Bounding Wicked Problems: 
The C2 of Military Planning

Alexander Kalloniatis
Iain Macleod
Phuong La
DSTO Australia

Presented by Anthony Dekker
Overview of this talk

Context

Background Concepts

Process Adaptability

Organisational Adaptability

Discussion
“Even as its military hones and institutionalizes new and unconventional skills, the United States still has to contend with the security challenges posed by the military forces of other countries.”


How can a military headquarters agilely respond to a spectrum of contingencies: from Whole-of-Government operations to State-on-State warfare?
Background Concepts
Pigeau-McCann C2

- **Command**: human will and creativity
- **Control**: structures and processes
- **C2**: establishing Common Intent to achieve coordinated action

- Explicit Intent vs **Implicit Intent**
- Explicit control vs **spontaneous emergent behaviour**

Creative Command

- Commander: Bounds Solution Space
- Subordinates: converge to innovative solutions within space

**This is planning!**
Linearity and Planning Processes

Mission Analysis

Course of Action Development

Course of Action Analysis

Decision

Concept of Operations

Waterfall method
One designer
Another designer

Gather data
Analyze data
Formulate solution
Implement solution

Problem
Solution
Wicked Problems *(Rittel & Weber, Conklin)*

- Development of candidate solutions reveals further aspects of the problem
- No stopping rule: correct solutions cannot be identified
- Solutions are not simply “right” or “wrong”
- Each problem is essentially unique and novel
- Every solution is a “one-shot operation”
- No given alternative solutions

Need creativity, innovation, collaboration, etc.

The JMAP process is more suited to Tame Problems
Michigan State University (MSU) Model*.

Centralised

Mechanistic
best for
Tame

Hybrid 1
integrating
specialists
centrally

Functional

Hybrid 2
autonomous
specialist
teams

Divisional

Organic
best for
Wicked

De-Centralised

* Structural Contingency Theory, Hollenbeck, Ellis, Moon, Jundt et al.
Transition is easiest in one direction

- Mechanistic: best for Tame
- Hybrid 1
- Hybrid 2
- Organic: best for Wicked
Bounding Wicked Problems #1

Process Adaptability
Adaptability within JMAP

Process formalisation “bounds” the nonlinearities – creativity, judgement, common intent
Level of Aggregation as a Lever

- Military planning is a **mixture** of flexible & process-centric work practices

- Process-centric practices define an **outer envelope** for the work – which organisational units should come together, etc.

- Flexible work practices operate within that envelope

- The degree of process-centricity can be **varied** according to the wickedness of the problem

- The commander operates this lever to tune the process
Traditional planning for Tame problems
**Intermediate process-centricity**

Occasional jumps forward and backtracking: “opportunity-driven problem solving” (Conklin)

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<tr>
<th>Stages of Problem Solution</th>
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Opportunities for efficiency and improvement in the process are highlighted through these occasional jumps.
Unstructured planning – Wicked problems

Stages of Problem Solution

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Manipulating process-centricity

• Specifying **number** of discrete stages for planning

• Specifying the **nature** of a planning stage (e.g. Problem Formulation vs Data Gathering for Tame problems only)

• Specifying the **intermediate products** required

• Specifying the **time breakdown** for stages

• Specifying the **diversity of participants** for stages (Wicked problems require a rich spectrum of social complexity)

• Specifying the degree of independent work vs collaboration

• Varying the degree of senior leader involvement
Bounding Wicked Problems #2

Organisational Adaptability
Many small-medium size Operational Joint Headquarters are hybrid from MSU perspective (eg HQJOC, PJHQ, HQJFNZ)
Adapting according to the problem type

- **Centralised**
  - Mechanistic
   - best for Tame
  - Organic
   - best for Wicked

- **De-Centralised**
  - Functional
  - Divisional
Returning to mechanistic mode via hybrid

- **Mechanistic**: best for Tame
- **Organic**: best for Wicked
- **Hybrid**: command team more involved
Guidance on adaptability

- Wicked problem-solving requires **human creativity** … functions best in a **collaborative flexible environment**
- Creativity is **fundamental** for both commanders and planning staff
- **Common Intent** is the underlying force for convergence
- An **overarching planning process** enables creative focus on particular aspects of the problem
- Both the **degree of process-centricity** and the **organisational structures** need to be adaptable, according to the problem, but according to understood modes
- The **transition process between structures** may need dynamically varying degrees of centralisation *(further experimentation needed)*
Overview of this talk

Goals and Philosophy

Background Concepts

Organisational Adaptability

Discussion

Any Questions?