Knowledge Management for Agility

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Recognize the need to build on objective (scientific and logical) knowledge to provide decision makers with narrative knowledge that recognizes alternative perceptions of reality, support dynamic understanding of complex situations, and enable effective agility across the full spectrum of operations.
Agility

• The ability to recognize and deal effectively with changes in circumstances which may come from:
  – Adverse developments or adversary actions
  – Opportunities arising from external forces
  – Capacity to shape or design developing situations

• Agility always implies success—change for change’s sake is not agility
**Different Forms of Knowledge**

*Logico-scientific reasoning* is a rigidly logical form of knowledge:

- Objects/relationships/events are objectively definable
- Relevant systems are bounded, well-formed and exhibit repeatable behaviors
- Sensemaking is bottom-up, problem-focused process of seeking solutions
- Observed data is either fitted into existing problem frameworks or used to draw generalized inferences
- Reasoning serves to (1) identify critical performance issues and (2) predict the likelihood of future system states

*Narrative reasoning* is a more abductive form of knowledge:

- Objects/relationships/events are defined relative to goals, experience, and context
- Relevant systems are open, loosely-formed and exhibit emergent/novel behaviors
- Sensemaking is holistic, context-focused process of seeking situation understanding
- Observed data is interpreted by experience to build meaningful stories and understand richness and complexity of a situation
- Reasoning serves to (1) provide best explanation of observed actions/state changes and (2) develop anticipation of new opportunities and risks
Knowledge Pyramid Includes Both Narrative and Scientific Knowledge
Knowledge Construction

MONITORING, LEARNING, ADAPTATION
(e.g., Forecasting, Assessment, Running Estimate)

DESIGN & PLANNING
(e.g., Cdr’s Intent, Mission Analysis)

HUMINT COLLECTION & ANALYSIS
(e.g., Debriefings, Interrogations)

TECHNICAL COLLECTION & ANALYSIS
(e.g., GEOINT, SIGINT, Nat’l)
Recognizing Alternative Realities

LOGICO-SCIENTIFIC

Object Class

Instance

Predicate Relationship

Child

Object

FORMAL LOGIC

NARRATIVE

Stakeholder A Narratives

Stakeholder B Narratives

Alternative Realities

Operational Design Narratives

Operational Design Narratives

Political / Social / Economic / Cultural System Narratives

Event Narrative

Event Narrative

System Functional Scripts

Battlespace Objects

KNOWLEDGE MANAGEMENT (SENSEMAKING)
Narrative Reasoning: Alternative Perceptions of Reality

Al Anbar Province
Pre-Sunni Awakening Movement

Disband Iraqi Army
Privatize Iraqi Economy
Democratic Elections
Reconstruction Contracts
Suppress Tribal Militias
Demilitarize Iraq
Stimulate Economy
Establish Democracy
Rebuild Infrastructure
Increase Security

Foreign Occupation of Iraq
Subvert Tribal Control
Subvert Tribal Autonomy
Subvert Tribal Leadership
Reduce Tribal Power

SUNNI TRIBAL LEADERS

COALITION PROVISIONAL AUTHORITY
Technical Approach: Understanding Multiple Realities

Integrating Architecture

Narrative Knowledge Files

Linked

Alternative Narratives

GEOINT
SIGINT
Coalition
All Source
ISR Mgmt
Weather
HUMINT
Battle Command
Summary

1. Military units must build/maintain contextual understanding in order to create effective solutions in a complex PMESII environment

2. Current intelligence systems provide access to objective reports, but do not place them within a dynamic framework for understanding

3. Adding narrative knowledge enables examination of alternative realities and futures

4. Concept of narrative knowledge management extends across a wide range of commands, missions, and organizations
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QUESTIONS?
THOUGHTS?
PUZZLES?