



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

10<sup>th</sup> ICCRTS

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Information, DND Canada

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McLean, Virginia USA



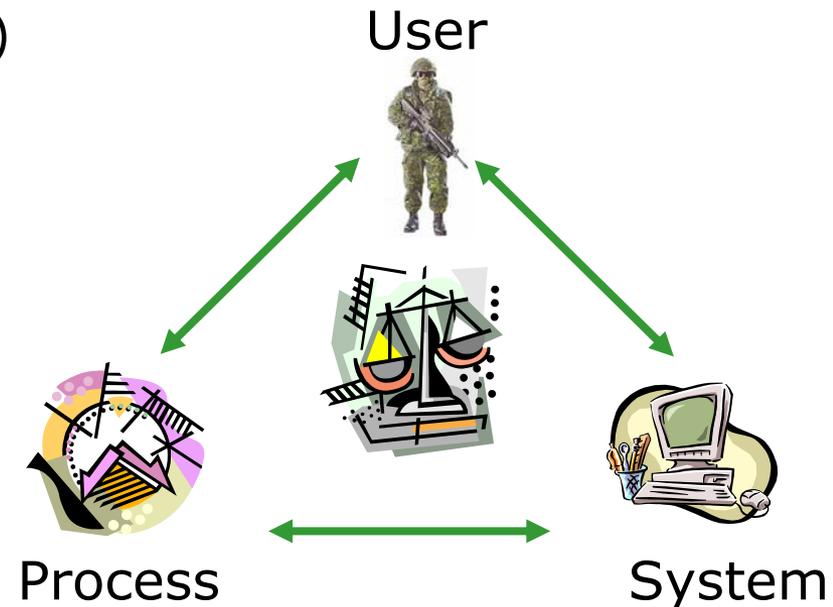
**National  
Defence**

**Défense  
nationale**



# 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

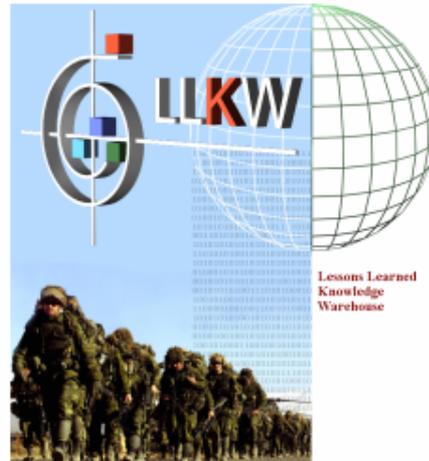
**November 2004**

## **Canadian Information Productivity Awards (CIPA)**

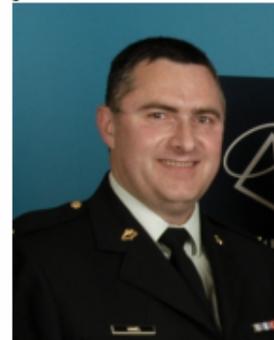
- Diamond Award of Excellence
- Efficiency and Operational Improvements Gold Award
- Efficiency and Operational Improvements Silver Award
- Lcol Jacques Hamel: CIO of the year Award



CANADIAN INFORMATION  
PRODUCTIVITY AWARDS



Lessons Learned  
Knowledge  
Warehouse





# Knowledge Management Projects

**2003**



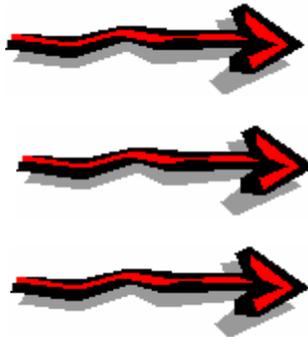
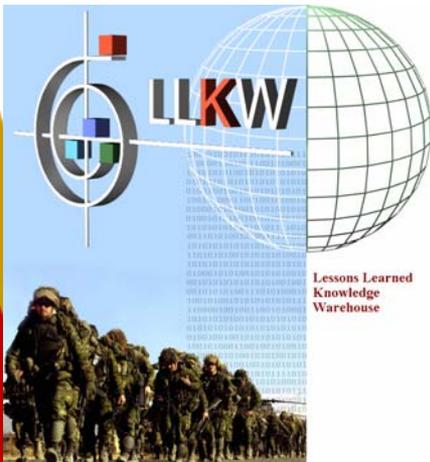
**2006**

**ALLKW**

Army Lessons Learned  
Knowledge Warehouse

**CFLLLKW**

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

**Tactics, Techniques  
and Procedures**



**System  
Procedures**





# All Domains

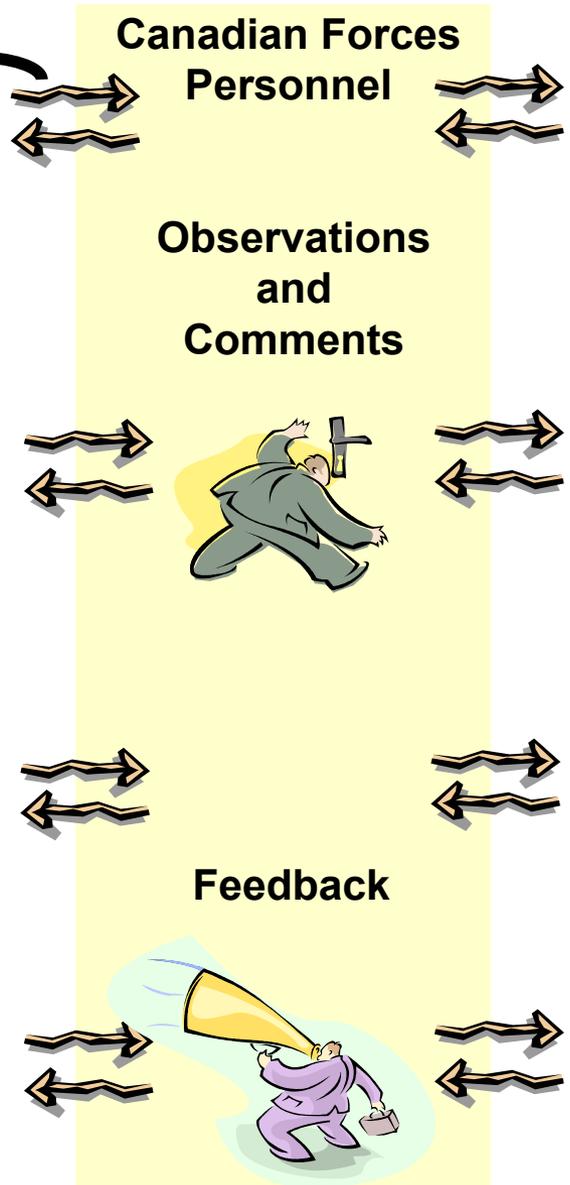
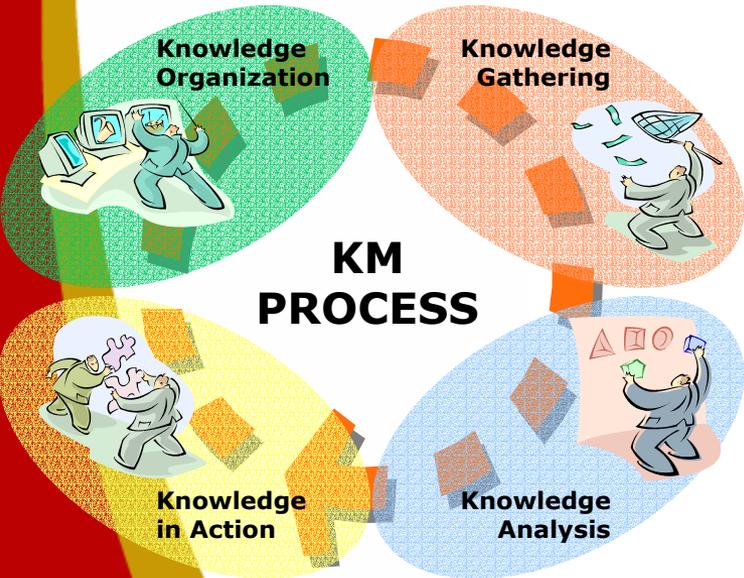
- For all KMS Users
  - Enhance search and navigation capabilities
  - Enable direct Feedback on any knowledge assets (e.g. system procedure)
  - Provide access to knowledge in regard to knowledge dimensions:
    - Position
    - Community
    - Level of activity
    - ...
  - Speed access to knowledge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



# KNOWLEDGE MANAGEMENT

## ASSETS

## PROCESS



## Activities



- Operation
- Exercise
- Experiment
- Trial
- Training

## Doctrine



## Tactics, Techniques and Procedures



## System Procedures



**Knowledge Organization**



**Knowledge Gathering**



**KM  
PROCESS**

**Knowledge in Action**



**Knowledge Analysis**



# Knowledge Organization



Navigate Through Knowledge



Search Through Knowledge





# Navigate Through Knowledge

## Knowledge Structure (Examples)

Army Processes

Doctrine Operational Functions

Tactics, Techniques and Procedures

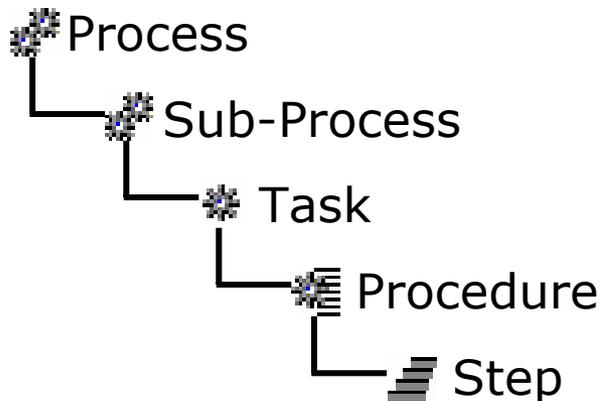
## Observation Structure (Examples)

Army Post Operation Report  
Questionnaire

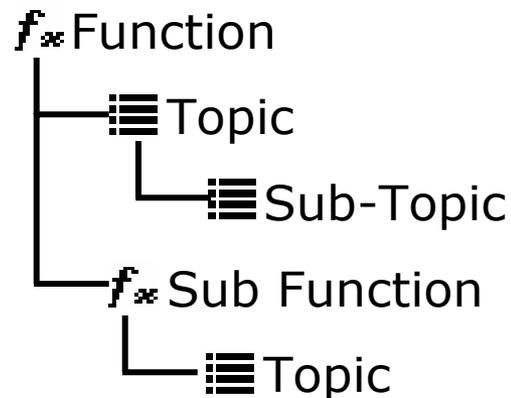
Canadian Joint Task List

## Knowledge Schemas

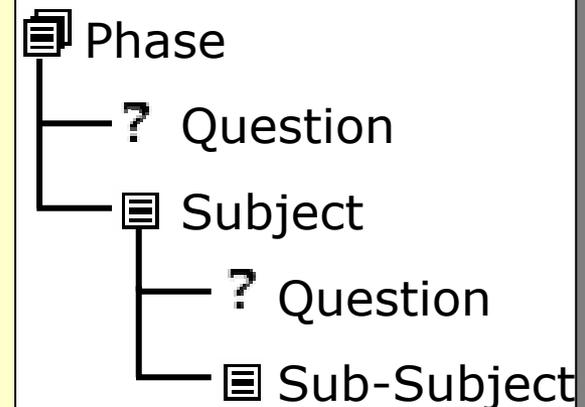
### Work Breakdown Structure



### Function-Topic



### Questionnaire





# Knowledge Assets

## Activities

Operation/Rotation

Exercise

Experiment and Trial

## Knowledge Structure Objects

Process

Task

Procedure

Step

Function

Topic

Phase

Subject

Question

## Responses

Observation

Comment

Feedback

## Tracking

Issue

Lesson

Status Report

Recommendation

Direction

Decision

Action

Requirement

## Resources

Document

Organization Structure



# 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

+ Environments

+ Domains

+ Knowledge Structures

+ Observation Structures

+ Operations

+ Exercises

+ Tracking

+ Resources

## Knowledge Objects Expected

Structure Elements (Schemas)

Activities: Operations and Exercises

Organizations

Documents

Answers (Observations and Comments)

Feedback

Issues

Lessons

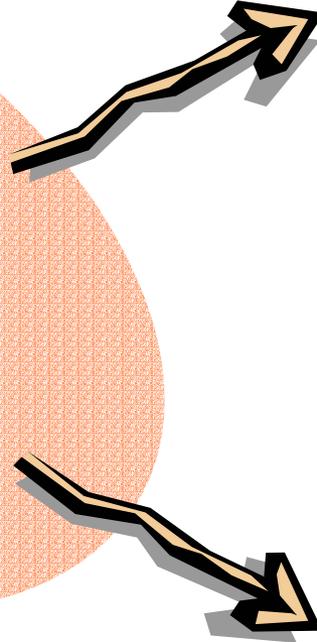
## Results

**Name –Type of object**

**Description (3 lines)**



## Knowledge Gathering



## 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

**Phase 1 Warning**

**Phase 2 Mounting**

**Phase 3 Deployment**

## **APOLLO Rotation 1**

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

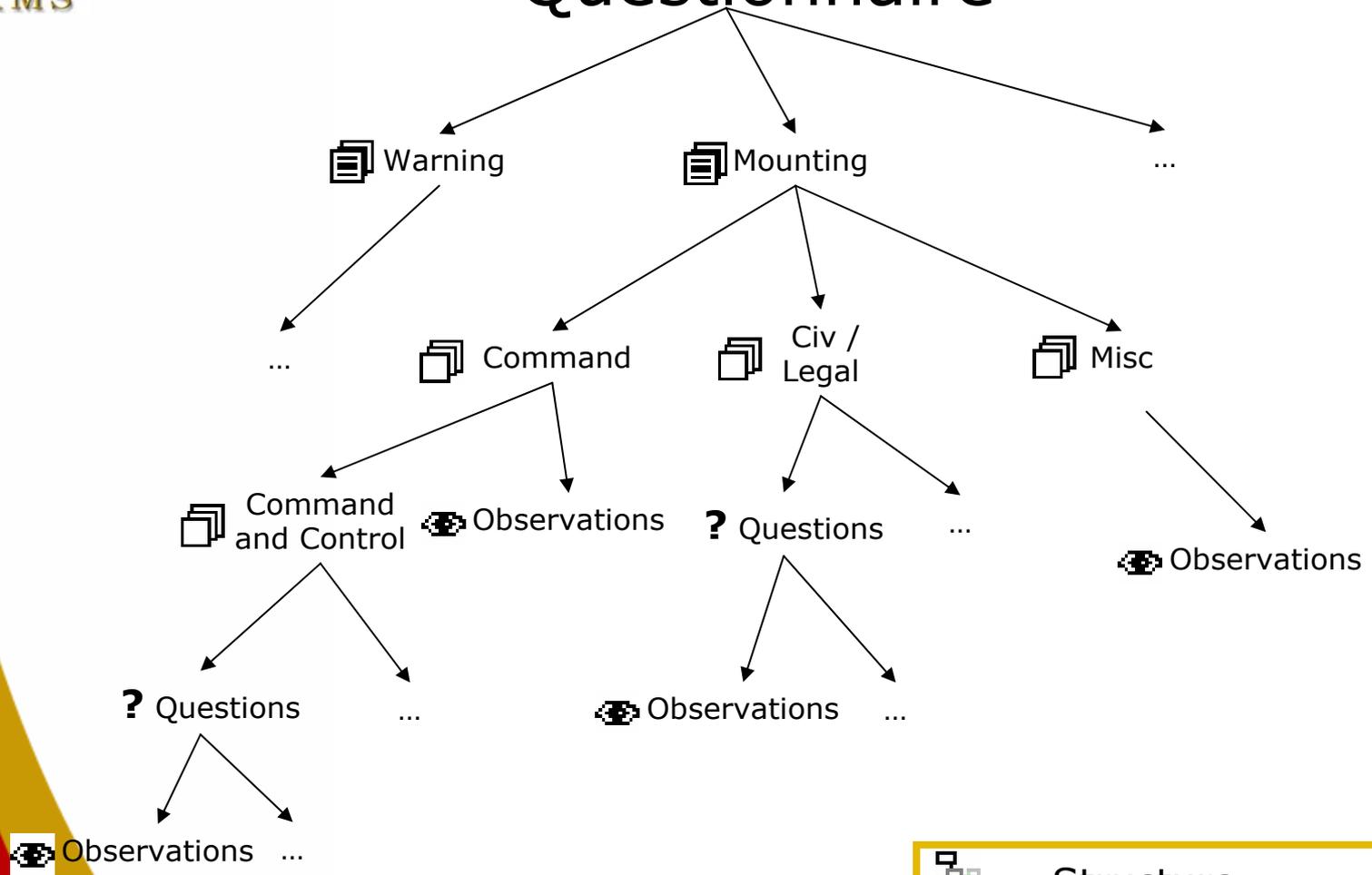
**Phase 4 Employment**

**Phase 5 Redeployment**





# International Operation Questionnaire



- = Structure
- = Phase
- = Subject and Sub-subject
- = Question
- = Observation



Army ▾ Domain: All ▾ User Name:  Password:  [Login](#)

[Feedback](#)

[Doctrine](#) [System Help](#) [Observation Structures](#) [Operations](#) [Exercises](#) [Tracking](#) [Resources](#)

- Operation
- By:
- ? [S. 1-1 \(J STAFF\) - Force Emp](#)
  - ? [S. 1-2 \(J STAFF\) - Coordinati](#)
  - ? [S. 1-3 \(J STAFF\) - Joint Plan](#)
  - ? [S. 1 - Warning Order](#)
  - ? [S. 2-1 \(J STAFF\) - Predeploy](#)
  - ? [S. 2-2 \(J STAFF\) - Concept o](#)
  - ? [S. 2-3 \(J STAFF\) - Develop](#)
  - ? [S. 2-4 \(J STAFF\) - Mounting I](#)
  - ? [S. 2 - Operations Order \(Op](#)
  - ? [S. 3 - Commander's Mission](#)
  - ? [S. 4 - Recce](#)

Operations > [International Operations](#) > [\(Intl.\) Peace Support Operation](#) > [APOLLO](#) > [R00 PH 1-3](#) > [1 - Warning](#) > [Battle Procedure](#)

**Question**  [Related Elements](#)

**Name**

S. 1 - Warning Order

**Description**

- a. Did the unit receive the Wng O in a timely manner?
- b. Did the Wng O provide sufficient information?

**Updated Date**

2004/02/17

**OBSERVATIONS**

2002 > [APOLLO](#) > [R00 PH 1-3](#) ▲

**Unit / 12 Fd Sqn**

- a. 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.

e. The tactical engineer organization was very much an adhoc organization based on a Engineer Field Sqn (-).

**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 sufficient information for the BG. Unfortunately, a confirmed OP O was not received from the J Staff, although sufficient direction from HQ 1 CMBG was received.

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

**DOCUMENTS** ▾  
**FEEDBACK** ▾

# Knowledge Analysis



## Issues



## Lessons and Lessons Learned



## Requirements





# Manage Issues

Recommendations



Direction



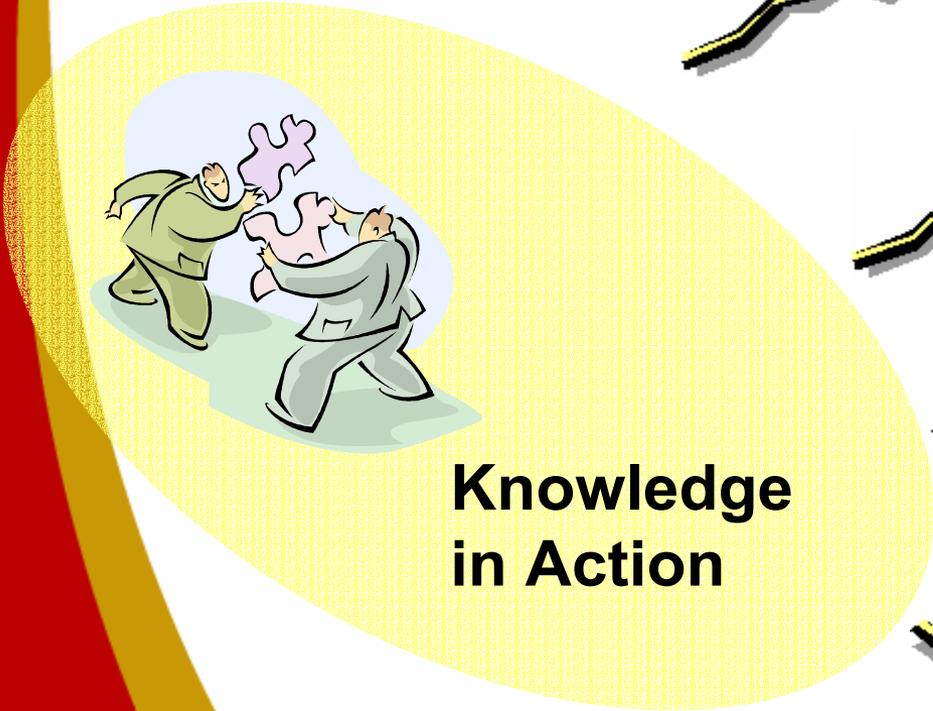
Decision



Action



**Knowledge  
in Action**

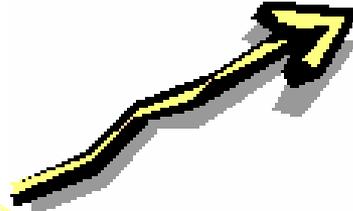




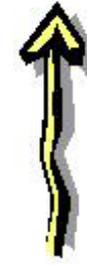
# Task Support = Help in Context



Training  
Material



Knowledge  
in Action



Doctrine



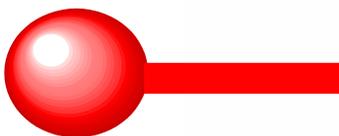
Tactics,  
Techniques  
and  
Procedures



Systems  
Procedures

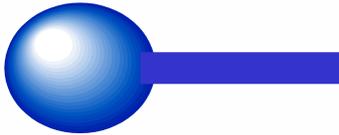


# Knowledge Dimensions



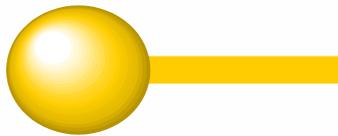
**Canadian Forces  
Organization Structure**

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



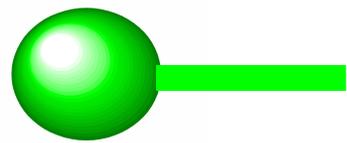
**Domain**

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



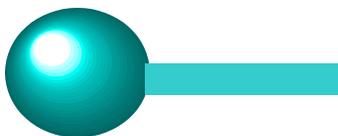
**Level of  
Activity**

- All
  - Strategic
  - Operational
  - Tactical



**Position**

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



**Community**

- All
  - Air Force
    - Fighters
    - Transport
    - ...
  - Army
  - Joint
  - Navy



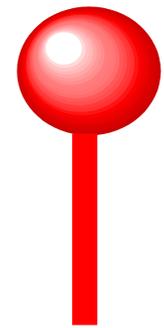
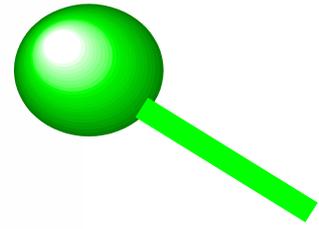
# Canadian Forces Organization Structure

**CFLLLKW**

- All
  - Air Force
    - A1
    - A2
    - A3
    - A4
    - ...
  - Army
  - Joint
  - Navy

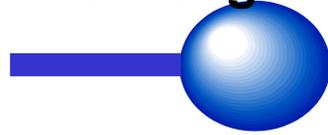
- All
  - Air Force
    - 1CAD LL
    - 1WING LL
  - Army
    - ALLC
  - Joint
    - J7 OALL
  - Navy
    - MWFC LL

**Position**



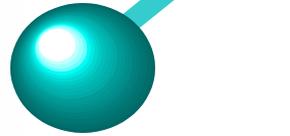
**Knowledge Views**

**Knowledge Domain**



- All
  - Lessons Learned
  - Doctrine
  - System Help
  - ...

**Community**



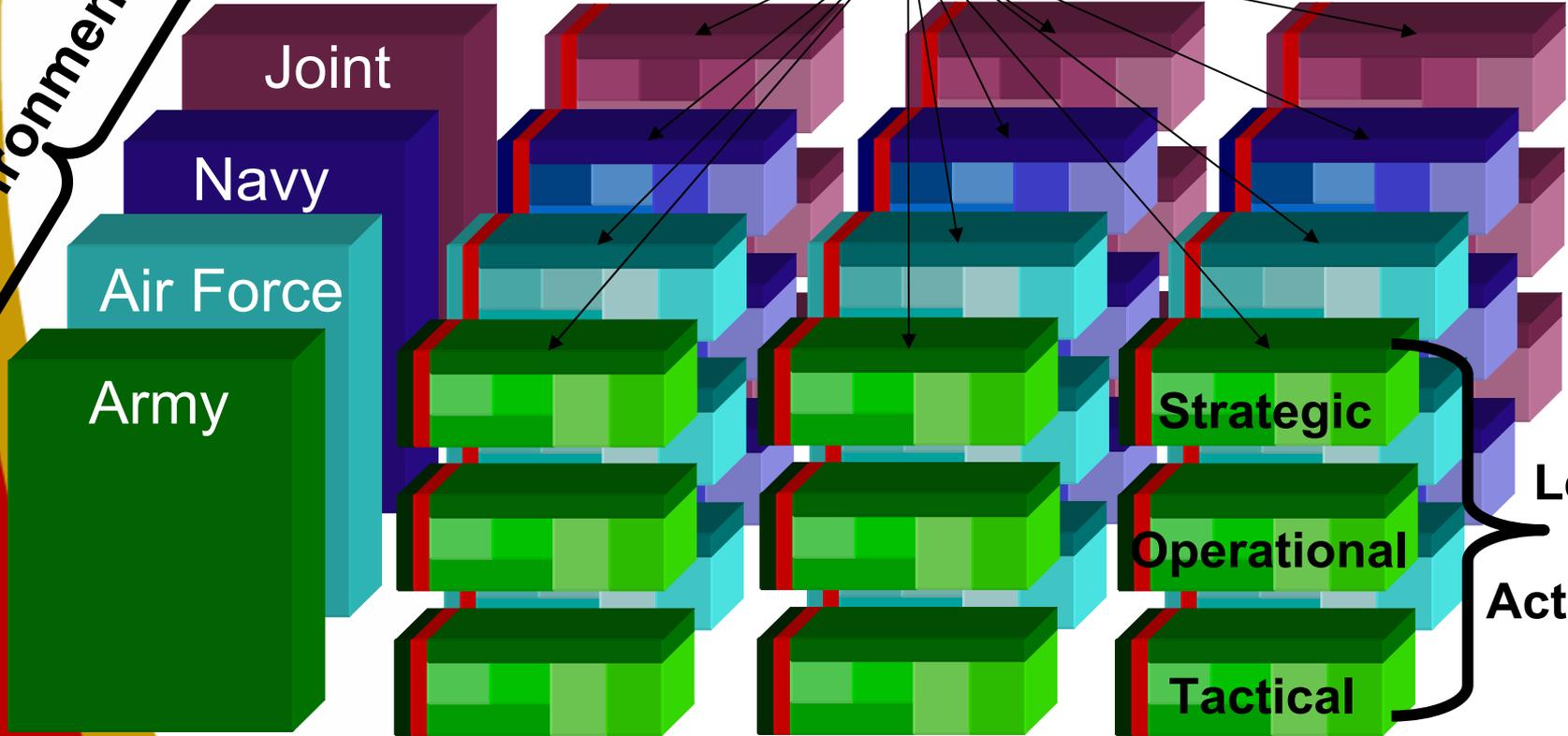
**Level of Activity**

- All
  - Air Force
    - Fighters
    - Transport
    - ...
  - Army
  - Joint
  - Navy

- All
  - Strategic
  - Operational
  - Tactical

# Organizations/ Groups

Environment



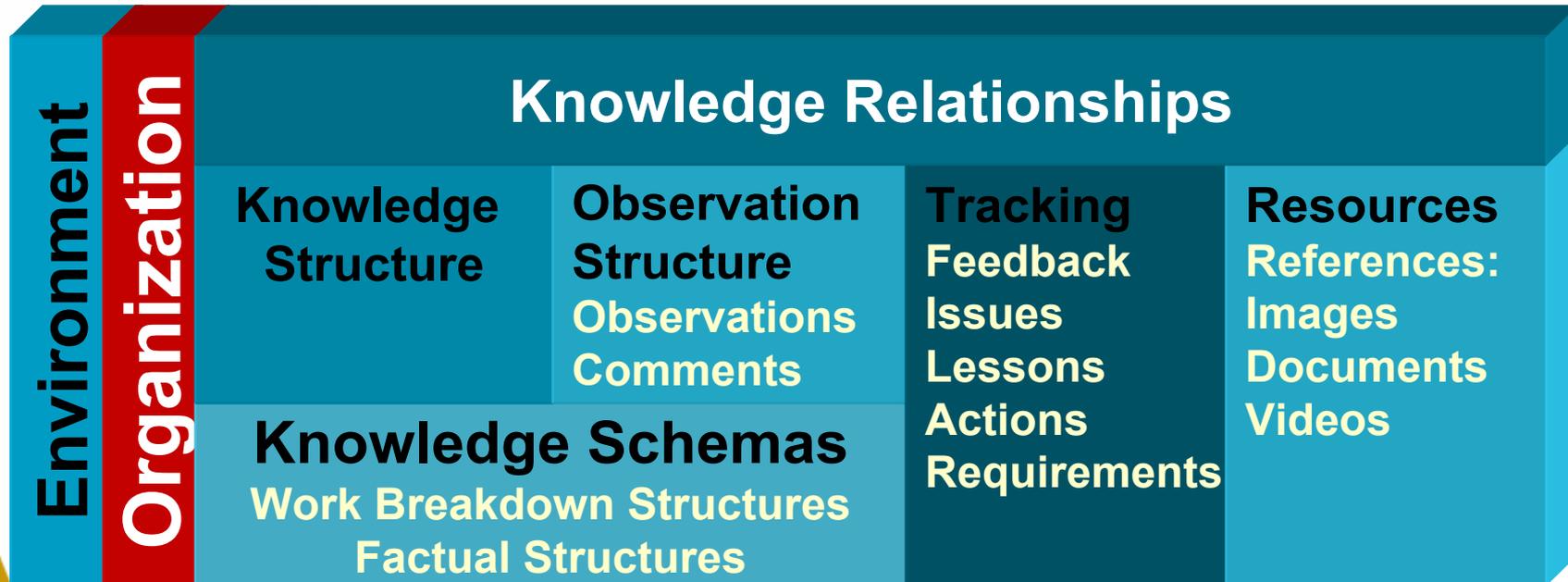
Level of Activities

Doctrine      Lessons Learned      Task Support (Help in Context)      ...

# Knowledge Domains



# Knowledge Managed by an Organization or a Group





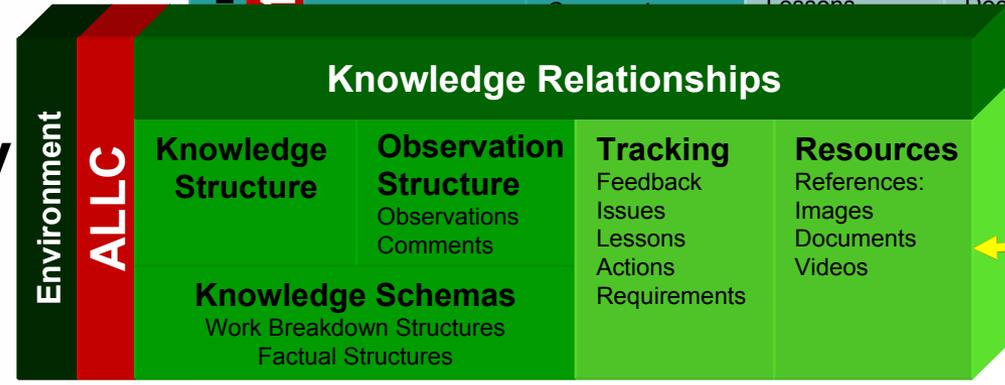
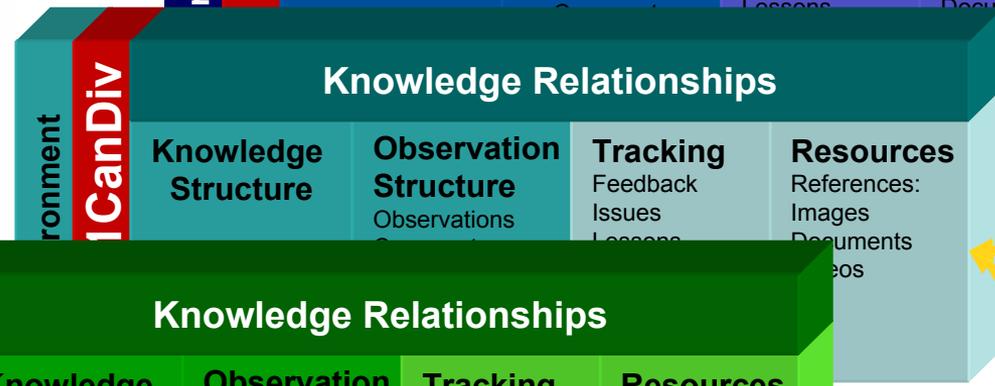
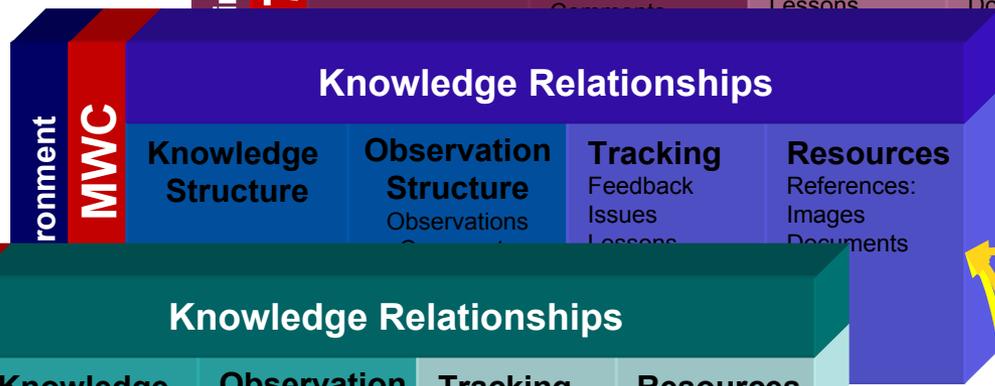
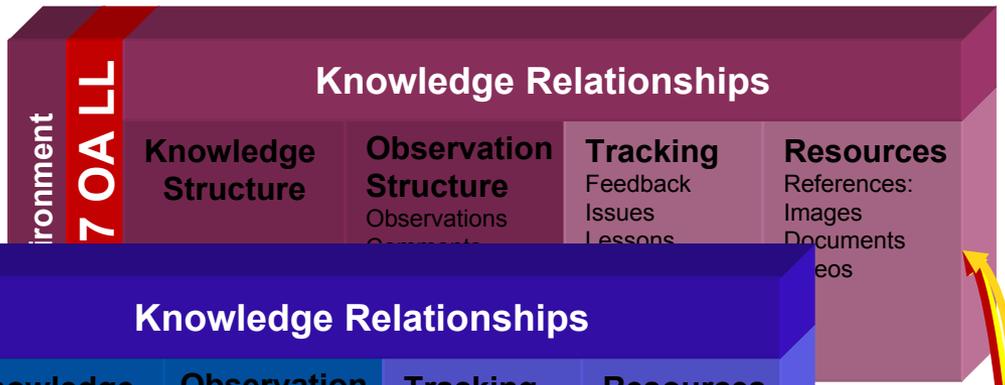
Environment

Joint

Navy

Air Force

Army



Knowledge Sharing

**CFLLLKW**

Lessons Learned

Knowledge Domains



# Summary--Future

- Project History
- KM Foundations
- KMS Concepts

## Future

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