The Canadian Knowledge Management System (KMS) within the Tactical Command and Control Information System (TacC2IS)

10th ICCRTS

Dr. Pierrette Champoux
KMS Project Leader, Fujitsu Canada

Major Joe Costello
Director Land Command and Information, DND Canada

June 13 to 16, 2005
McLean, Virginia USA
Introduction

• Presentation Objectives
  – To become familiar with the Knowledge Management System in light of the three components\perspectives:
    • User
    • Process
    • Technology (System)
Agenda

- Introduction
- KMS
  - Purpose, Objectives and Domains
- Knowledge Management
  - Process and Assets
- KMS for User, Group and Organization
- Future
Army Lessons Learned Knowledge Warehouse Project

OCTAS April 2004
Winner E-learning and Knowledge Management Category
Army Lessons Learned Knowledge Warehouse
Canadian IT Project of the Year

November 2004
Canadian Information Productivity Awards (CIPA)
- Diamond Award of Excellence
- Efficiency and Operational Improvements Gold Award
- Efficiency and Operational Improvements Silver Award
- Lcol Jacques Hamel: CIO of the year Award
Knowledge Management Projects

2003

ALLKW
Army Lessons Learned Knowledge Warehouse

2006

CFLLKW
Canadian Forces Lessons Learned Knowledge Warehouse

Doctrine

Task Support/ System Help TacC2IS
KMS Purpose

• The KMS assists Knowledge Management Process by:
  
  – Managing several knowledge domains:
    • Lessons Learned,
    • Doctrine,
    • Task Support and System Help,
    • etc.
  
  – Having specific groups of subject matter experts tracking the changes:
    • Directly from the military feedback,
    • Through issues identification, and
    • Recommendation for action, and by
    • Validating that the changes have made a difference.
KMS Objectives

• The KMS main objective is to empower the Canadian Forces with a tool that will enable it to:
  
  – Structure its knowledge more efficiently
  
  – Share it with one or more groups
  
  – Receive (capture) feedback from key participants on specific topics
  
  – Raise issues
    • Act upon them
  
  – Identify requirements or lessons.

• The system is a multi-workflow, multi-user, and multi-environment (Air Force, Army, Navy and Joint) tool.
Lessons Learned Domain

- **For Knowledge Analyst**
  - Help Structure Knowledge
  - Facilitate analysis of observations and feedback
  - Manage explicit relationships between Knowledge Assets:
    - Observations, Feedback, Activities, Issues and Lessons

- **For Staff and OPI’s**
  - Facilitate tracking mechanism of Issues
Doctrine Domain

• For Doctrine Authors
  – Manage knowledge assets not documents
  – Reduce knowledge redundancies
  – Facilitate re-use of knowledge
  – Manage explicit relationships between knowledge assets:
    • Topics, processes, activities, issues and lessons
  – Manage feedback and observations from any KMS user
Task Support -- System Help Domain

• **For Authors Tactics, Techniques & Procedures (TTPs) System Help**
  - Cohesive and homogeneous framework for the development of Task Support and System Help
  - Fully integrated and synchronized with the Doctrine and TTPs

• **For TacC2IS Military Users**
  - Right information at the right time to the right person:
    - Help in context
  - Top down view on knowledge from Doctrine through TTPs to System Help

• **For TacC2IS Developer and OPI**
  - Manage Feedback from Military Personnel
All Domains

- **For all KMS Users**
  - Enhance search and navigation capabilities
  - Enable direct Feedback on any knowledge assets (e.g. system procedure)
  - Provide access to knowledge in regard to knowledge dimensions:
    - Position
    - Community
    - Level of activity
    - ...
  - Speed access to knowledge (e.g. Operation)
KNOWLEDGE MANAGEMENT

ASSETS

Activities
- Operation
- Exercise
- Experiment
- Trial
- Training

Doctrine
- Tactics, Techniques
- and Procedures

System Procedures

Tactics, Techniques
- and Procedures

Knowledge in Action
- Knowledge Gathering
- Knowledge Analysis
- Knowledge Organization

Knowledge Management
- Tactics, Techniques
- and Procedures

Observations and Comments
- Feedback
- Canadian Forces Personnel

PROCESS

ASSETS

Knowledge in Action

Knowledge Gathering

Knowledge Analysis

Knowledge Organization

km process

process

CANADIAN FORCES

PERSONNEL

KNOWLEDGE IN ACTION

KNOWLEDGE COLLECTION

KNOWLEDGE MANAGEMENT

TACTICS, TECHNIQUES

AND PROCEDURES
Knowledge Organization

Navigate Through Knowledge

Search Through Knowledge
Navigate Through Knowledge

Knowledge Structure (Examples)
- Army Processes
- Doctrine Operational Functions
- Tactics, Techniques and Procedures

Observation Structure (Examples)
- Army Post Operation Report Questionnaire
- Canadian Joint Task List

Knowledge Schemas

Work Breakdown Structure
- Process
- Sub-Process
- Task
- Procedure
- Step

Function-Topic
- Function
  - Topic
  - Sub-Topic
  - Sub Function

Questionnaire
- Phase
  - Question
  - Subject
  - Sub-Subject
# Search Through Knowledge

## General Criteria

- **Search Text Box**
- **Find results with:**
  - All words, any words, exact sentence
- **Search on:**
  - On name only, on content only, on both name and content

- **Language:** any, English, French
- **Sort:**
  - by date, by name
  - ascending, descending
- **Return content written from:**
  - Start Date
  - End Date

## Knowledge Restrictions

<table>
<thead>
<tr>
<th>+ Environments</th>
<th>+ Domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Knowledge Structures</td>
<td>+ Observation Structures</td>
</tr>
<tr>
<td>+ Operations</td>
<td>+ Exercises</td>
</tr>
<tr>
<td>+ Tracking</td>
<td>+ Resources</td>
</tr>
</tbody>
</table>

## Knowledge Objects Expected

- Structure Elements (Schemas)
- Activities: Operations and Exercises
- Organizations
- Documents
- Answers (Observations and Comments)
- Feedback
- Issues
- Lessons

## Results

<table>
<thead>
<tr>
<th>Name –Type of object</th>
<th>Description (3 lines)</th>
</tr>
</thead>
</table>
Observations and Comments

Official Reporting on Activities such as:
- Operation/Rotation
- Exercise
- Experiment and Trial

Feedback

Action Available:
- At any time
- To anyone
- On every Knowledge Object
Gathering Observations and Comments

APOLLO Rotation 0
- Unit 12 Fd Sqn
- Unit 3 PPCLI
- Brigade 1 CMBG
- Area LFWA

APOLLO Rotation 1
- Unit 3 PPCLI BG
- Unit SLOC Coy
- Brigade 1 CMBG

Phase 1 Warning
Phase 2 Mounting
Phase 3 Deployment
Phase 4 Employment
Phase 5 Redeployment
2002 > APOLLO > R00 PH 1-3

Unit / 12 Fd Sqn

- Yes, a Wng O was received at 1 CER eventually; however, a Strategic Recce Team (SRT) that included a sizeable contingent of BG personnel was launched in Nov 01 prematurely without benefit of a formal Wng O.

- The tactical engineer organization was very much an ad-hoc organization based on a Engineer Field Sqn(s).

Unit / 3 PPCLI

The unit received the Wng O in a timely fashion, and it did provide sufficient information to commence the mission if the mission was to be undertaken with the forces ready at the time. The re-writing of the TO&E and subsequent amendments imposed a delay that meant the original timings could not have been met. The delay in arranging strategic lift then allowed sufficient time to prepare the additional forces required for Op APOLLO. An "ad hoc" organization has been created for this mission. Draft Op Orders provided insufficient information for the BG. Unfortunately, a confirmed Op O was not received from the J Staff, although sufficient direction from HQ 1 CMBC was received.

- Yes, the Wng O was received in a timely manner.
Knowledge
Analysis

- Issues
- Lessons and Lessons Learned
- Requirements
Manage Issues

Knowledge in Action

Recommendations

Direction

Decision

Action
Task Support = Help in Context

Knowledge in Action

Doctrine

Tactics, Techniques and Procedures

Systems Procedures

Training Material
Canadian Forces Organization Structure

Domain

Level of Activity

Position

Community

Knowledge Dimensions

- All
- Air Force
- 1CAD LL
- 1WING LL
- Army
- Joint
- Navy

- All
- Lessons Learned
- Doctrine
- Task Support (System Help)
- ...

- All
- Strategic
- Operational
- Tactical

- All
- Air Force
- A1
- A2
- ...
- Army
- Joint
- Navy

- All
- Fighters
- Transport
- ...
- Army
- Joint
- Navy
Canadian Forces Organization Structure

Position

Knowledge Domain

Knowledge Views

Community

Level of Activity

All

Air Force

1CAD LL

1WING LL

Army

ALLC

Joint

J7 OALL

Navy

MWFC LL

All

Lessons Learned

Doctrine

System Help

...
Air Force

Knowledge Domains

Doctrine
Lessons Learned
Task Support (Help in Context)

Organizations/ Groups

Environment

Joint
Navy
Air Force
Army

Level of Activities

Knowledge Domains

Tactical
Operational
Strategic
Knowledge Managed by an Organization or a Group

Knowledge Relationships

<table>
<thead>
<tr>
<th>Knowledge Structure</th>
<th>Observation Structure</th>
<th>Tracking Feedback</th>
<th>Resources References:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Structure</td>
<td>Issues</td>
<td>Images Documents</td>
</tr>
<tr>
<td>Comments</td>
<td>Observations</td>
<td>Lessons</td>
<td>Videos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Actions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requirements</td>
<td></td>
</tr>
</tbody>
</table>

Knowledge Schemas

- Work Breakdown Structures
- Factual Structures

Environment

Organization
Summary--Future

- Project History
- KM Foundations
- KMS Concepts

Future
- Task Support and System Help Experimentation 2005
- CFLLKW 2006
- Doctrine 2006