Group Technical Discussions in Collaboration & Knowledge Management (CKM)

- **Objectives**
  - Engage all workshop participants in open, detailed discussions of key technical issues in CKM
  - Identify new approaches to empirically address technical issues (e.g., new communication methods to measure shared understanding)
  - [Gain group input and agreement on a shared mental model of collaboration and its components (draft)]
  - Gain group input and agreement on a Research Roadmap that:
    - Locates current projects with respect to our mental model of collaboration
    - Identifies the current, important research gaps
    - Identifies the most important collaboration tools needed
  - Exchange project level technical detail to encourage joint efforts and leveraging among projects toward development of end products or usable tools

- **End Products**
  - List of research gaps, new approaches, and collaboration tools needed
  - [Group consensus on a conceptual model of collaboration and where current projects fit into model]
New Day 3 Agenda

Morning
• Review application / functional specifications of CKM
• Discuss parameters of task / role, setting and team factors
  ➢ Prioritize top 6?
• 3 Breakout Groups work selected questions
  ➢ Report out to large group

Afternoon
• Review the question of models, frameworks and / conceptual modules
• Propose various frameworks, modules
• Identify, discuss open questions, fuzzy areas, various gaps, open questions
Requirement for Collaboration Technology

- Increasing problem complexity - team effort needed
- IT/Communications technology widening accessibility of contributors
- Problems addressed at international level - coalitions required
- Defense Transformation to agile and coalition operations

Some Examples

- International humanitarian relief effort
- Multinational response team in Afghanistan
- International automobile design team
- Multi-government agency sniper hunt
Problem Characteristics

General

- Distributed participants
- Multidisciplinary contributors
- Technology supported
- Changing participants
- Complex, Data-Rich Environment
- Distributed and unshared knowledge

Military

- Operations with Joint, Coalition, Non-Government and Volunteer Organizations
- Asynchronous and Distributed Command Level Decision Making
- Asymmetric Warfare
- Dealing with Open-Source (Uncertain, Conflicting, Partial, Non-Official) Data
- More Focus on Humanitarian Relief, Disaster Aid and Politically-charged Operations
- Rapidly Changing Team Members and Associated Organizational Structures
- Culturally Diverse Partners
Parameters of Setting, Team and Task

- Goal: Create a manageable list of parameters that define broad, important dimensions of differences across CKM research and applications
- Use this list to categorize the current research projects
- Perhaps use indicated clusters of researchers as initial small work groups?

Process:
- Brainstorm Lists
- Cluster items
- Prioritize top 6 to 8
Possible Parameters of Setting, Team & Task

• Task & Roles:
  ➢ Nature of interdependence: pooled, sequential, reciprocal
  ➢ Role specialization / homogeneity
  ➢ Behavioral discretion / proceduralization
  ➢ Pace of work / time pressure
  ➢ Longevity of task episodes
  ➢ Dynamicness of task
  ➢ Complexity of task
  ➢ Risk consequences
  ➢ Synchronous vs Asynchronous
  ➢ ?
Possible Parameters of Setting, Team & Task

• Setting:
  ➢ Mediation: F2f, multimedia, monomedia
    ❖ Differential effects of media? Text-based messaging, e-mail, computer-conferencing, Ewall, teleconference, videoconference, videowall, graphical objects, visual representations, maps, etc...
      ❖ Different tasks routed to assigned media?
    ❖ Team members experience, competence with tool / media
  ➢ Planned vs. spontaneous need for teamwork
  ➢ Organizational decision-making / role authority rules
  ➢ ?
Possible Parameters of Setting, Team & Task

• Team:
  ➢ History / Member familiarity
    ➢ Roles specified but persons rotating frequently—no familiarity
    ➢ Roles specified but persons rotate frequently—but know some or all of other members from past rotations, other roles: Members recognize at least some of each other
    ➢ Team has enough history among members to be developing through stages
    ➢ Team member experience / familiarity with this team task
  ➢ Degree of knowledge distribution among members
  ➢ Distances among members:
    ➢ Time zones
    ➢ Geographic distance
    ➢ Cultural distance among members (occupational, organizational, national)
  ➢ ?
Decision Process

• Brainstorm other items
• Cluster items—which can be combined under one heading?
• Prioritize top 6 to 8 dimensions
  ➢ Discuss / debate
  ➢ Ordinal ranking: allocate 10 points across all items
  ➢ Validate outcome – categorize current research projects using the dimensions
Breakout Groups (Day 3, AM)

3 Breakout Groups by

• Occupational background / heritage:
  ➢ Cognitive sciences
  ➢ Team / organizational dynamics
  ➢ Computer / media / communication sciences
  ➢ Military sciences

• Nature of task / role, team and setting studied

Discussion Format

• Open discussion of the 3 key questions, in sequence below, moderated by facilitator

• Group decisions captured on laptop by assigned co-moderator of breakout group—agreed upon as much as possible in time allowed (note degree of relative agreement of difference)

• Facilitator presents Group’s input on 3 key questions (20 minutes)
Breakout Groups by Thrust Area (Day 3, AM)

Key Questions

1. Identify additional research gaps that need to be addressed for effective collaboration.
   - In your own research—what would you like help with?
   - In the field in general

2. Identify and discuss new approaches on how to empirically answer these research gaps
   - E.g., gap = metrics to measure team shared understanding; approach = new communication protocol analysis techniques.
   - Be sure to pause and brainstorm ideas in response to requests for help (above)

3. Identify and discuss where current CKM projects could work jointly. Be as specific as possible.
   - What other CKM projects are you interested in following-up with, learning more about, exploring possible areas of collaboration?
   - What about NASA or DARPA?

4. Identify top priority collaboration tools needed in each segment of 5 step collaboration process & related applications you might develop from your current work
Afternoon

• Review the question of models, frameworks and / conceptual modules
• React to, revise, re-write the drafted integrative “Model”
• Present back a revised draft “Model” of team cognition and collaboration
• Large Group: Identify, discuss open questions, fuzzy areas, various gaps, open questions
• Closing Remarks
Models & Modules

- Large group review of selected models
  - Characterization of conceptual modules vs. models
- Small groups (Mixed)
  - React to models and either draft / revise –or– Draft key conceptual modules
  - Map existing research projects to models or modules
  - Present to large group
- Remaining open questions, fuzzy areas, various gaps, open questions
- Reflection on workshop process and output
  - What does it teach us about CKM?