A workshop introduction to the NATO Code of Best Practice for Judgement-based OA

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NATO SAS RTG-087

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What have we produced?

• ‘NATO Guide for Judgement-based Operational Analysis in Defence Decision Making’
  – Analyst-oriented volume (142p. A4)  
    the Code of Best Practice for ‘Soft’ Operational Analysis
  – Client-oriented volume (51p. A5)
  – Executive-oriented volume (4p. A4)
Aim of the Guide

• Guidance as to how to set up & conduct a judgement-based (‘soft’) OA study that meets quality criteria including client expectations: validity, credibility, acceptance

• Rules of the road for analysts, creating clarity & focus
• Clarification and expectation management for clients
What are we talking about?

• The military have always been using their judgement when making decisions, are we now telling them how to really do it?

No!

• We are talking about OA offering a broader spectrum of methods and techniques for a broader spectrum of problematic situations
What is ‘a broader spectrum’?

• W.r.t. methods and techniques: predominantly based on human judgement (‘soft’) in addition to those predominantly based on mathematics (‘hard’)

• W.r.t. problematic situations: coping with messes in addition to solving puzzles and resolving problems
Puzzles, Problems, Messes

clear-cut nature of situation (reliance on mathematics)

reliance on human judgement
Puzzles, Problems, Messes

Puzzle:
*optimal mine-sweeping pattern*

Problem:
*choosing best candidate in non-major acquisition process*

Mess:
*balancing maritime, air and sea capabilities in 2030*

More clear-cut situation requiring less judgement

Less factual information requiring more substantial judgement
Puzzles, problems and messes

Sometimes called ‘wicked problems’

Formulation

Solution

<table>
<thead>
<tr>
<th>Puzzles</th>
<th>Problems</th>
<th>Messes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreed</td>
<td>Agreed</td>
<td>Arguable</td>
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How to recognise a mess?

12 criteria → explore with client(s)

- How well defined is the problem and its boundaries: what are its defining elements and their interactions?
- Who are the stakeholders and how may they be directly or indirectly affected: what are their viewpoints and what they are worried about?
- What goals, objectives and measures of effectiveness are relevant?
- What can and should be changed towards improvement: under what conditions or according to what criteria will a change be regarded as an improvement.
- What data is needed: its relevance, availability and reliability?
- How will context changes affect the problem: its improvement and the study design to examine it?
- What is the likely impact of power, emotion, politics and ethics?
- Are there divergent opinions: do different people say different things (or express different views) about the same issue?
- What interactions of human cognition, beliefs and behaviour.
- How clear is the wider context: issues may have no clear end-points, transcend specific domains, and have significant political or public policy implications (e.g. counter-terrorism).
- What may be possible side-effects of a proposed that are undesirable by stakeholders.

Messes have lots of:
- Unknowns
- Uncertainty
- Divergence of opinions
- Wide range of stakeholders
- Political issues
The suggested ‘Soft’ OA study process
Appreciation phase: Problem and stakeholder orientation syndicate exercise

• Scoping the problem
  – What could / should be the focus of the study?
Approach

- 6 or 8 syndicates
  - Pairs of syndicates will have the same study question

- List entities (e.g. human, physical, and information) that could be considered within each study question.
- Think about different types of study that could be undertaken
- Draw the entities in a loose ‘influence diagram’ format
- Illustrate the different study boundaries that could be applied
- Are the studies puzzles, problems or messes? Why?
- Who would be the sort of customer for each? [30 mins]

- Cross brief your findings with the other syndicate [15 mins]
Syndicates (arranged clockwise around the room)

- tbc
Example

• How can shoppers in an Afghan market best be protected?
Generic Question is: How can shoppers in an Afghan market best be protected?
Guarding and defending markets study

- Offensive Action
- SMARMS
- VBIED
- SIED
- IDF
- Insurgents
- Locals for Hire
- Crime
- Local Jobs
- Tax
- Local Government
- Shoppers
- Medical Treatment
- Market
- Shopkeeper

Threat Detection
- Physical Protection
- Market Setup
- Crowding
- Region & Location
- Security Forces
- Defensive Action
- ID

Security Forces
- Offensive Action

Threat ID

Region & Location

Defensive Action

Market Setup

Crowding

Medicine

Threat Detection

Physical Protection

Market Setup

Crowding

Medicine

Threat Detection

Physical Protection

Market Setup

Crowding

Medicine
Improving locals surviving incidents study

Insurgents

Locals for Hire

SMARMS
VBIED
SIED
IDF

Offensive Action

Threat Detection
Physical Protection

Market Setup

Threat ID

Defensive Action

Security Forces

Market

Local Jobs

Crime

Shopkeeper

Local Government

Crowding

Shoppers

Medical Treatment

Region & Location

Tax

Improving locals surviving incidents study
Syndicate Questions

• **1 and 5**: What should the military role be in homeland security?

• **2 and 6**: How can NATO best share / reduce the costs of its naval minesweeping activities?

• **3 and 7**: Assess the shortfalls and excesses of NATO country $x$’s logistics capability over the period 2015 – 2030?

• **4 and 8**: What is the most cost-effective mix of Air / Space-based ISTAR assets for NATO country $x$ in 2030?
NATO Guide for Judgement-based Operational Analysis in Defence Decision Making

- Analyst-oriented volume (142p. A4) *the Code of Best Practice for ‘Soft’ Operational Analysis*
- Client-oriented volume (51p. A5)
- Executive-oriented volume (4p. A4)
Analyst-oriented volume

**What?**
- Chapter 1 - INTRODUCTION
- Chapter 2 - PROBLEMATIC SITUATIONS AND ‘SOFT’ OA
- Chapter 3 - ACHIEVING VALIDITY, CREDIBILITY AND RELIABILITY

**Why?**
- Chapter 4 - ROLES AND RESPONSIBILITIES

**Who?**
- Chapter 5 - THE ‘SOFT’ OA STUDY PROCESS
- Chapter 6 - DESIGNING THE ‘SOFT’ OA STUDY METHODOLOGY
- Chapter 7 - DATA COLLECTION, EXPERTS AND FACILITATOR SKILLS
- Chapter 8 - INTERPRETATION, USING AND COMMUNICATING

**How?**
- Data collection, viewpoints and cognitive problems when using humans, elicitation of experts (SMEs), workshops and facilitation (facilitated modelling)

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background, scope, aim, readership, key concepts

problem types, what is ‘soft’ OA, ‘soft’ and ‘hard’ OA, uncertainty, why do ‘soft’ OA

the CoBP and its context, what do these concepts mean, how related and how to achieve, ethics

types of people involved including client types, focus on analyst & facilitator skills, tasks & resps

iterative cycle of study stages, parallel x sequential modelling, divergence x convergence

recognising problem types, stakeholder analysis, designing single / multi-methodology, when (not) to do multi-methodology, uncertainty
Client-oriented volume

• **Addresses 7 key questions:**
  – What is judgement-based OA?
  – Which problematic situations require judgement-based OA?
  – How does judgement-based OA add value?
  – What does a judgement-based OA study look like?
  – What is expected of me, the client?
  – What does the analyst bring to achieve validity, credibility and acceptance?
  – How can a CoBP protect the client from threats to the study?
Client-oriented volume (2)

• In answering the key questions it stresses 3 key aspects of judgement-based OA:
  – It enables progress to be made for some otherwise intractable and complex decisions.
  – It involves a creative journey of discovery and learning that can be used to the advantage of decision makers.
  – The inherent uncertainty of complicated decision situations that the defence sector faces, leads the client for judgement-based OA to what are perhaps his most pressing concerns – its validity, credibility and acceptance.

  → Study methods must therefore be well documented to withstand scrutiny.
Executive-oriented leaflet

• Addresses:
  – What is judgement-based OA?
  – How can defence decision makers be supported?
  – When should judgement-based OA be used?
  – What can you do with facilitated workshops?
  – What are the value and the benefits of judgement-based OA?

→ particularly high level questions relating to strategy, capability development and major acquisition
The suggested ‘Soft’ OA study process
Selection of methods exercise

• What methods could support each study phase?
Study Phase / World matrix

From Rosenhead & Mingers, 2001

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Soft OA

Hard OA

change power

generate consensus

August 10, 2004
© Dstl 2010
### Study Phase / World matrix

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Syndicate Approach

- Using one of the study design options developed in the previous exercise.

- Develop an indicative high level study design using both hard and soft techniques [20 mins]
  - apply the 4As framework (previous slide)
    - GORS OR techniques summary
    - Soft OA techniques summary - Annex B to the COBP
    - Brainstorm the issues associated with combining these techniques

- Cross brief to other syndicate [2 x 5 mins]
  - Justify the use of the different techniques
  - Explain key integration issues
  - 1-2 points from the other syndicate
COBP Key Analyst take-aways - Annex A

• 3 and a bit pages of key analyst considerations from each chapter for you to take away!
Where can I get copies?

- It is available from www.cso.nato.int (login and password required)

- It is also available from the Problem Structuring and Decision Support Concept Map within the NATO SAS-074 Human Environment Analysis Reasoning Tool (HEART):

  - Problem Structuring and Decision Support Concept Map
  - HEART Home Page
  - Username: visitor; Password: gateway
Judgement-based Operational Analysis is a key value-adding scientific activity that will support clients, ensuring decisions are made with less risk.

the Guide/CoBP aims to maximise the added value of this type of OA for our clients
RTG’s Organisation & Process

- Chair/Lead: NLD
- Participants: ACT, CAN, DEU, GBR, SWE, AUS, USA, FRA
- Time frame: 2010-2011, 5 formal meetings + e-exchange
- Planning: milestones & deliverables along the way
- Reflection/Review: conference sessions (ISMOR, UK-OR), selected individuals from academia & Defence, including discussion session with 2