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**Overview of
Information Systems Sector
DRDC Valcartier**

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11 September 2002



Defence Research and
Development Canada

Recherche et développement
pour la défense Canada

Canada

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Defence Research and Development Canada

- Agency within Canadian Department of National Defence
- Mission – provide S&T leadership to the Department
- Approximately 1000 people distributed over 6 sites
 - Corporate Headquarters, Ottawa, Ontario
 - Defence R&D Canada - Suffield, Alberta
 - Defence R&D Canada - Toronto, Ontario (was DCIEM)
 - Defence R&D Canada - Ottawa, Ontario
 - Defence R&D Canada - Valcartier, Quebec City, Quebec
 - Defence R&D Canada - Atlantic, Halifax, Nova Scotia

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Organizational Factors

- R&D Branch changed status to Special Operating Agency 1 Apr 00
- Business-oriented approach
- Program organized into thrusts, e.g Information Operations
- Thrusts consist of series of projects
- Projects have definite aim and objectives, milestones, deliverables, duration.

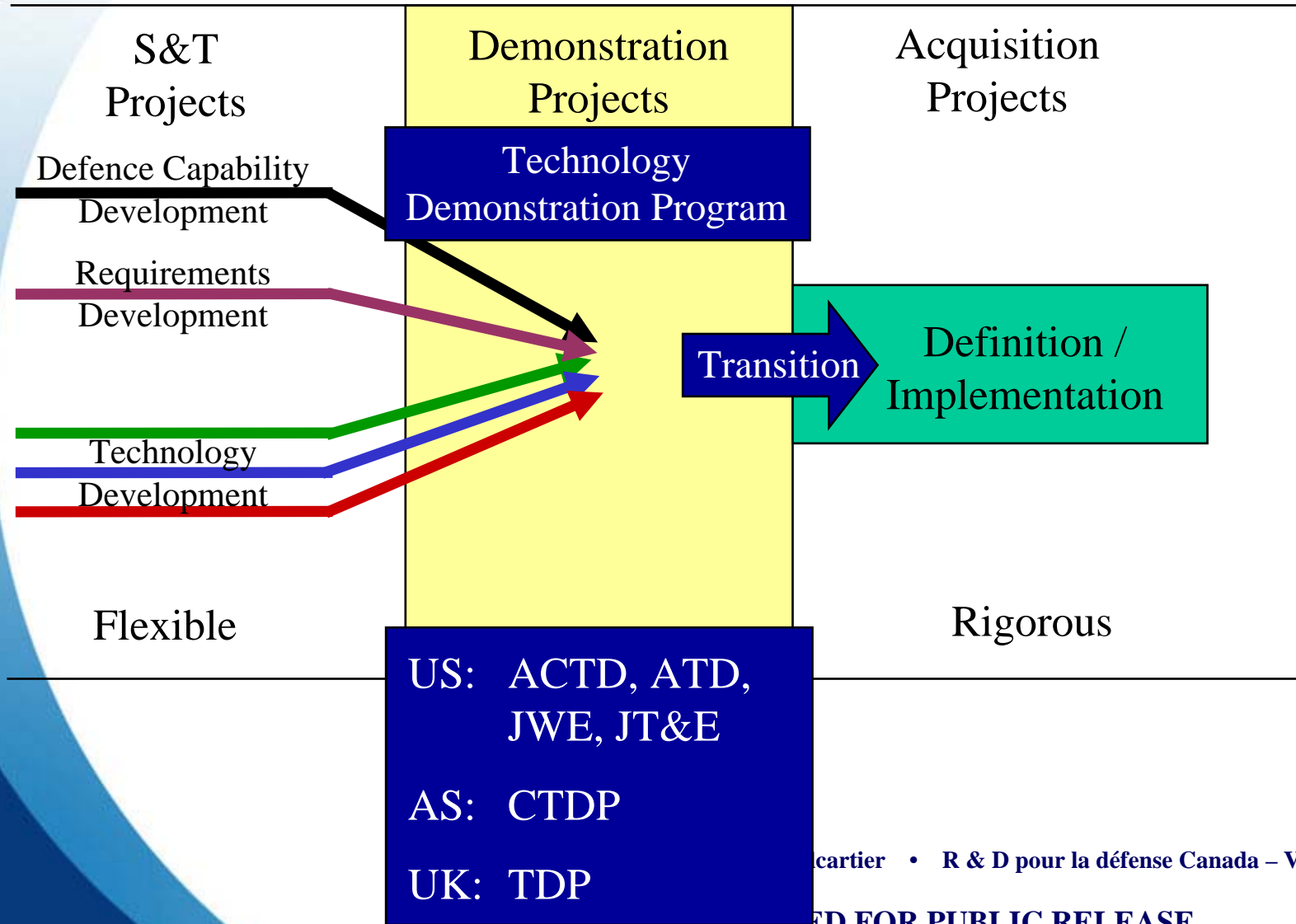


Organizational Factors

- Projects consist of activities
 - Technology investigation (research)
 - Technology application (development)
 - Technology Investment Fund
 - Defence Industrial Research Program
- Technology demonstration program
 - Demonstrate potential utility of new technology (ies) or concepts
 - Nominal limit of \$5M internal funding
 - Fast track approval, duration nominally three years



Technology Demonstration Program



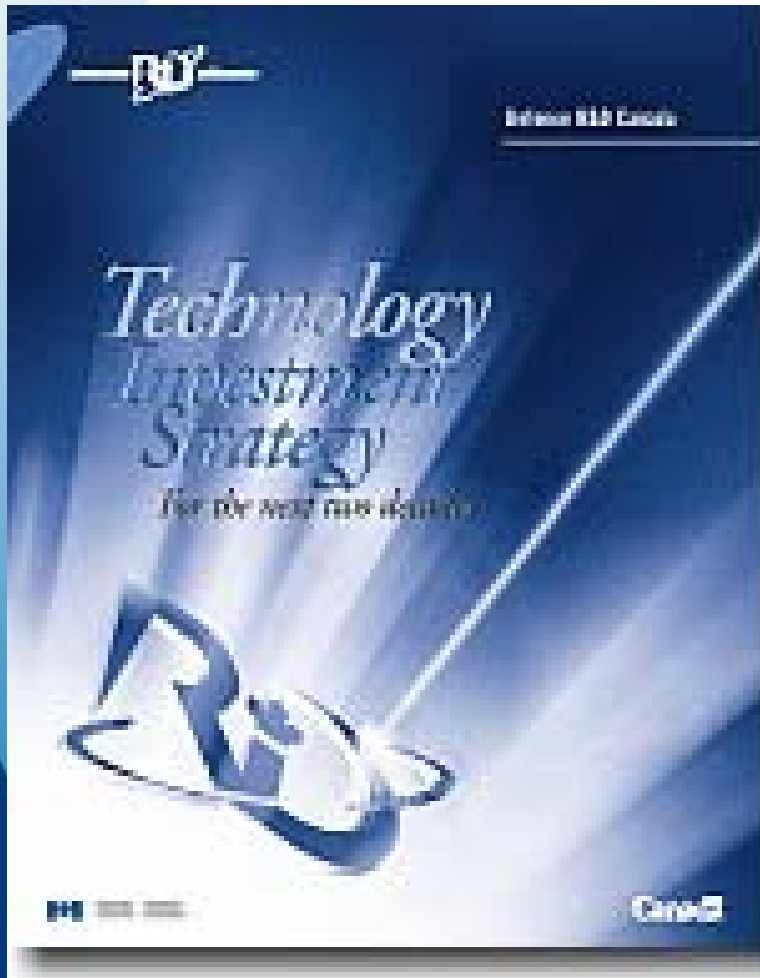


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- Approximately 340 people
- Three scientific sectors, nine sections
 - Optronics Systems
 - Combat Systems
 - Information Systems
- Remainder of presentation focusses on **Information Systems** sector



Information Systems Sector Activities



- Information and **K**nowledge Management,
- **H**uman Factor Engineering and Decision Support Systems,
- Command and Control Information Systems,
- Performance and Experimentation,
- Simulation, **M**odeling, Acquisition, **R**ehearsal, Requirements and **T**raining

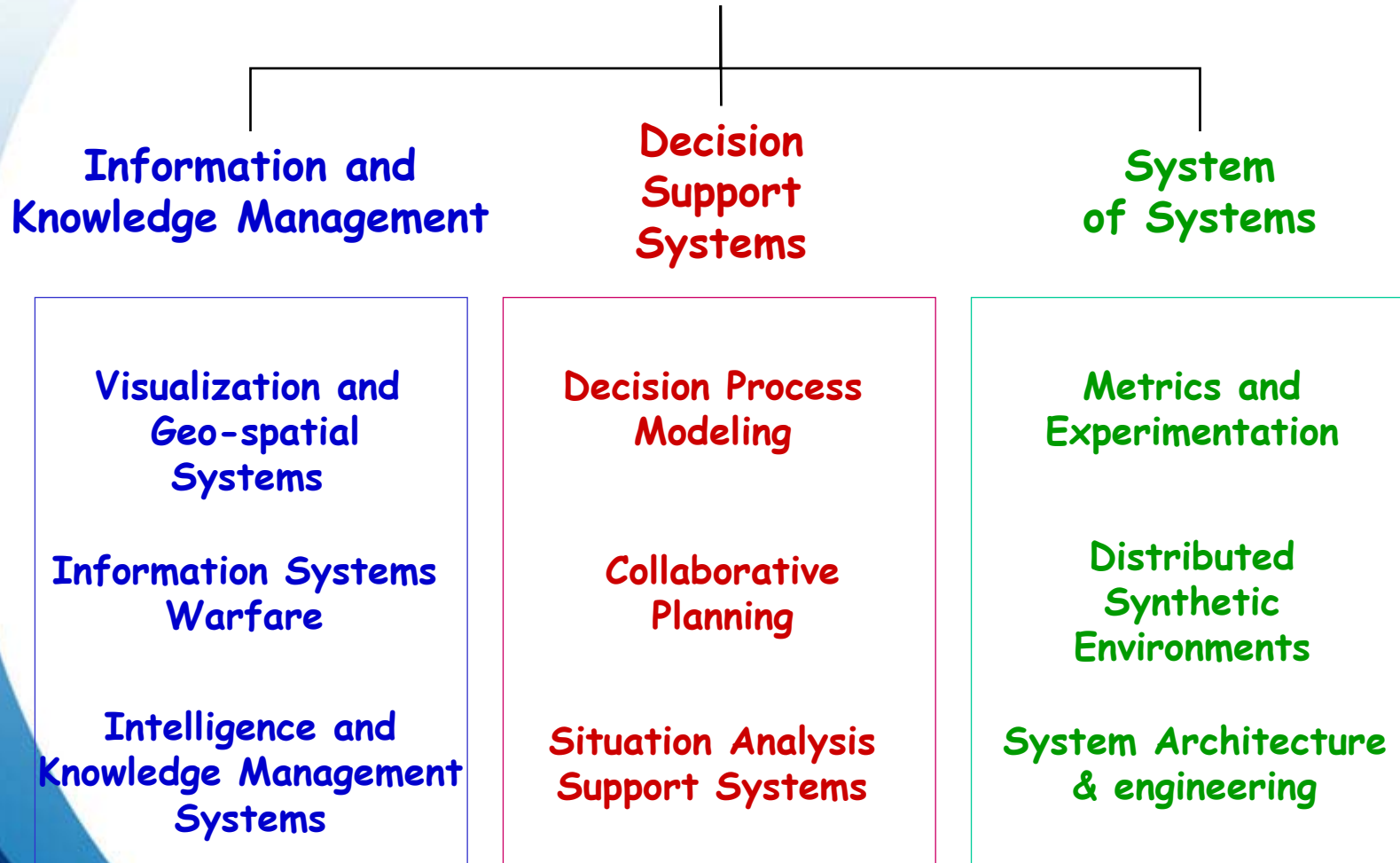
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Information Systems Sector

3 sections



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Information Systems Sector

3 sections

Information and Knowledge Management

**Visualization and
Geo-spatial
Systems**

**Information Systems
Warfare**

**Intelligence and
Knowledge Management
Systems**

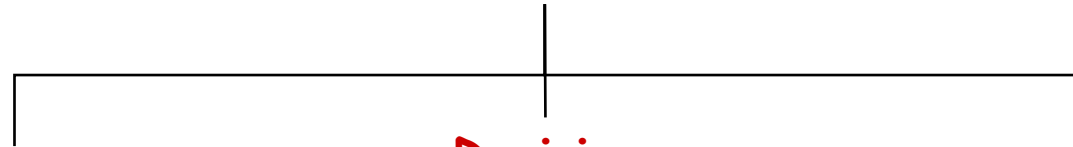
Advance techniques,
architectures and tools to
enhance:

- CF capability to achieve information superiority through dominant battlespace awareness and knowledge.
- DND capability to manage corporate knowledge.



Information Systems Sector

3 sections



**Decision
Support
Systems**

**Decision Process
Modeling**

**Collaborative
Planning**

**Situation Analysis
Support Systems**

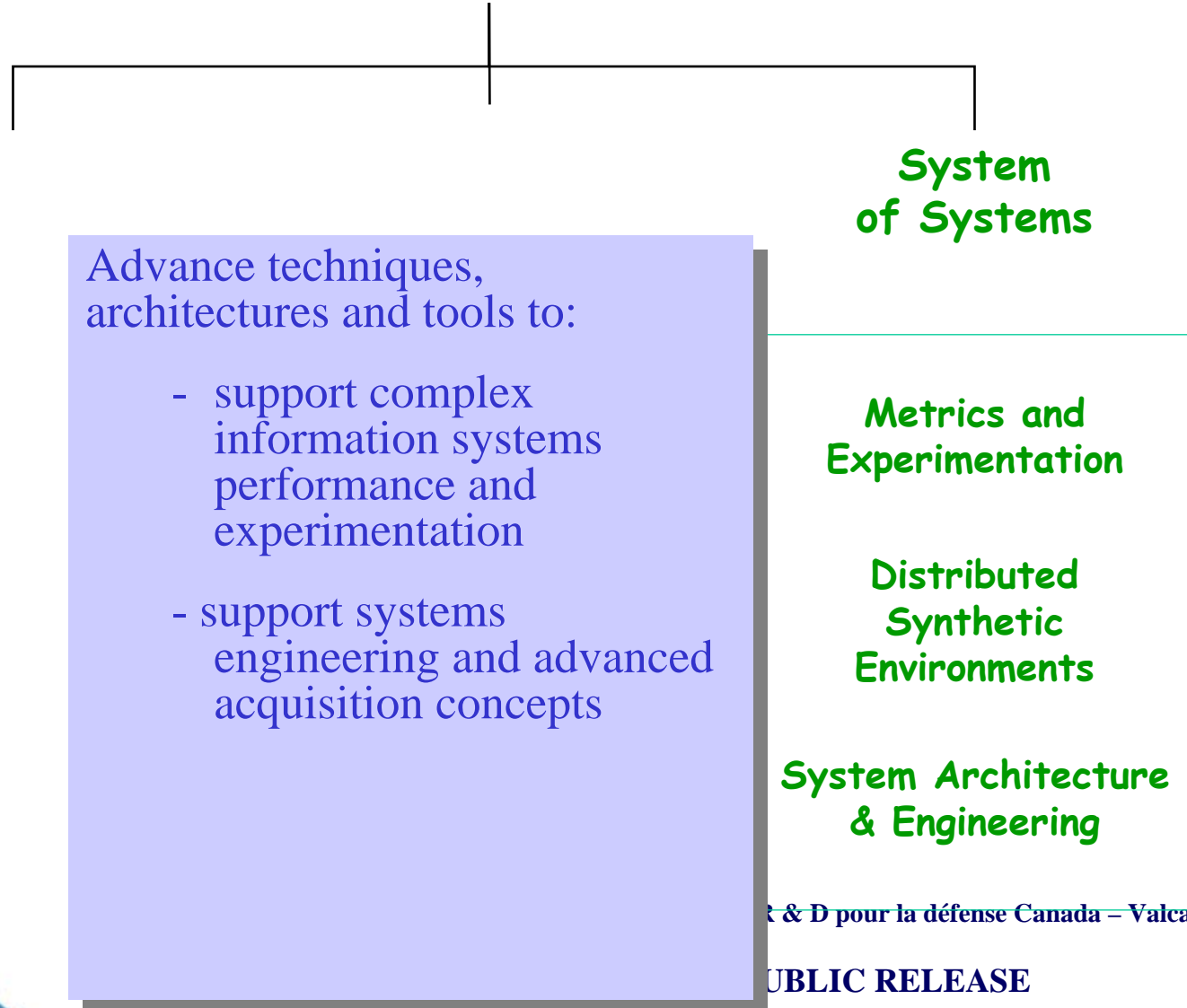
Advance concepts, techniques and tools to enhance:

- the decision making process by identifying COA
- real-time situation understanding
- implementation of the appropriate actions once a decision is made



Information Systems Sector

3 sections





Some Projects/Environments

- COP21 TD
- LIEWA/ISTAR TD
- HCTCN TD
- Urban Ops



COP 21 TD

Common Operational Picture for the 21st Century Technology Demonstration



What is a COP?

The **integrated capability** to **receive, correlate** and **display** a common operation picture, including planning applications and theatre-generated overlays/projections.

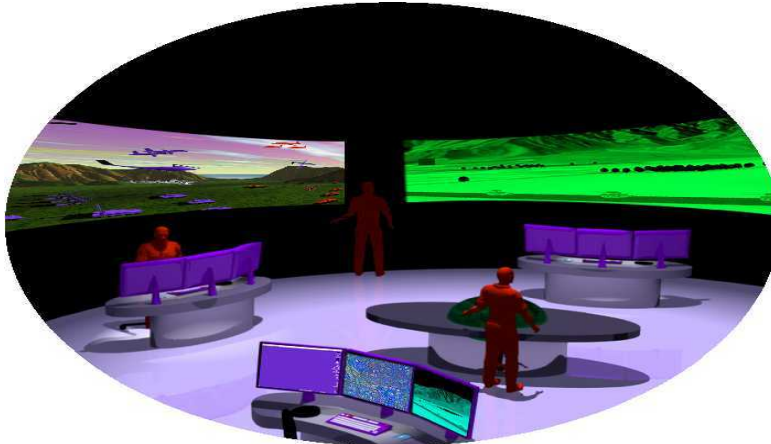
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COP 21 TD

Common Operational Picture for the 21st Century Technology Demonstration



Objective:

Demonstrate in an **interactive** manner innovative technologies that could influence **concepts**, **doctrine** and **capabilities** of the COP of the future and ensure **risk mitigation**.

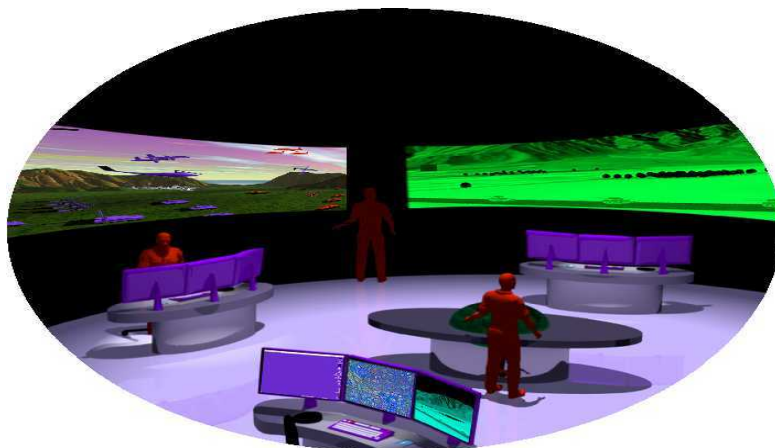
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COP 21 TD

Common Operational Picture for the 21st Century Technology Demonstration



Challenges:

- Information Fusion
- Knowledge Management
- Decision Aids
- Visualisation
- Conceptual Operational Architecture
- Interoperable Architecture

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LIEWA / ISTAR TD

Sensors - Data collection

Pre-processing

All-source Fusion
Intelligence

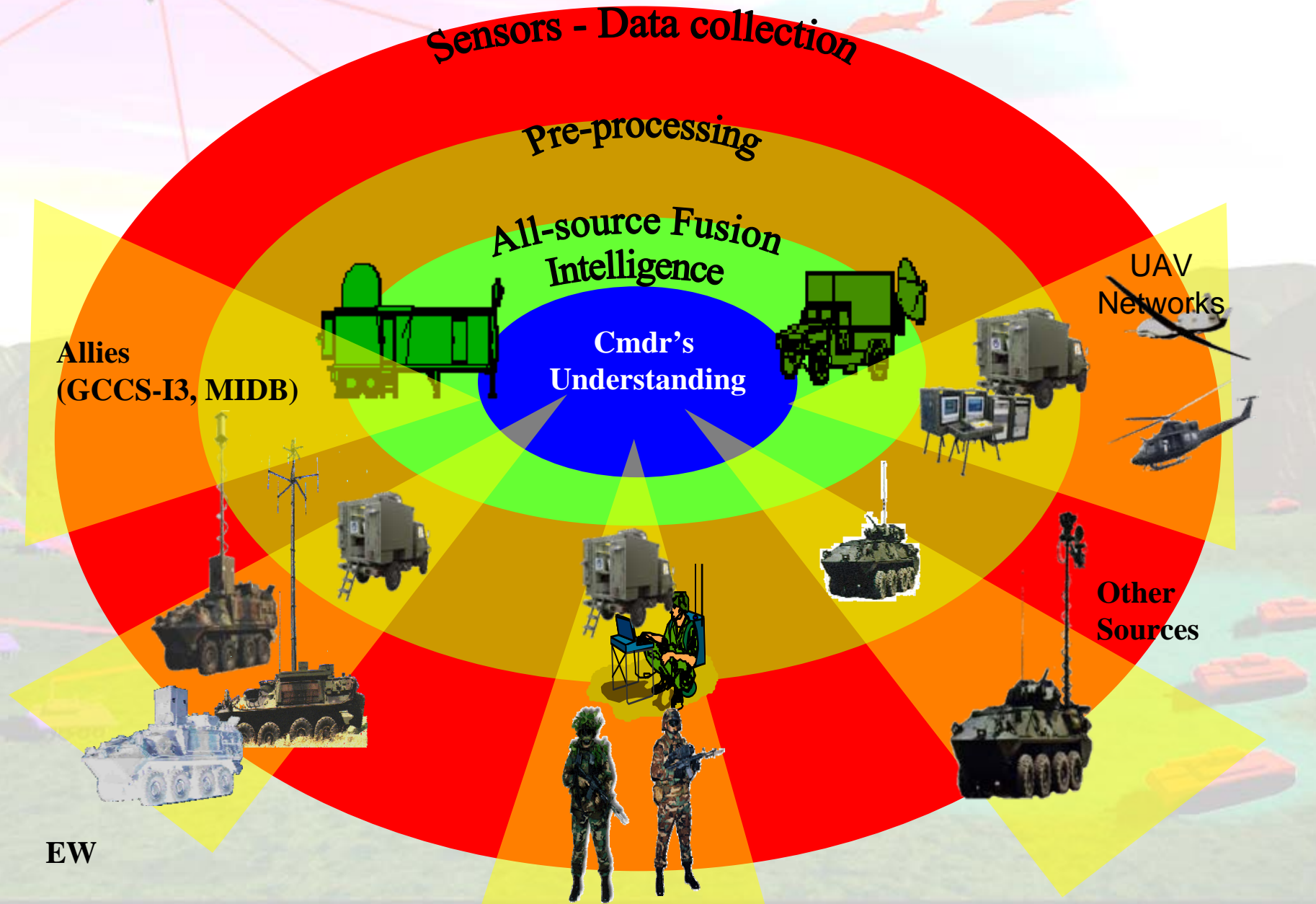
Cmdr's
Understanding

Allies
(GCCS-I3, MIDB)

UAV
Networks

Other
Sources

EW



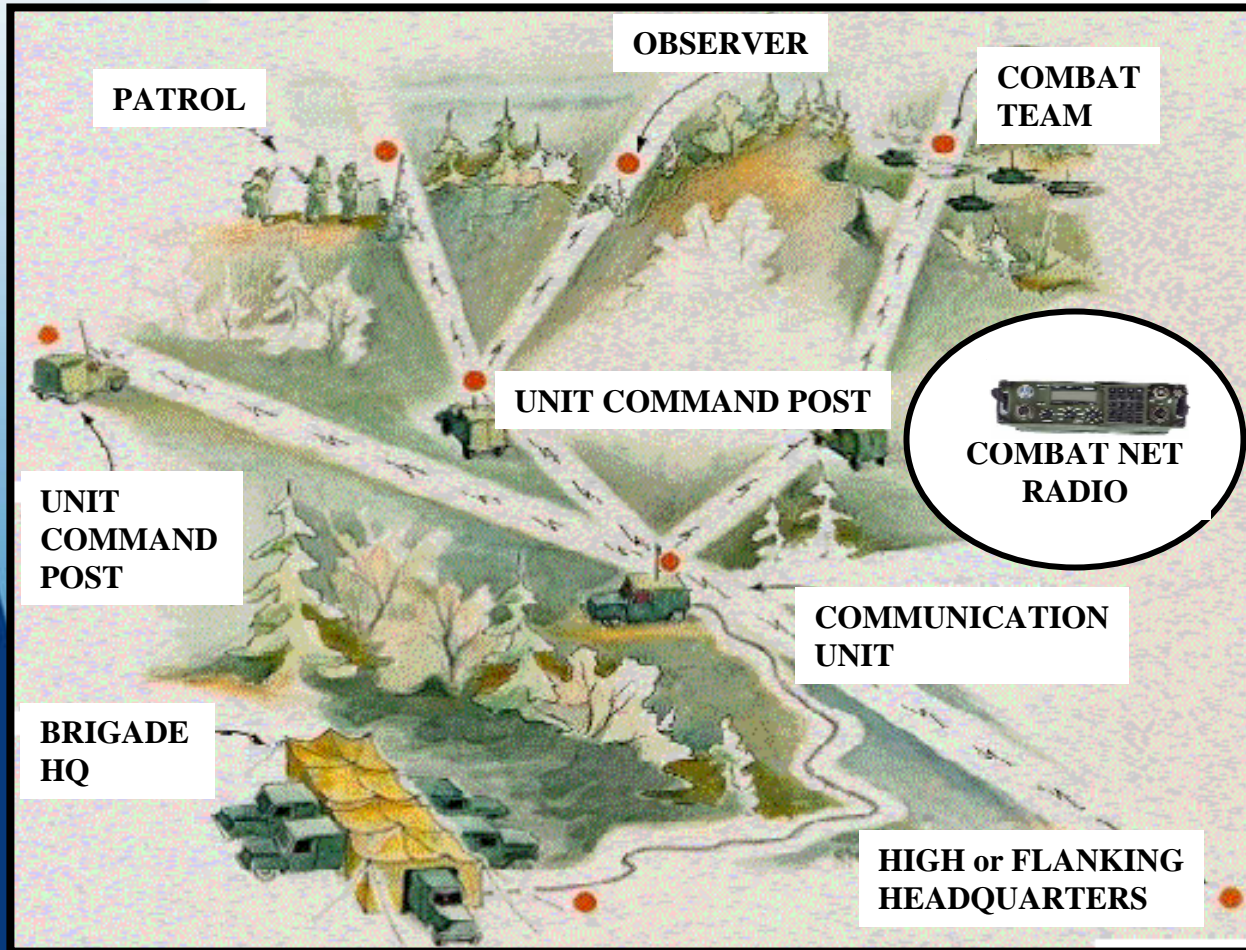


ISTAR TD Objective

- Demonstrate how **innovative** techniques for automation will enable analysts to:
 - Better coordinate multi-source collection of information;
 - Achieve enhanced battlefield understanding and situational awareness;
 - Facilitate the generation of ISTAR all source products;
 - Disseminate them efficiently and in a timely manner.



HCTCN TD (High Capacity Tactical Communications Network)

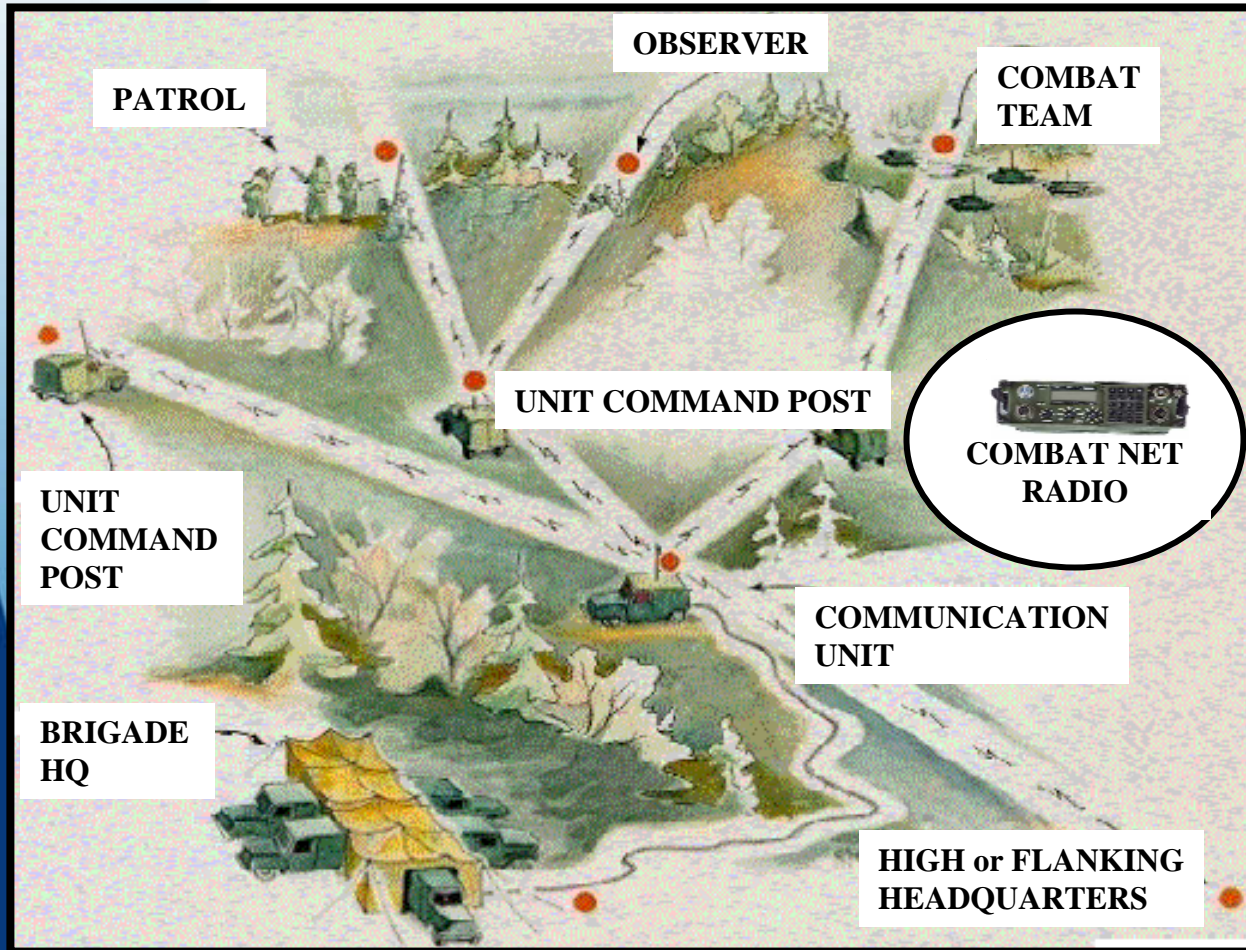


Objective:

Demonstration of selected technologies in fields of wireless communications and information management that can increase the limited capacity of tactical communications systems to support command and control systems



HCTCN TD (High Capacity Tactical Communications Network)

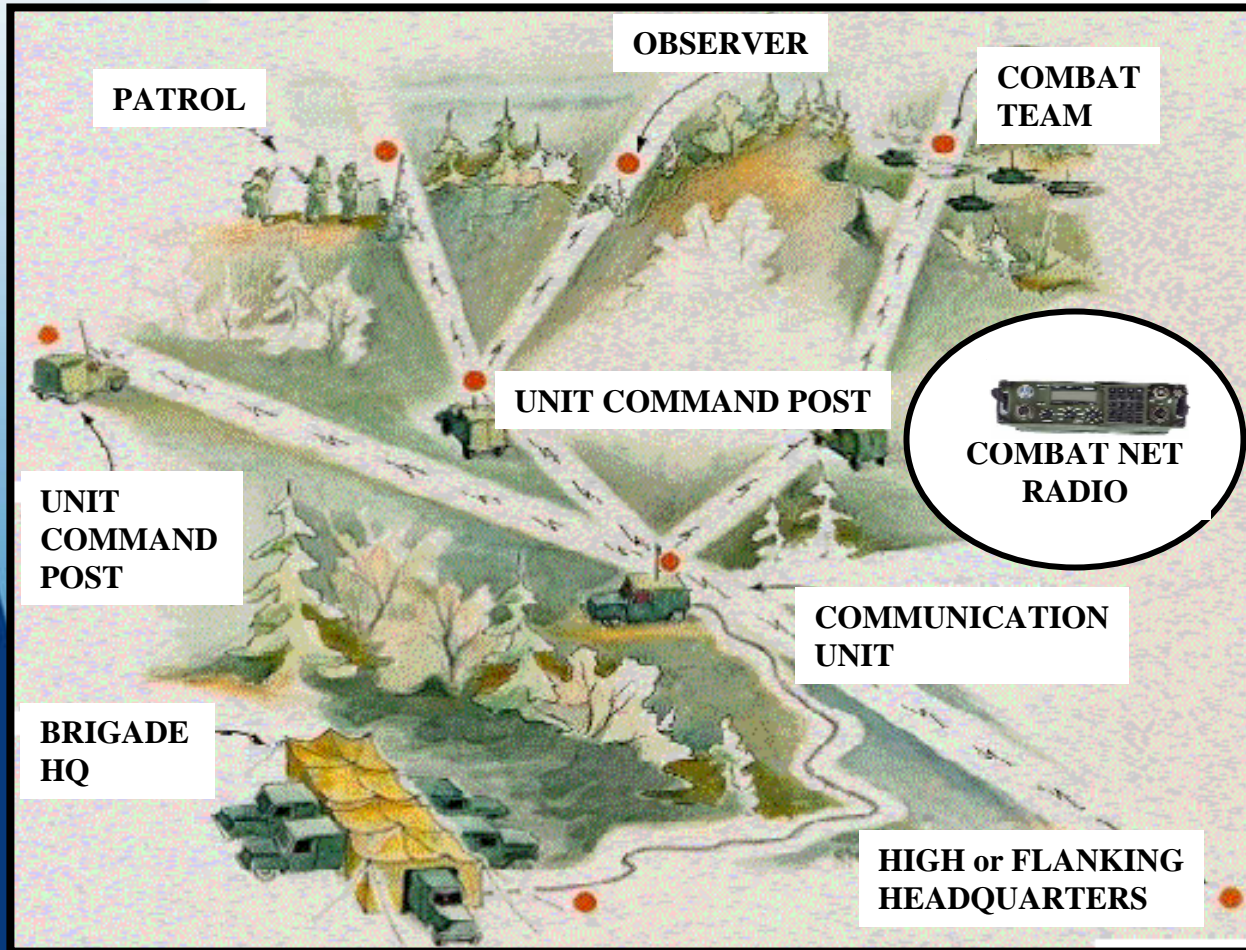


Major Objectives:

- High Capacity Tactical Mobile Radios
- Tactical Networking
- Information Management



HCTCN TD (High Capacity Tactical Communications Network)



High Capacity Tactical Mobile Radios:

Increase data rate of CNR(P)

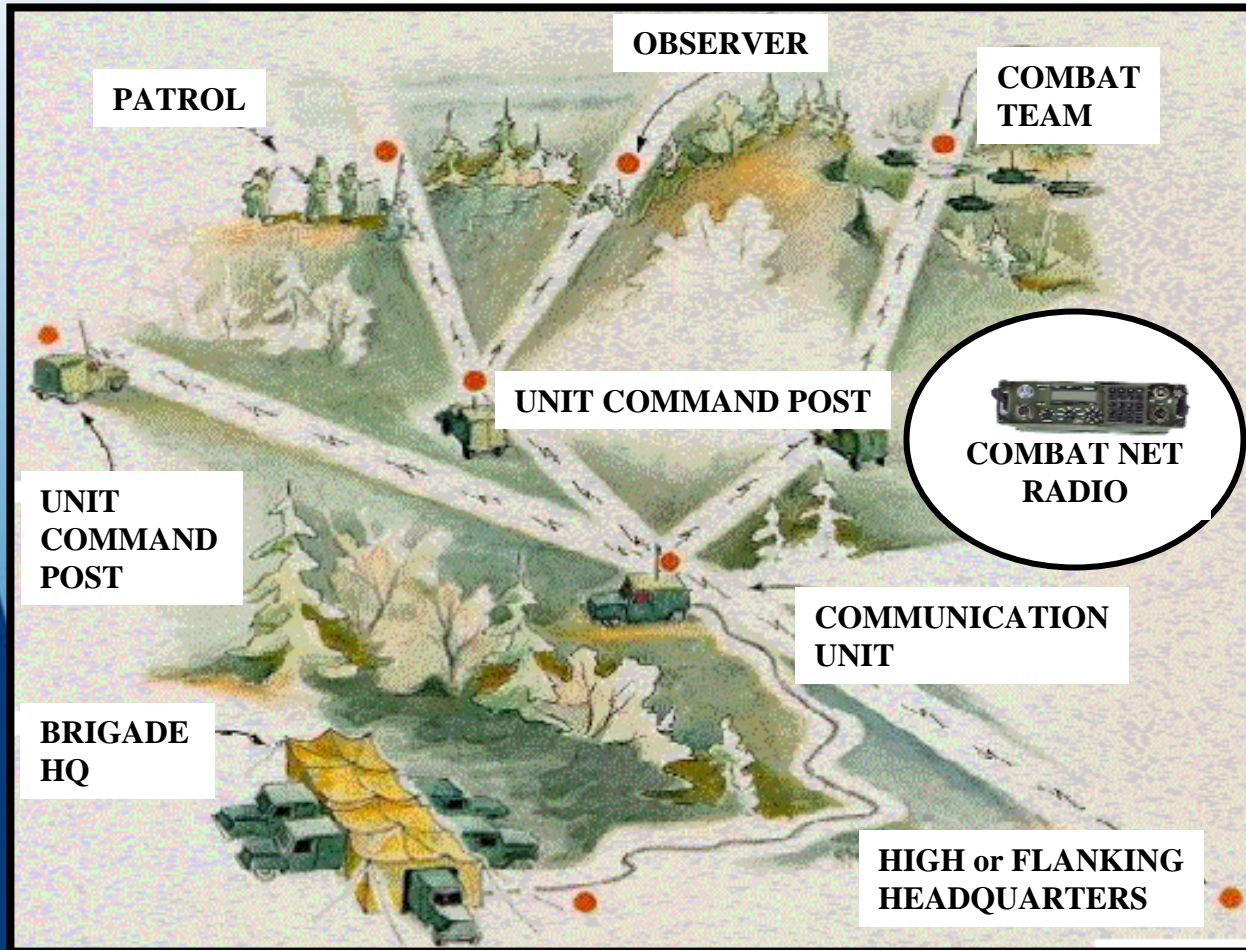
Communications Research Center

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HCTCN TD (High Capacity Tactical Communications Network)



Tactical Networking:

Demonstrate quality-of-service based, self-organizing, self-healing, integrated mobile network

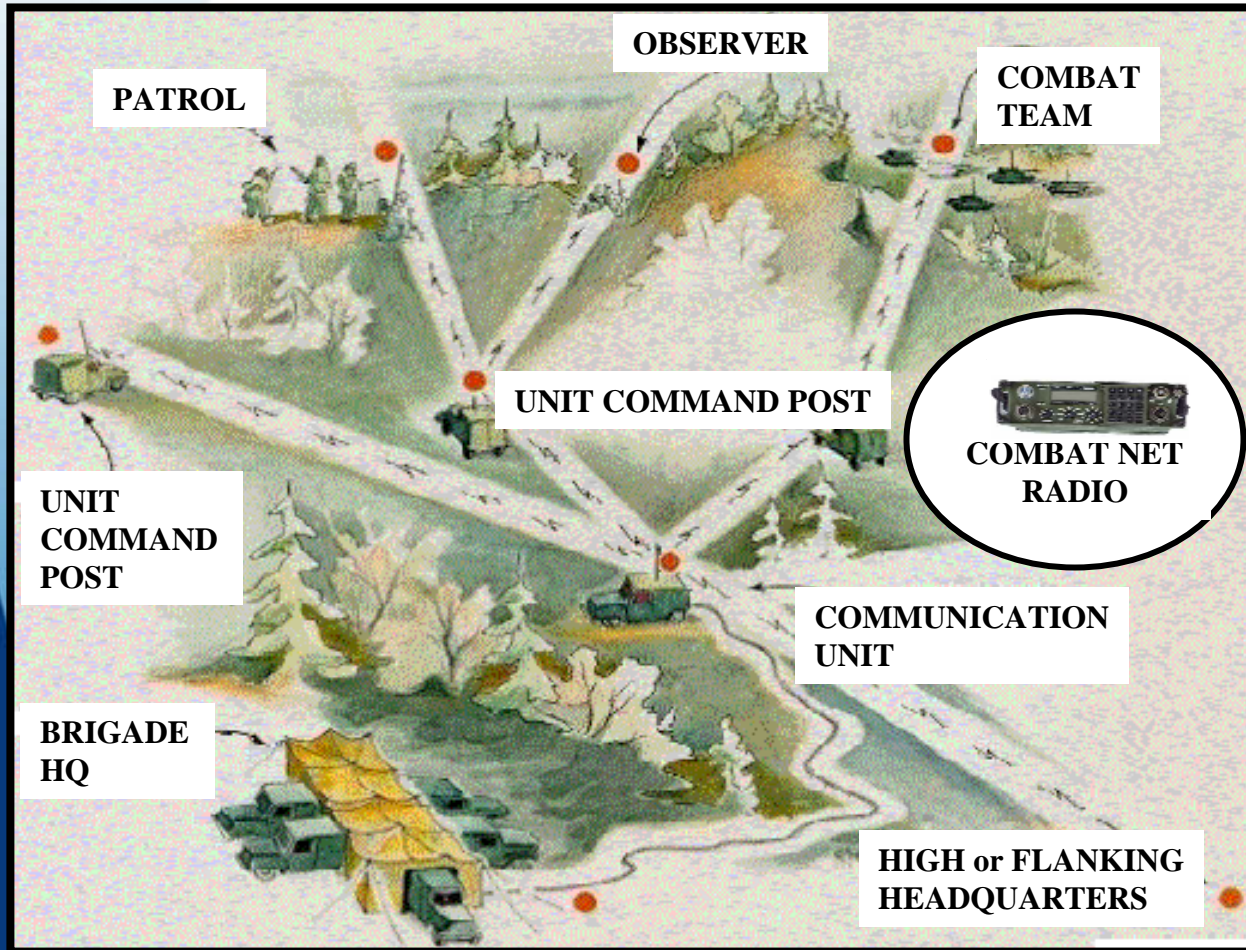
Communications Research Center

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HCTCN TD (High Capacity Tactical Communications Network)



Information Management:

Demonstrate adaptive strategies to optimize the flow of information in low bandwidth tactical mobile environment

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Urban Operations



Summit of the Americas
Quebec City

Demonstration of
technologies and
requirements capture

Performed in Collaboration
with **Harris Corporation**



Urban Operations



Where we are:

Identifying Canadian and NATO priorities & niches

On-going knowledge engineering w.r.t. urban ops

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