Command Post Anywhere Experiment
Exploiting TeamSight for Ops Concepts

LTC Mervyn Cheah
LTC Chew Lock Pin
Gwenda Fong
Cheryl Ann Teh
Elsie Toh
Challenging Old Ways

- Fixed physical structures vs Information structure
- Physical co-location
- Command brief
- Sequential planning
• Information structure that is mobile, stable, continuous, self-synchronising, self-healing, survivable
• Motivation is to enhance Bde HQ’s span of command & control
TeamSight

• GIS-based collaborative tool with separate workspaces for each staff officer; Supplemented with video-conferencing, text chat, & e-mails

• Advantages:
  – Easy access to info thus reducing need for explicit dissemination
  – Individual workspace while maintaining Team Operating Picture
  – Visualize battlespace +/- 2 echelons as well as that of peers

Projection Screens Display at COMD Cell in a Distributed CP set-up

Demo clip
How can we exploit the Power of IKC2 to enable a Future Armoured Bde TOC to Enhance its Survivability while generating Superior Operating Tempo for the Land Battle?
What kind of eXpt is this?

Three Types*

1. **Discovery Experiment**
   - Designed to observe & catalogue the application of new technology, processes & organization to military scenarios.
   - “Hypotheses generation” experiments, guided by innovation propositions.

2. **Hypothesis Testing Experiment**
   Classic type as conducted by scientists to falsify hypothesis. Conduct of these experiments require specific hypotheses to be formulated and tested.

3. **Demonstration Experiment**
   To demonstrate known truths, akin to experiments conducted at schools where chemistry or physics experiments demonstrates to students the truth of the theories.

*from CCRP Publication: Code of Best Practices for Experimentation*
eXpt Objectives

To investigate the following hypotheses:

1) D-hubbing augmented with Team-Sight will have the same sense-making ability as a Centralized CP

2) D-hubbing augmented with Team-Sight will provide continuous situation awareness thereby increasing the operational tempo of the Brigade

3) D-hubbing will enhance Brigade CP survivability
Conduct of eXpt

- Preparation for experiment

- Bde CP Operations
  - Condition 1: Centralised CP setup (Run 1)
  - Condition 2: D-Hub CP Concept (Runs 2-6, each with varying levels of connectivity)

- Measures:
  - Situation Awareness Assessment
  - Analysis of Communication Patterns
  - Contextual Inquiry
eXpt Conditions

• Within D-hub setup, ability to command and control with:

  – Full Network Performance (Video, Voice, Collaborative C2)
  
  – Degraded Network Performance (Less Video and Voice)
  
  – Loss of certain Network Performance (No links to some Cells)
Centralised CP Set-up (Run1)

- COMD Cell
- INT Cell
- OPS Cell
- FSCC/CSS Cells

Wired LAN (100mbps)

30 m
D-hub CP Set-up (Runs2-6)
**Findings - Communication Activity**

- Greater % of communication for exchange of ideas, less for info dissemination and building of shared understanding as compared to centralized CP.
- TeamSight provides platform for information dissemination and building of shared understanding.

<table>
<thead>
<tr>
<th>Test Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissemination of Info</td>
<td>0.109</td>
</tr>
<tr>
<td>Building Shared Understanding</td>
<td>0.102</td>
</tr>
<tr>
<td>Exchange of Ideas</td>
<td>0.109</td>
</tr>
</tbody>
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*Wilcoxon Signed Rank Test*

Moderate inter-rater agreement (Kendall’s coefficient of concordance, $W = 0.450$)

Centralised CP

D-Hub (full suite)
Findings - Communication Activity

- Various communication tools for different purposes
- Dissemination of information via text chat
- Building of shared understanding via voice communications
Findings - Situation Awareness

Situation Awareness across various Set-Ups

- No significant difference in SA across all set-ups
  => TeamSight successfully mitigated distributed set-up
- Level 2&3 > Level 1 SA in D-Hub (text) because text chat serves as a record

Test Variable | p-value
--- | ---
Level 1 | 0.591
Level 2&3 | 0.202

Friedman Test
Findings - Situation Awareness

- Increase in SA levels going from the 1st to the 2nd administration for each run, across all roles
- Staff officers would have a better understanding of the scenario as it unfolds and with discussion
- Effect more pronounced in runs with TeamSight
Discussion

• **Hypothesis 1**: Same level of sense-making

• No significant difference in communication patterns.
  – D-Hub: Reduced info dissemination & building of shared understanding; Increased exchange of ideas

• No significant difference in situation awareness levels
Discussion

• **Hypothesis 2**: Continuous SA leading to superior ops tempo

• No significant difference in situation awareness levels despite less frequent command briefs
  – Centralised CP: 80% of time spent working in own cell, 20% spent on P group meeting in Comd cell
  – D-Hub: Greater amount of concurrent activity
  – Commander able to oversee S2 and S3 action-reaction unobtrusively
  – Teamsight enables faster planning & re-planning – 1.5 hrs (without MCM, ADA, OPSCOORD) vs 4 hrs (doctrinal hrs for quick BP)

• Subsequent experiments need to look at quality of plans
Discussion

• **Hypothesis 3**: Enhanced survivability of Bde HQ

• Cells distributed across span of 10km
• Subsequent experiments need to measure EM signature
Conclusions

- Culmination of a series of smaller scale exercises that test CPA concept in a TeamSight environment
- Findings and observations indicate feasibility of such a set-up
- Paves the way for future experiments that seek to strengthen and extend the concept
Questions?