Modelling the organisational behaviour of military headquarters: A social scientist’s perspective

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<table>
<thead>
<tr>
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<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
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Overview

- Rationale - why model organisations?
- Representing organisational behaviour - what features are important?
- Existing models of organisations - how do they fare?
- A way ahead
Rationale for modelling organisations

- The social science perspective
  - Correlational and experimental studies only get you so far
  - Simulation modelling facilitates exploration of dynamic systems (theory building, ‘in silica’ experimentation, organisational interventions)
Rationale for modelling organisations

- The OA perspective
  - Effectiveness of technical systems critically depends on how they are used
  - A level playing field for investment appraisal requires that the most appropriate process and practice for each technical solution be used (e.g. telephone versus e-mail)
  - OA practitioners need to be able to vary parameters that represent key characteristics of organisations, such as processes, as well as technical differences
Organisational components and variables

- **Resources**
  - Technology
  - Structure
  - Culture
  - Processes
  - People
  - Environment
  - Scale
  - Support functions

- **People**
  - Decision-making
  - Emotion/intuition
  - Performance
  - Doctrine
  - Local workgroup practices
  - SOP

- **Processes**
  - (In)formal
  - Multiplicity
  - Type: (risk averse, innovative, coercive)

- **Technology**
  - Usability
  - Functionality
  - Performance
  - (In)formal
  - Multiplicity
  - Type: (bureaucratic, organic etc.)

- **Structure**
  - Diversity: (sub-culture, org culture, national culture)
Simulation models of organisations

- Mission based approach to C2 modelling
- ORGAHEAD (ORGanisation look AHEAD)
Mission based approach to C2 modelling

- Enables representation of the C2 process to be encapsulated in "agile, fast running simulation models”
- Command agents (≡ military HQ) interact with each other in order to carry out the command and control process
- Represents two forms of planning: rapid and deliberate
  - Rapid planning representation influenced by the recognition-primed decision-making model
  - Deliberate plan established at the start of the model run. Intention is to use genetic algorithms to ‘breed’ a number of different plans → selection of optimal. If the plan is not working then a plan repair process is activated.
ORGAHEAD (ORGanisation look AHEAD)

- A description of ORGAHEAD:
  - "as in any organization, a task or set of tasks is being done; each personnel member occupies a particular role in the organization, reporting to others, doing tasks, and gaining experience; and a strategic or management function tries to anticipate the future, assigns personnel to tasks, and determines who reports to whom" (Carley, 2000, p. 248).
Variables considered by these models

- Resources
  - Technology
  - Structure
  - Culture
- Processes
  - People
  - Decision-making
  - Emotion/intuition
  - Performance
  - Doctrine
  - Local workgroup practices
  - SOP
- Environment
- Scale
  - Support functions
- Usability
  - Functionality
  - Performance
- (In)formal multiplicity
- Diversity:
  - Type: (risk averse, innovative, coercive)
  - (sub-culture, org culture, national culture)
- Type:
  - (bureaucratic, organic etc.)
- Performance
Variables considered by C2 modelling

- Usability
- Functionality
- (In)formal multiplicity
- Culture
  - Type: (risk averse, innovative, coercive)
  - Diversity: (sub-culture, org culture, national culture)
- Structure
  - Type: (bureaucratic, organic etc.)
- Technology
  - Performance
  - Functionality
- Resources
- People
  - Decision-making
  - Emotion/intuition
  - Performance
  - Doctrine
- Processes
  - Local workgroup practices
  - SOP
- Environment
  - Scale
  - Support functions
- Environment
  - Usability
  - Diversity: (sub-culture, org culture, national culture)
Variables considered by ORGAHEAD

- Environment
- Support functions
- Usability
- Functionality
- Performance
- Type:
  - (bureaucratic, organic etc.)

- (In)formal multiplicity

- Resources
- Technology
- Structure

- Scale

- People
  - Decision-making
  - Emotion/intuition
  - Performance
  - Doctrine
  - Local workgroup practices
  - SOP

- Processes
  - Type:
    - (risk averse, innovative, coercive)

- Culture
  - Diversity:
    - (sub-culture, org culture, national culture)

- Environment
- Support functions
- Usability
- Functionality
- Performance
- Type:
  - (bureaucratic, organic etc.)
Improving the quality of representations

- More organisational behaviour variables need to be represented
- Need for complementary modelling approaches
- The organisational behaviour variables considered here could be used as a checklist for model development
- Modellers of organisational behaviour need to draw upon current scientific understanding of the domain
  - consult experts, read the literature, collaborate with social scientists, develop links with social science modelling community
Any questions?
References


