Perspectives on Information and Communications Technology (ICT) for Civil-Military Coordination in Crisis

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2006 CCRTS
Agenda

• Introduction
  – Crisis operations landscape
  – Context

• Primer snapshot
  – Nature of the challenge
  – Current knowledge of ICT
  – Best practice example

• Summary
Crisis Operations Landscape

• Categories of crises
  – Humanitarian assistance and disaster relief (HADR)
  – Stabilization and Reconstruction (S&R) operations
  – Complex emergencies

• Diverse civilian and military participants and capabilities
  – Mix of military, civilian government, International Organizations (IOs), Nongovernmental Organizations (NGOs), contractors, media, and local population and leaders
    • Military and/or civilian authorities have little control over many of the participants
    • At best, limited unity of effort
  – Differing responsibilities, agendas, experiences, expectations, accountability, and understanding of each others roles and capabilities
  – Wide range of ICT capabilities and “stove-piped” deployments
  – Civil-military collaboration and information sharing problematic
Types of crises can differ in their causes and specific impacts, but... there are significant similarities in the information and ICT support needed to enable each of them.

Partnership established between CSMP, OASD(NII) and CTNSP, NDU, in conjunction with military, civilian government, IO, and NGO elements, to identify:

- Common civil-military information needs
- Current commercial ICT state of the practice supporting recent crisis operations

Major product from partnership:
- A Primer on ICT Support for Civil-Military Coordination in Disaster Relief and S&R Operations
- Designed to identify current knowledge and best practices
PART ONE – The Nature Of The Challenge

– Participants in Civil-Military Coordination
– Information Needs
– Civil-Military Cultures and Challenges
– Guiding Principles

PART TWO – Tool Kits And Best Practices

– ICT Toolkits
– Data and Information Management
– Best Practices
– Trends in the Use of Commercial ICTs
Nature of the Challenge

- No single responding entity can be the source of all the necessary information -- operationally there is the need to share
- Responding civil-military elements bring their own ICT
  - Lack agreed ICT strategy, CONOPS, and architecture
  - Some with lesser capabilities than others
  - However, common commercial ICT capabilities becoming more pervasive
- There are several civil-military collaboration and information sharing issues
  - Information sharing versus intelligence gathering
  - Military classification (e.g., operations security) versus civilian need for transparency
  - Trust building and shared use of commercial ICT as enablers
- Furthermore, there are issues with cultural awareness and language; e.g.,
  - Responding organizations and participants
  - Affected nation (including information culture)
Internet is the “default” civil-military collaborative information network and commercial SATCOM the primary remote access communications means.

Commercial ICT Capability Packages
Shortfalls in the ICT Baseline (1 of 2)

• Very limited “shared informational awareness” to enable everyone to understand
  – What data/information are/will be available
  – What has been or needs to be done to it
  – Who needs it, or
  – Who has it
• Multiple organizations producing the same information products
• Organizational use of obsolete data (i.e., “stale” data)
• Stove-piped and incompatible systems that were unable to share information when operating in austere ICT environments because of issues in
  – Format or
  – Bandwidth/connectivity
Shortfalls in the ICT Baseline (2 of 2)

- Numerous applications were incompatible with data/information formats of others
- Pushing large amounts of data to multiple locations, multiple times
- End users who’s access bandwidth could not support downloading large data files (e.g., maps)
- Difficult for those on the ground to find needed information; e.g.,
  - Lack of understanding of what was available and how to access
  - Information overload
Options to Mitigate Shortfalls

- Use a common ICT response architecture employing
  - The Internet, WiFi, cellular, and satellite as preferred media
  - Commercial satellite service as primary access from remote area
  - Commercial ICT products and services
  - Web portals
  - Metadata repositories
  - Network administration and management
  - Information assurance and knowledge management

- Create a suite of interoperable ICT “toolkits”

- Agree on data sharing goals and actions to ensure data are visible, available, usable when needed and where needed, and “tagged” and geo-referenced to enable discovery
Common ICT Response Architecture

- **Internet (Email, VoIP, GIS, Collaboration Tools, VTC, Video, Imagery, ...)**

- **Military Crisis ICT**
  - ISP, SATPHONE, GSM/PSTN
  - Teleport/Hub, VSAT

- **Comms**
  - System Control
  - Net Mgt & Admin
  - Frequency Mgt

- **Civilian Gov’t Crisis ICT**
  - CMOC
  - CIMIC
  - IMC
  - HIC/HAC
  - Kiosks: Call Centers
  - Internet Café

- **IO, IGO, NGO Crisis ICT**
  - Metadata Registry and Catalog and Shared Workspace
  - Information/Knowledge Mgt
  - Information Assurance

- **Services**
  - Voice, Fax, Data
  - Email, Internet
  - VTC, Video, Imagery

- **Host Nation**
  - GSM, PSTN, Radio, TV

- **Enable Capacity Building**

- **Portals, Hubs, & Virtual Workspaces**
  - Host Country Details
  - Situation Awareness
  - Who’s doing what, where, $:
    - Maps, Assessments, Web portals
    - Phonebook/Email address books
    - Radio Nets (Security, 1st Responders...)

- **System Control**
  - Net Mgt & Admin
  - Frequency Mgt

- **Portals, Web Sites**
  - Maps, Assessments, Web portals
  - Phonebook/Email address books
  - Radio Nets (Security, 1st Responders...)

- **Metadata Registry and Catalog and Shared Workspace**
  - Information/Knowledge Mgt
  - Information Assurance

- **的能力**
  - Enable Capacity Building

- **VSAT, GSM, SATPHONES, PSTN, AM/FM, HF, VHF, UHF, TV Networks**
Interoperable ICT “Toolkits”

Forward Deployed Capabilities
- Wired and Wireless LAN
- Internet Access (VoIP, Email, Data, Video, Imagery, Browsers, Portals, Metadata Repository)
- Collaboration, Assessment, Visualization Maps/Mapping Tools, GIS, GPS
- Distributed Information Environment (One stop shopping)
- Laptops, desktops, M/S office, Adobe
- Cellular and Public Phones
- HF, VHF, UHF Radios
- Satellite phones, VSAT
- VHF G/A Radios
- WiFi
- Cell on Wheels
- Portable PABX
- LOS Tx
- Radio/TV
- Print

Internet in a Box
- AP
- Bridge
- MAR
- WiFi Antenna

ICT Capability Package

Commercial
- Internet
- International Organizations
- NGO Portals

Military
- Unclassified
- Portals

Civilian
- Agency Portals

Distributed Information Network
- COEs
- Academia
- Industry
- Data Repositories
- Registry
- Catalog
- Shared space
Best Practice Example: Preparing for an Operation (1 of 2)

• Maintain preparedness “toolboxes” for on-line, off-line distribution
  – Toolboxes provide guidelines and reference tools for the rapid-deployment of ICT packages and/or the establishment of Web sites, intranets and databases under a variety of field conditions
  – Toolboxes should include data standards, operating procedures, training materials, database templates, and manuals

• Develop surge capacities for rapid deployment
  – Maintain rosters of experienced ICT professionals
  – Formulate equipment caches
  – Establish training and exercise programs

• Develop contact lists
  – Lists should feature key humanitarian responders and local personnel, with phone numbers and email addresses
Best Practice Example: Preparing for an Operation (2 of 2)

- Develop cultural awareness and civil-military situation awareness
- Review host-nation ICT related legal, regulatory, and institutional considerations
- Use a rapid response ICT assessment team (2-4 persons) in advance of full deployment to establish needs and conditions on the ground
- Determine communications requirements
- Identify alternative power sources, spares, and repairs
- Setup and test ICT capability packages to be deployed
Summary

• This paper has addressed two major issues
  – ICT for civil-military coordination in crises
    • Baseline
    • Shortfalls
    • Options to mitigate shortfalls
  – Best practices developed from experience
    • Civil-military information sharing
    • Establishing a collaborative information environment
    • Collecting data, managing information, and seeking knowledge
    • Preparing for a deployment
    • Selecting VSAT systems and services
    • Conducting an operation
    • Employing a Web site
• The Primer is a “living document” that will be refined as we continue to develop insights from real world crises