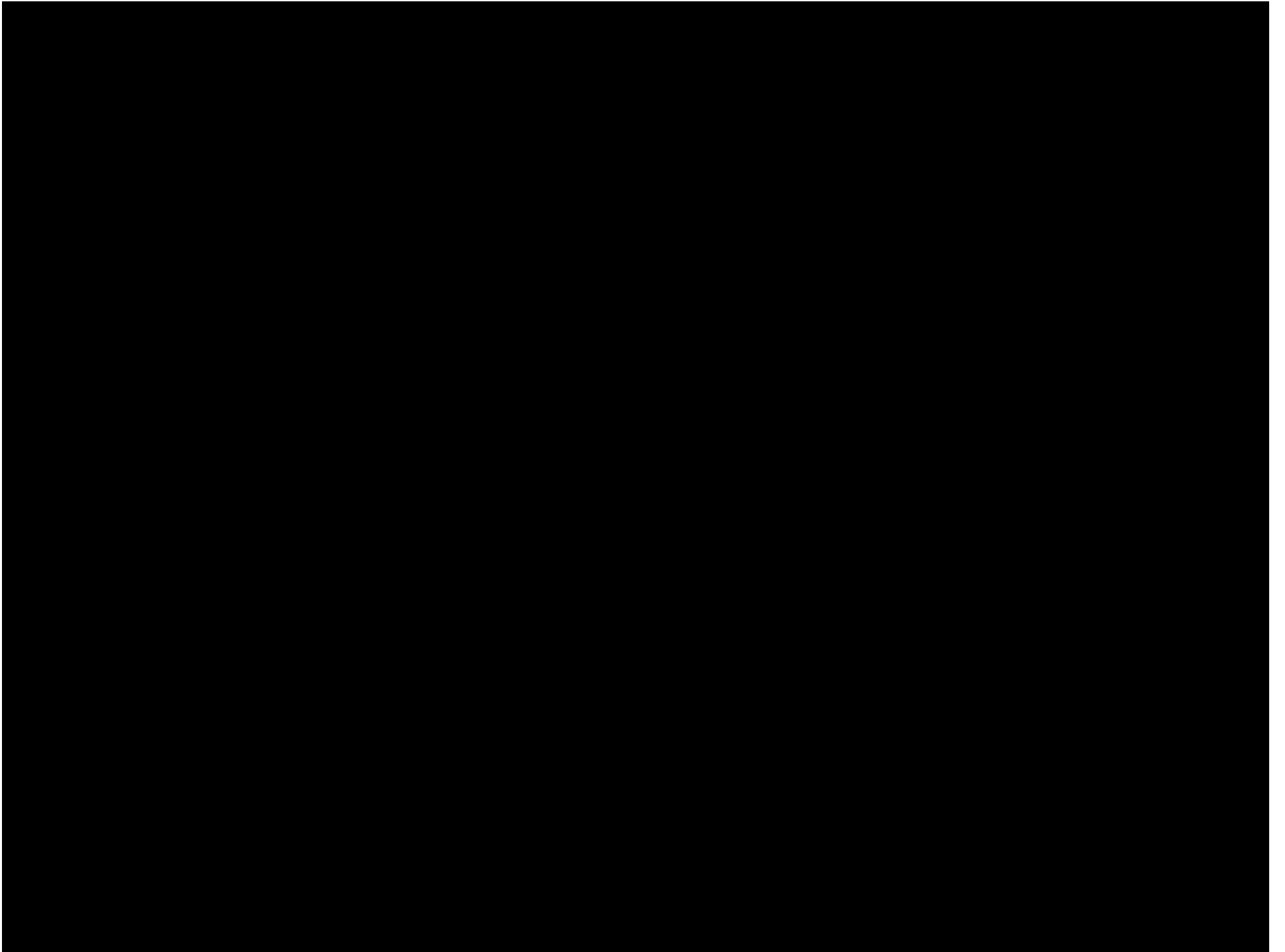


**Overview of Effects-Based Wargaming
and Phase 5 Stimulator
(Including STIMEX 98 / 1)
for
I / ITSEC 98**

(50 Slides [Including Blanks and Builds] - ITSEC_PB.PPT)

**[Original - 27 Nov 98]
[This version (DERA Background) - 2 Nov 99]**

DERA





Patrick Beutement

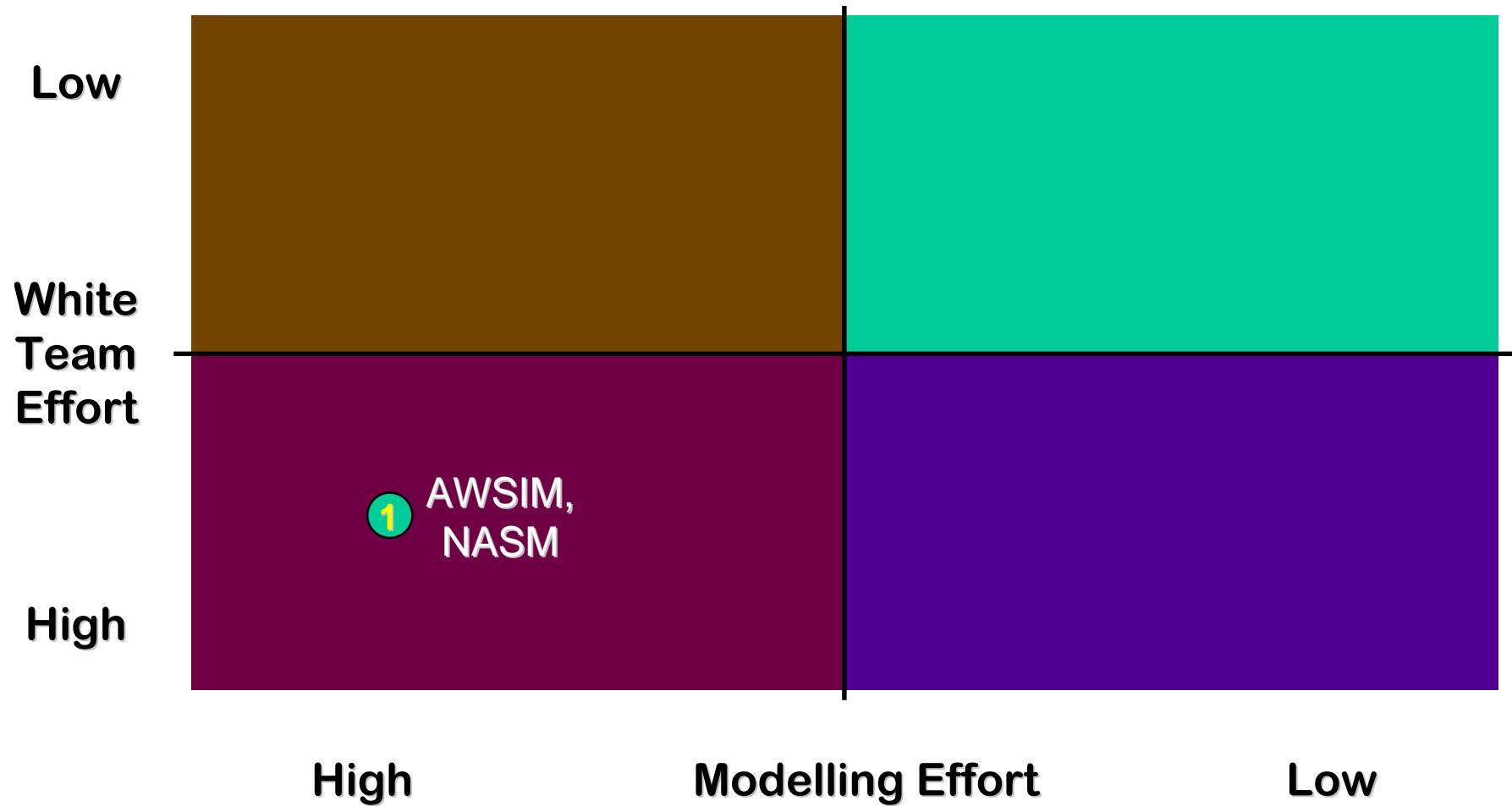
Effects-based Wargaming

- Philosophy
- Current Key Requirements
- White Team Support / Simulating Red
- Examples of 'Effects-Based Wargaming'
- Future Developments
- Summary and Discussions

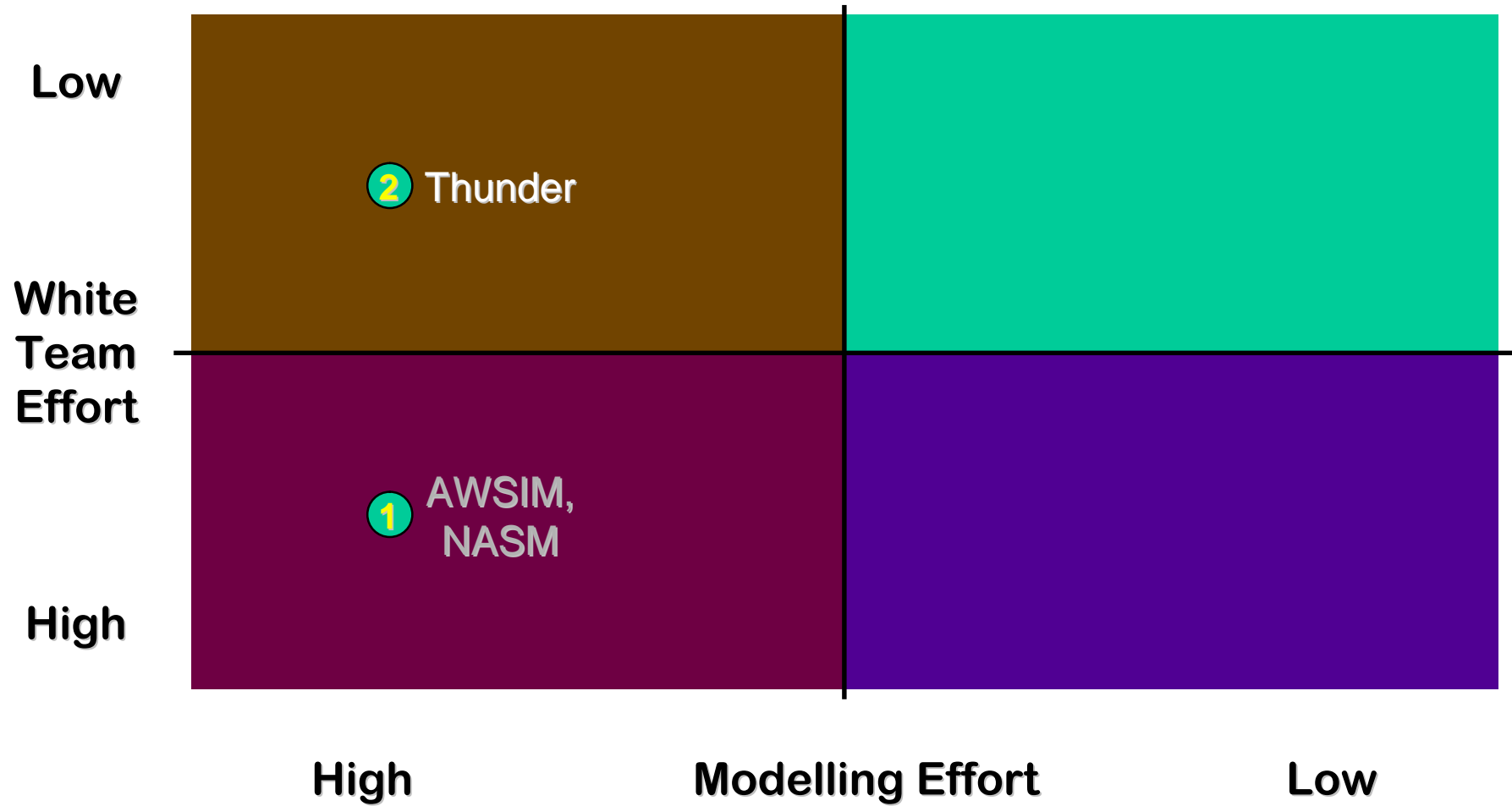
Question?

What is the simplest way to provide a Synthetic Environment which will simulate the interactions necessary to drive the decision making in warfighters?

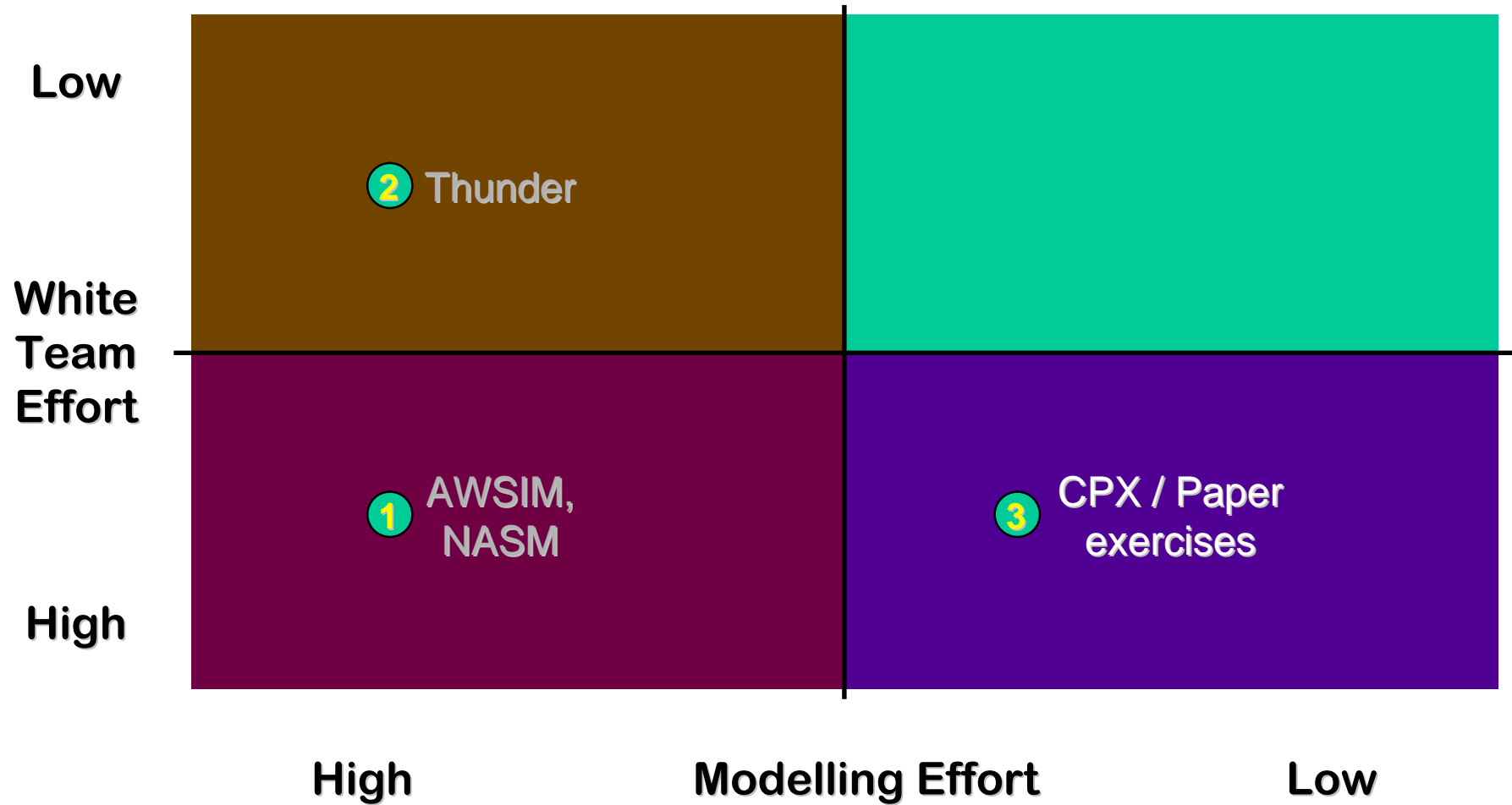
Options?



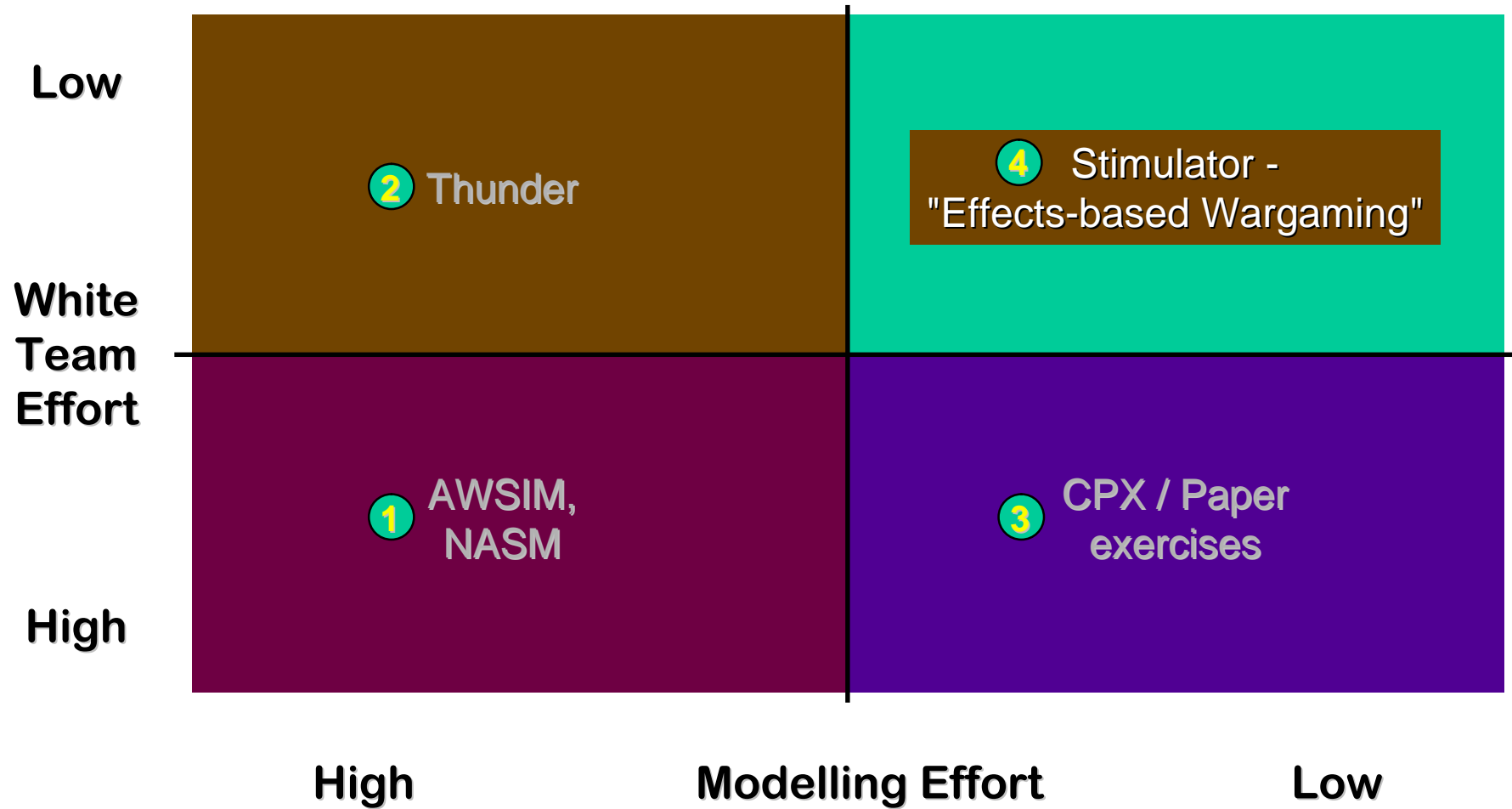
Options?



Options?



Options?



AOC Stimulation ⁽¹⁾



AOC Stimulation (2)



AOC Stimulation (3)



Effects-based Wargaming - Aims

- Rapid definition of simulation boundaries
- Easy interaction with real C4I systems
- Warfighter-compatible White Team interface
- Improved control of exercise events
- Simplified generation of Red Air effects
- Reduced simulation overhead
- Reduced White / Red Team sizes

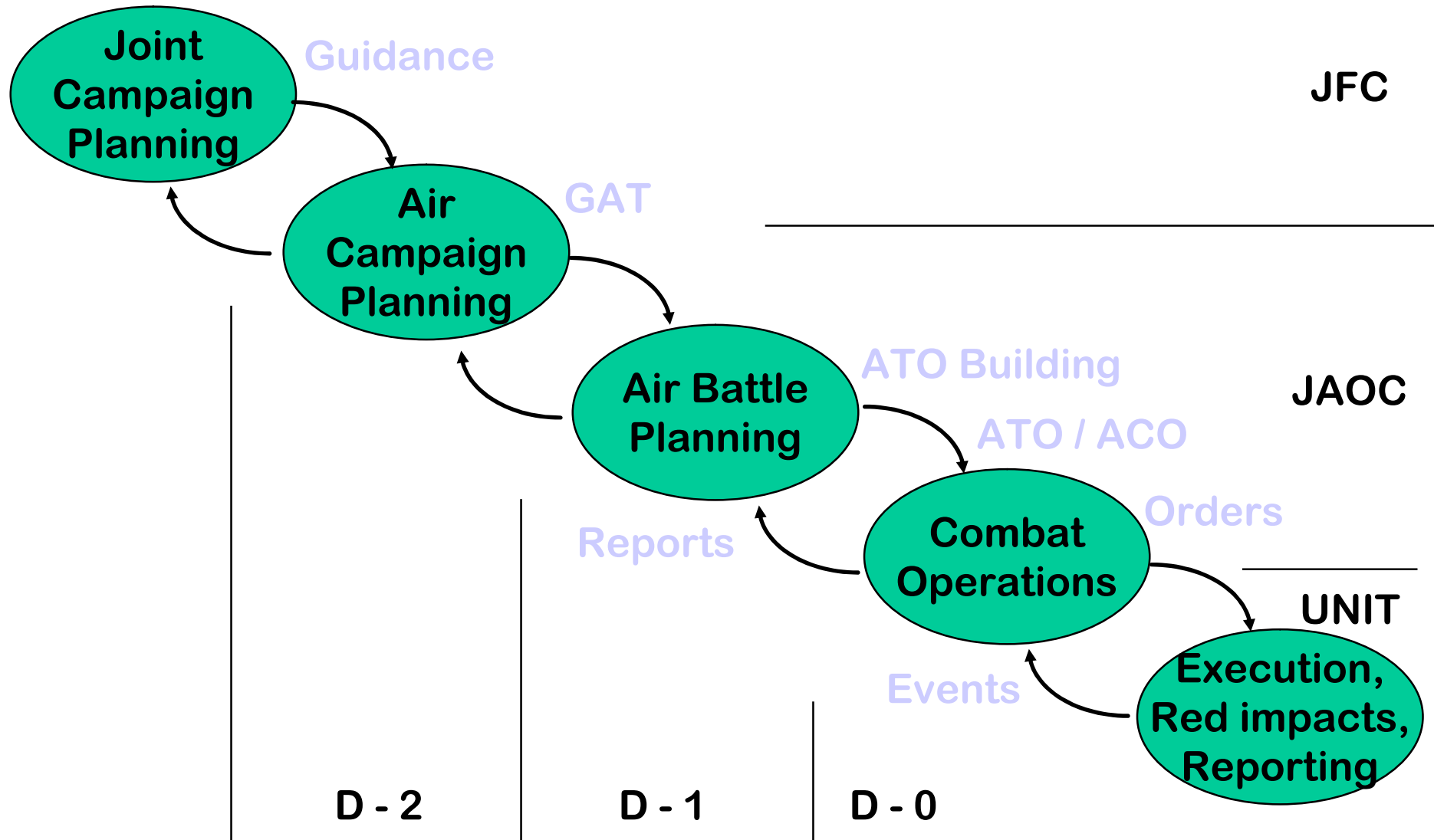
\$16 Billion

DERA

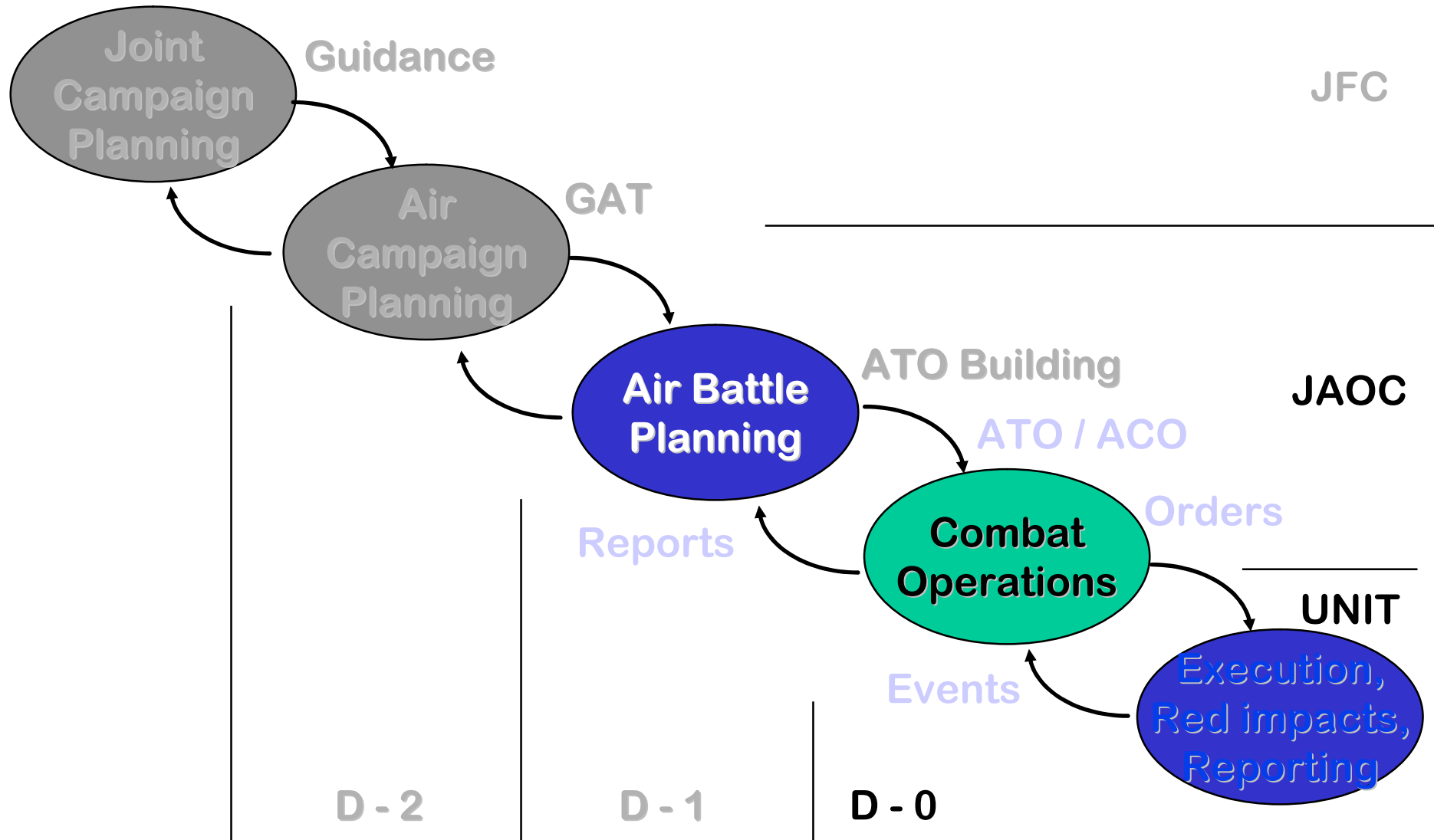
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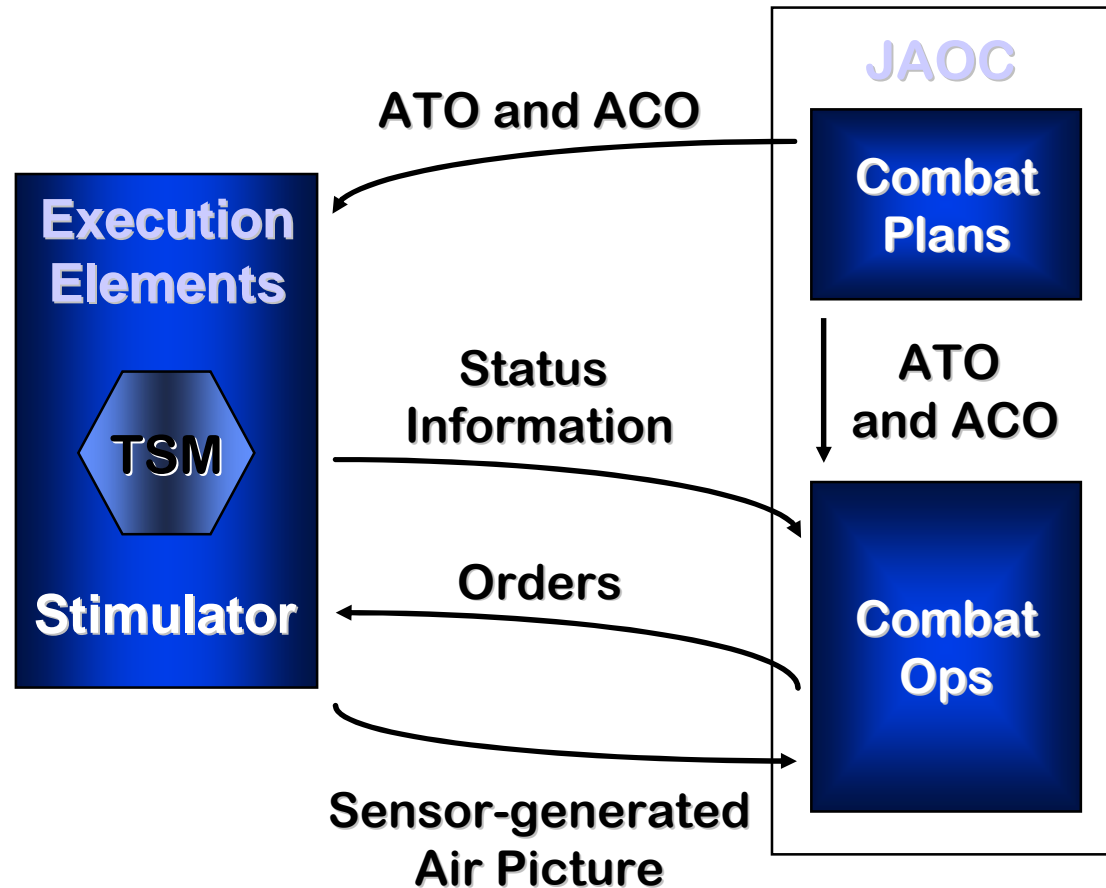
Operational Process ⁽¹⁾



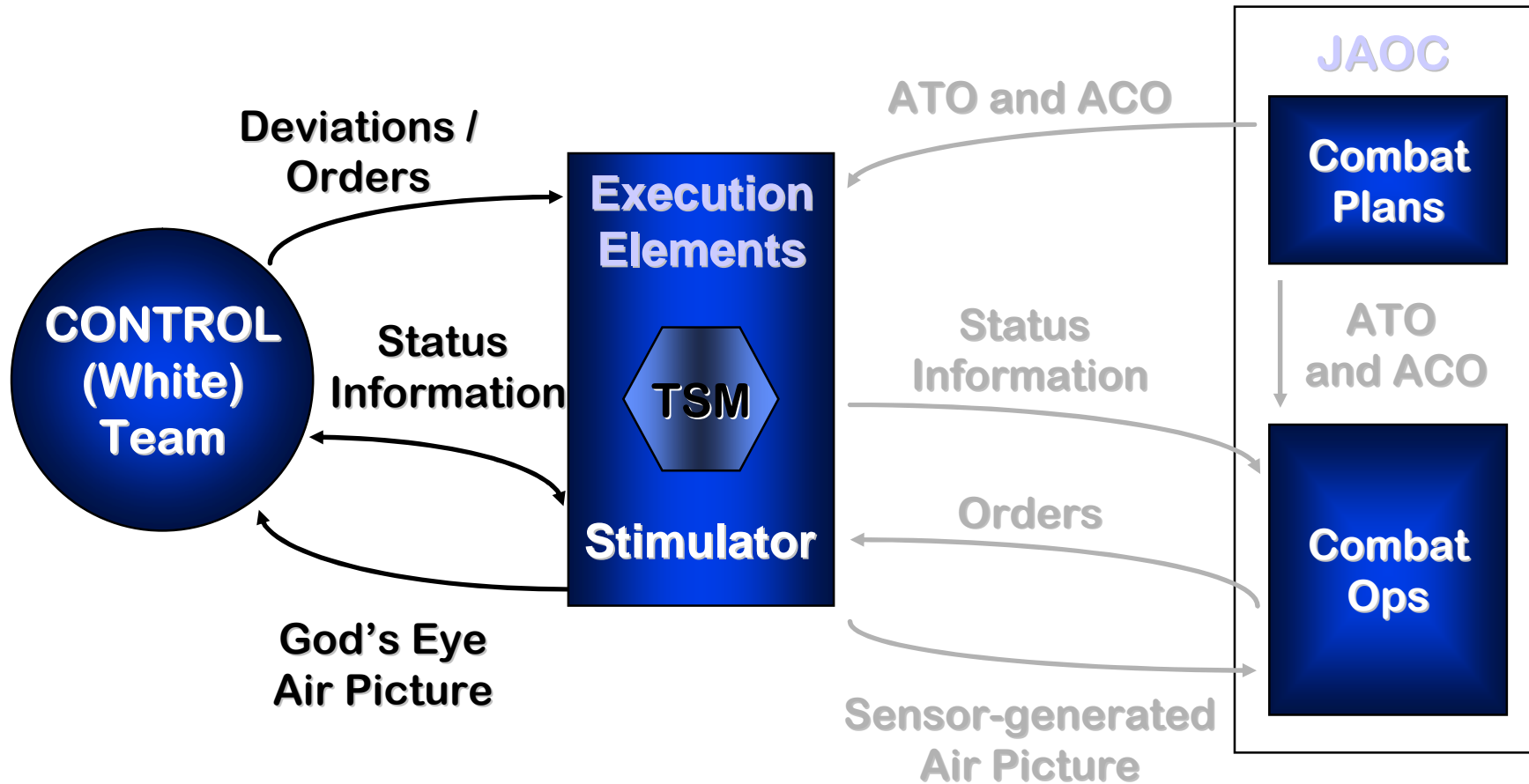
Operational Process (2)



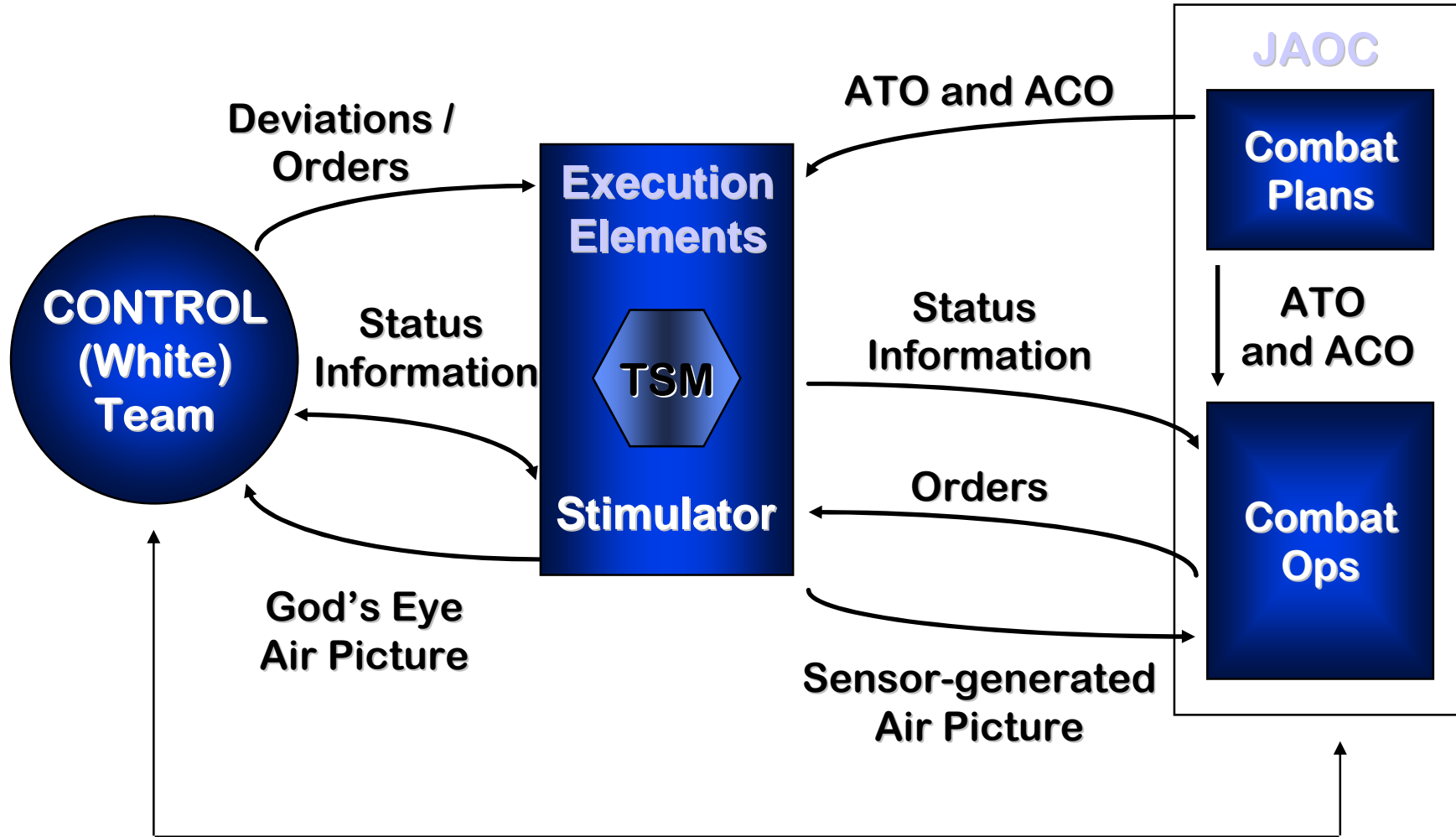
Stimulator's Key Features (1)

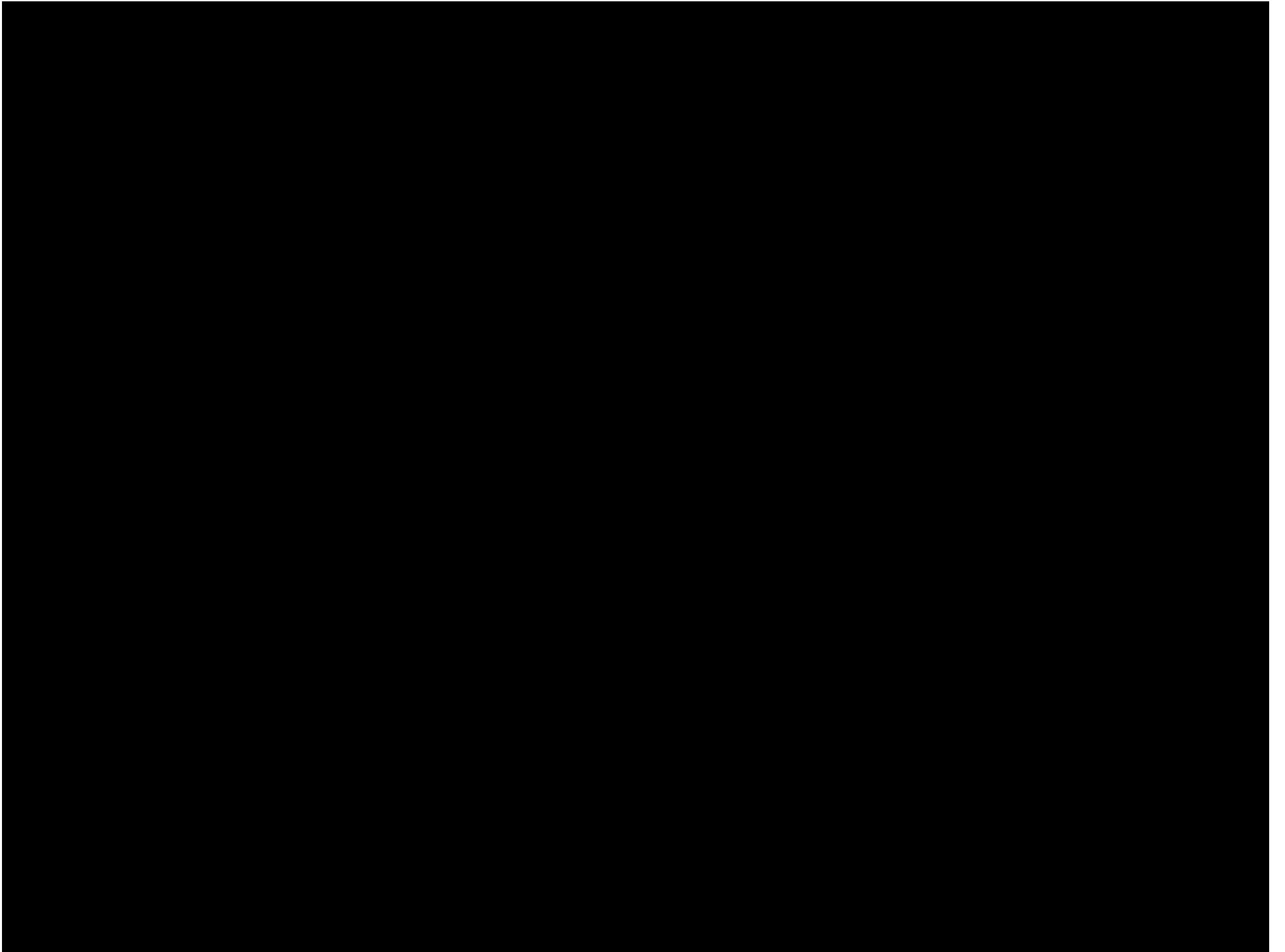


Stimulator's Key Features (2)



Key Features (3)





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Red Aim - To Win the War

by affecting Blue's

**Exploit Geography
/ Weather**

Ability to Apply Air Power

**Activate Blue's
Constraints**

by affecting



Red Aim - To Win the War

by affecting Blue's

Exploit Geography / Weather

Ability to Apply Air Power

Activate Blue's Constraints

by affecting

Ability to Obtain Information

Ability to Plan

Ability to Communicate

Ability to Execute

DENY BDA / RECCE

THROUGH DECEPTION

SUBVERTING PEOPLE

PROCESSING / ASSOCIATION

SURVEILLANCE ASSETS

STORAGE OF INFORMATION

DENY DATA

PLANNING FACILITY

DISRUPT PLANNERS

PLANNING SYSTEMS

PLAN DISTRIBUTION

REMOVE INITIATIVE

AFFECT NETWORKS

COMMS EQUIPMENT

DISRUPT FACILITIES

JAM COMMS

SOFTWARE WARFARE

CAN'T RECEIVE PLAN

CAN'T REPORT PROGRESS

EXECUTION FACILITIES

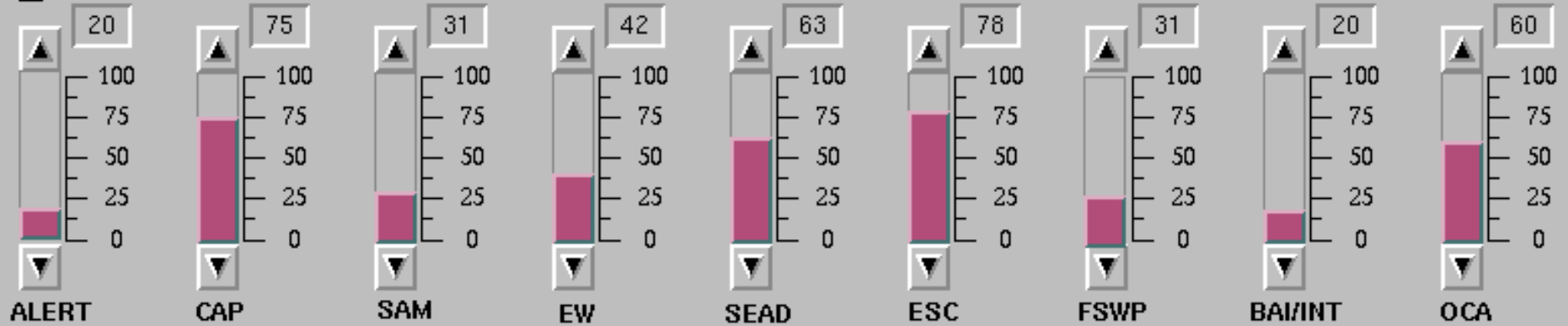
LIMIT FREEDOM OF ACTION

The Red 'Levers'

- Focuses on the effects of Red operations
- Alters the Stimulator's outcome calculations
- No need for Red ATO
- Simpler simulation, but required fidelity maintained
- Concept under development:
 - Need both planning and execution levers

Control Levers

Mission Level Control



Campaign Level Control

- Red has air supremacy
- Red has air superiority
- Red has a favourable air situation
- Neutral - neither red or blue dominates
- Blue has a favourable air situation
- Blue has air superiority
- Blue has air supremacy

Control Of The Air

- Blue to incur no loss
- Blue may abort to avoid loss
- Blue to pursue with minimum loss
- Blue to pursue at all costs

Military Imperative

Weighting Factors

Mission Preparation Time	1.33
Planned/Refused Time Delay	1.35
Mission Launch Delay	1.35
Reporting Mission Launch Delay	1.19
Package Flow	0.8
Red Forces - Attrition Thresholds	0.95
Mission Outcome - Target Damage	0.91
Reporting Mission Recovery Delay	0.98
Aircraft Repair	1.07
Aircraft Turnaround Times	1.36

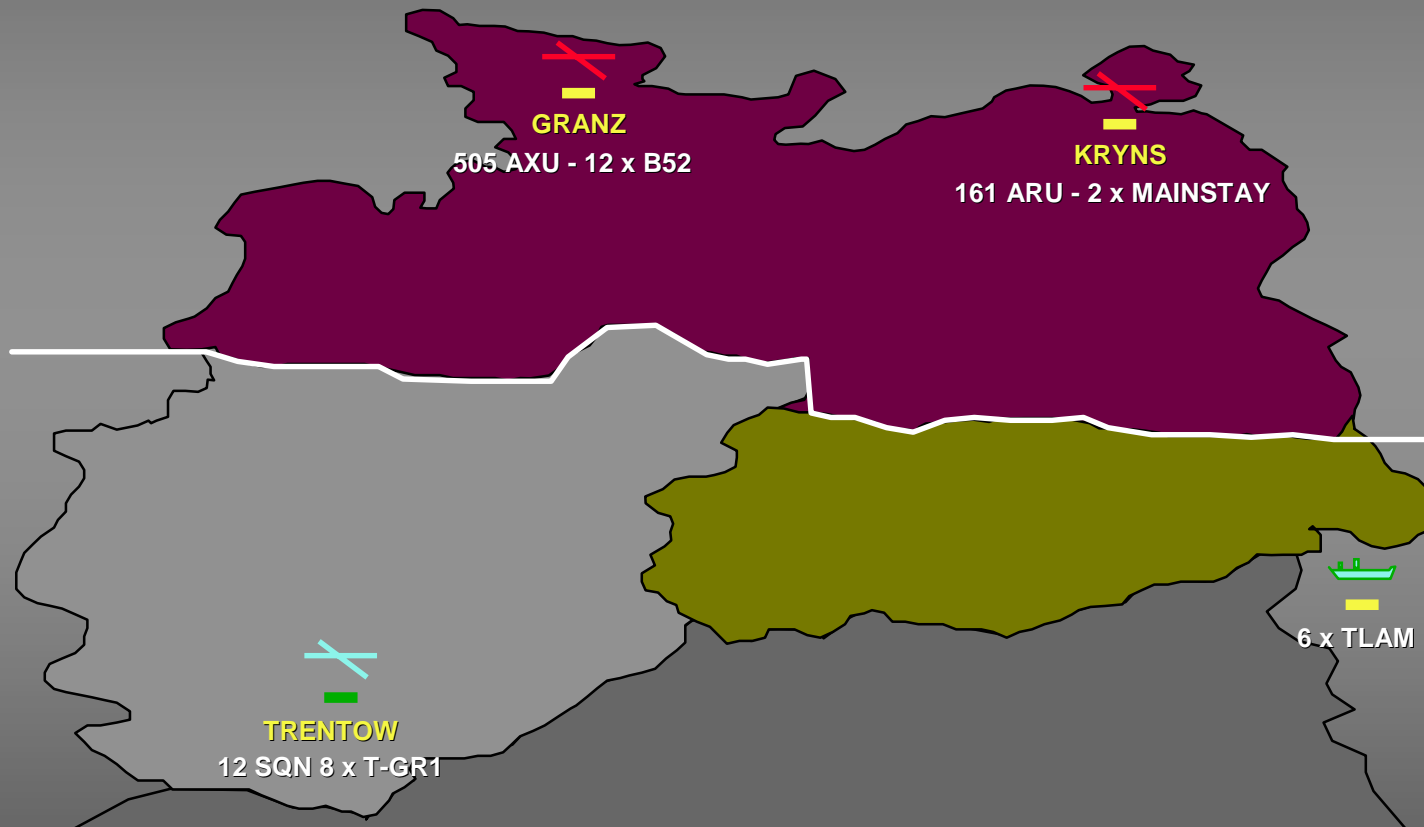
Example Red "Levers"

Apply

Undo

Cancel

Planning Levers Example



Planning Levers Example

ESCORT PERCENTAGE

28



STAY WITH BOMBERS



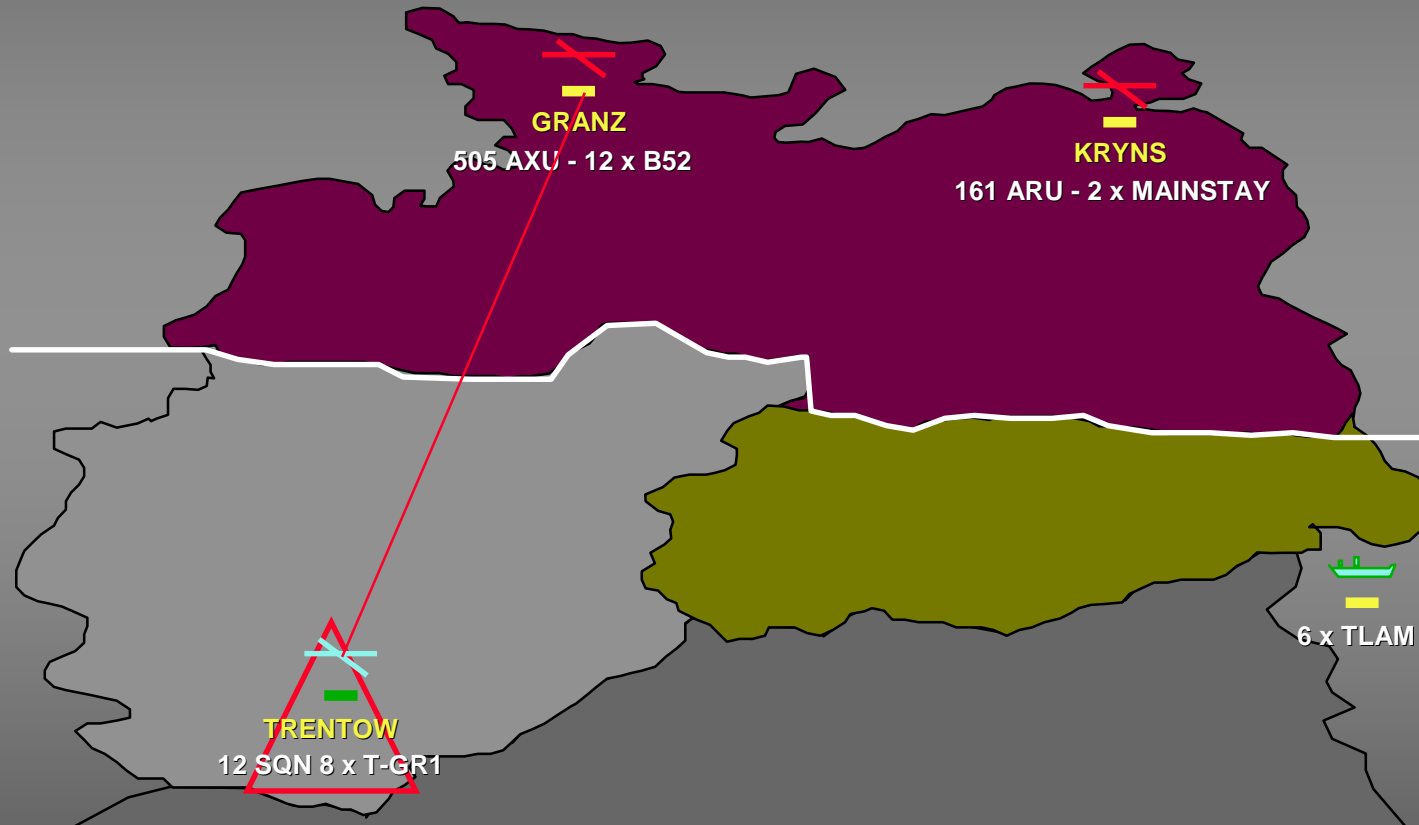
BAI



INT



OCA



SEAD SUPPORT

20



HARD SOFT



EW SUPPORT

10

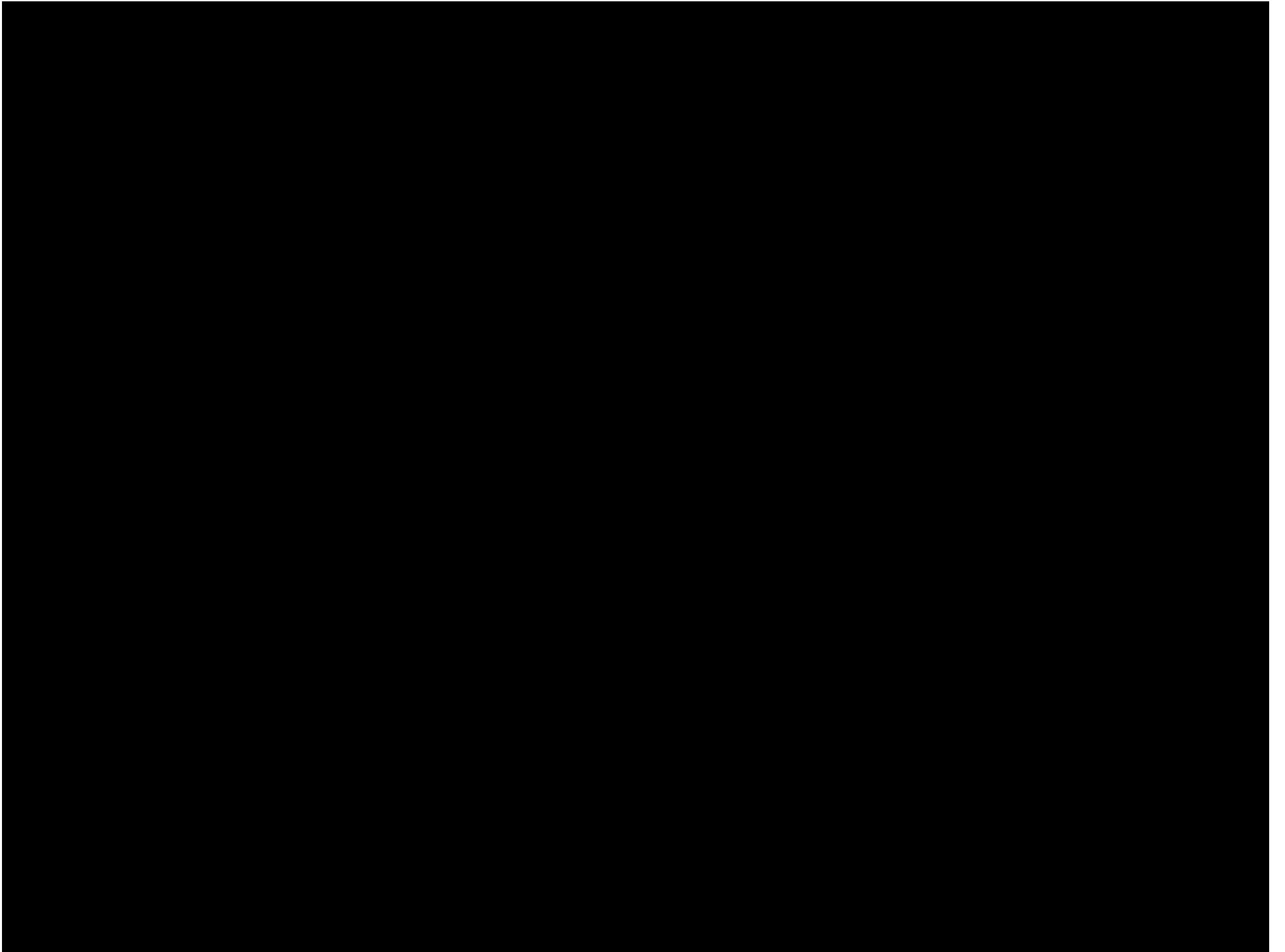


SOJ

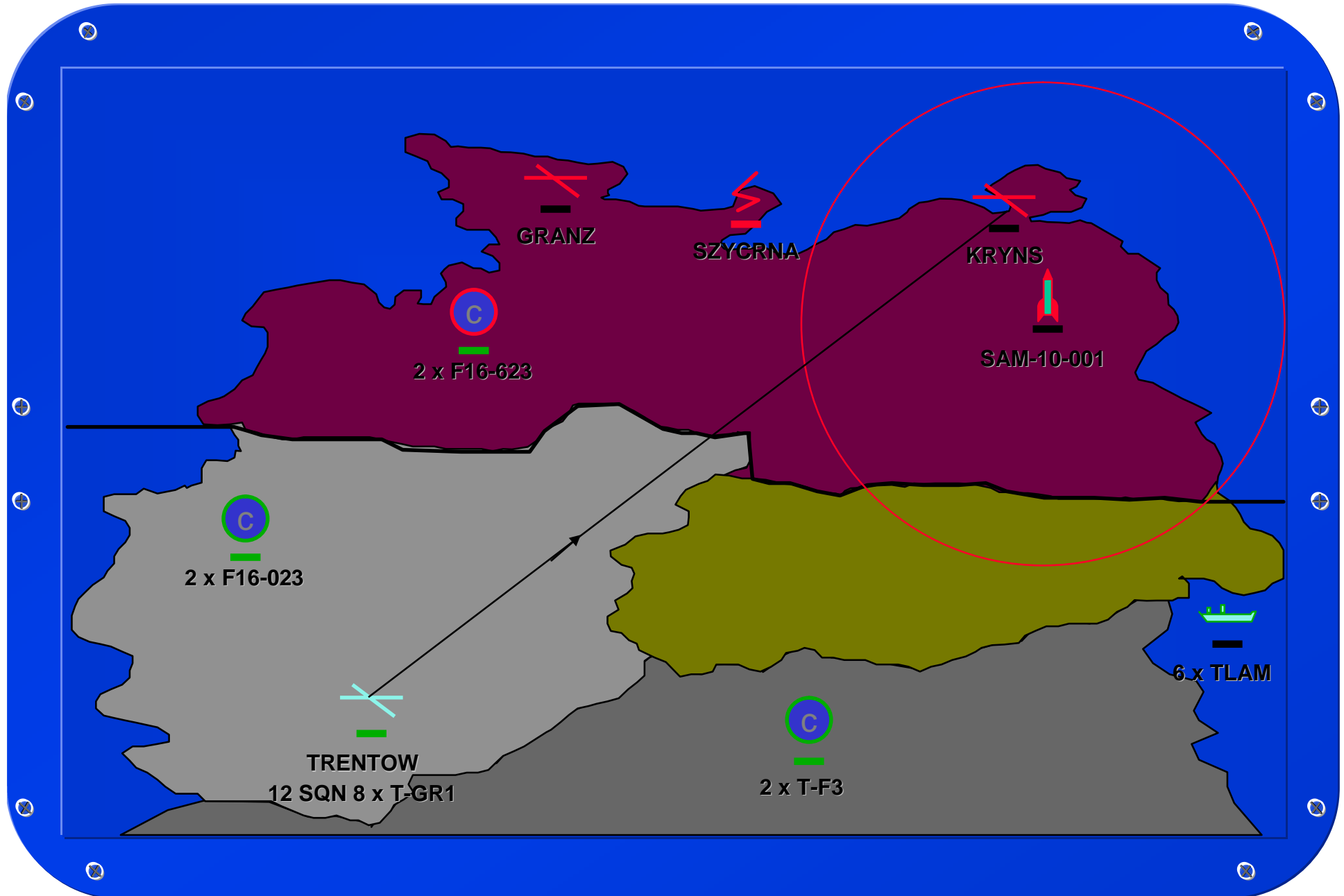


CIJ

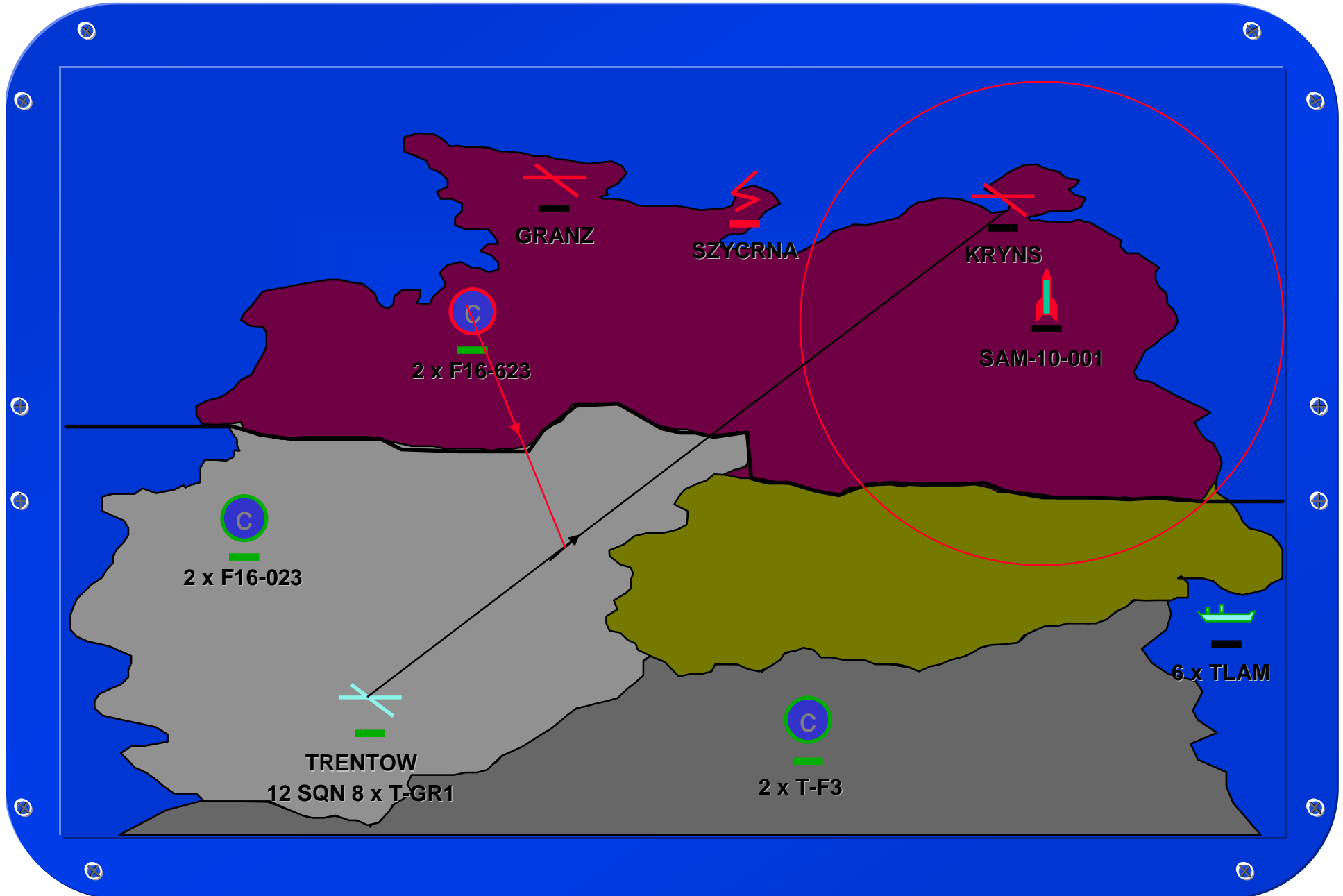


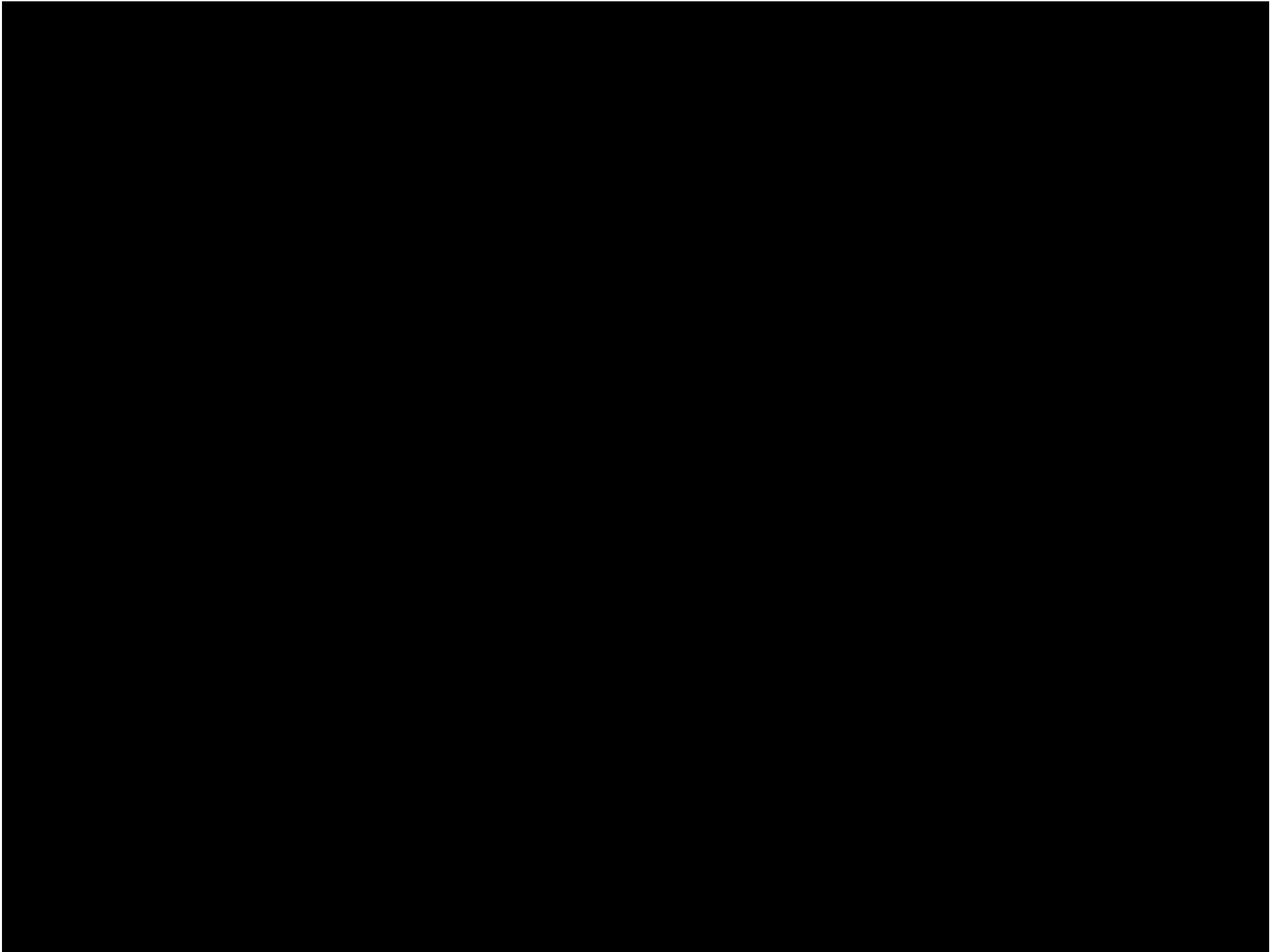


Execution Levers Example



Execution Levers Example





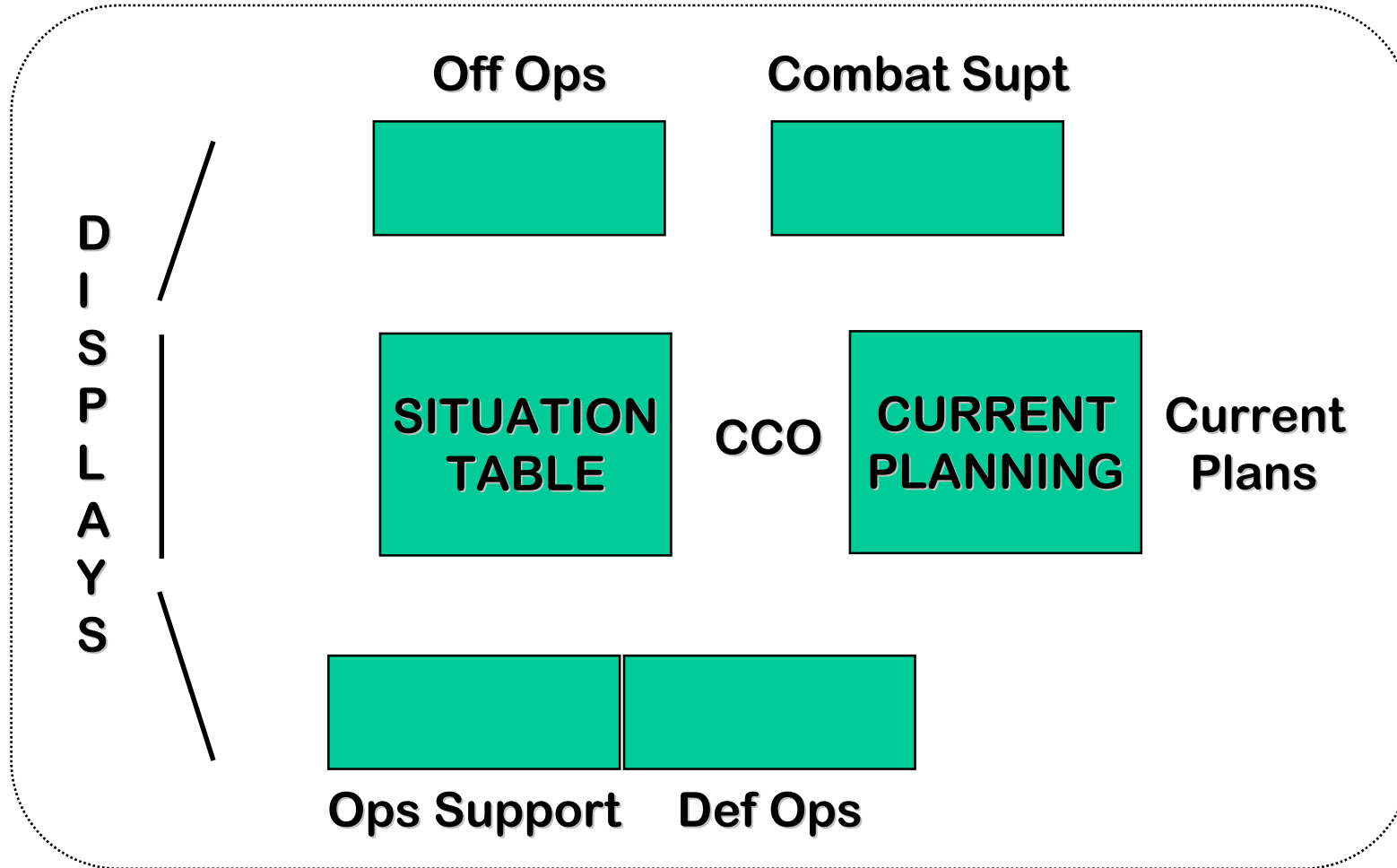
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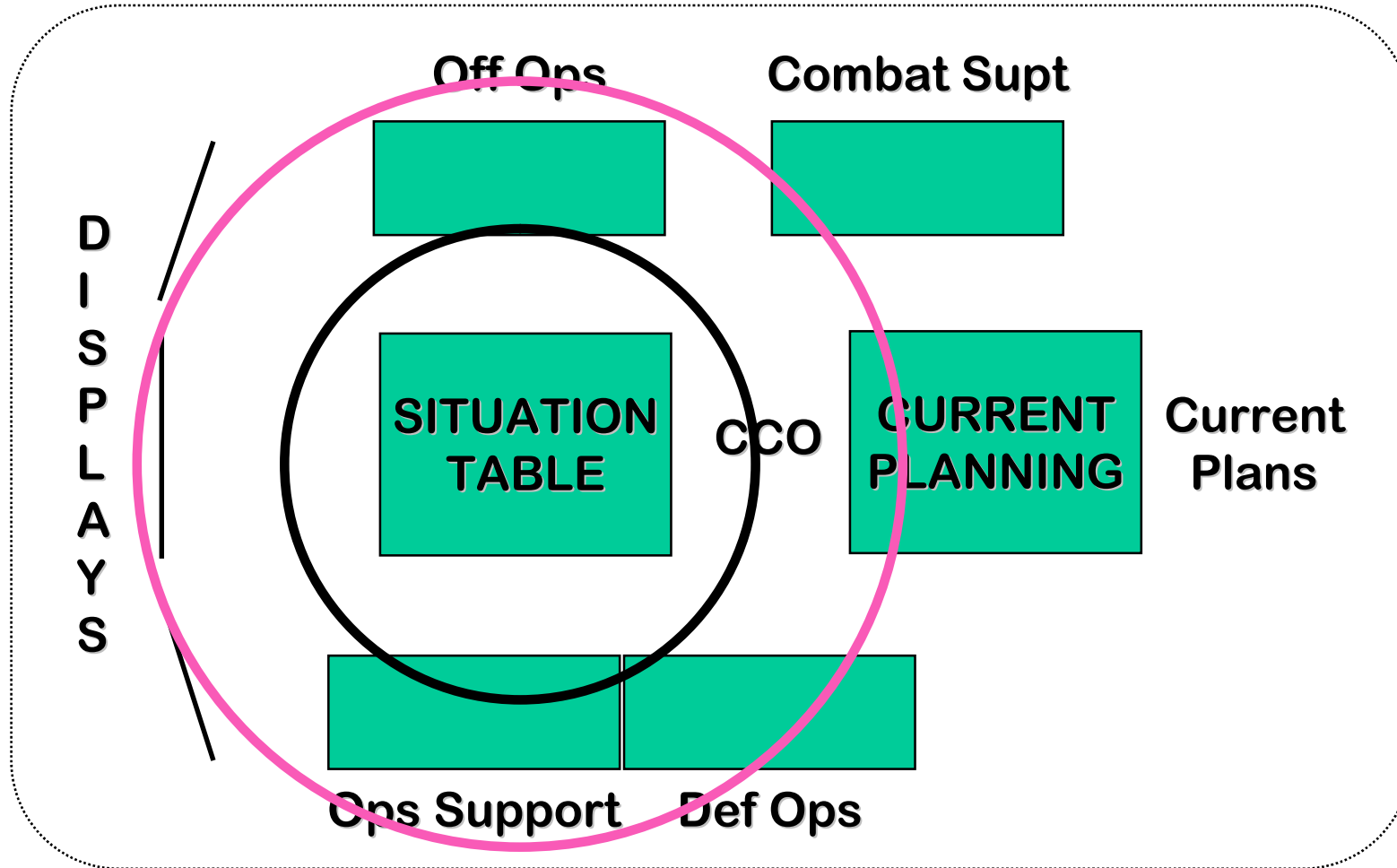
UK CAOC

- StimEx 98 / 1
- Evaluate new CONOPS
 - Processes
 - Room layouts
 - Use of IT / 'Situation Table'
- Sub-aims:
 - Build White Team experience
 - Evaluate ECAOC / Stimulator

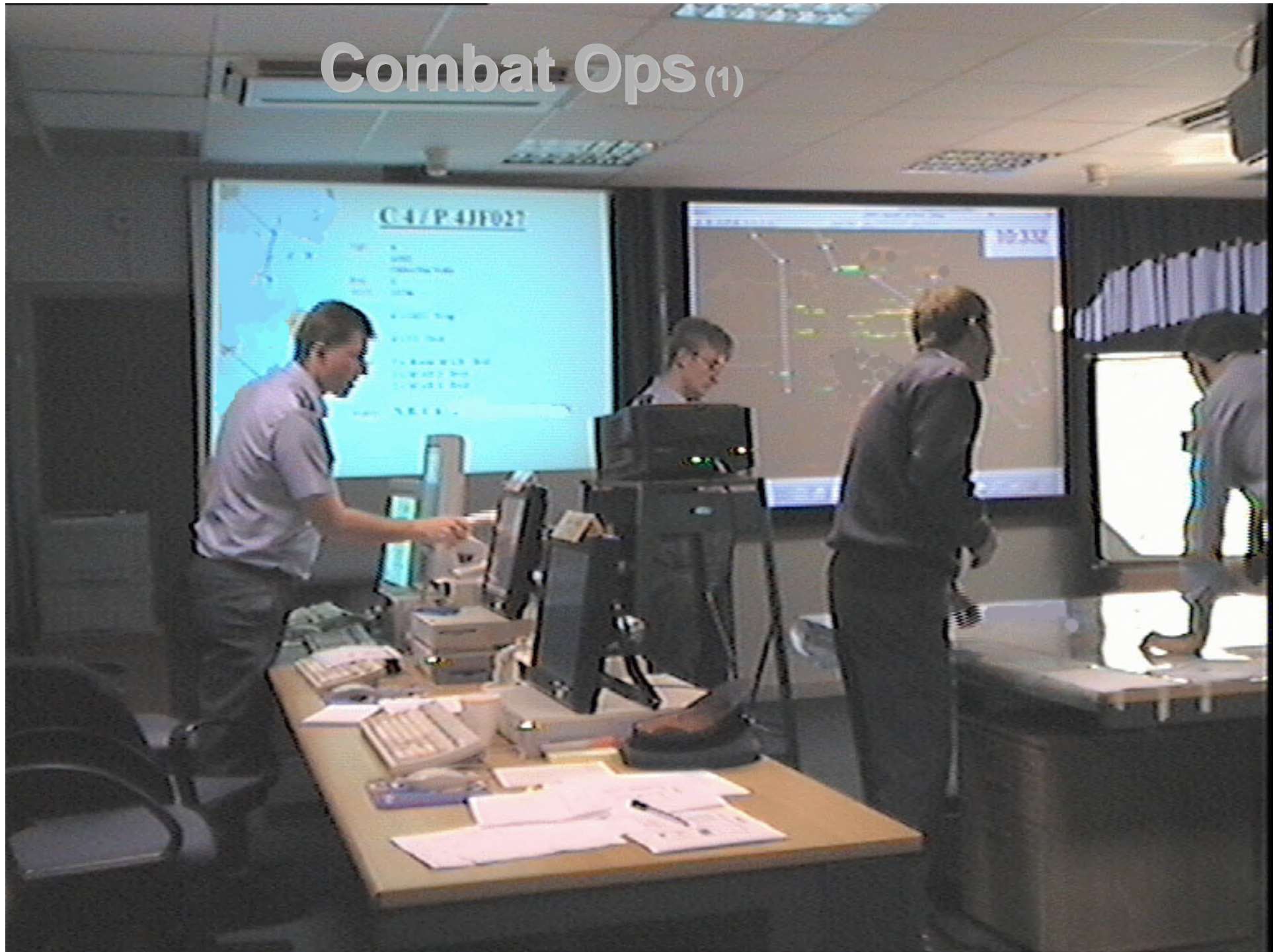
Combat Ops Concept ⁽¹⁾



Combat Ops Concept (2)



Combat Ops (1)



Combat Ops (2)



White Team (1)

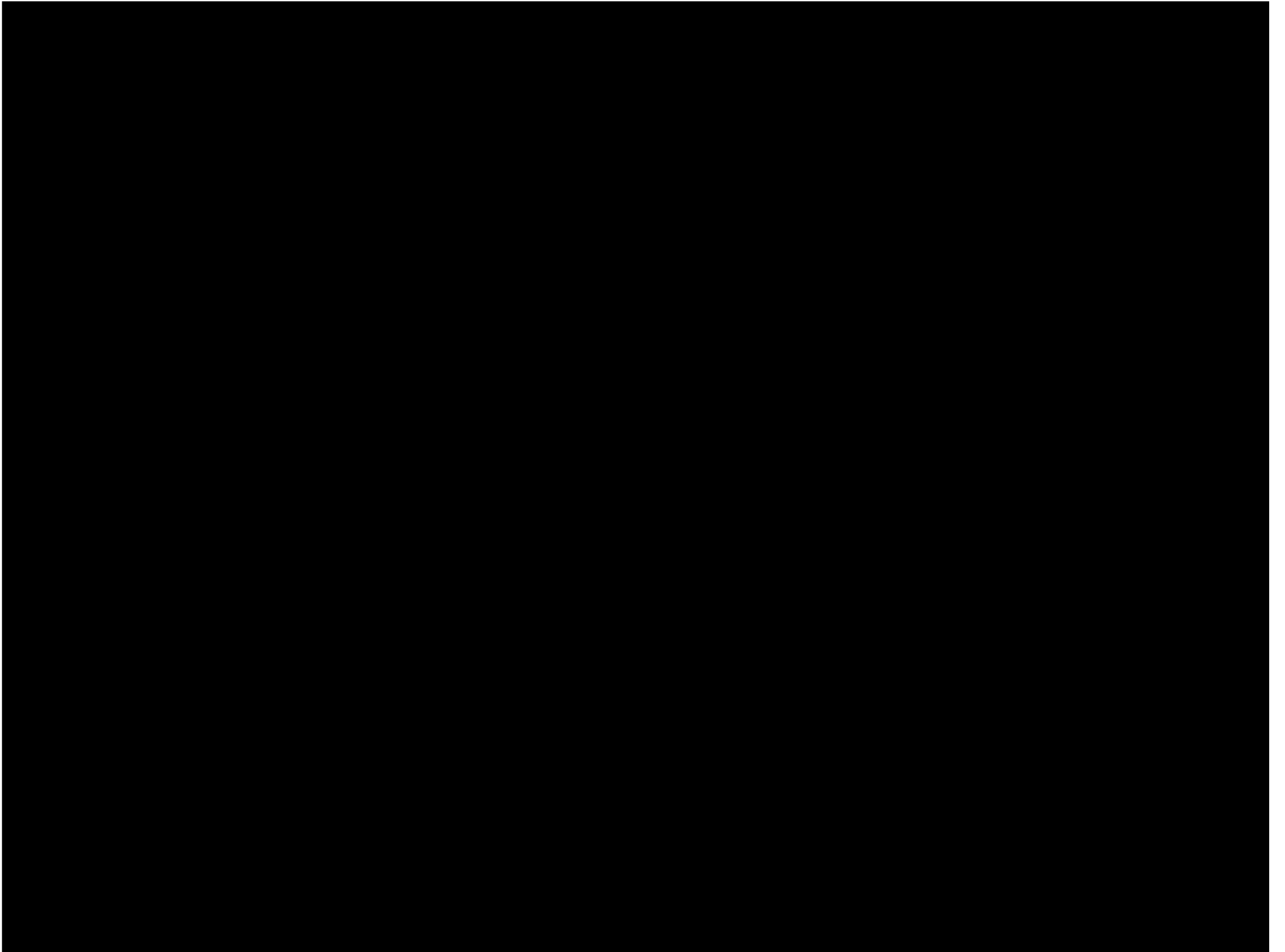


White Team (2)



StimEx 98 Results

- First Combat Ops Exercise in UK
- Invaluable (but not absolute) lessons learnt
 - Operational
 - Organisational
 - Technical
- To be repeated January 99



Effects-based Wargaming

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Future Developments

- Improve:
 - Pilot models
 - Automatic reporting / BDA
- Support multi-level / partitioned wargaming
 - Links to Air Warfare Centre's wargames
 - Distributed wargaming ('Friday-afternoon' exercises)
- Re-design to support ATO-less planning, tasking and execution monitoring
- Fully implement White Team Suite ...

White Team Suite ⁽¹⁾

- Planning Levers:
 - AUTO-generate Red Campaign
- God's-eye air picture:
 - Man-in-the-loop
- Execution Levers:
 - Alter outcomes by mission, location or time-frame
- Configure Stimulator's autonomy:
 - Doctrine and rules can be set by user to change Stimulator's 'behaviour'

White Team Suite (2)

- Event management:
 - Create new events (MBP demonstration)
 - Event effect assessment ('What-if')
 - Activate events from a 'pick-list'
 - Dynamic Simulation Event List (DSEL)
 - Reminder scheduling
 - Event activation warnings
 - Post-exercise logs

Effects-based Wargaming

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Effects-based Wargaming - Benefits

- Introduces only the effects of conflict required to stimulate Warfighter's thinking
- Provides 'Warfighter-friendly' White Team Suite optimised to their processes
- Simplifies generation of Red Air effects
- Provides sufficient realism / fidelity maintained
- Scalable down to small number of players
- Rapid definition of simulation boundaries
- Improved control of exercise events

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It works ...

Questions
Please ...

DERA
