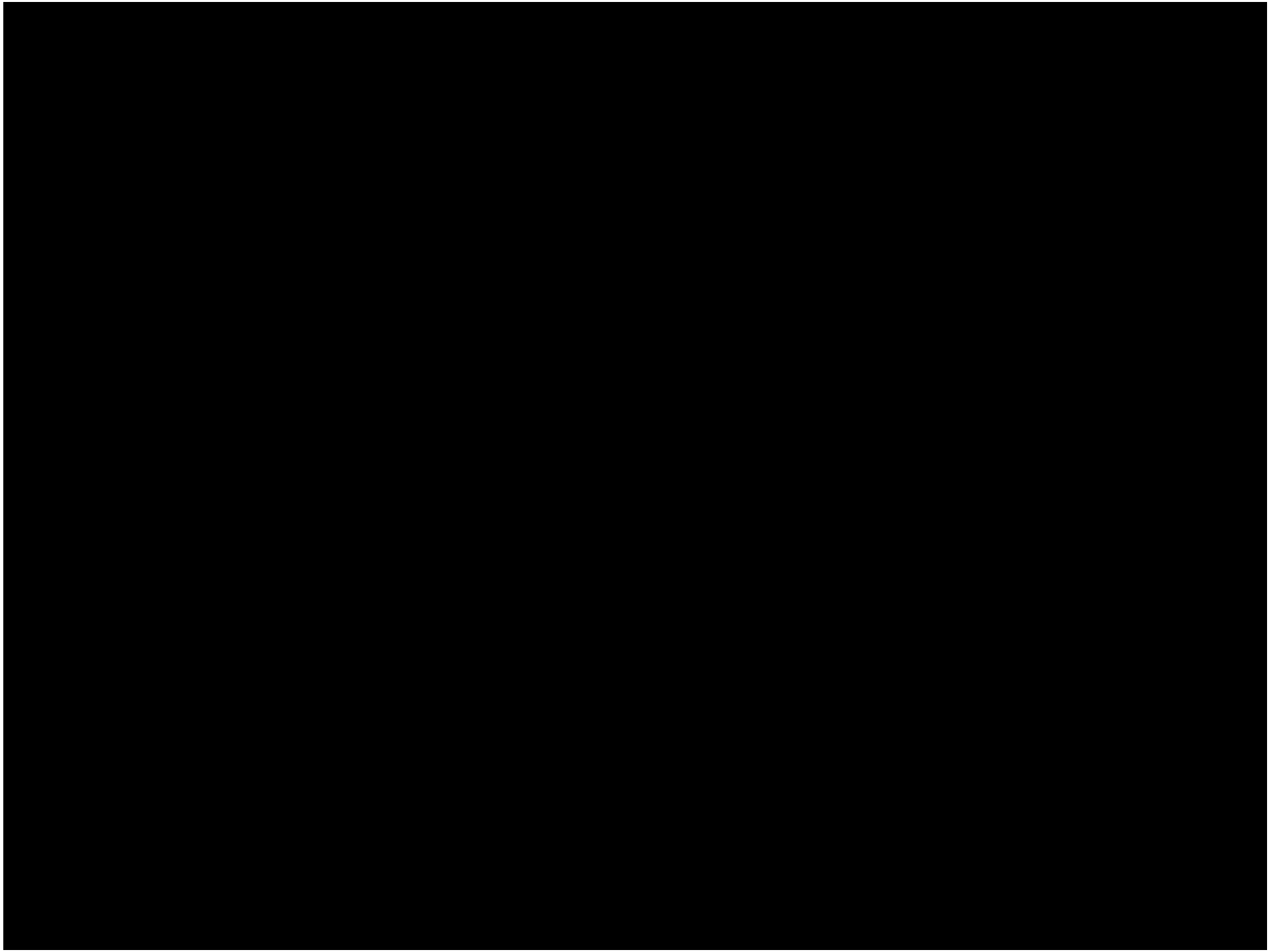
Overview of
Coping with Change in the Command Process
for CCRTS 99, Rhode island

(41 Slides [Including Blanks, Hidden and Builds] - CCRPAAPB.PPT)

[Original - 12 Apr 99]
[This version - 27 Jun 99]

Start of CCRPAAPB.PPT

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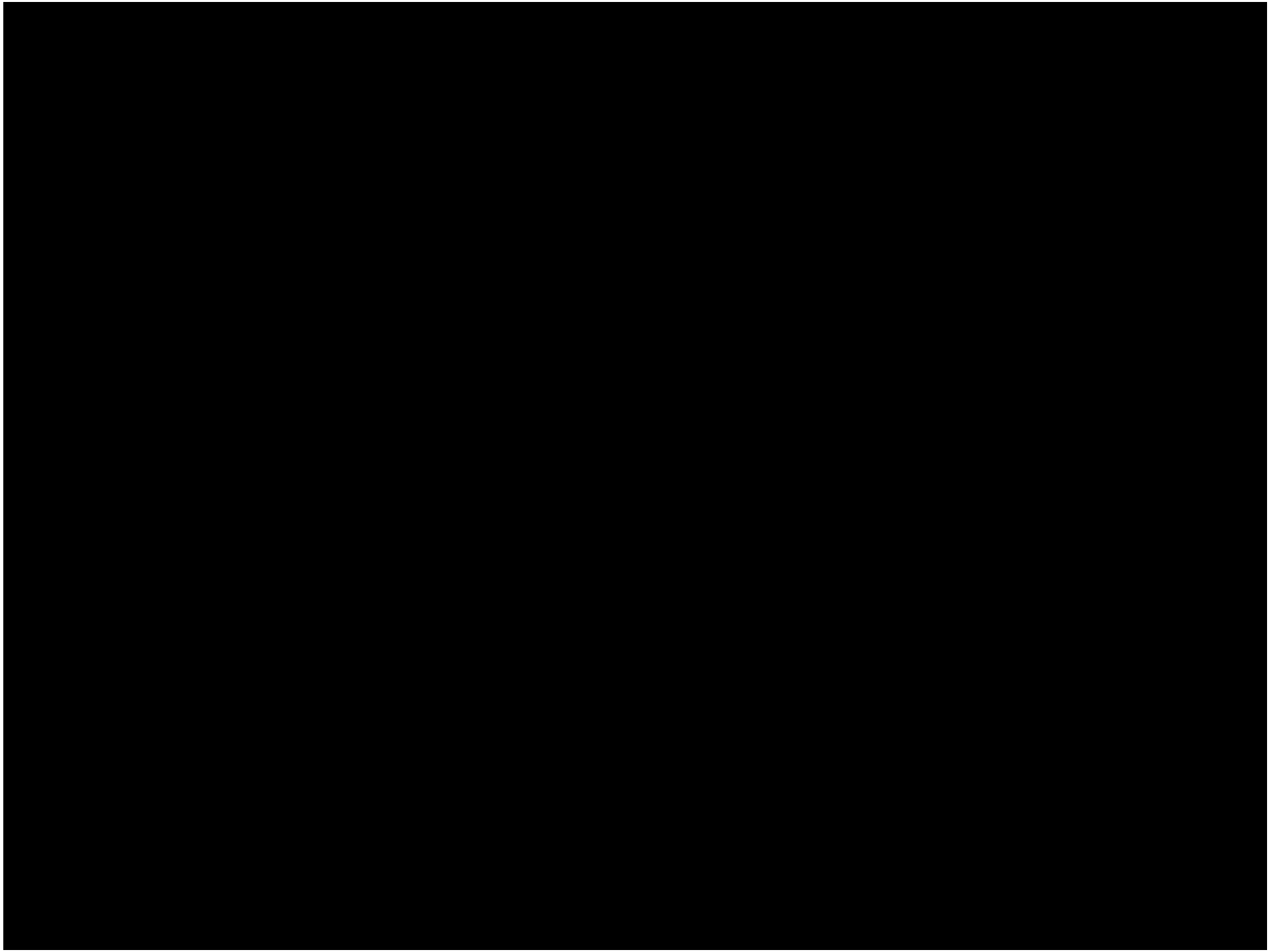

Anthony Alston Patrick Beautement

Coping with Change in the Command Process

- Philosophy
- The Command Process
- Mapping to the Solutions
- Potential Benefits / Problems
- Summary and Discussions

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Philosophy

- Aim: Command Agility - flexibility to exploit:
  - Intent, initiative, coherent action and 'end-to-end' performance = decision dominance
- Command process is command led.
- The major drivers are:
  - The human decision-maker has primacy
  - Support novelty, unpredicatability and flexibility
  - Enable variable-tempo operations
  - Support (not automate / embed) the process

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Starting Point

- The Command Process ***cannot*** be understood or described in terms of a single monolithic model
- Therefore an alternative approach is needed
- Parts of the process can be characterised as identifiable 'command threads'
- Command threads are mixed and matched to meet the operational need
- Command threads can be further characterised
- Command Support Applications (IT where appropriate) should support this approach …

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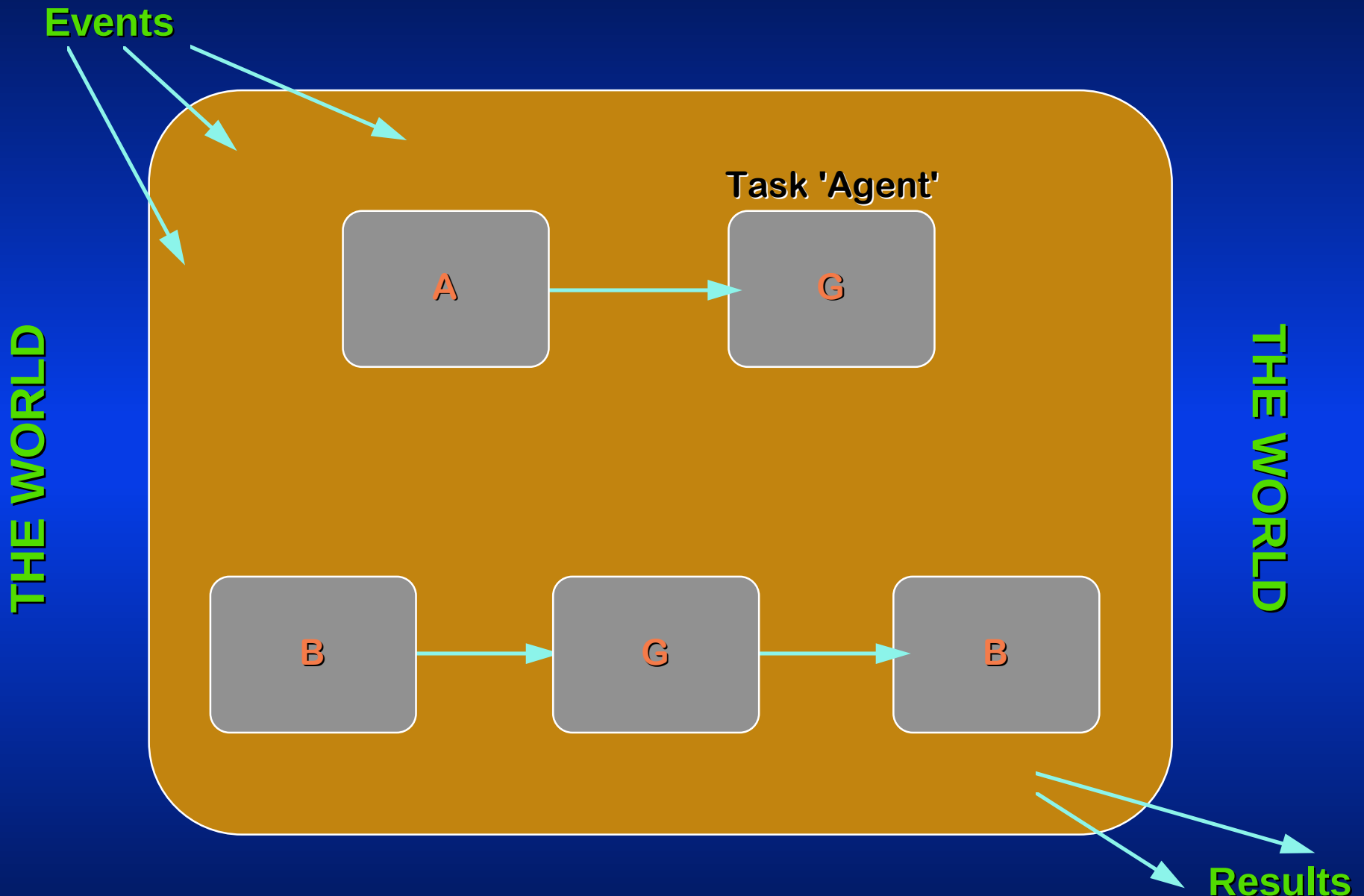
Command Process Model (1)



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Command Process Model (2)

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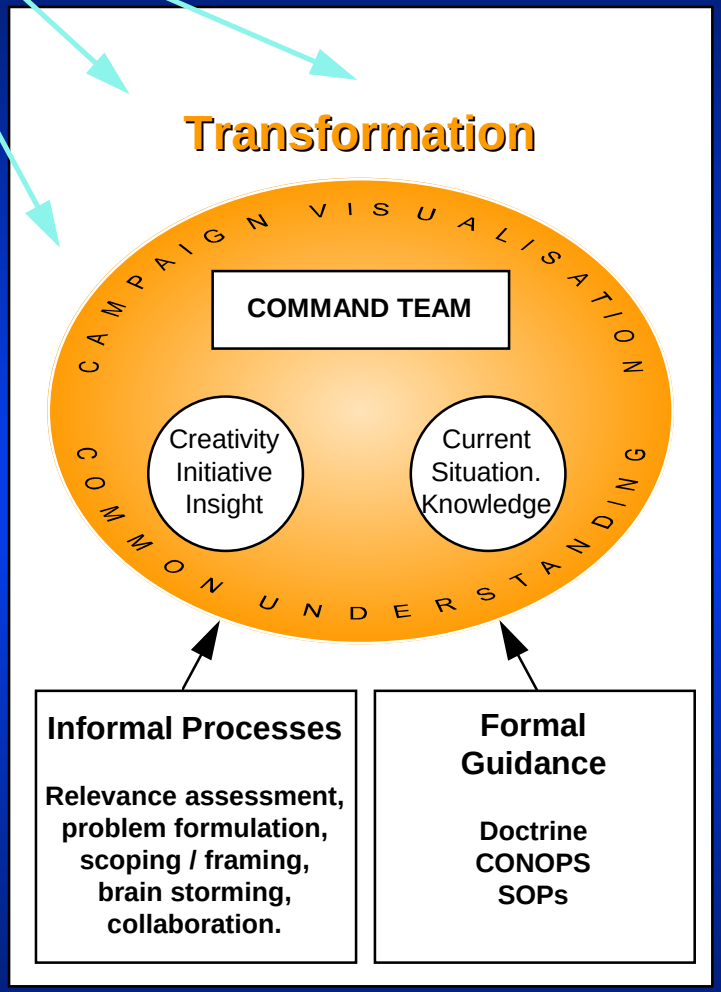
Command Process Model (3)

Events

THE WORLD



THE WORLD

Informal Control

Results

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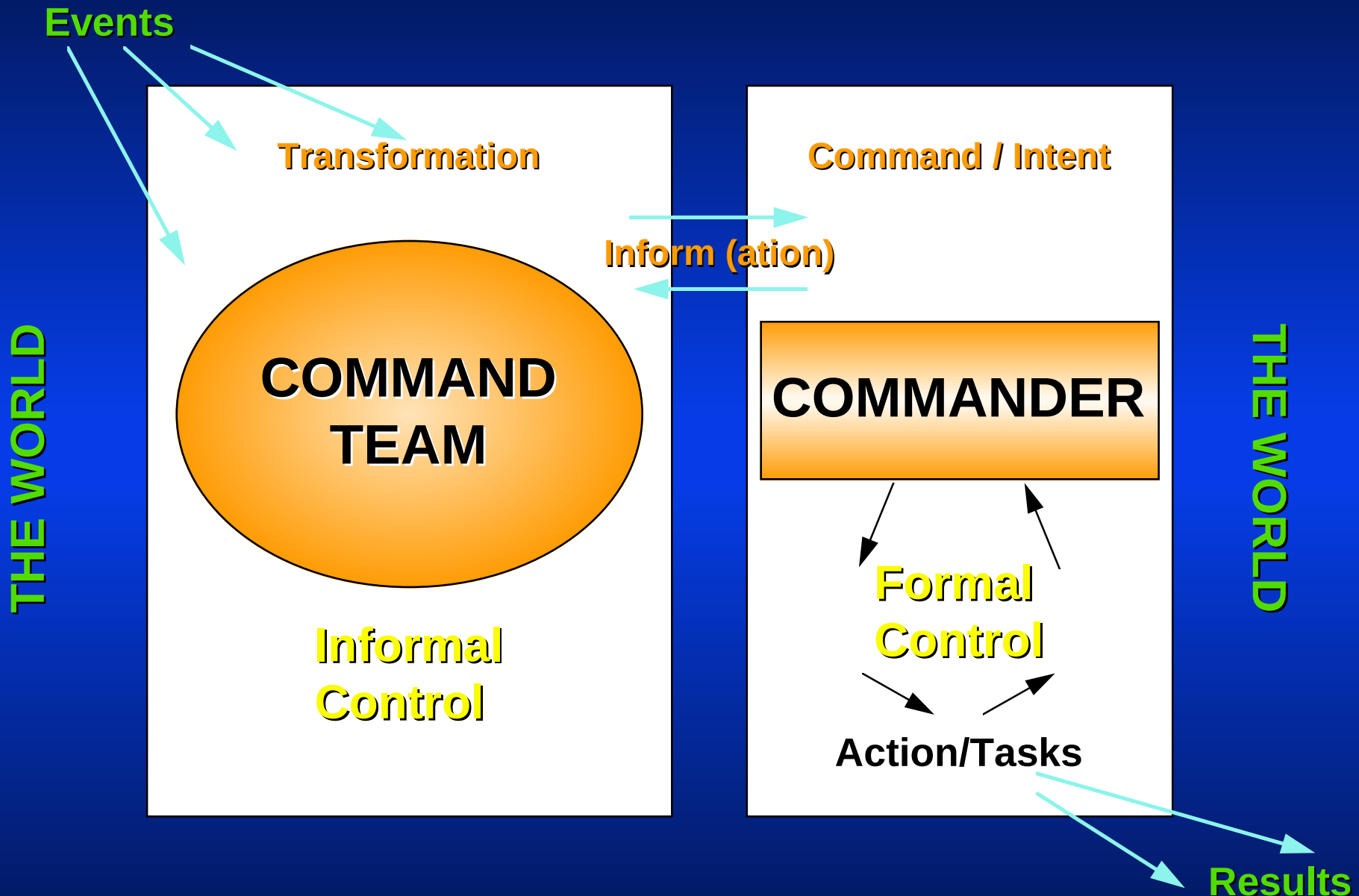
Command Process Model (4)



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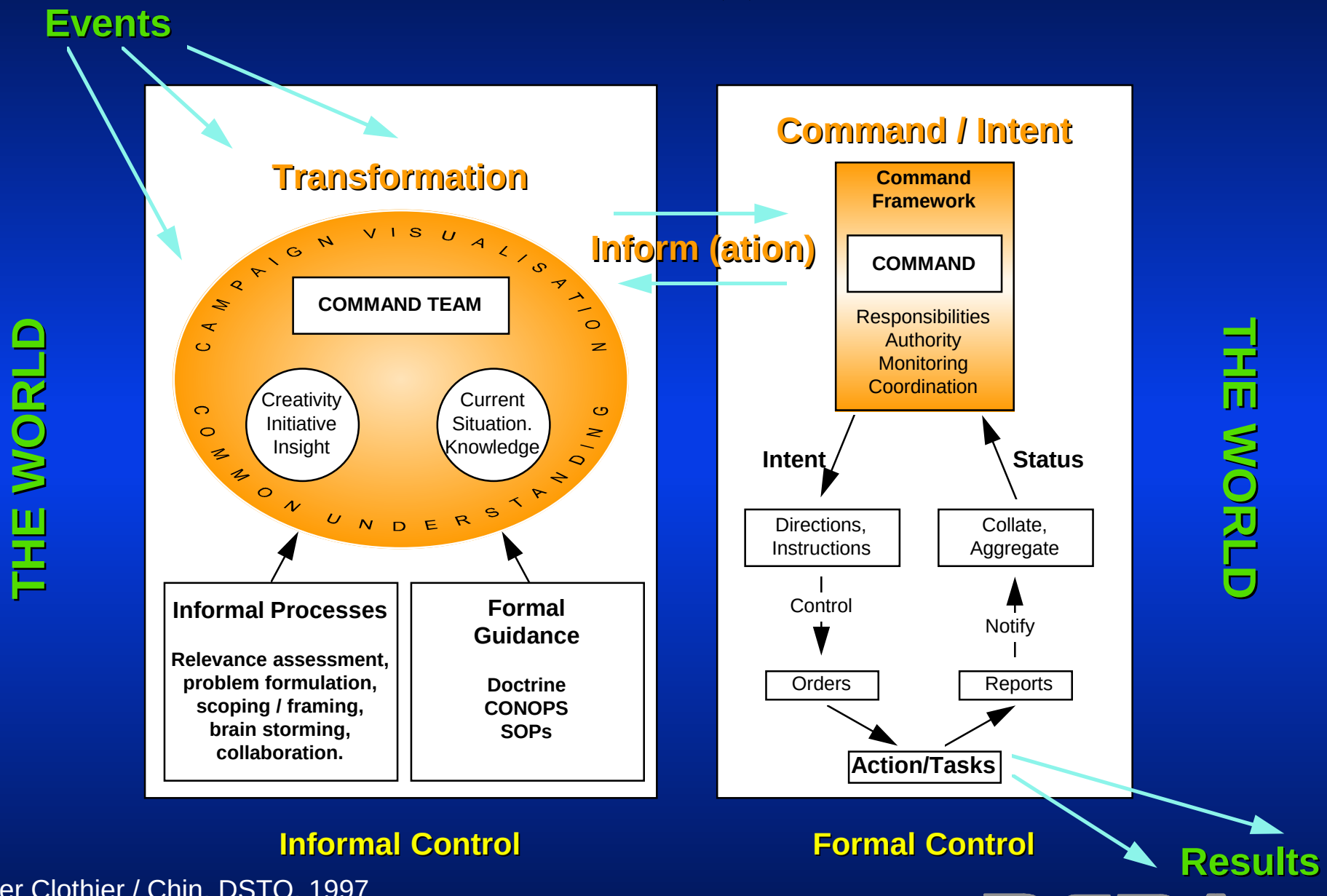
Command Process Model (5)



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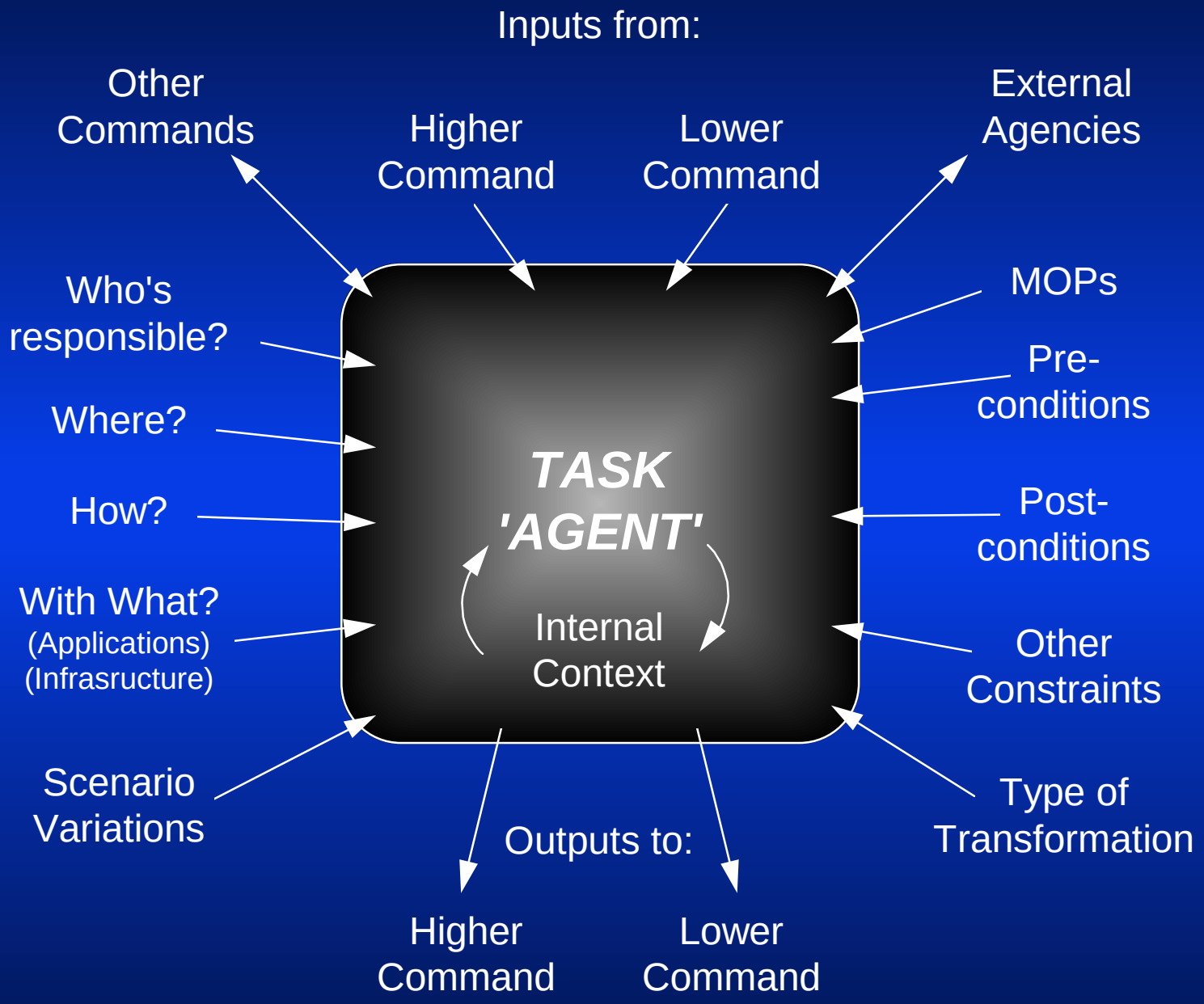
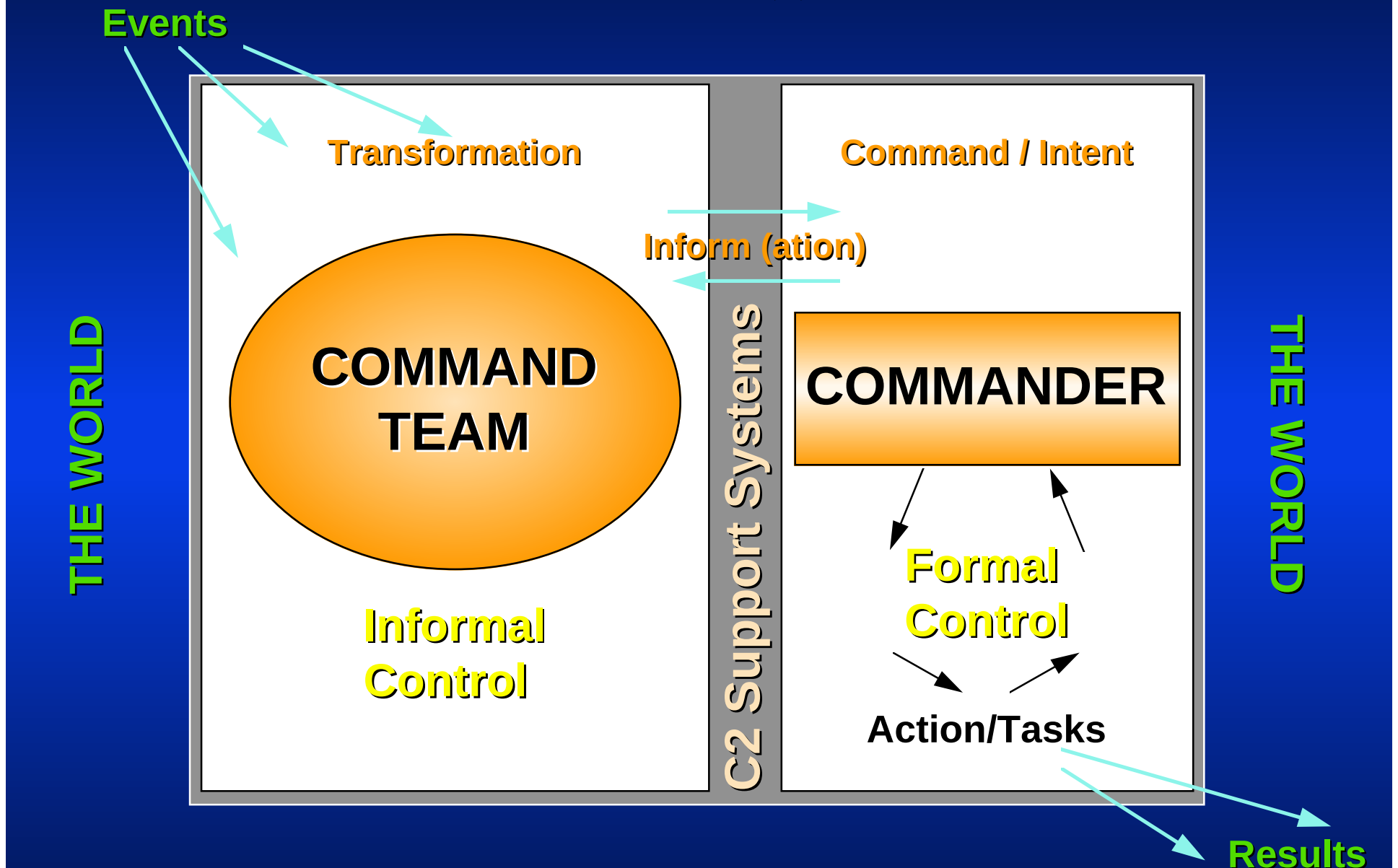

Inputs from:
Other Commands
Higher Command
Lower Command
External Agencies
Who's responsible?
Where?
How?
With What? (Applications) (Infrasructure)
Scenario Variations
MOPs
Pre-conditions
Post-conditions
Other Constraints
Type of Transformation
TASK 'AGENT'
Internal Context
Outputs to:
Higher Command
Lower Command

Command Process Model (6)



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Command Threads

Generally Strategic / Op

- Either 'loosely' characterised:
  - based on generic structure,
  - exact nature of process and time sequencing is dependant upon type of operation,

Generally Tactical

- or 'tightly' characterised:
  - well understood procedures and SOPs,
  - sequence and conduct of process always the same (regardless of operation).

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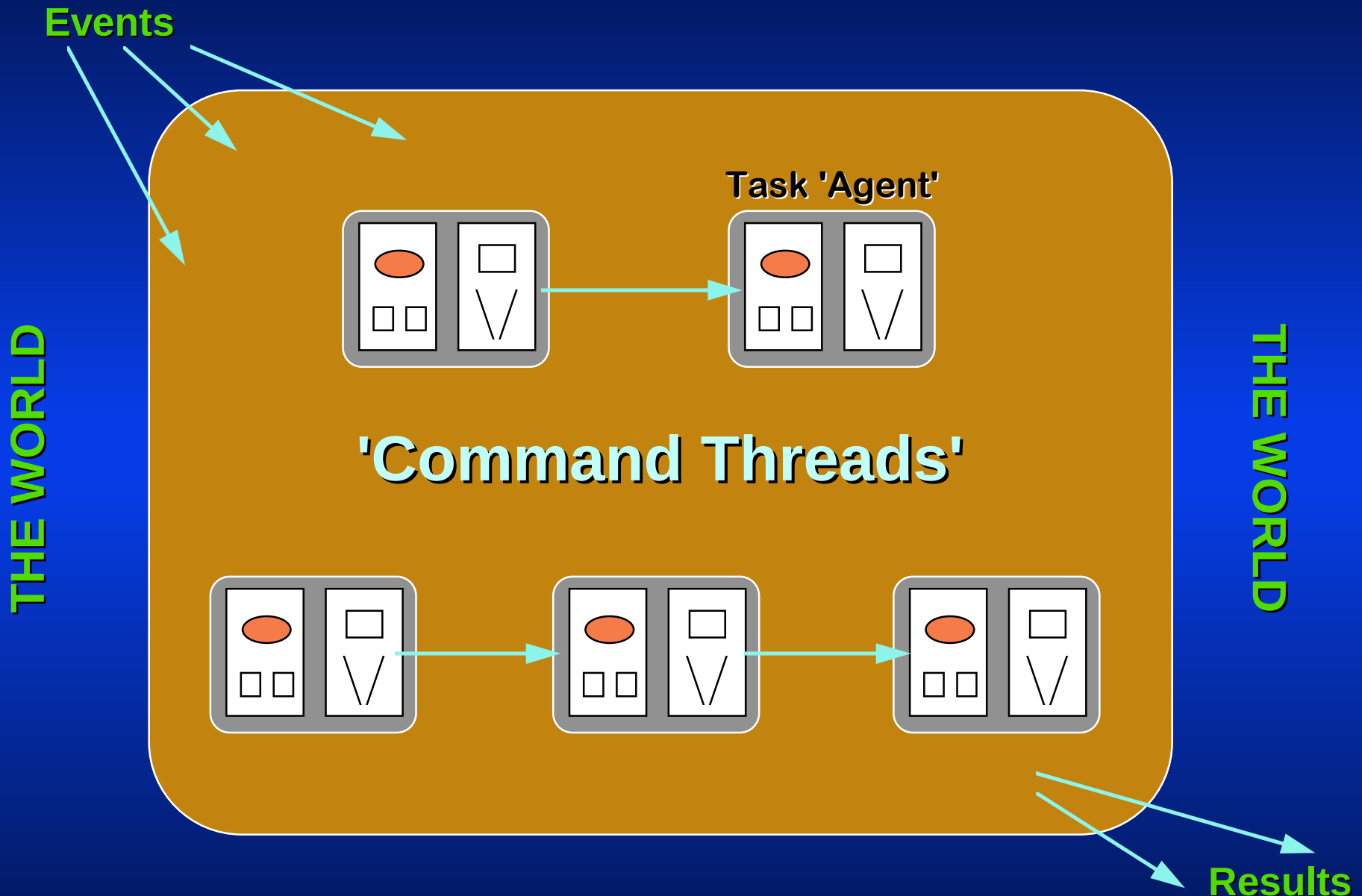
Command Threads



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Process Fragments

- Command threads are made of 'process fragments'
- Process fragments are atomic tasks to which IT support tools can be related and are either:
- Structured:
  - Well understood and supporting a well-structured fragment
- or Ad-hoc:
  - flexible to the point where its structure cannot be specified

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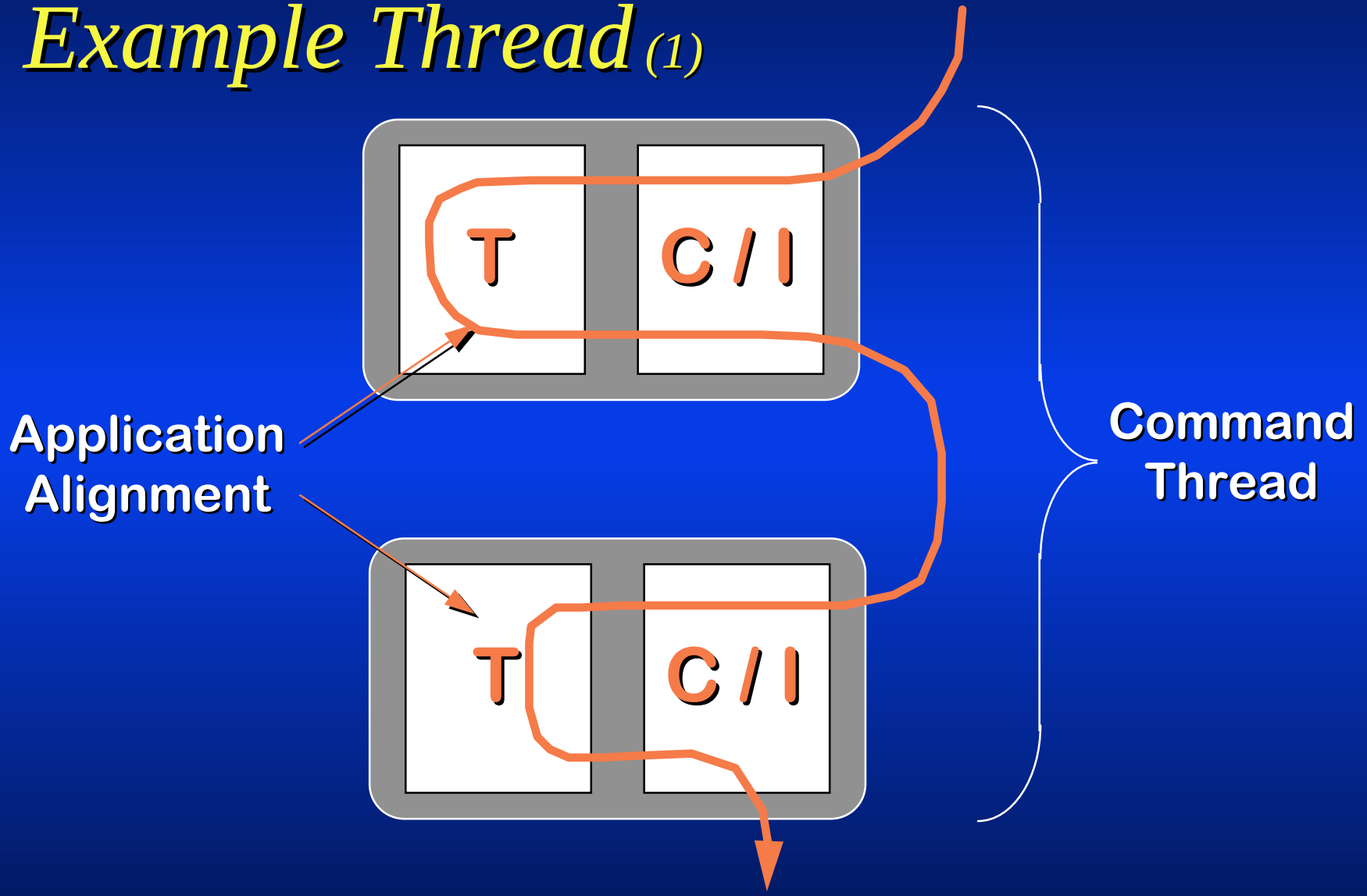
Example Thread (1)



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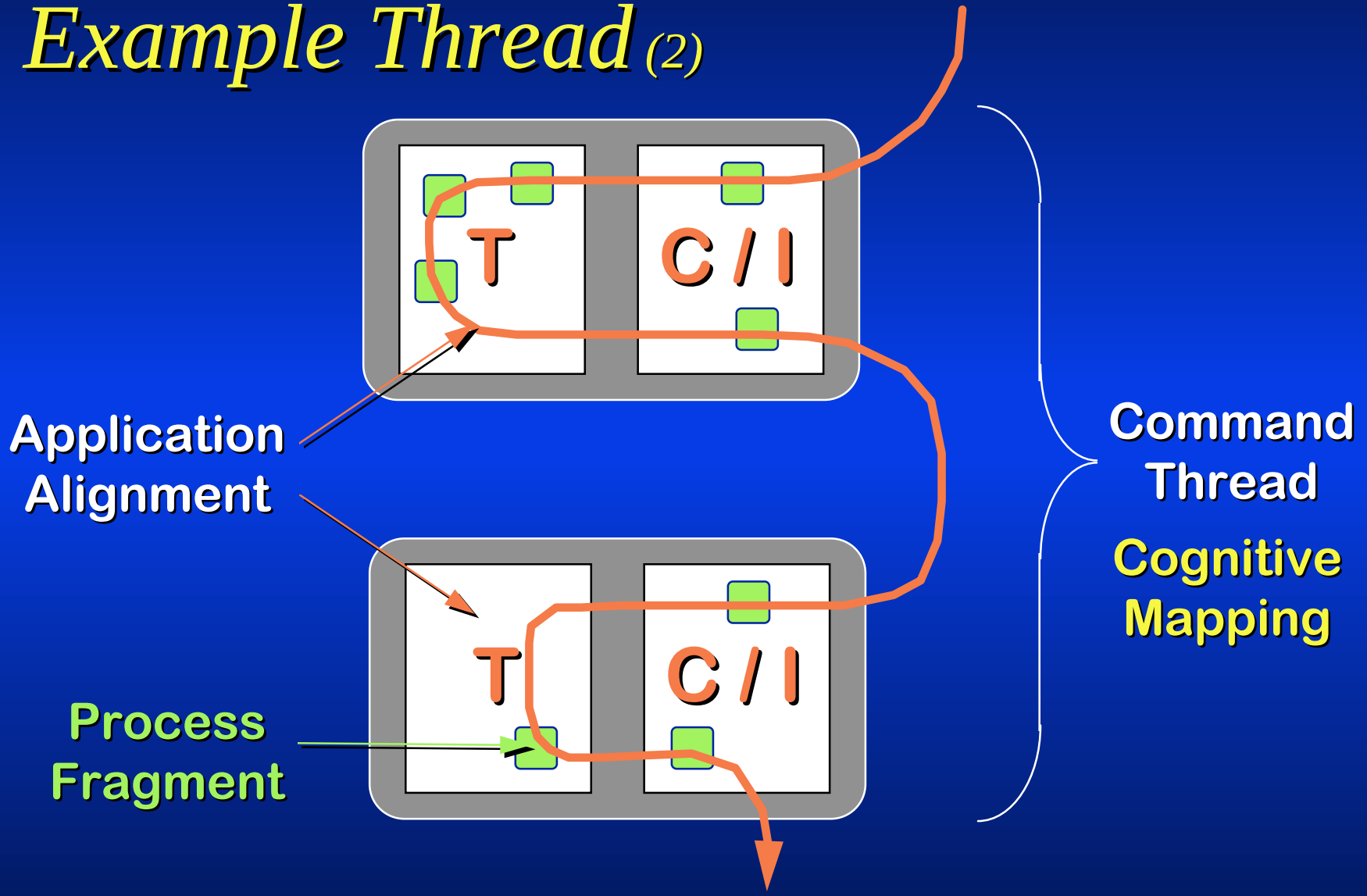
Example Thread (2)



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Styles of Decision-Making

- Decision-making styles
  - Deterministic (closed, linear)
  - Naturalistic (open, intuitive)
- Problem-solving styles:
  - Trial and error
  - Human mental mapping
  - Inductive reasoning
- Team size and organisation:
  - Optimising organisation to problem
  - Weinberg's rule

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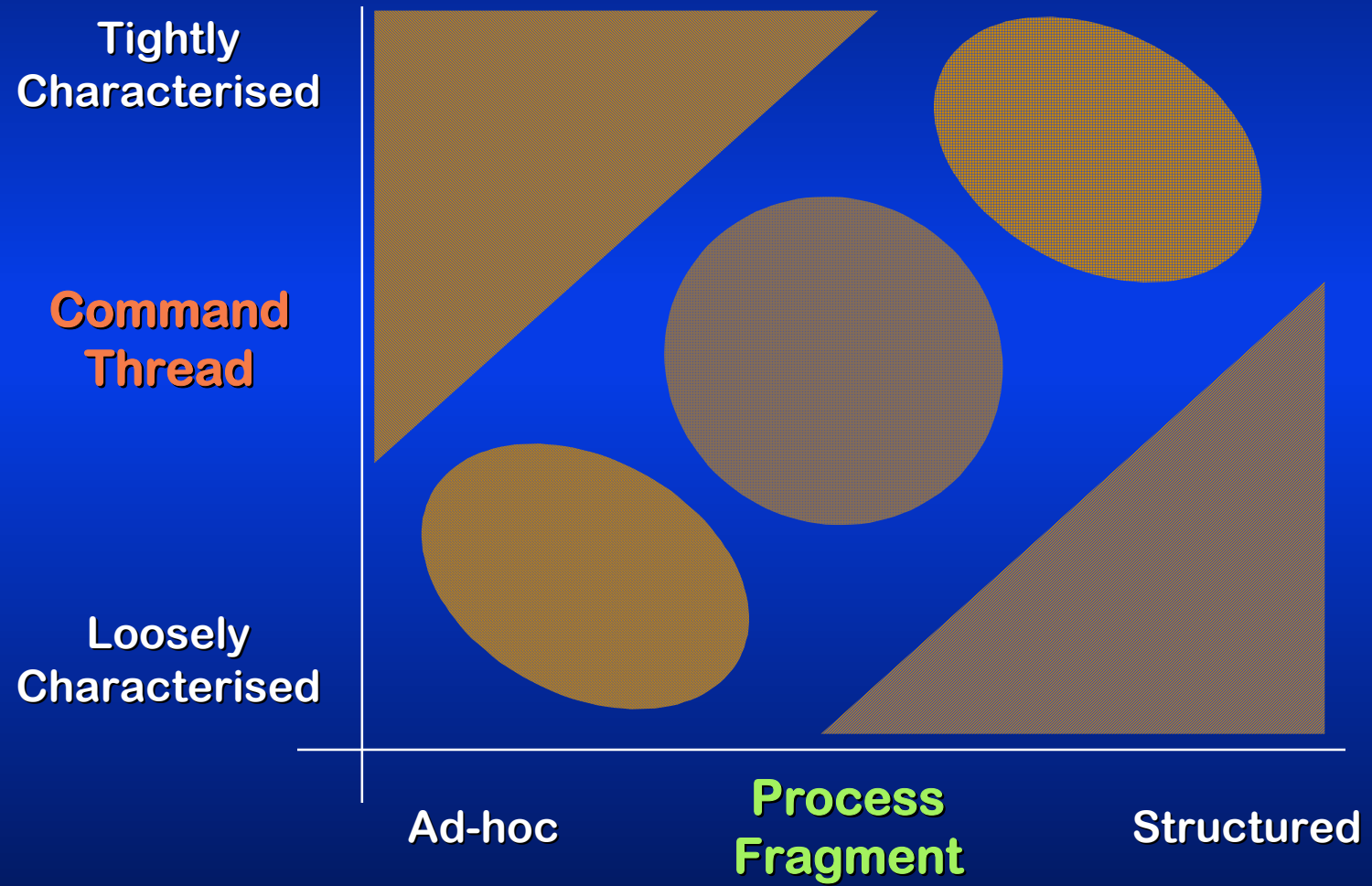
Optimising Solutions (1)



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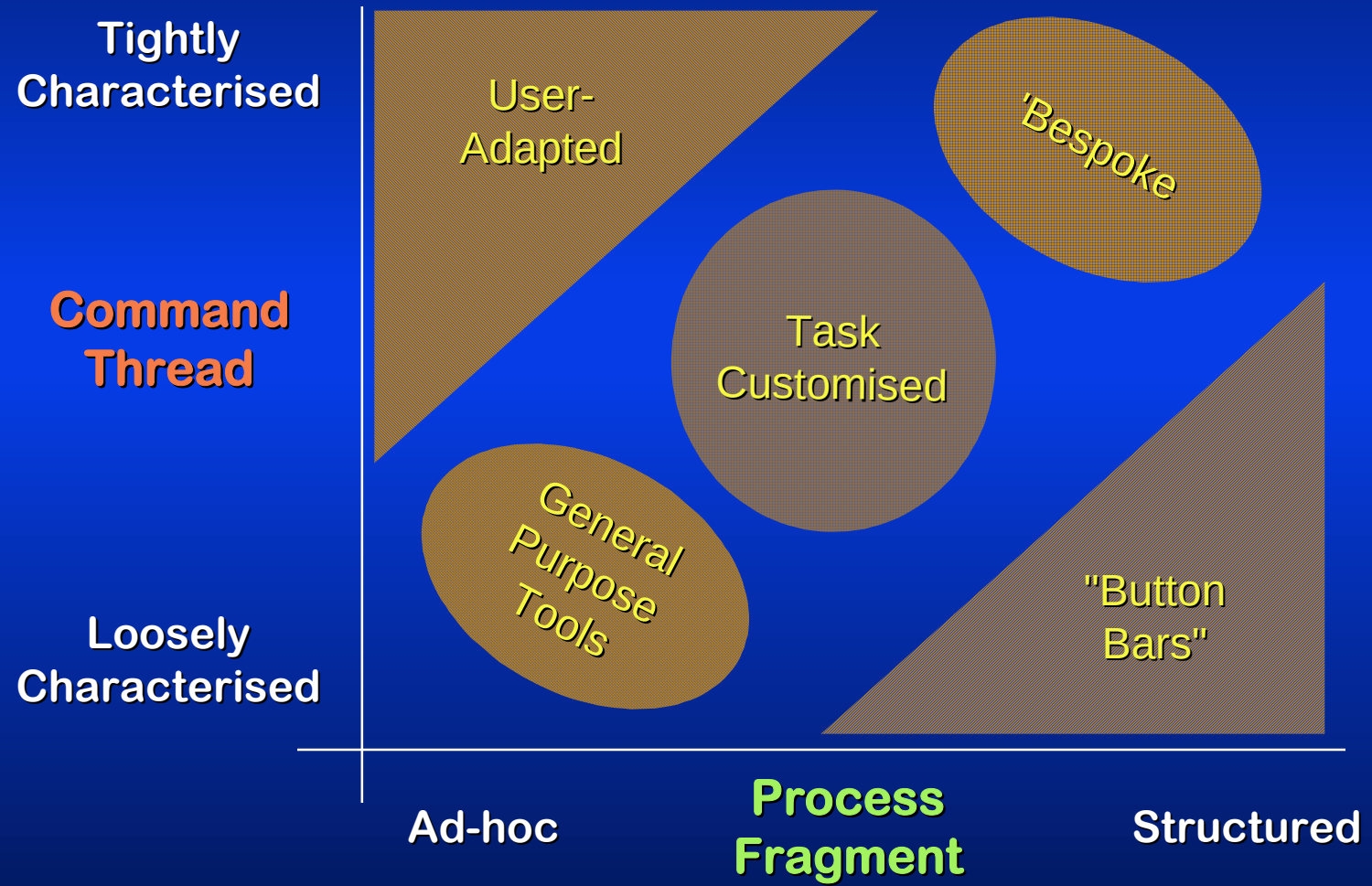
Optimising Solutions (2)



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Mapping the Solution (1)

C2 Framework

C2 Frameworks constrain and support C2 processes:
eg, Organisational, cultural, legal, philosophical, financial etc.

C2 Process

C2 Process identifies key sequences of:
Activities, constraints, individuals / groups, etc - how it works.

Information Mgmt

Information Management addresses the:
Capture, storage and retrevial of information.

Information Tech

Information Technology is the software / hardware:
which supports the C2 Processes and Information Mgmt.

Telecommunication

Telcommunications permits the:
transfer of electronic information as data.

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Supporting the Solutions

- Layered, component-based structure:
- User process (provides cognitive mapping)
- Applications:
  - Reflect the flexible, adaptable command process - operationally dependant (golf bag)
  - 'Light' and mobile
- Infrastructure:
  - Based on Information Services (traders and brokers approach)
  - 'Omnipresent' and enduring

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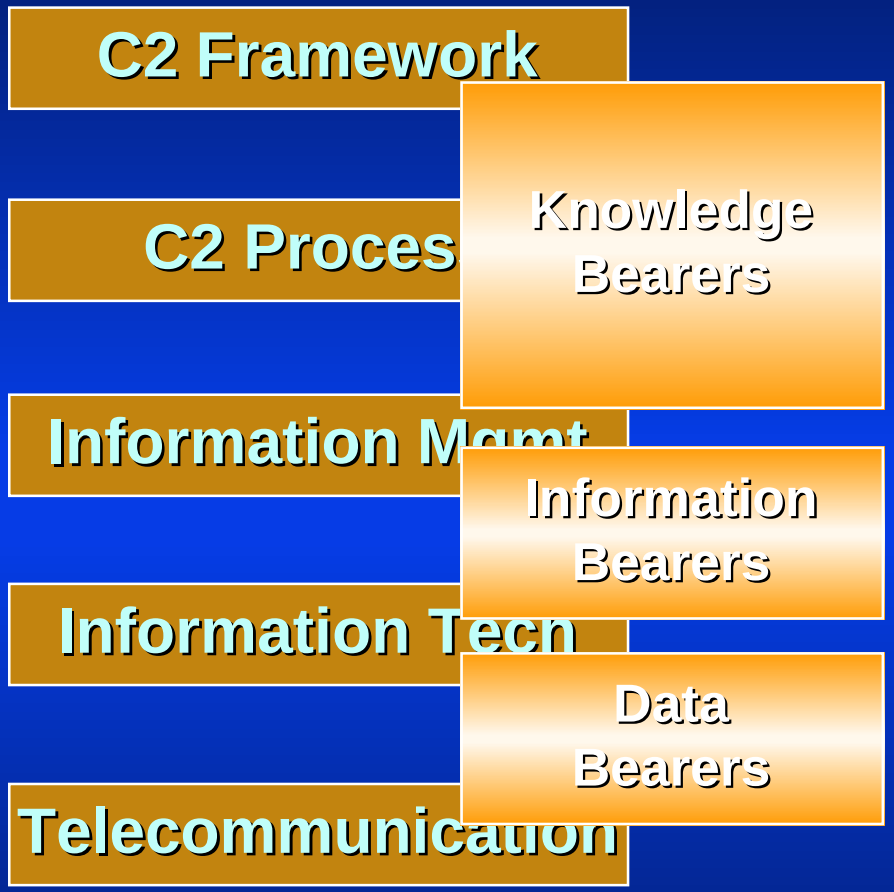
Mapping the Solution (2)



Solutions in the Knowledge Domain: are largely ***organisational*** issues (dealing with the derivation / implementation / monitoring of intent).

Solutions in the Information Domain: are a mix of ***organisational and technical*** issues,

Solutions in the Data Domain: are largely ***technical*** issues (focused on information),

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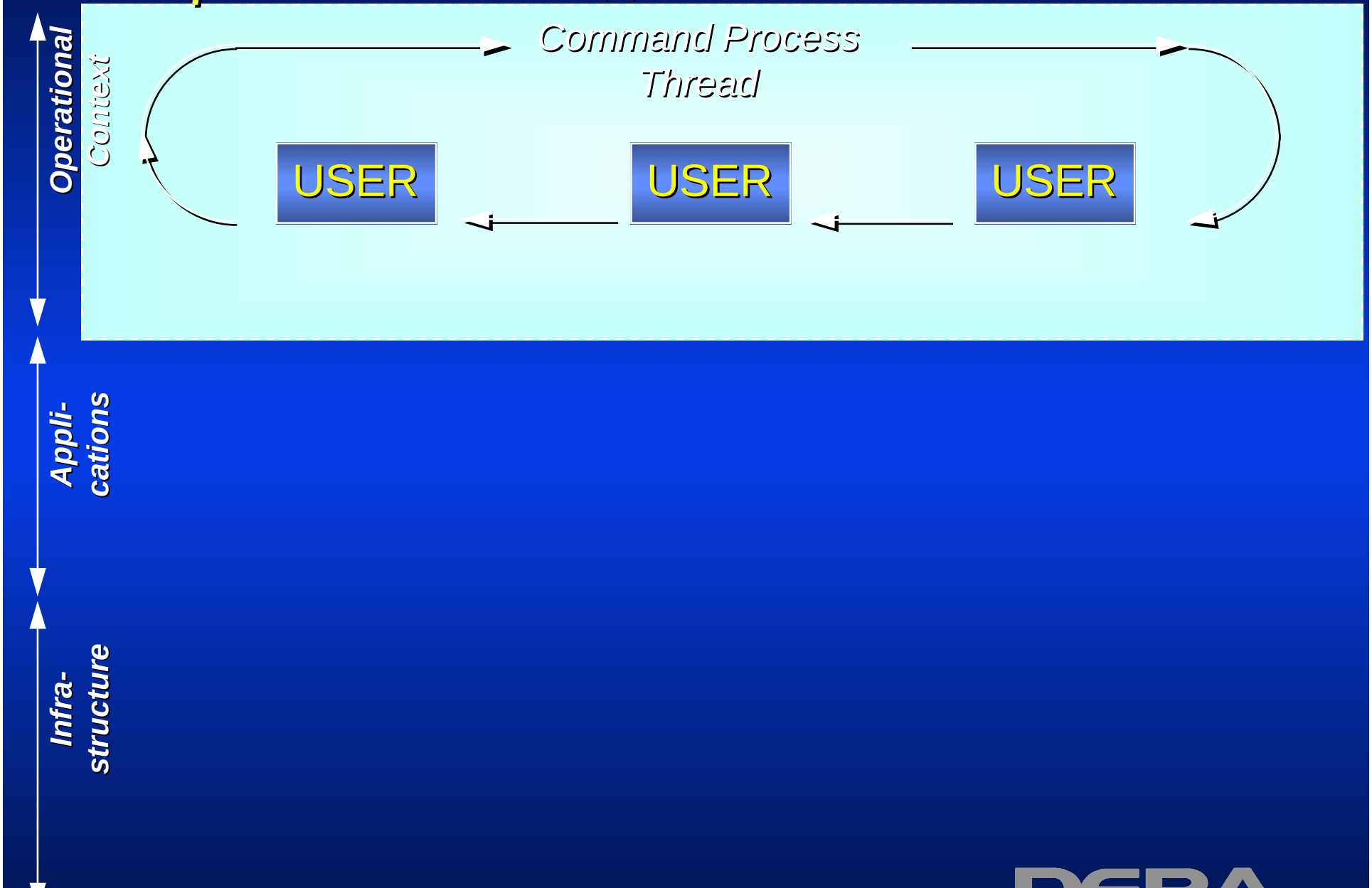
Reference Model (1)



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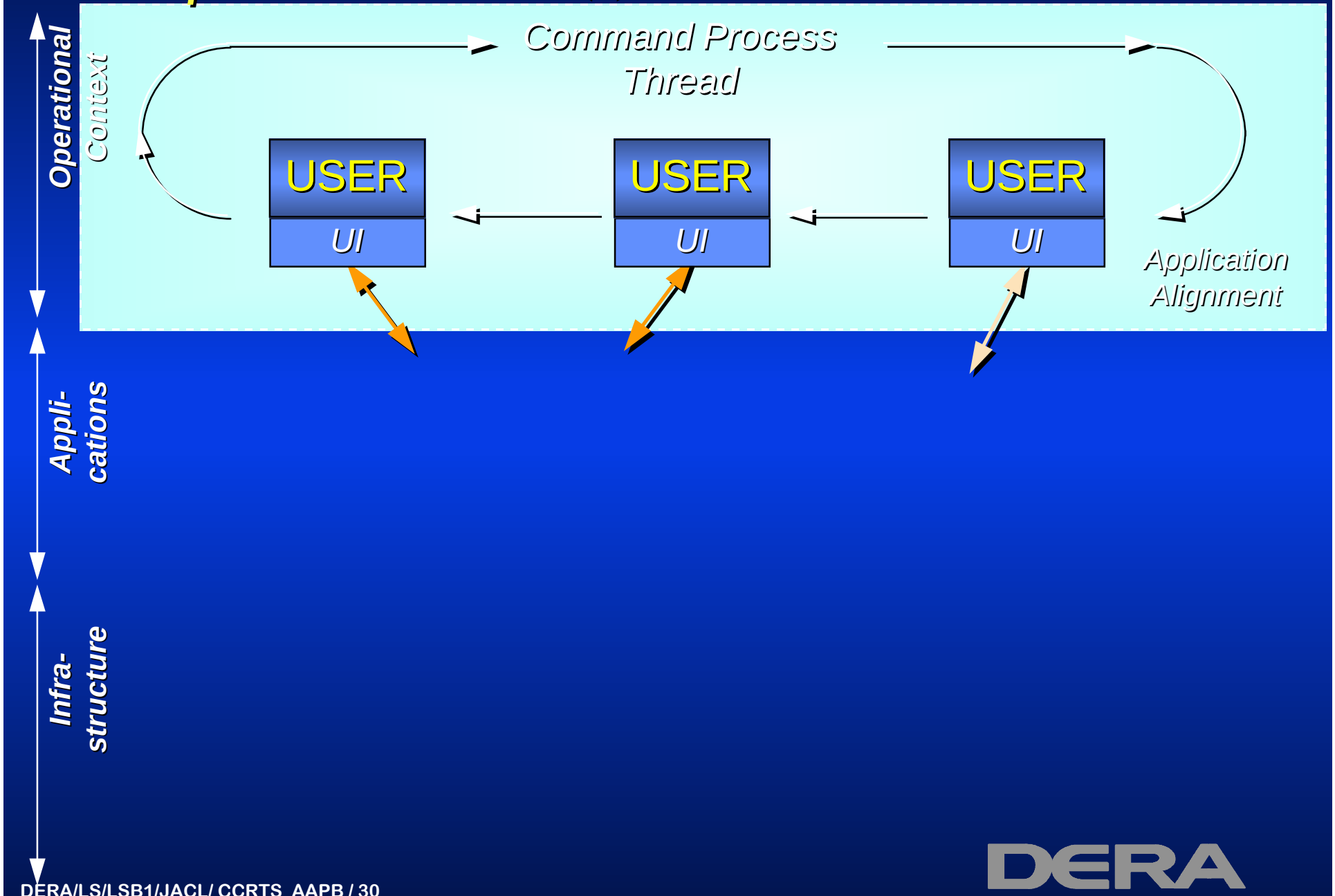
Reference Model (2)



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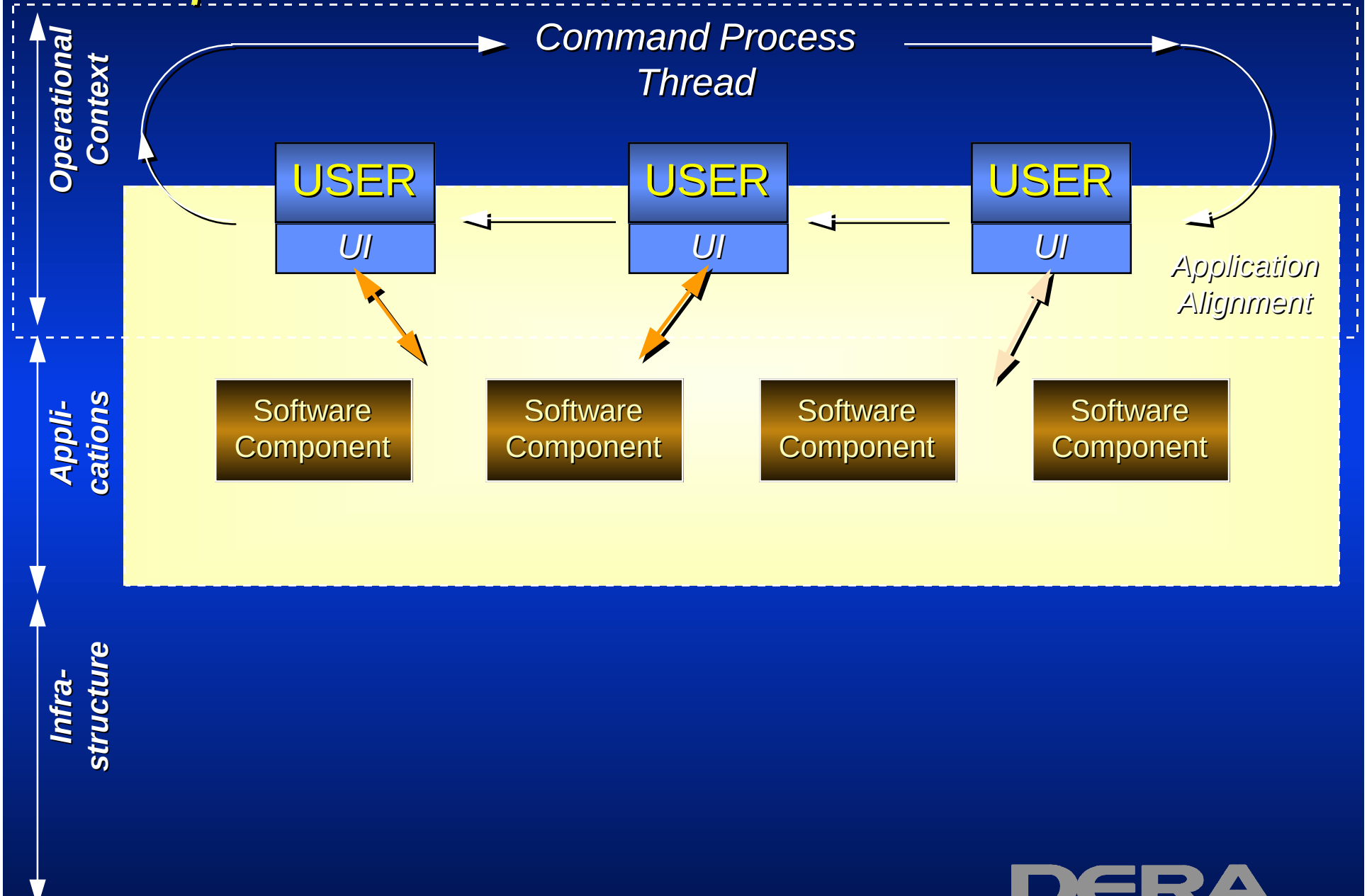
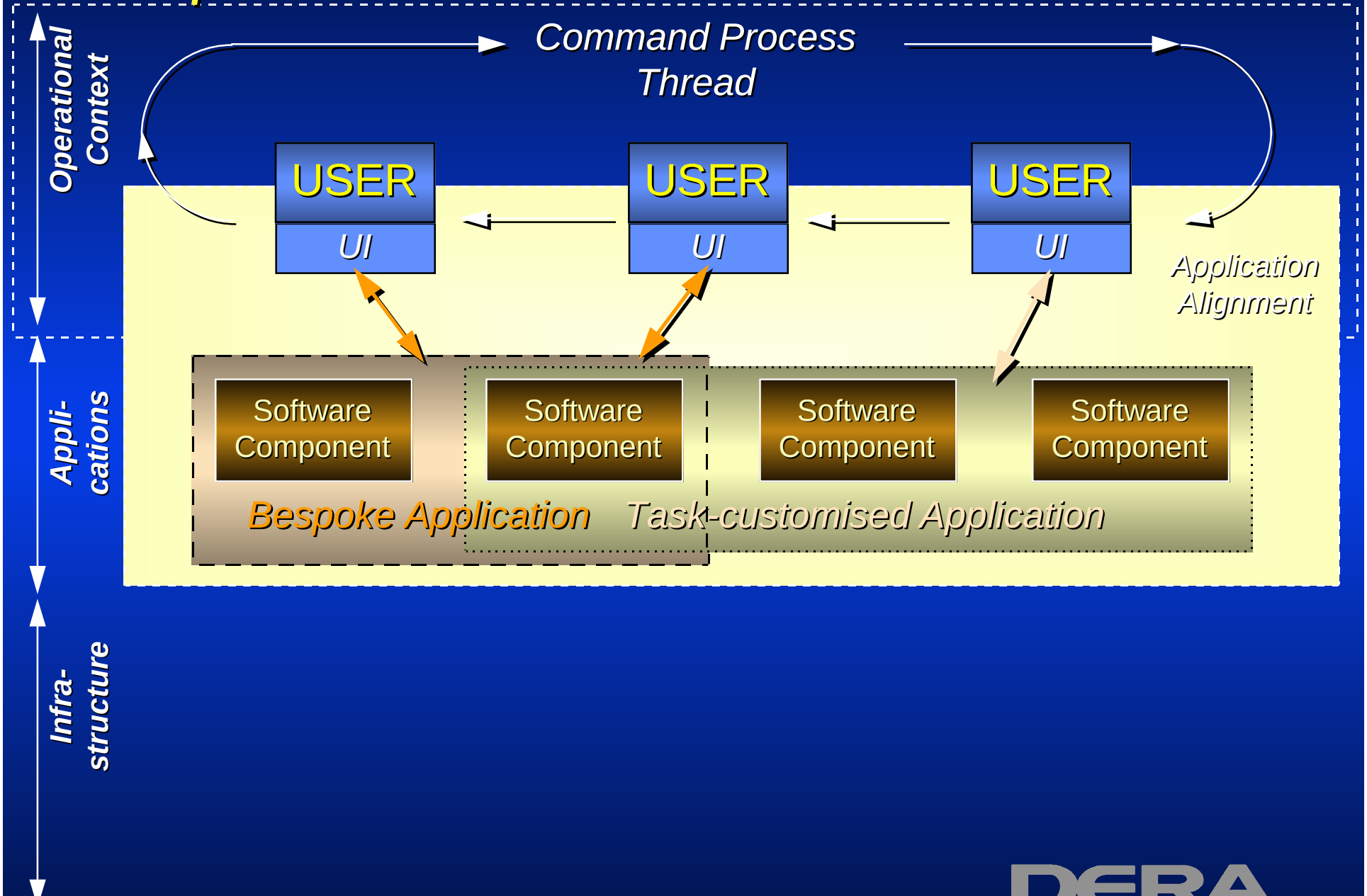
Reference Model (3)



Reference Model (4)



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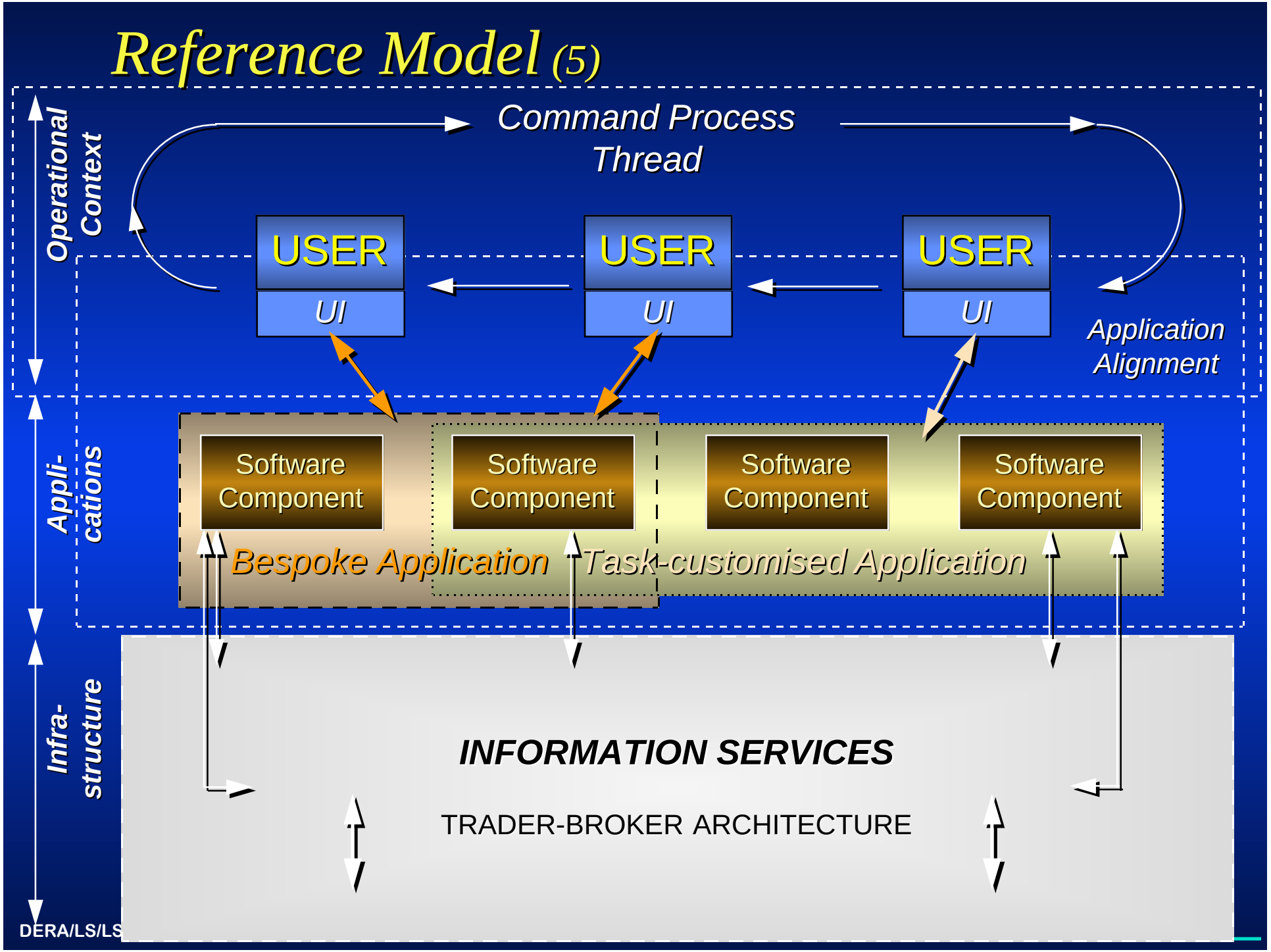
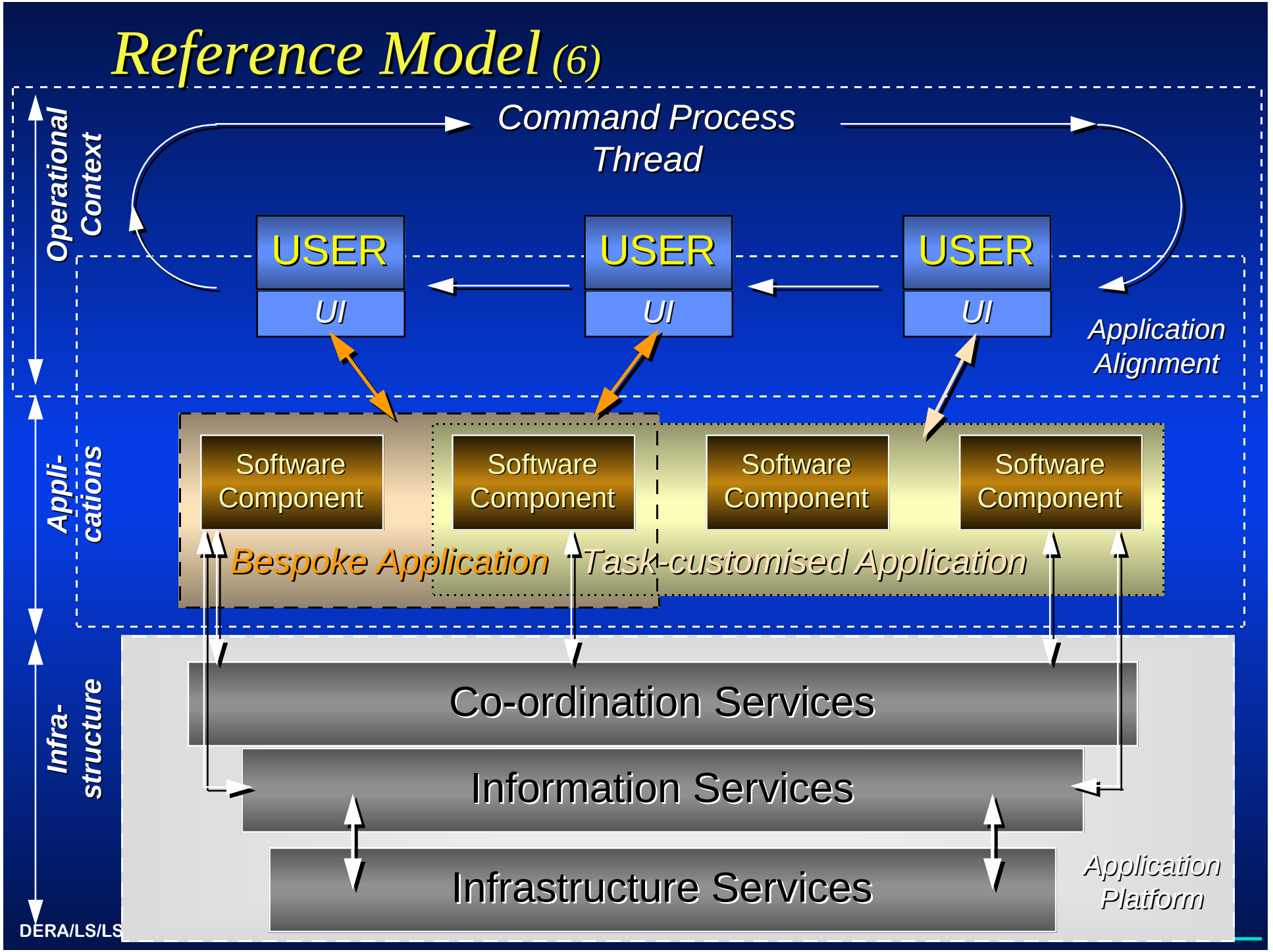
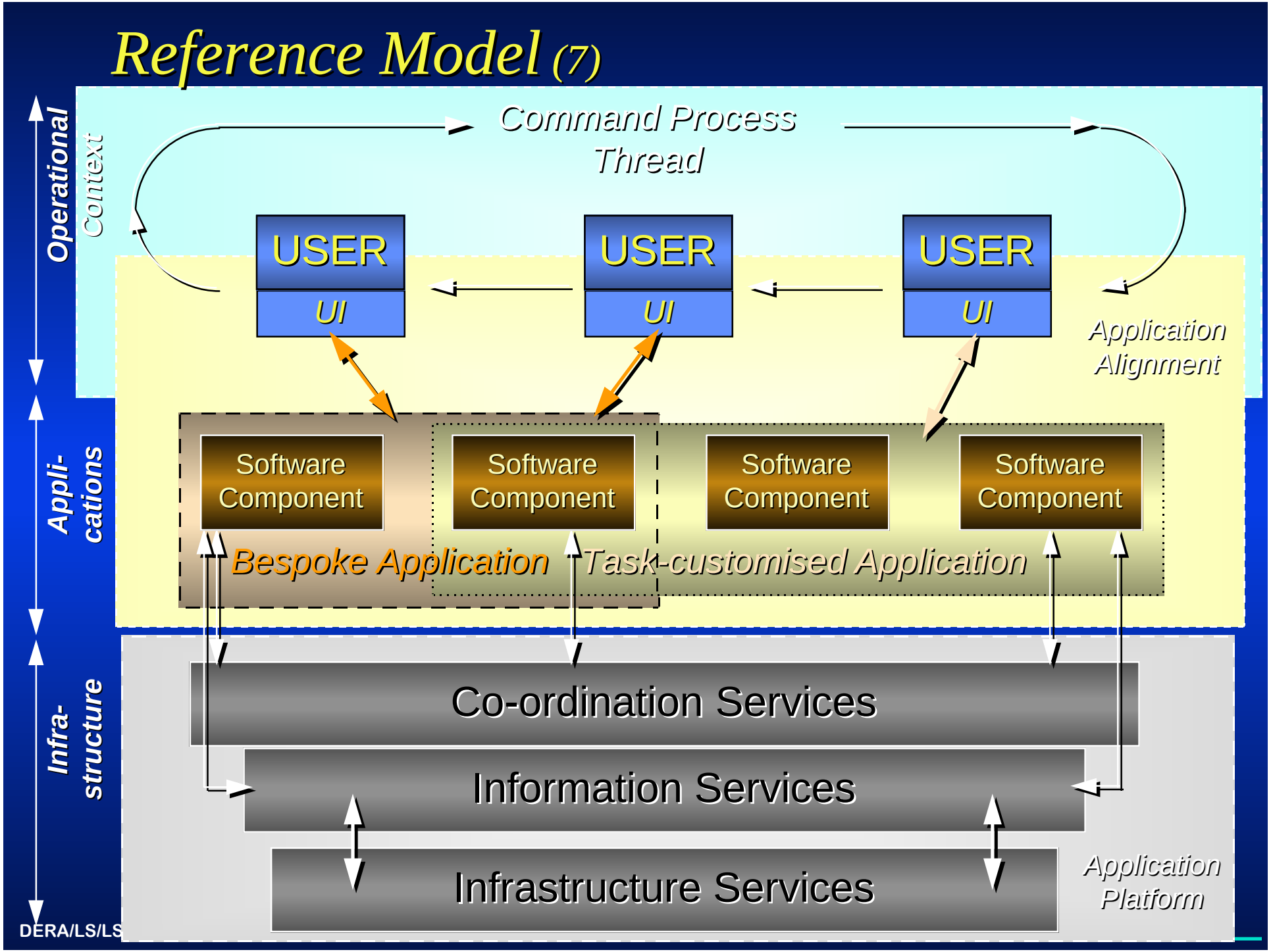
Reference Model (5)



Reference Model (6)



Reference Model (7)



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Potential Benefits

- Can be used as a:
  - Framework for thinking about C2
  - Way to solving command issues - organisational vs technical
  - Methodology for considering the appropriateness of Command Support Applications
- Would support Command Agility …
  - Puts the User in control,
  - Provides flexibility, re-use and rapid change
  - Reduces the 'stovepipe' nature of current solutions,
  - Delivers robustness and redundancy,

Potential Problems

- Security:
  - Control vs flexibility
- Procurement for Command Agility:
  - Requirements and accountability - different 'langauge' needed
  - Assessing functionality
- Training:
  - Exposure to ruthless, agile opponents

Summary

- Philosophy
- The Command Process
- Characterising the Process
- Mapping to the Solutions
- Potential Benefits / Problems
- Summary and Discussions

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Questions Please ...

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