16th ICCRTS – 21st-23rd June 2011

Track 2: Paper 084

The employment of structures and work patterns in organizations involved in modern, complex, multi-national operations

Martin Pepper and Geoff Markham

QinetiQ, St Andrew's Road, Malvern
Worcestershire WR14 3PS
United Kingdom

mrpepper@qinetiq.com
gmarkham@qinetiq.com

Presented by Andrew Fletcher, UK MOD

QinetiQ

0.1 The context for this presentation

Modern, complex conflicts are likely to involve multiple nations and both military and non-military (including other governmental) organizations

This means there is a need to cope with two (related) forms of complexity:

- complexity in the operating environment

  - as characterised by greater uncertainty, unpredictability, ambiguity, dynamics and emergence than would be encountered in traditional 'adversary on adversary' (or 'physical and kinetic') conflict; and

- complexity within the 'virtual organization' (of military and non-military organizations) which is seeking to operate in this environment

  - this is exemplified by the need to embrace social diversity (e.g. reflected in different ways of interpreting the environment and the repertoire of possible actions).

QinetiQ

0.2 The aim of this presentation

The primary focus for this presentation is *Command Management*, through which the Commander configures and adjusts the workings of the 'virtual organization' of military and non-military organizations

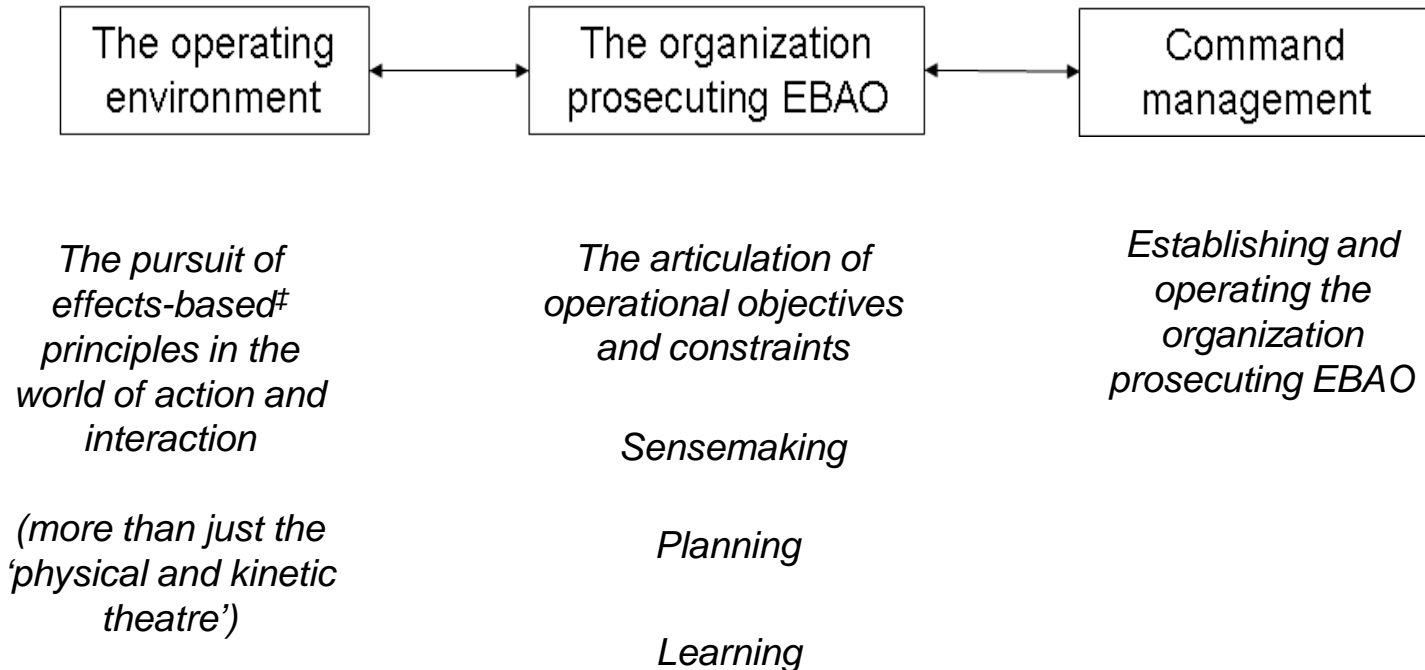| The operating environment	⟷	The organization prosecuting EBAO	⟷	Command management
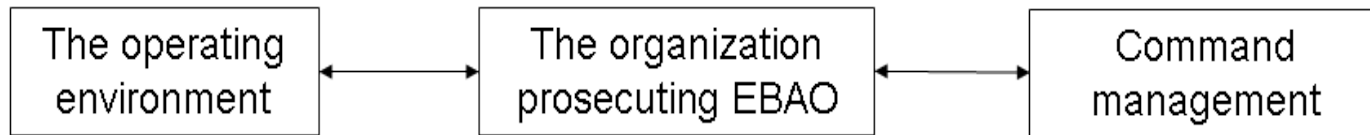
The work draws lessons from work conducted in support of the development, by the Swedish Armed Forces (SwAF), of an Effects-based Approach to Operations (EBAO[‡]) concept

- As seen through the organizational and informatic models developed under the research programme funded by UK MOD from 2007 to the present
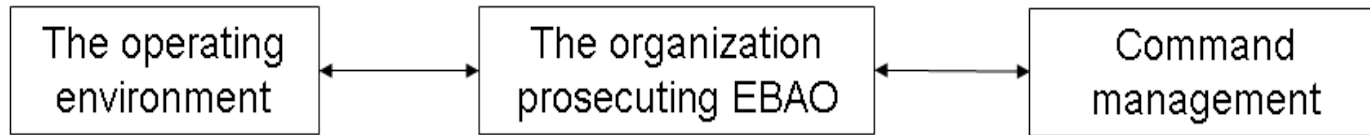
[‡] EBAO = Effects-Based Approach to Operations

QinetiQ

1.1 Starting points: *what is to be managed?*

The operating environment	→ ←	The organization prosecuting EBAO	→ ←	Command management

The pursuit of effects-based[‡] principles in the world of action and interaction

(more than just the 'physical and kinetic theatre')

The articulation of operational objectives and constraints

Sensemaking

Planning

Learning

Establishing and operating the organization prosecuting EBAO

[‡] UK doctrine has moved on from 'EBO' but continues to espouse 'thinking about effects'

1.2 Characteristics

```
┌─────────────────┐      ┌─────────────────┐      ┌─────────────────┐
│  The operating  │◄────►│ The organization│◄────►│    Command      │
│   environment   │      │ prosecuting EBAO│      │   management    │
└─────────────────┘      └─────────────────┘      └─────────────────┘
```

Environmental complexity

- *'Wicked problems'*

Organizational complexity

- *Military, diplomatic and economic Instruments of Power*
- *Social diversity*

- *Collaborative sensemaking, planning and learning*

- *Ways of working, =* **organizational facets**

  - *In collaborations*
  - *Dealing with uncertainty and ambiguity*

Configuration and adjustment

- *Selectivity*
- *Agility*
- *Robustness*

- *Involvement / detachment*

1.3 Organizational facets

Organizational facets are:

- Mechanisms, processes, services, competencies, activities and structures

In the work being reported here, the prescriptions or patterns for these facets are called **organizational enablers**

Enablers generally have some kind of architectural 'separation of concerns' at their heart, e.g.:

- Planning on different time-scales or with different foci of interest
- Maintaining (and using) alternative assumption-sets
- Role separation, e.g. based on
  - generating / testing / evaluating
  - proposal and critiquing (e.g. ritualised dissent)

N.B. **There are no panaceas for dealing with complexity**

- All of these methods have potential weaknesses and vulnerabilities - but *different* flaws
- Suggests a form of resilience through 'a diversity of flawed approaches'

QinetiQ
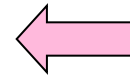
1.4 Structure of the paper

A selection of organizational enablers

- Prescriptions for organizational facets – structures, processes and patterns – through which an organization can function

   1. A 'Breathing-In, Breathing-Out' Model

    2. The Generation of Future Scenarios (GFS)

    3. Management of Hypotheses and Assumptions (MHA)

    4. Re-connecting with Reality (RwR)

- Extraction of some generic characteristics

Command Management

- The requirement: organization-building and dynamic control

- A control-system view of command management

- Leadership and decision-making

- The Commander's Trajectory

Conclusions

QinetiQ

1.5 Structure of this presentation

A selection of organizational enablers

- Prescriptions for organizational facets – structures, processes and patterns – through which an organization can function
  1. A 'Breathing-In, Breathing-Out' Model ⬅ *#3. An illustration of an enabler showing 'parameters'*
  2. The Generation of Future Scenarios (GFS)
  3. Management of Hypotheses and Assumptions (MHA)
  4. Re-connecting with Reality (RwR)
- Extraction of some generic characteristics
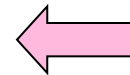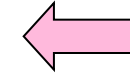
Command Management ⬅ *#2. The form of the 'command management' problem*

- The requirement: organization-building and dynamic control
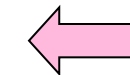- A control-system view of command management
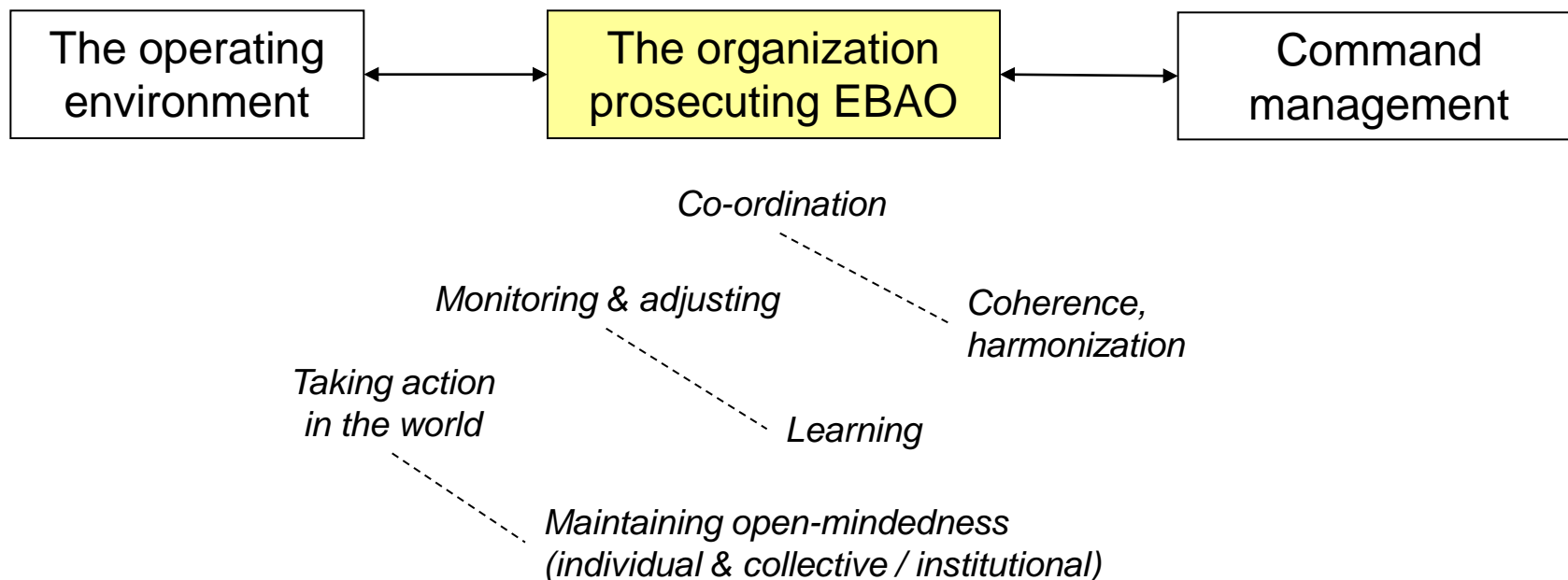- Leadership and decision-making ⬅ *#4. Command management as 'internal sensemaking'*
- The Commander's Trajectory

Conclusions ⬅ *#5. Key messages emerging*

QinetiQ

2.1 Some attributes of the organization prosecuting EBAO

The operating environment	The organization prosecuting EBAO	Command management

Co-ordination

Monitoring & adjusting

Coherence, harmonization

Taking action in the world

Learning

Maintaining open-mindedness (individual & collective / institutional)

A set of:

- conflicts – paradoxes – tensions

→ A need for balance

QinetiQ

2.2 A set of tensions to be resolved

Fluidity and adaptability - Politically-defined end-state

Mindset / groupthink - Lack of a compelling narrative

Blank sheet of paper - Templates (contingency plans, history)

Maintaining momentum - Attending to changes in the environment

Goal-free assessment (listening to others) - Enactment (shaking the tree for yourself)

Problem-solving - Keeping options open

Coherence - Decoupling

Holistic thinking - Separation of concerns, specifics and detail

Sources include Conklin ('wicked problems') and Perrow

QinetiQ

2.3 Generic characteristics of organizational facets for CA/EBAO

- Choices (between alternatives)
- Configurations
- Parameters

Requires dynamic monitoring and adjustment

- Neither mechanical nor free-play
- Not rigid process, but **choreographed patterns**:
  - Rules, models and templates
  - Safeguards against collapse into 'free-play'
    - E.g. role-playing, ritualized dissent

**Requires intelligent application and supervision**

QinetiQ

3.1 Example: the 'Breathing-In, Breathing-Out' Model

Breathing-In, Breathing-Out':

- a pattern of headquarters behaviour through which a degree of explicit control is maintained over open-mindedness and the maintenance of a sufficient number and range of alternative hypotheses about an operational situation

- about establishing a rhythm within a headquarters

Illustrates the distinction between **planning-centric** and **learning-centric** HQs

QinetiQ

# 3.2 Planning-centric HQs
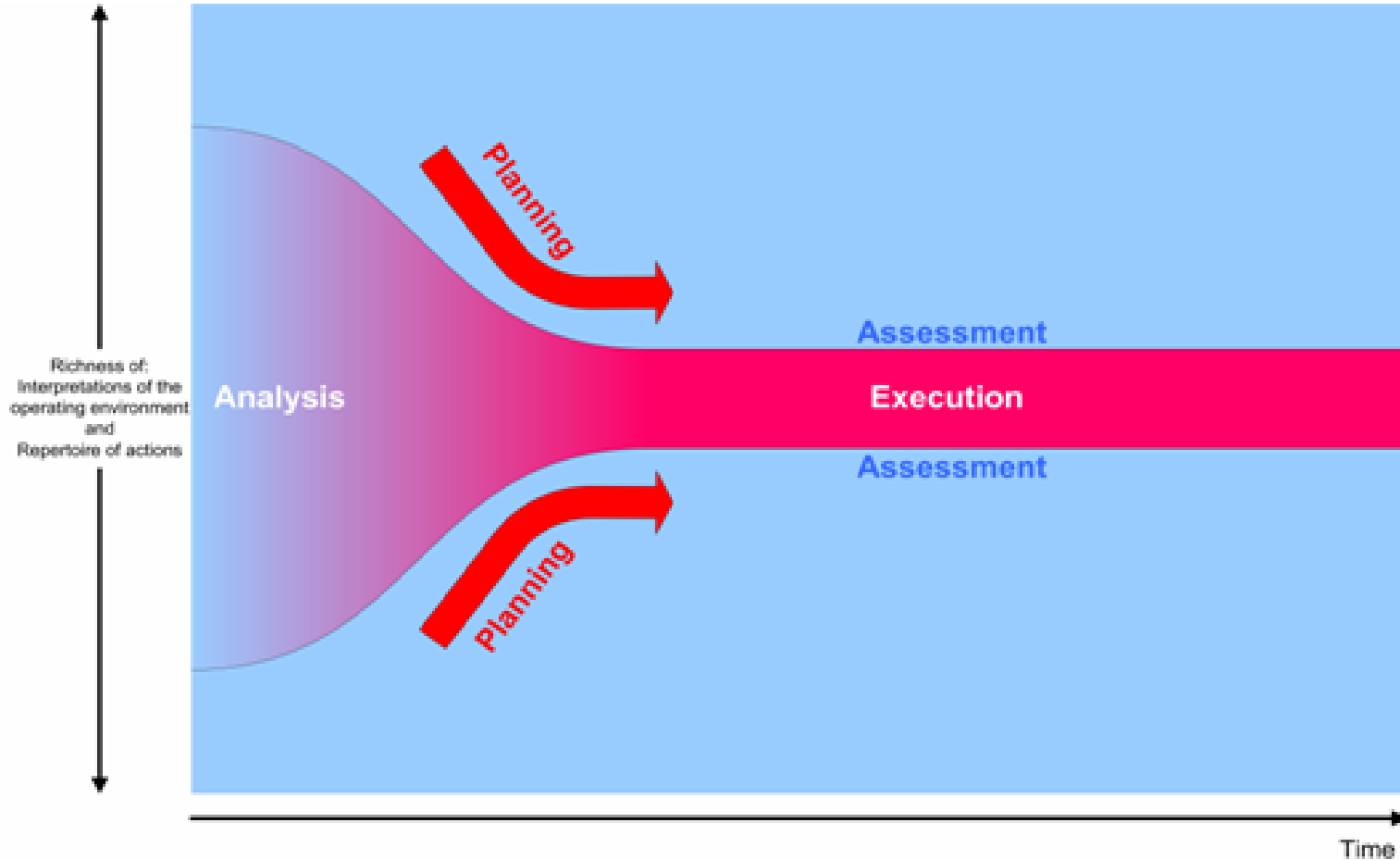
3.3 Learning-centric HQs
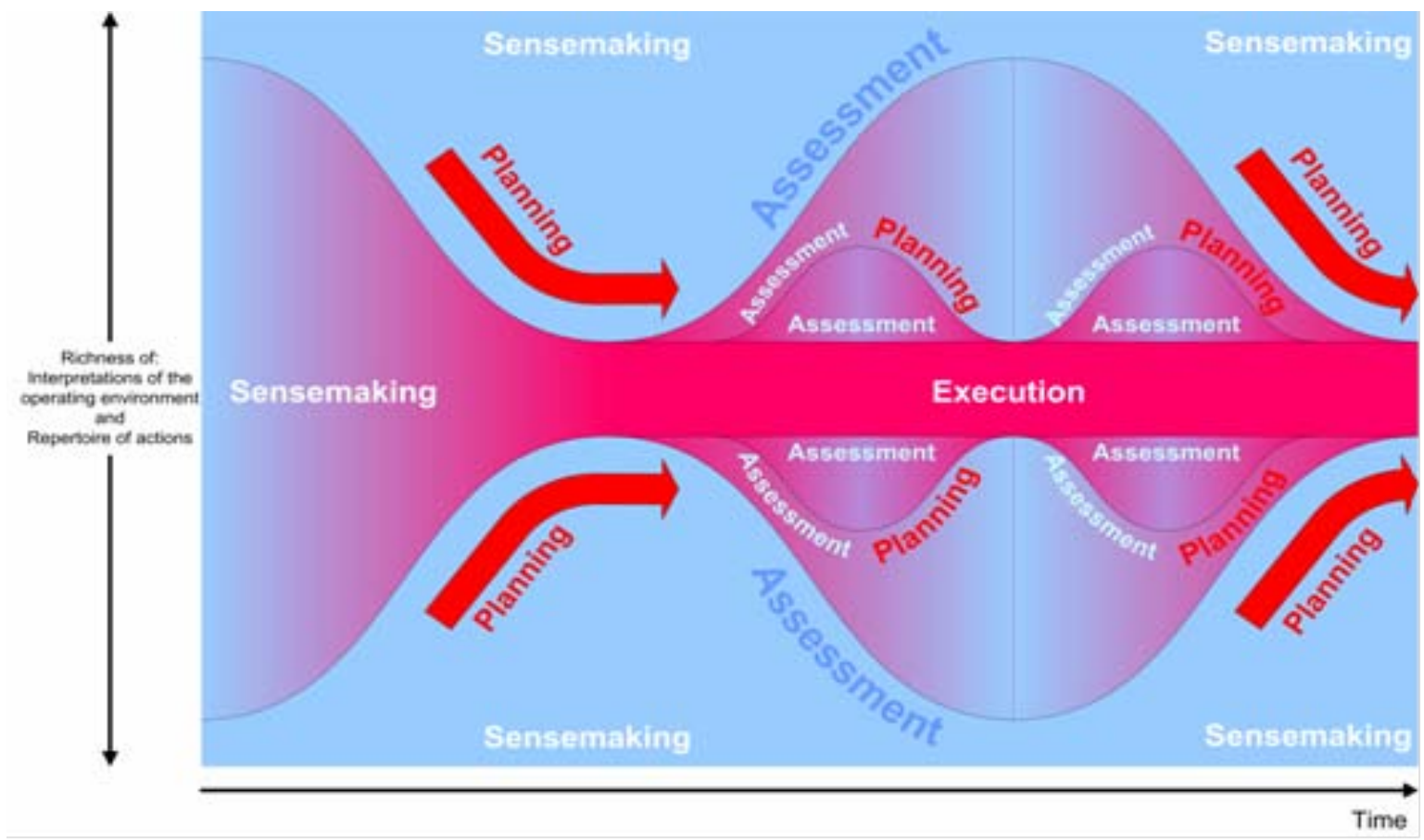
3.4 Different cycles of Assessment, Planning and Execution

- An 'inner cycle', iterating Assessment and Execution

  - Frequent adjustment of tactical actions within the context of the Operational Plan

- A 'middle cycle' iterating Assessment and Planning

  - Assesment focusses on the outcomes of actions and interactions – is the Operational Plan appropriate in the context of the Campaign Design?

- An 'outer cycle' iterating Assessment and Planning

  - Learning about the appropriateness of the Campaign Design – have we understood the overall situation properly?

These cycles are not unique to CA/EBAO, but we might expect that:

- Compared to a conventional military operation, the 'middle' and 'outer' cycles may need more, and indeed continual, attention

QinetiQ

3.5 The three cycles of activity mapped on to HQ structure
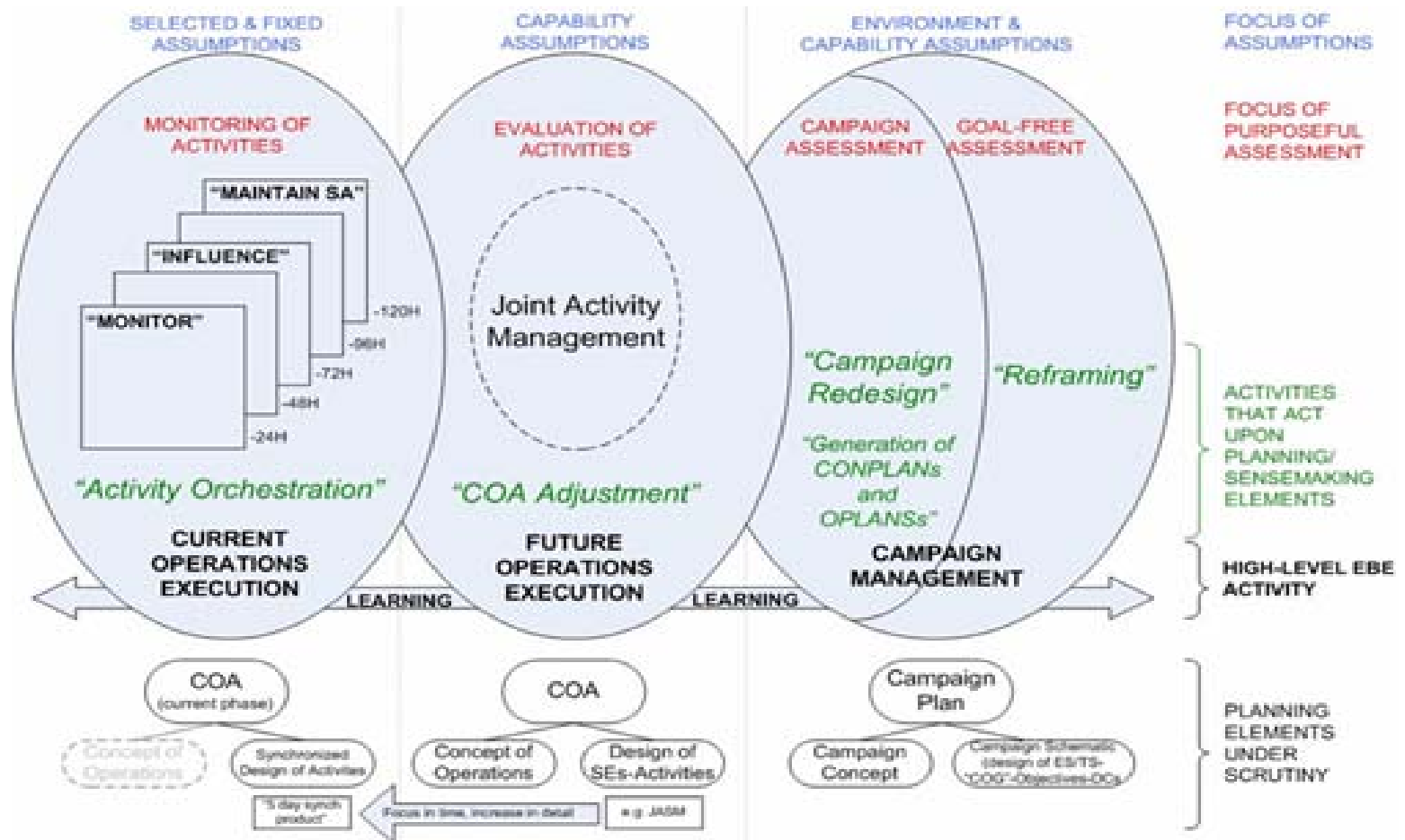
3.6 Commentary

Separation of concerns …

- Three different teams each working with a clear focus and scope
  - Current (day-to-day) operations monitoring
  - Future operations planning
  - Longer-term campaign management

… pre-supposes a way of re-integrating the separated concerns to recover the holistic view:

- Will include "The Commander's Trajectory"
- How much linkage?

**QinetiQ**

4.1 The requirement for command management
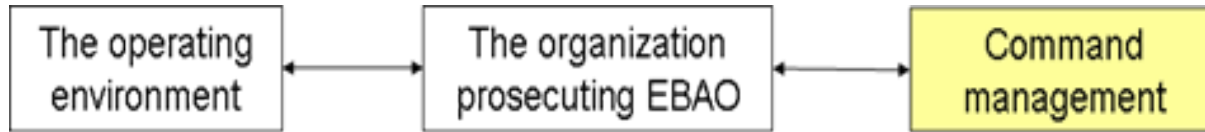
An EBAO suggests the need for the role of the Commander to be brigaded into two distinct but highly inter-related roles:

- Campaign Management – in which the Commander is 'looking outwards' to the operating environment and actually managing the progress of the campaign itself.

- Command Management – in which the Commander reviews, prioritises and selects the most appropriate mechanisms to help him monitor and adjust the internal arrangements of his own headquarters, building and reconfiguring them according to the changing demands of the external environment. This means that, whilst Effects-based activities should themselves be flexible and configurable, it is the Commander who must continually assess the need for an internal reconfiguration and direct his organization accordingly.

4.2 Tensions and balancers
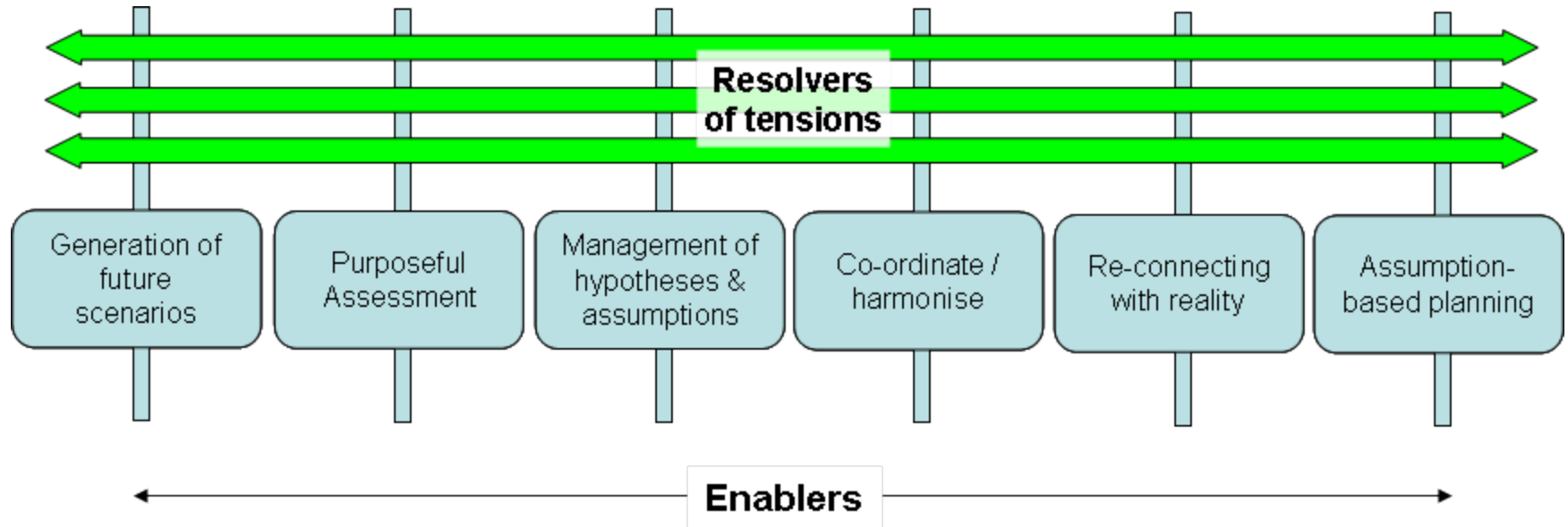
4.3 A 'control system' perspective on command management
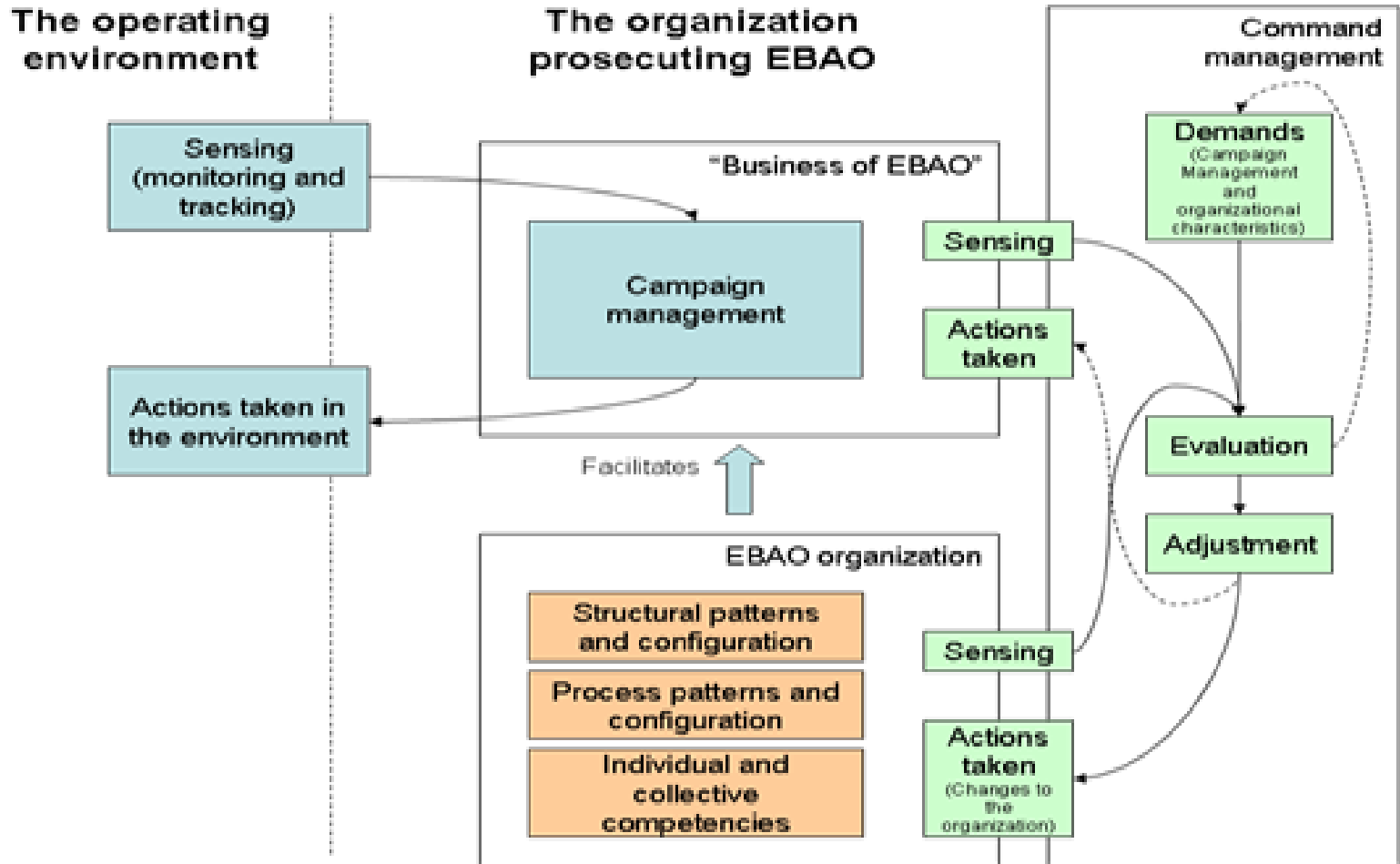
5.1 Conclusions

Organizational arrangements for an EBAO are not just about 'changing the process definitions'

- i.e.. we should not be looking for a rigidly-defined Effects-Based Planning Process
- We need adaptive processes rather than rigid procedures

But leaving Effects-based campaigning as a 'free-play' exercise is not an option:

- personal characteristics and institutional factors may then dominate
- no guarantee that the social diversity within the 'virtual organization' will be properly exploited.

Need the mid-ground between:

- rigid and prescribed procedures and
- unstructured improvisation.

This points to subtle forms of **organizational choreography**, **role-playing** (e.g. ritualization) and enactment of **organizational patterns**

Command Management needs to be an active style of management

- to exploit the available human and social capacities to cope with uncertainty
- to adapt and to maintain operational agility
- constantly monitoring and adjusting organizational arrangements
- maintaining a dynamic equilibrium in respect of the demands of the situation and the operational objectives

There are no 'best ways of working':

- only contingent balances between competing tensions

QinetiQ

www.QinetiQ.com