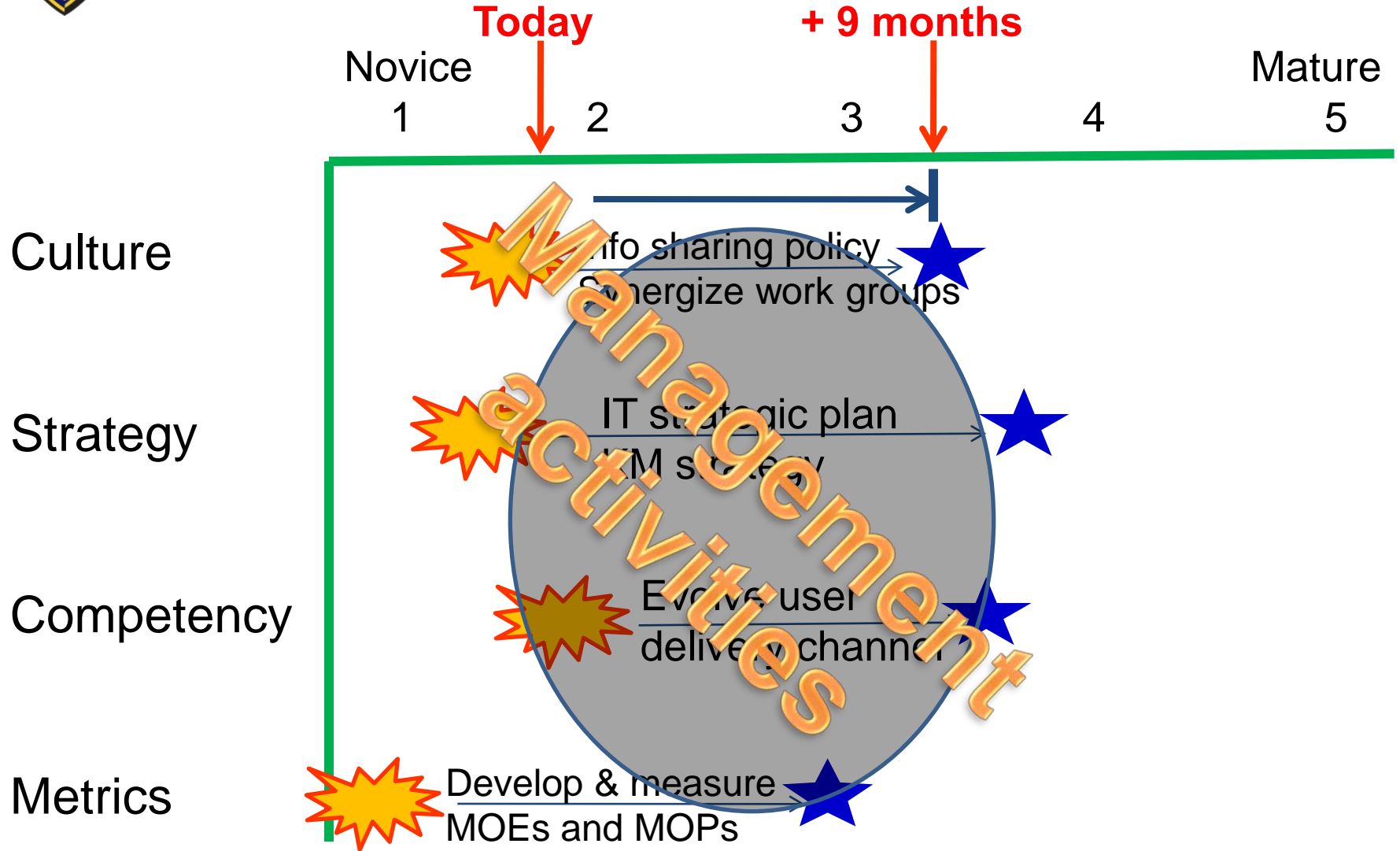**Metrics**   Develop & measure
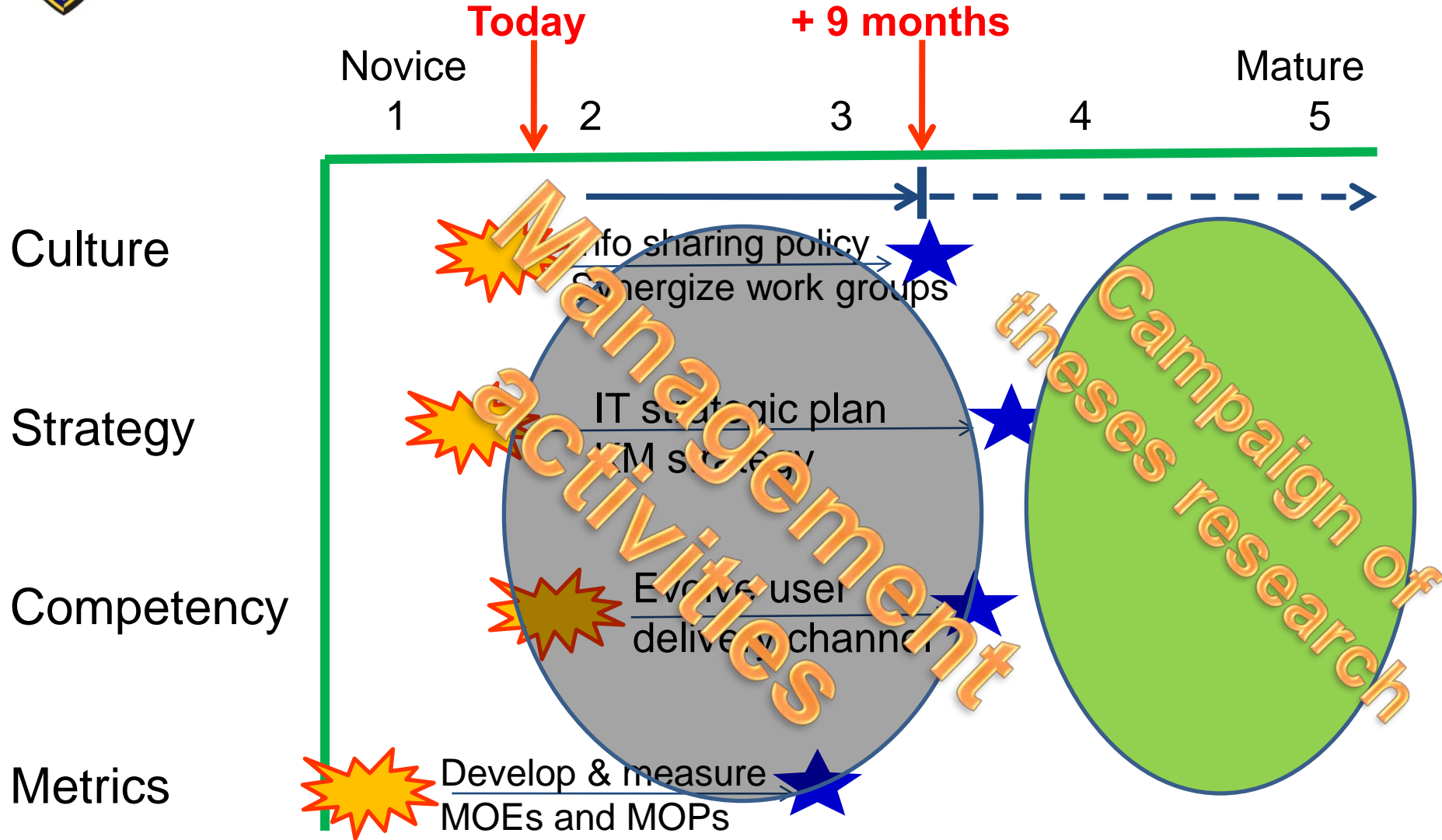   MOEs and MOPs

[1]Framework derived from AR 25-1
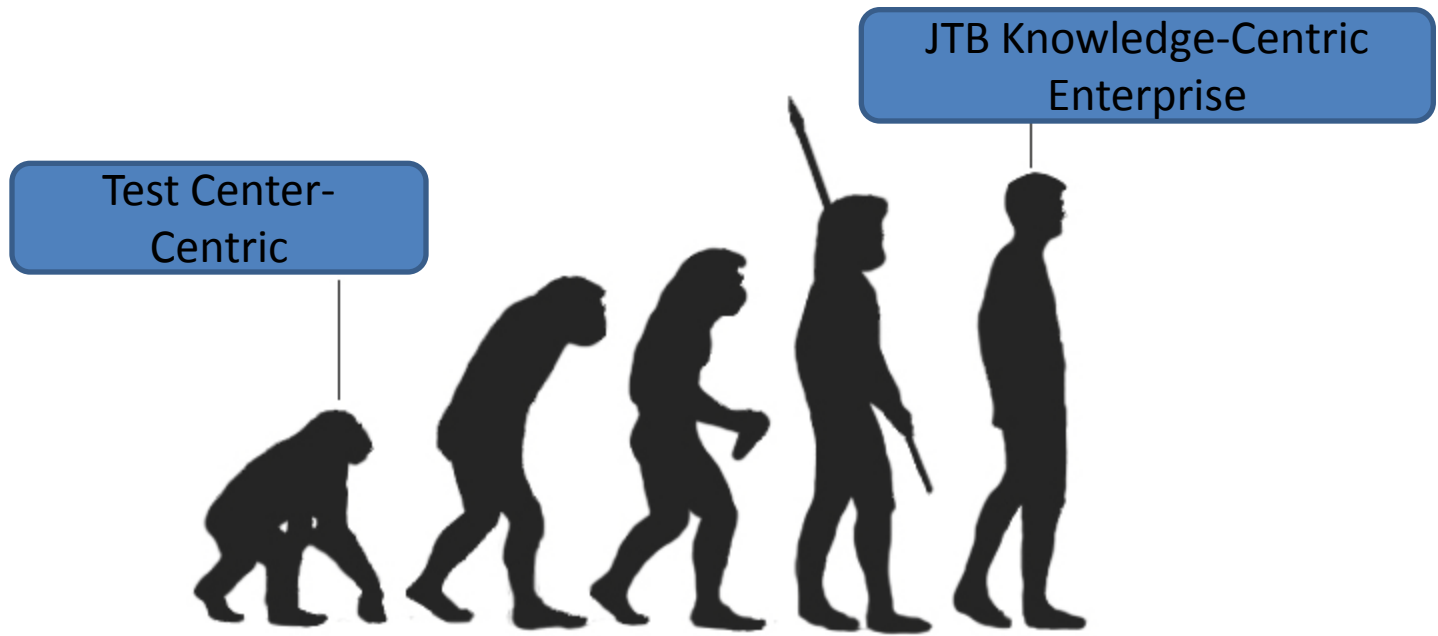
Back to KM Framework

Back to KM Framework

2011-2012 Campaign of Theses

1. Reuse CTA survey results, combined with AR 25-1 evaluation framework, to objectively review JTB-E KM maturity progress.

2. War in Afghanistan will wind down over the next few years, but IED threat continues to rise throughout the world. Demand for JTB services will not go away. How will JTB-E address delivering knowledge products to the end user in a new environment?

3. Identify coalition sharing opportunities and requirements.

4. Using HSI analysis in support of end user, improve near term delivery of JTB-E knowledge products and recommend future enhancements.

5. Apply state of the art 3-D visualization techniques to provide intuitive information-rich end user display for increased convoy planning effectiveness.

6. Apply most effective operations research techniques to assist deployed users with critical decision making for mission planning in an IED environment, based on available test knowledge.

7. Leverage thesis-obtained knowledge of end-to-end RFI process and associated model (ProVision) to support *what-if* analyses and investment decisions.
   - NPS maintain ProVision model of RFI process
   - Exploit Students/Faculty expertise to investigate investment alternatives and other assessment questions

Evolve and Improve or Perish