Agility in an Extended Space of Constructible Organisations

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Example:
UN-endorsed peace-keeping operation in response to border conflict between adjoining nations. ADF to mount a JTF to “keep the peace”. Joint Operational HQ requires a planning team to conduct *Immediate Planning* for the Operation to launch in 2 months time. Planners (J5) require other J-specialist input: Personnel (J1), Intelligence (J2), Logistics (J4), CIS (J6), Lessons-Learned (J8), Civ-Mil Affairs (J9).

**Q1:** How best to structure and coordinate the planning team?  
**Q2:** What role does ICT play in enhancing or undermining this?
Outline

• Background Principles
• Geometrical model for Space of Constructible Organisations
• ICT and Extending the Space
• Edge vs Adhocracies
• Challenges to Agility in the Extended Space
• Conclusions
Background Principles

- **Principle of Requisite Variety (Ashby)** applied to Organisations: Orgs must have internal variety $\geq$ that of environment in which operations conducted.

- **C2 (Pigeau-McCann)** as
  - Command = creativity & will
  - Control = structures and processes
  $\Rightarrow$ command exercised from above and below, through structure, to achieve common intent and therefore coordinated action.

- **Contingency Theory (Burns & Stalker, Donaldson)**: there is no universal form for an organisation making it fit-for-purpose for all contingencies. Therefore parts of organisations must adapt to enable operations for differing contingencies.
Space of Constructible Organisations

There is no universal form for an Organisation making it fit-for-purpose for every contingency.

Mintzberg’s Classic 5 Types

Henry Mintzberg, *The Structuring of Organizations*, 1979

- Adhocracy
- Simple
- Machine
- Professional
- Divisional

*Adaptation Asymmetries:*
Hollenbeck, Ellis, Moon, Jundt et al. 2000–2006

Evolutionary Direction

Geometrical Model: Kalloniatis, Macleod, Kohn – ICCRTS, 2010
J-staff is *hybrid* in nature: for different connections and coupling strengths *all five* Mintzberg types can be realised.

Not a bug but a feature: generates scope for agility within a default Divisional – Bureaucratic Form.
Groth’s Extended Organisational Space

Lars Groth, *Future Organisational Design*, 1999

**Mintzberg’s Classic**

1. Adhocracy
2. Simple
3. Machine

**Groth’s extended (excl Cloud and Meta-Organisation)**

1’. Interactive Adhocracy
2’. Joystick
3’. Flexible Bureaucracy
Contingency factors


Q: How to characterise the environment within which a Team undertakes an intervention?

**Environmental Complexity:** how inter-connected is external variety/heterogeneity?

Correlates with Internal Organisational Variety

**Problem Size/Scale:** how big are the fluctuations in the environment requiring control?

Correlates with Organisational Size

**Near-Far Coupling** aka Public Accountability [Pugh et al, 1969, Arambula, 2008]: how much does the local organisational environment influence its conduct in the operational environment? Is the organisation judged by measures natural to the operational environment?

(Arguably) correlates with Vertical Centralisation

o:

Environmental Coupling

Task Inter-dependence/decomposability
Organisations and Contingencies

Mechanistic Types:
- Adhocracy (3, 3')
- Simple (1, 1')
- Machine (2, 2')

Organic Types:
- Interactive Adhocracy (3', 3)
- Joystick (2, 2')
- Flexible Bureaucracy (1, 1')

Team in a Military Organisation may confront contingencies anywhere in this range.
### Edge vs Adhocracy: Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Edge</th>
<th>Adhocracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer-to-Peer, Flexible Interaction</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Professional Competency</td>
<td>Medium</td>
<td>High*</td>
</tr>
<tr>
<td>Skills Mixture / Specialisation</td>
<td>Mixture</td>
<td>Mixture</td>
</tr>
<tr>
<td>Shared Understanding of Goals, Shared Situational Awareness</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Self-Synchronisation = Mutual Adjustment</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Capable of Creative Solutions</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Efficient with Well-Understood Problems</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Use of Databases for Implicit Coordination</td>
<td>✓</td>
<td>X with Simple</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ with Interactive</td>
</tr>
<tr>
<td>Speed / Accuracy in GWOT Scenario [Nissen, 2007, Tables 4, 6]</td>
<td>✓ / X</td>
<td>X / X (with Simple)</td>
</tr>
</tbody>
</table>

* Nissen (2007) sets this to Low.
**g**e vs Adhocracy:
Coordination Models

- **Coordination of Work**
  - Coordination by Feedback
  - Mutual Adjustment
  - Implicit Coordination by Database (+ Metadata)

- **Coordination by Program**
  - Standardisation of Work
  - Explicit Programmed Routines

**Mediating Model**

- **The Organisation** – emphasises coordination of human work via discovery, automated delivery and

- **Interactive Adhocracy** – emphasises coordination of human work via encoded knowledge of problem domain and
Where does the Edge sit?

I/O Human Overload Region

Interactive Adhocracy

Simple Adhocracy

Edge Organisation (max. scale depends in part on extent of subdivision into Communities of Interest)

Via Relevant Information Objects (discovered and/or automatically delivered)
In ICT challenge possibility?

Coordination of Work

Coordination by Feedback

Mutual Adjustment

Direct Supervision

Coordination by Program

Standardization of Work

Standardization of Skills

Tacit Skills

Explicit Skills

Explicit Routines

Programmed Routines

Automation

Hyper-automation

System-Supported Supervision

System-Supported Supervision

Implicit Coordination (by database)

Computer Dependence

Technology Dependence

Implicit Coordination

Empowers the Edge

Mixed ICT System

Empowers the Centre

Assisting Model

Linked

Atomistic

Regulating Model

Mediating Model

Mixed Organisation

Professional Bureaucracy

Interactive Adhocracy

Synchronisation

No-one

Hyper-automation

System Supported Skills

Meta Organisation

Flexible Bureaucracy

Empowers the Centre

Flexible Bureaucracy

Meta Organisation

Strategic Screwdriver

Flexible Bureaucracy

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Meta Organisatio
Conclusions

Organisational Theory has provided comprehensive taxonomy of organisational Types both with and without ICT support.

An Organisational type is fit-for-purpose for all contingencies: adaptability required within space of constructible organisations; this is a form of organisational agility.

Mintzberg theory predicts forms of organisation resembling the hedge, as well as other ICT enhanced forms with very different properties.

ICT can enhance and/or undermine adaptations between Classical and extended organisational types; accidentally mixed conceptual models or ICT undermine the intended purpose of technology.