Modeling and Simulation of Cultural Differences in Human Decision Making

Phase II Year 2: Focus on Transition

CKM Meeting
January 2006

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This work was supported by the Office of Naval Research under contract N00014-04-C-0392.
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Security classification: Unclassified

1. **REPORT DATE**
   - **JAN 2006**

2. **REPORT TYPE**
   - **00-00-2006 to 00-00-2006**

3. **DISTRIBUTION/AVAILABILITY STATEMENT**
   - Approved for public release; distribution unlimited

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6. **SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
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7. **DISTRIBUTION/AVAILABILITY STATEMENT**
   - Approved for public release; distribution unlimited

8. **ABSTRACT**

9. **SUBJECT TERMS**
   - Unclassified

10. **LIMITATION OF ABSTRACT**
    - Same as Report (SAR)

11. **NUMBER OF PAGES**
    - 30

12. **NAME OF RESPONSIBLE PERSON**
    - Unclassified
In both military and business environments, multinational teams have become the norm.

- Research has shown consistent differences in the ways that people from diverse cultures approach and complete tasks.

- Task performance and work process efficiency will be highest when the assignment of human resources is based on relevant attributes of the personnel.

A decision support and planning aid focused on multinational teams has been developed to facilitate the design of multicultural processes.
I-DecS AnSys

Models a work process as a series of tasks. Attributes of the tasks, personnel and organization are modeled, including cultural parameters.

Simulates the modeled work process and returns performance projections of a multinational team compared to a nationally homogeneous team.

Can be used during planning to perform a cultural fit assessment in order to identify strengths and weaknesses of the proposed team.
Username: TW05
Password: ******

Sponsored By:

Version: 1.0

- This site is best viewed using a display resolution of 1024x768 and Internet Explorer 6.0 and higher.
- Users should avoid the use of the browser's BACK, FORWARD, and RELOAD buttons as they could cause unexpected results.
- This system is a prototype for authorized use only. Your actions and data generated with this system may be subject to collection and analysis by system developers.
Select Record

Select one or more fields to search:

** Mission Type **

*** Mission Theater ***

** CJTF Nationality **

**** CJTF Service ****

Search

Record Details

No record selected... please select an existing record or 'Create New'.

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Unit Type</th>
<th>Unit Nationality</th>
<th>Unit Service</th>
<th>Unit Proficiency</th>
<th>Reports to CJTF</th>
<th>Trained with CJTF</th>
<th>Common TTPs with CJTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helo Raid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMIO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil Spill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Ship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quick Reference Guide - Select Record - Step 1

1 - Header: After a record is selected, the name of the active record will appear here, along with the name of the step.

2 - Home: From other screens, returns you to the Homepage (this screen).

3 - Help: Displays context-sensitive documentation about the use of I-DecS.

4 - Navigation Map: After a record is selected, the navigation map becomes an active link to each step.

5 - Cultural Info: Displays a pop-up box of information about nation-level cultural profiles and dimensions.

No record selected...please select an existing record or 'Create New'.
Mission Information

Mission Type
TW05 Mission

Mission Theater
PACOM

Mission Country
United States

CJTF Nationality
United States

CJTF Service
Navy

Properties

Point of Contact
Holly Handley

Email Address
idley@pacific-science.com (e.g., smith@zmax.com)

Keywords
TW05 Helo Raid
Enter keywords separated by spaces. Keywords can be used to search for this file.

Summary
This mission is the Helo Raid performed as part of the TW05 exercise.
Enter summary information to identify the situation and mission synopsis.
OP 5.0 PROVIDE OPERATIONAL COMMAND AND CONTROL (C2)

To exercise authority and direction by a joint force commander over assigned and attached joint and multinational forces in the accomplishment of the mission. Provides operational guidance, direction, and vision to assigned forces. Follows the theater strategy and links operational and tactical end states. Joint force commanders employ assigned single service, joint and multinational forces to accomplish assigned missions. When directed, a joint force commander will standup a joint task force to plan, direct, and coordinate operations. Joint force commanders may develop and execute policies, plans, and programs. They
### Mission Tasks

<table>
<thead>
<tr>
<th>Select</th>
<th>OP 5.4 Command forces</th>
<th>United States</th>
<th>Navy</th>
<th>High</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select</td>
<td>OP 3.2 Attack op targets</td>
<td>United States</td>
<td>Navy</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Select</td>
<td>OP 2.2 Collect op info</td>
<td>United States</td>
<td>Navy</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Select</td>
<td>OP 2.6 Evaluate Intel</td>
<td>United States</td>
<td>Navy</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Select</td>
<td>OP 2.2.5 Get target info</td>
<td>New Zealand</td>
<td>Navy</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Task Editing

**OP 2.2.5 COLLECT TARGET INFORMATION**

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Unit Nationality</th>
<th>Unit Service</th>
<th>Reports to</th>
<th>Trained with</th>
<th>Common</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 ISR Source</td>
<td>Australia</td>
<td>Navy</td>
<td>CJTF</td>
<td>Yes</td>
<td>TTPs w/ CJTF</td>
</tr>
</tbody>
</table>

![Preview of Analysis](image)
Compatibility of Ways of Doing Business - Based on Nationality of Australia vs. USA Baseline

<table>
<thead>
<tr>
<th>Description of Characteristic</th>
<th>Similar</th>
<th>Different</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of <em>supervision</em> customarily provide to workers.</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Amount of <em>delegation</em> customarily employed.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Type of <em>communication patterns</em> customarily used.</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Rigidity with which <em>business rules</em> are typically followed.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><em>Please note: Non-US workers may be accustomed to working more closely 'by the book.'</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of tolerance for <em>uncertainty</em> that may be encountered.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><em>Please note: Non-US workers may be more likely to seek additional information in uncertain situations, especially from experts or authority figures.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of <em>decisiveness</em> in decision-making that is typically found.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Amount of <em>group decision-making</em> that is common among peers.</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>


Unit Proficiency: High

Reports to: yes

Trained With: yes

TTPs with: yes

Update
National cultures have been profiled by 4 dimensions. Note that 'High' and 'Low' are descriptive categories only, and neither category is 'better'.

<table>
<thead>
<tr>
<th>Power Distance (PD)</th>
<th>How Australia scores ...... LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>What HIGH means</td>
<td>People from HIGH nations tend to be accustomed to the concept of different classes and ranks. Power is a basic fact of society, and privilege to those in power is granted as a matter of course. Authority is centralized, and those in authority are expected to be directive.</td>
</tr>
<tr>
<td>What LOW means</td>
<td>People from LOW nations tend to support the concept of equality. They tend to shun the concept of privilege unless it's &quot;earned.&quot; Authority is decentralized, and directiveness is often equated with paternalism.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uncertainty Avoidance (UA)</th>
<th>How Australia scores ...... HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>What HIGH means</td>
<td>People from HIGH nations have usually developed many rules and procedures that are expected to be followed, these can be viewed as society's attempt to lessen the uncertainty of situations by providing structure. There may be high value placed on security, and high priority placed on dispelling conflict within an organization. There may be intolerance of deviant ideas and behavior.</td>
</tr>
<tr>
<td>What LOW means</td>
<td>People of LOW nations tend to place a high value on individual decisions, even in risky situations. There may be higher tolerance for deviant ideas and behavior. There may be acceptance, and even admiration, for challenges to &quot;the system.&quot;</td>
</tr>
</tbody>
</table>
### Masculinity (M)

| What HIGH means | People of high M nations tend to view work as central to life. Work is given a high priority when scheduling time and activities, and even social activities may revolve around work. "Working overtime" is often expected. There may be higher job stress. |
| What LOW means | People of low M nations tend to view work as less central to life; e.g., "work to live" vs. "live to work." Machismo is not highly regarded. Interdependence (vs. independence) may be seen as the ideal. |

### Other nations with profiles similar to .... Australia
- United States - Canada - Ireland - New Zealand - United Kingdom -

#### Compare country profiles:

<table>
<thead>
<tr>
<th>Countries to compare:</th>
<th>Australia</th>
<th>vs</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance (PDI)</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Uncertainty Avoidance (UA)</td>
<td>HIGH</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Individualism (I)</td>
<td>HIGH</td>
<td>HIGH</td>
<td></td>
</tr>
<tr>
<td>Masculinity (M)</td>
<td>HIGH</td>
<td>HIGH</td>
<td></td>
</tr>
</tbody>
</table>

[Source: http://pse.pacific-science.com/ideco/CultureCompare.aspx]
The projected impact on mission performance of the current force composition compared to an all-US baseline is shown below:

Accuracy: **No Change**

Speed of Performance: **Decrease**

Potential impact of assigned forces compared to baseline forces:

Legend:
- **No Change**
- **Increase**
- **Decrease**

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Unit Type</th>
<th>Unit Nationality</th>
<th>Unit Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP 5.1.1 Comm op info</td>
<td>1.1 CFMCC-CMD</td>
<td>United States</td>
<td>Navy</td>
</tr>
<tr>
<td>OP 2.1 Direct op intel</td>
<td>1.2 CFACC</td>
<td>United States</td>
<td>Navy</td>
</tr>
<tr>
<td>OP 5.3 Prepare orders</td>
<td>1.11 CFMCC-Plans</td>
<td>United States</td>
<td>Navy</td>
</tr>
<tr>
<td>OP 5.4 Command forces</td>
<td>1.12 CFMCC-CMD</td>
<td>United States</td>
<td>Navy</td>
</tr>
<tr>
<td>OP 5.3 Prepare orders</td>
<td>1.13 CFMCC-FDPS</td>
<td>United States</td>
<td>Navy</td>
</tr>
<tr>
<td>OP 5.1.8 Execute C4 TTPs</td>
<td>1.14 ESG</td>
<td>United States</td>
<td>Navy</td>
</tr>
</tbody>
</table>
Phase III: Transition Plan – A Multi-Tiered Approach

Tier One: PSE Usability Testing
   Implementation Validation and Interface Usability
   ✓ PSE Staff and SMEs (27-30 June 05)
   ✓ Version 1.0, Released 30 June 2005

Tier Two: Local Military Demonstration
   Presentation of Tool in Military Environment
   ✓ 3rd Fleet (29 Apr 05)
   ✓ USS Tarawa (17-22 July 05)

Tier Three: NAVAIR and NPS Laboratories
   Assessment of use in Naval Laboratories
   ✓ NAVAIR: NEO Scenario (19-22 Dec 05)
    NPS: TNT Scenario (February 2006)
Phase III: Transition Plan – A Multi-Tiered Approach Continued

Tier Four: Fleet Experiments
Demonstrate Tool and Collect Data
✓ TW05 (2nd Fleet) – Pre Experimental Modeling
  ➢ TW06 (3rd Fleet) – Tactical Situation Planning

Tier Five: Customer Contacts
Potential Sponsors
  ➢ Boeing – SoS COE CFMCC Planning Tool
  ➢ MPAT – Coalition Military Operations

Tier Six: Forum
Networking
  ➢ Navy Transition Assistance Program
• Comparison of Mission Planning with/without I-DecS
• Experiment Conditions
  ▪ CKM NEO Scenario
  ▪ 5 Teams with I-DecS and 5 Teams with Pencil & Paper
• Changes to Scenario
  ▪ Added Multi-national Resources
    ▪ Thai SEALS and Australian Army Special Forces
    ▪ Specified Command Arrangements and Training
• Changes to I-DecS Tool:
  ▪ Added task list in lay terms that reflects all identified options from the scenario.
  ▪ Added user fields for specification of Transportation, Weapons, and Critical Times.
I-DecS Report vs. Handwritten Solution Cards

The projected impact on mission performance of the current force composition compared to an all-US baseline is shown below:

- **Accuracy**: No Change
- **Speed of Performance**: No Change

Potential impact of assigned forces compared to baseline forces:

Legend:
- No Change
- Increase
- Decrease

**Critical Times**

<table>
<thead>
<tr>
<th>Onset</th>
<th>Contact</th>
<th>Evacuation</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>2045</td>
<td>2100</td>
<td>2345</td>
</tr>
</tbody>
</table>

**Detailed Plan**

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Unit Type</th>
<th>Unit Nationality</th>
<th>Unit Service</th>
<th>Transportation</th>
<th>Weapons</th>
</tr>
</thead>
<tbody>
<tr>
<td>O 1.1 Depart from USS Enterprise</td>
<td>N/A</td>
<td>United States</td>
<td>Marine Corps</td>
<td>CH-52 helicopter</td>
<td>None</td>
</tr>
<tr>
<td>O 1.3 Drop personnel into sea</td>
<td>N/A</td>
<td>United States</td>
<td>Marine Corps</td>
<td>CH-53 helicopter</td>
<td>None</td>
</tr>
<tr>
<td>O 1.9 Travel from sea to shore</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>Zodiac inflatable boat</td>
<td>M-16c</td>
</tr>
<tr>
<td>O 1.13 Travel from shore to church</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>None</td>
<td>M-16c</td>
</tr>
<tr>
<td>C 2.3 Administer insulin in transit</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>None</td>
<td>M-16c</td>
</tr>
<tr>
<td>C 2.4 Stabilize broken leg in transit</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>None</td>
<td>M-16c</td>
</tr>
<tr>
<td>E 3.1 Travel from church to shore</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>None</td>
<td>M-16c</td>
</tr>
<tr>
<td>E 3.17 Travel from shore to sea</td>
<td>SEALS</td>
<td>United States</td>
<td>Navy</td>
<td>Zodiac inflatable boat</td>
<td>M-16c</td>
</tr>
<tr>
<td>E 3.22 Airlift personnel from sea</td>
<td>N/A</td>
<td>United States</td>
<td>Marine Corps</td>
<td>CH-52 helicopter</td>
<td>None</td>
</tr>
<tr>
<td>R 4.1 Travel from sea to USS Enterprise</td>
<td>N/A</td>
<td>United States</td>
<td>Marine Corps</td>
<td>CH-53 helicopter</td>
<td>None</td>
</tr>
</tbody>
</table>

**Final Plan**

**Personnel**
- NAV SEAL Team
- CH-53 (Huey Helicopters)

**Transportation**
- UH-60 Blackhawk
- C-130 Hercules

**Weapons**
- SEAL Team's gear

**Critical Times**

1. **Onset**: 3:30 AM
2. **Contact**: 7:49 AM
3. **Evacuation**: 8:30 AM
4. **Return to Base or Ship**: 11:55 AM

**Additional Comments**

- 4:00 AM Blackhawk left for base to load units, then over 200 miles south of church.
H2: The teams that use I-DecS will indicate a lower workload than the teams without I-DecS.

*Measure:* NASA TLX – Mental Demand and Effort

<table>
<thead>
<tr>
<th></th>
<th>With I-DecS</th>
<th>Without I-DecS</th>
<th>t value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Demand</td>
<td>7.7</td>
<td>8.7</td>
<td>-1.979</td>
<td>Yes</td>
</tr>
<tr>
<td>Effort</td>
<td>7.3</td>
<td>8.2</td>
<td>-1.307</td>
<td>Yes</td>
</tr>
</tbody>
</table>

H5: The teams that use I-DecS will be more efficient than the teams not using I-DecS.

*Measure:* NASA TLX – Temporal Demand and Participant Comments

<table>
<thead>
<tr>
<th></th>
<th>With I-DecS</th>
<th>Without I-DecS</th>
<th>t value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal Demand*</td>
<td>7.4</td>
<td>8.3</td>
<td>-1.344</td>
<td>Yes</td>
</tr>
<tr>
<td>Comments</td>
<td>1/5 Teams</td>
<td>3/5 Teams</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Teams that felt temporal constraints.
H3: The teams that use I-DecS will indicate a higher confidence level in the plan than the teams without I-DecS.  
*Measure*: Post Experiment Survey Question

H4: The teams that use I-DecS will indicate a higher satisfaction level in the plan development process than the teams without I-DecS.  
*Measure*: Post Experiment Survey Question

<table>
<thead>
<tr>
<th></th>
<th>With I-DecS</th>
<th>Without I-DecS</th>
<th>t value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 - Confidence</td>
<td>3.5</td>
<td>3.7</td>
<td>-0.443</td>
<td>No</td>
</tr>
<tr>
<td>Q2 - Satisfaction</td>
<td>3.3</td>
<td>3.5</td>
<td>-0.603</td>
<td>No</td>
</tr>
</tbody>
</table>
Tier Three: NPS Laboratory

- Mission Planning – Focus on Interoperability
- Experimental Conditions
  - TNT (Tactical Network Topology) Scenario
  - 3 to 4 Teams of Naval Officers
- Scenario
  - Coast Guard Maritime Interdiction – Precursor to TW06
  - Focus on Assigning Collaborators and Technology
- Changes to I-DecS Tool
  - Changed from UJTL to UNTL
  - Added user fields for specification of Collaboration Partners and Equipment/Networks
  - Added “Role” and “ROE” matrices – Suggestions from TW05
  - Performance measures of Synergy and Interoperability
<table>
<thead>
<tr>
<th>TASK</th>
<th>UNIT</th>
<th>NATIONALITY</th>
<th>AGENCY</th>
<th>CONNECTIVITY</th>
<th>COLLABORATOR</th>
<th>NETWORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTA 2.4.1 Evaluate Information</td>
<td>USCG HQ</td>
<td>US</td>
<td>USCG</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST 8.1 Foster Alliance and Regional Relations and Security Agreements</td>
<td>USCG HQ</td>
<td>US</td>
<td>USCG</td>
<td>NO</td>
<td>Country Purple</td>
<td></td>
</tr>
<tr>
<td>NTA 5.1.1.1.2.1 Receive and Transmit Force Orders</td>
<td>USCG HQ</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>GEM STATE (Motor Vessel)</td>
<td>Portable OFDM link to TNT test-bed</td>
</tr>
<tr>
<td>NTA 1.1.2 Move Forces</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTA 1.4.6.1 Conduct Visit</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>N/A</td>
<td>ADMIRAL CALLAHAN (Target)</td>
<td></td>
</tr>
<tr>
<td>NTA 5.1.2 Manage Means of Communication</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>NPS NOC (Network Operation Center)</td>
<td>Interface and Data Transport to OFDM from boarding team</td>
</tr>
<tr>
<td>NTA 2.3.1 Conduct Technical Processing and Exploitation</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>LLNL (Lawrence Livermore National Lab)</td>
<td>Portable radiation detection system for data and transfer</td>
</tr>
<tr>
<td>NTA 2.4.3 Interpret Information</td>
<td>LLNL</td>
<td>US</td>
<td>LAB</td>
<td>YES</td>
<td>GEM STATE (Motor Vessel)</td>
<td>VPN reach back to TNT collaborative partners</td>
</tr>
<tr>
<td>NTA 2.3.1 Conduct Technical Processing and Exploitation</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>NBFC (National Biometrics Fusion Center)</td>
<td>Electronic Biometrics gathering and uplink</td>
</tr>
<tr>
<td>NTA 2.4.3 Interpret Information</td>
<td>NBFC</td>
<td>US</td>
<td>DOD AGENCY</td>
<td>YES</td>
<td>GEM STATE (Motor Vessel)</td>
<td>VPN reach back to TNT collaborative partners</td>
</tr>
<tr>
<td>NTA 2.2.2 Collect Tactical Intelligence on Situation</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>DTRA - Defense Threat Reduction Agency</td>
<td>Portable OFDM link to TNT test-bed</td>
</tr>
<tr>
<td>NTA 1.4.6.4 Escort Detained Vessel</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>N/A</td>
<td>ADMIRAL CALLAHAN (Target)</td>
<td></td>
</tr>
<tr>
<td>OP 5.1.1 Communicate Operational Info</td>
<td>GEM STATE</td>
<td>US</td>
<td>USCG</td>
<td>YES</td>
<td>USCG HQ, Alameda</td>
<td>Portable OFDM link to TNT test-bed</td>
</tr>
</tbody>
</table>
Tier Four: Trident Warrior Exercises

Trident Warrior 2005
- Pre-experimental Modeling with I-DecS
- Assessing Methods to Validate TacSits

Trident Warrior 2006
- Coastal Zone EMIO with Biometric Reachback Network
- Provide to 3rd Fleet for Experimental Planning
- “Integration of enhanced coalition interoperability technologies and doctrine into CENTRIXS.”
- Cultural and Interoperability Component

FORCEnet Engineering Conference (June 2006)
- Joint and Coalition Issues in FORCEnet
- I-DecS Contribution to Operational Planning
Trident Warrior 05 Pre-experimental Modeling

- The four mission threads for TW05 IM have been created in I-DecS.
- I-DecS is a useful pre-experimental modeling tool that shows the impact of different coalition arrangements.
Boeing

- Currently building SoSCOE operational planning tool
  - System of Systems Collaborative Operating Environment.
  - Provides the Combined Forces Maritime Component Commander (CFMCC) a tool to assist in operational planning and mission execution.
  - I-DecS has been fit into the CFMCC planning process.
  - Interacted with Boeing during TW05/TW06.

MPAT (Multinational Planning Augmentation Team)

- Source of initial user requirements and user workflow.
- Proposing I-DecS to support Tempest Express.
- Good relationship with PACOM and MPAT.
CFMCC Planning Process

Intelligence Preparation of the Battlespace (IPB) → Mission Analysis → COA → COA Analysis → COA Comparison & Decision → Transition → Orders Development → COA → COA Analysis → COA → I-DecS → Higher Commander’s Directives

CFMCC Combined Forces Maritime Component Commander

*Based on “Navy Warfare Development Command TACMEMO 3-23-03, Joint Force Maritime Component Commander (JFMCC) Planning and Execution, Appendix A: JFMCC Planning Process.”*
SoSCOE and I-DecS

Determine specific and implied tasks

Develop tactical plans

Assign tasks to units/subordinates

Determine additional capabilities required

Generate MARSUPREQ

M14

I-DecS

1300 CMDCoordination Meeting

: SpecifiedTaskList

: ImpliedTaskList

1700 Maritime Execution and Planning Update VTC

: TacticalPlans

: FRAGO [analyzed]

: OPORD [analyzed]

Domain:

SpecifiedTaskList

ImpliedTaskList

Campaign:

OPORD [analyzed]

Maritime:

Requirement

Domain:

SpecifiedTaskList

Campaign:

OPORD [analyzed]

Maritime:

Requirement

<<use case>>

<<use case>>

<<optional>>

<<optional>>

<<optional>>

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<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<optional>>

<<external>>

Subordinate: MTPUpdate

External to the Battle Rhythm

F5

<<external>>

Subordinate: MTPUpdate

External to the Battle Rhythm
I-DecS – Aligned with MPAT

MPAT Objectives

- Increase speed of initial crisis response by a CTF in the Asia-Pacific region.
- Improve overall Multinational Task Force Headquarters mission effectiveness.
- Improve the interoperability of coalition or combined forces.

I-DecS Capabilities

- Quickly and easily build mission plans comprised of military tasks.
- Model and simulate the performance of the plans as staffed with multi-service and/or multi-national units.
- Choose the optimum force composition for the mission.
Tier Six: Navy TAP Program

✓ Application for June Forum (December 2005)
  ▪ Quad Chart
  ▪ Narrative Briefing

➢ Advanced Transition Workshop (February 2006)

➢ Presentation Workshop and Forum (June 2006)
  − “At the Navy Opportunity Forum, you can efficiently preview some of the Navy’s best technologies developed with SBIR/STTR funding and evaluate premiere small businesses as potential partners.”
NEED & CUSTOMER REQUIREMENT

Need: Missions often include units with a wide range of capabilities. Current models for mission planning do not take into account differences in national and organizational culture that may affect mission performance.

Operational Gap: Culture is becoming increasingly important in coalition planning. Misunderstandings between coalition partners and incompatibilities in work processes result in inefficiencies in performance of mission activities.

Customer Specifications: ONR has challenged us to develop models and algorithms to simulate cultural characteristics in human decision-making. The resulting tool is designed to account for the cultural differences in multinational collaborations leading to improved planning.

Technology Description: The Integrated Decision Space is a planning tool based on four component models and an integrating algorithm. The process outcomes are determined by a compatibility test between the organization, process, culture, and decision-maker attributes.

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR)

<table>
<thead>
<tr>
<th>Milestones</th>
<th>TRL</th>
<th>Risk-Test</th>
<th>Measure of Success</th>
<th>TRL Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAVAIR Laboratory Testing</td>
<td>5</td>
<td>Low</td>
<td>Utility Testing</td>
<td>Dec 2006</td>
</tr>
<tr>
<td>NPS Military Officer Testing</td>
<td>5</td>
<td>Low</td>
<td>Usability Feedback</td>
<td>Feb 2006</td>
</tr>
<tr>
<td>Trident Warrior 2006 Exercise</td>
<td>6/7</td>
<td>Low</td>
<td>Operational Test</td>
<td>June 2006</td>
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</table>

Open contracts: SBIR Phase II - N00014-04-C-0392 - until July 7, 2006

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

The company is looking for transition opportunities and program dollars for the following applications and targeted activities:

- CFMCC / SOSCOE Cultural Component
- MPAT Planning Tool
- CENTRIXS Environment

<table>
<thead>
<tr>
<th>TRL</th>
<th>Required Test and Demos</th>
<th>Target Date</th>
<th>$ Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/9</td>
<td>DITSCAP Certification</td>
<td>June 2007</td>
<td>150K</td>
</tr>
</tbody>
</table>
Phase II Summary

Year II will continue to focus on:

- Incorporating user feedback into improved versions
  » Increased focus on interoperability,
- Interacting with other CKM researchers
  » University of Tennessee
  » E-Wall
- Identifying and capitalizing on transition opportunities
  » Military exercises,
  » Specific customers/commands,
- Contributing to the area of multi-cultural issues in collaboration contexts.