Mashups and Their Support to the Civil-Military Planning Process

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Outline

- Civil-Military Operations (CMO) Overview
- Web 2.0 Overview
- Mashup Overview
- CMO Mashup Example
Civil-Military Operating Environment

- Natural Disasters
- Political Activism
- Breakdown of Police and Justice System
- Food Shortages
- Disease Outbreak
Civil-Military Operations (CMO)

- A complex system composed of large numbers of disparate organizations conducting simultaneous military and civilian operations
  - Military
  - Host nation government agencies
  - Non Governmental Organizations (NGOs)
  - International Organizations (IOs)
- Each organization has widely different
  - Culture
  - Goals
  - Rules of engagement
  - Technology/Capability
CMO Information Sharing Challenges

- Complex and dynamic CMO environment make it very difficult to identify specific information exchange requirements
  - Communication systems typically designed to promote information exchange within the organization
  - Cross boundary information sharing very difficult
- Two absolute attributes stand out: Accessibility and Trust
- Artificial barriers
  - Rand study analyzed 160 information exchange requirements necessary to support COIN → only 10% were really classified *
  - CMO problems exist in the seams between the various organizations (Col Thomas Hammes, “The Sling and the Stone”)
  - Identifies the need for combined activities between military, civilian, NGOs/IOs, host nation, etc

* War by Other Means, Rand Study, Gombert and Gorden, 2008
CMO Doctrinal Clash of Cultures

**Military**
- Strict hierarchal control structures
- Unity of command
- Common understanding
- Common lexicon
- Common language/culture

**Civilian**
- Loose conglomeration of multiple organizations
- Collaborative actions
- Multiple goals
- Various lexicons
- Multiple language/culture

C4I (Command, Control, Communications, Computer, Intelligence)

C4A (Cooperation, Coordination, Consensus, Communications, and Assessment)
Mashup Description

Definition: A web site or application that combines content from more than one source into an integrated presentation

A mashup application is composed of three components
- API/content provider
- Mashup site
- Client’s web browser

The API/content providers are often unwitting of how their information is being used

Each site is logically and physically disjoint and are normally separated by both network and organizational boundaries

Mashups are browser agnostic

The term *mashup* was borrowed from the pop music scene that indicates a new song that is mixed from the vocal and instrumental tracks from two different songs (usually belonging to different genres).
Mashup Example - San Diego Fire Mashup

San Diego Fire-Rescue holds first-ever air-to-ground drill
San Diego Union Tribune, United States - May 21, 2008
“Since the Cedar fire in 2003, we’ve got a lot more aircraft in this region fighting fires,” said San Diego Deputy Fire Chief Brian Fennessy. ...

Happy holiday. Chilly & wet to stay with us
San Diego Union Tribune, United States - 1 hour ago
SAN DIEGO – With an unusually cold low-pressure system parked over the West, Memorial Day weekend in San Diego County is expected to be remain chilly. ...

It's beginning to look a lot like Christmas (weather)
San Diego Union Tribune, United States - 19 hours ago
By Tanya Sierra and Susan Shroder
Winter-like weather made a comeback to San Diego County Thursday, sprinkling snow on Mount Laguna, unleashing heavy rain ...

Evacuation Center
Valley Center High School
31322 Cole Grade Rd.
Valley Center, CA
(760) 751-5500
Get directions: To here - From here Search nearby

http://sdfires.googlemashups.com/
Mashup Example - My Favorite Mashup

http://local.alkemis.com/local/index.htm
Mashup Implications for the Software Development Cycle

Since mashup tools are targeted at users and not developers, there is the potential to break the lengthy software development process by empowering end users to create their own applications.

“The entire CONOPS for how services [mashups] are built shifts from a ‘pass-requirements-to-techies-and-wait-for-the-next-development-cycle’ approach to a ‘mash-it-up-right-now-and keep-it-if-it-works’ approach. This approach only works if there is a community of users posting [mashups], using [mashups], modifying [mashups] and tagging useful [mashups].”

MITRE Analyst, Jacob Heim
CMO Mashup Example: Noncombatant Evacuation Operation (NEO)

- US Embassies have an Emergency Action Plan (EAP) to conduct NEOs
  - NEOs evacuate US citizens, designated host nation citizens, and third country nationals
  - There have been 80 evacuations of government personnel and US private citizens in the past 5 years, but very few have involved the DOD

- The DOD has many documents devoted to NEO operations
NEO Scenario Description

- Rebels have invaded an African country with friendly relations to the US
- The Country has a small army composed of light infantry concentrated around capital city with very few forces at the border
- Strategic communications between national leadership and military forces rely on personnel runners and High Frequency (HF) radios that are adversely affected by weather and terrain
- There are a number of foreign nationals operating in the country performing roles in business (petroleum industry) and philanthropy (NGOs) scattered around the country
NEO Task 1: Pre Crisis Information Collection Phase

- Establish personal relationships to facilitate trust
- Coordinate with Host Nation organizations such as police, fire, military, local business, etc
- Encourage Host Nation to create web sites with this type of information
- Public information is available on-line for many organizations working in the Host Nation
  - NGOs/IOs
  - Transnational and Host Nation Corporations
  - Host Nation Media
- Gather information using readily available technology
  - GPS-equipped cameras
  - Google Maps/Google Earth
NEO Task 2: Execution Phase

- Overall goal is to provide useful information to as many people as possible during the crisis via
  - Computer
  - Cell phone
  - PDA
- Use data collection mashup tools like Yahoo Pipes, Flickr, Kapow to extract NGO contact information
  - Cell phone number
  - Recent photograph
  - Preferred language
- Set up call in tip-line
- Provide geospatial mashup
  - Danger areas
  - Status of roads, bridges, etc
  - Evacuation centers
NEO Mashup Screen
Conclusion

The world (and the military) is awash in data

“In an age of abundant, almost limitless, information and communications capabilities, decision makers are increasingly faced with the problem of too much information, rather than too little. In today’s information-oriented society, winnowing, filtering, correlating, and fusing information have become as important as acquiring the information, or (regrettably) even as important as its content, if not more so.”

Command Concepts: A Theory Derived from the Practice of Command and Control, A Rand Publication, Builder, Banks, and Nordin