



Air Warfare Centre

OPERATIONAL DOCTRINE & TRAINING

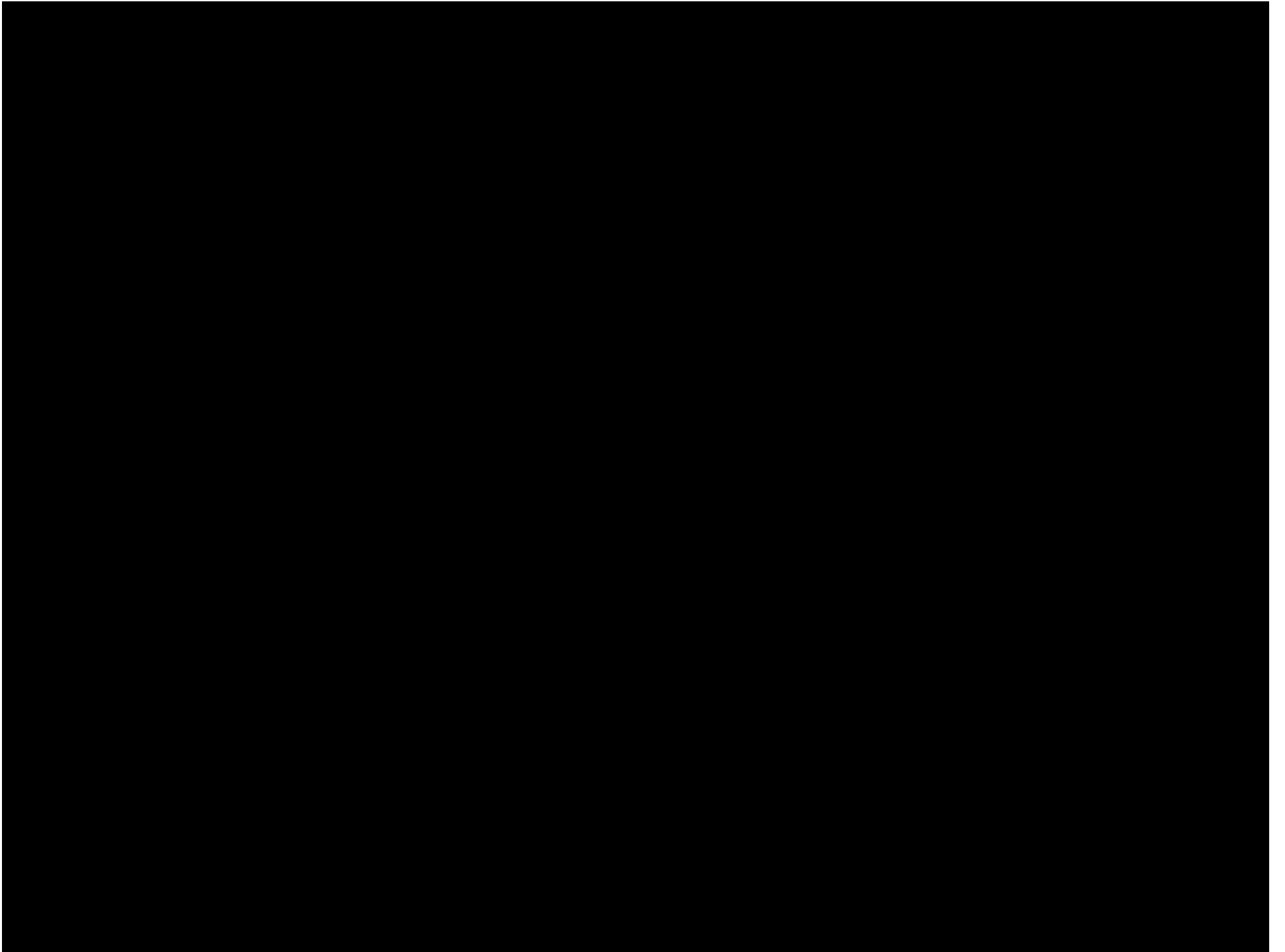


Air Warfare Centre

Effective Selection and Use of Wargames for Operational Training or Campaign Analysis

Squadron Leader

Patrick Beutement MSc



Scope

- ◆ **Why Wargame?**
- ◆ **Myths about Wargaming**
- ◆ **Types of Games**
- ◆ **Selecting Games**
- ◆ **Setting up and using Games**
- ◆ **Future Technology Issues**

Why Wargame?

- ◆ “To investigate the processes of combat”
- ◆ For Analysis:
 - ◆ *To validate a concept*
 - ◆ *Concerned with the product*
- ◆ For Training:
 - ◆ *To create a dynamic situation*
 - ◆ *Concerned with the process*

Uses of Wargaming (1)

		Pre-Event	During Event	Post-Event
T R A I N I N G	Strategic			
	Theatre			
	Tactical			
A N A L Y S I S	Strategic			
	Theatre			
	Tactical			

Uses of Wargaming (2)

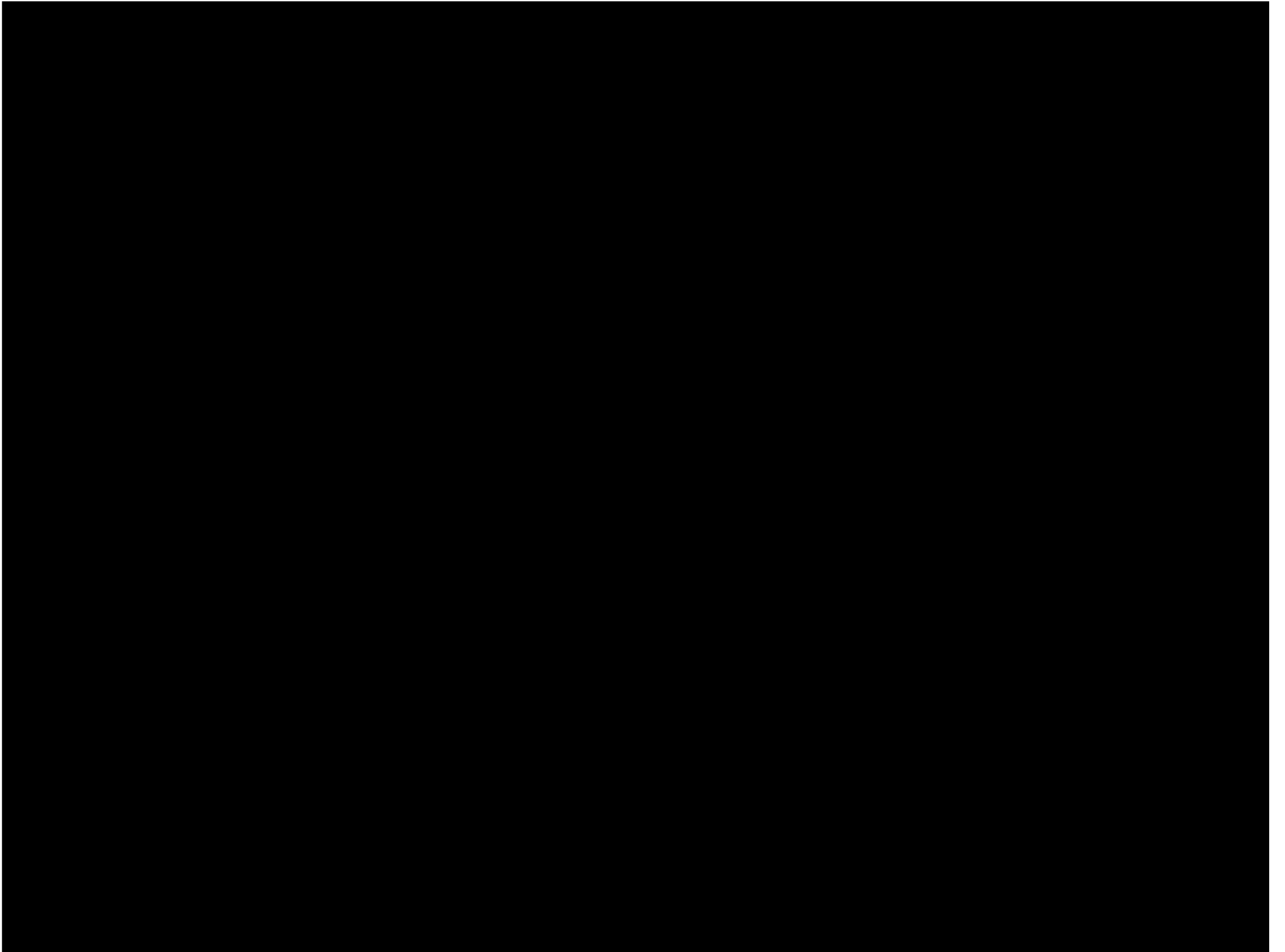
		Pre-Event	During Event	Post-Event
T R A I N I N G	Strategic	Politico - Military		
	Theatre	Campaign Planning		
	Tactical	Mission Plans		
A N A L Y S I S	Strategic	Capabilities, Procurement		
	Theatre	Doctrine, Planning		
	Tactical	Trials & Tactics		

Uses of Wargaming (3)

		Pre-Event	During Event	Post-Event
T R A I N I N G	Strategic	Politico - Military	---	
	Theatre	Campaign Planning	Battle Management	
	Tactical	Mission Plans	Mission Rehearsal	
A N A L Y S I S	Strategic	Capabilities, Procurement	Possible settlements	
	Theatre	Doctrine, Planning	Vulnerabilities	
	Tactical	Trials & Tactics	Mission Analysis	

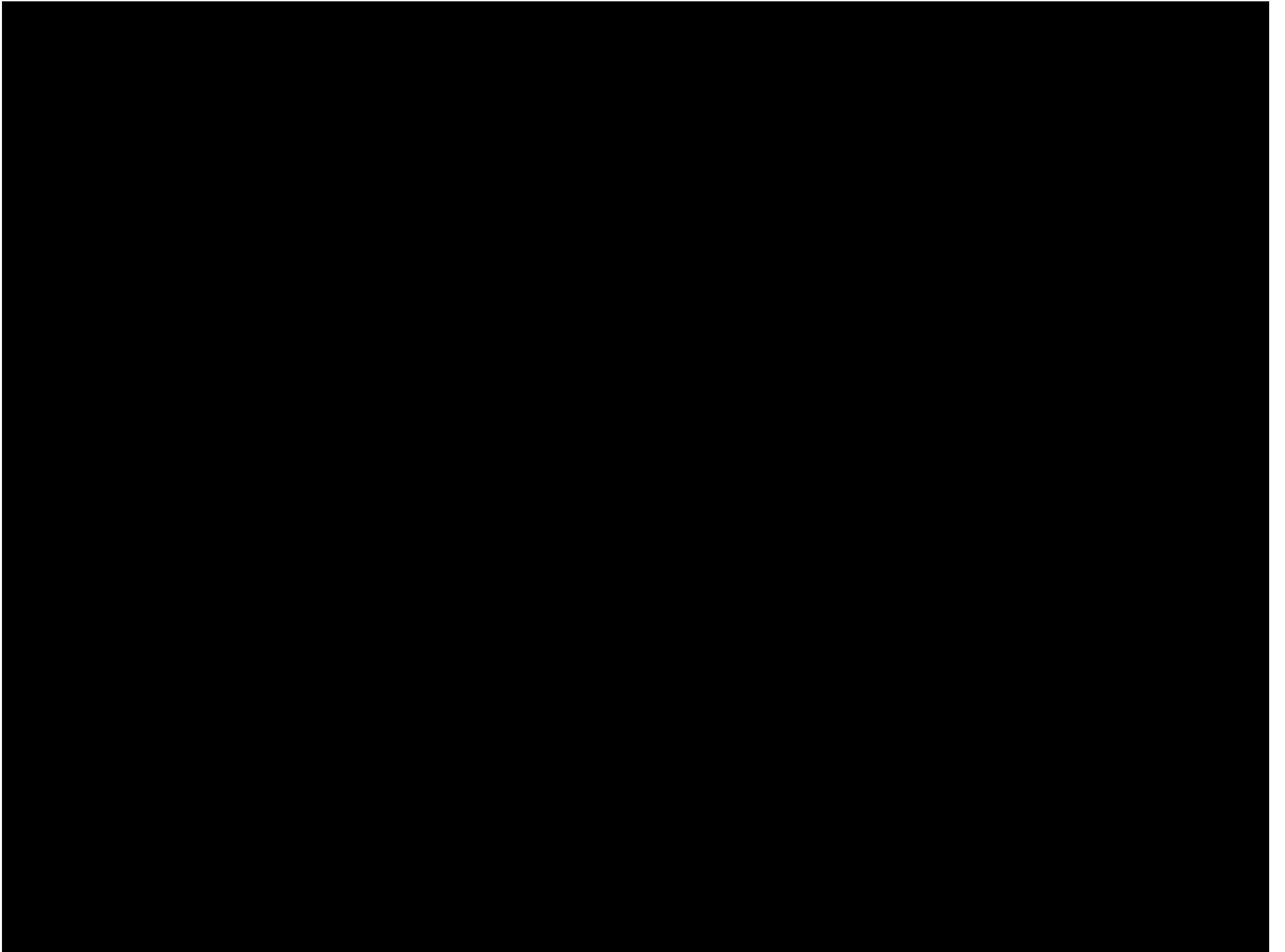
Uses of Wargaming (4)

		Pre-Event	During Event	Post-Event
T R A I N I N G	Strategic	Politico - Military	---	Conflict studies
	Theatre	Campaign Planning	Battle Management	ditto
	Tactical	Mission Plans	Mission Rehearsal	Mission debriefs
A N A L Y S I S	Strategic	Capabilities, Procurement	Possible settlements	---
	Theatre	Doctrine, Planning	Vulnerabilities	Ops Analysis
	Tactical	Trials & Tactics	Mission Analysis	Ops Analysis



The Myths

- ◆ **Myth 1 - Wargames are Toys**
- ◆ **Myth 2 - Wargames = Computers**
- ◆ **Myth 3 - Anyone can run a Game**
- ◆ **Myth 4 - Wargames are Predictive**
- ◆ **Myth 5 - We're in Control**
- ◆ **Myth 6 - Graphics = Better Game**



Types of Wargames

- ◆ **Scenario:**
 - ◆ *Generic, specific, hypothetical*
 - ◆ *Level: tactical to strategic*
- ◆ **Style of play:**
 - ◆ *Free or Rigid Rules*
 - ◆ *Open or Closed*
 - ◆ *Cyclic or “Real Time”*
 - ◆ *One, Two or Multi-sided*
- ◆ **Deterministic or Probabilistic**

Selecting Wargames

- ◆ What choices are available?
- ◆ What criteria should be used?
 - ◆ *Basic Selection*
 - ◆ *The Operation of the game*
 - ◆ *The User Interface*
 - ◆ *Data Structures*

Procuring Wargames

- ◆ Need and justification
- ◆ Identify exact requirements
- ◆ More than one may be required
- ◆ Complementary games

Setting-Up Wargames

- ◆ Where is the required expertise?
- ◆ Who will train the seminar directors?
- ◆ What is available:
 - ◆ *Equipment and Staff*
 - ◆ *Data*
 - ◆ *Rules*
 - ◆ *Scenarios*
- ◆ Who will validate and monitor?

Using Wargames

- ◆ **The role of the Staff to:**
 - ◆ *Students*
 - ◆ *Analysts*
- ◆ **Live enemy**
- ◆ **The Gaming Room**
 - ◆ *The Operational Wall*
 - ◆ *The Tactical Floor*

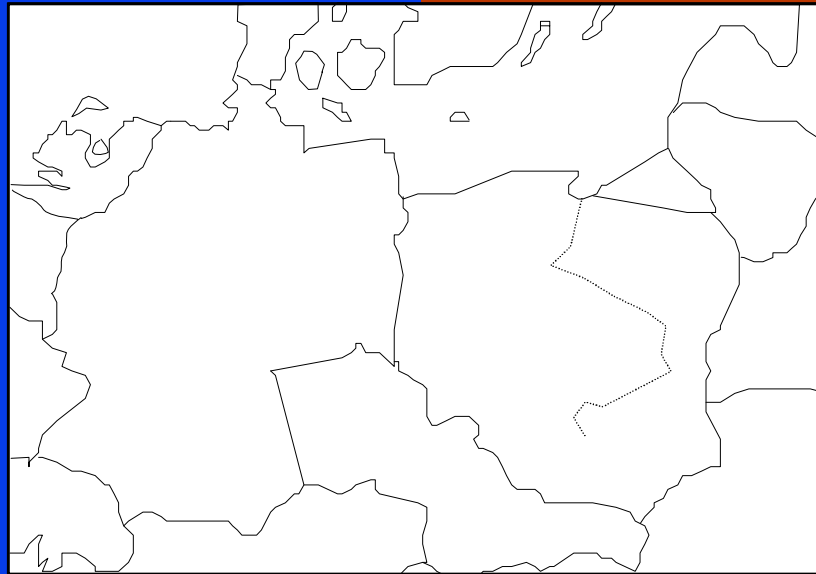
The Operational Wall

**Game Control
Data**

**Blue Current
Ops**

**Blue Sorties/
Losses by ac
by day**

**Blue Air Orbat
by ac mission
type by day**



**Blue Airbase
status and
assigned sqns**

**OPFOR Airbase
Status (estimated)
and aircraft**

**OPFOR Current
Ops (estimated)**

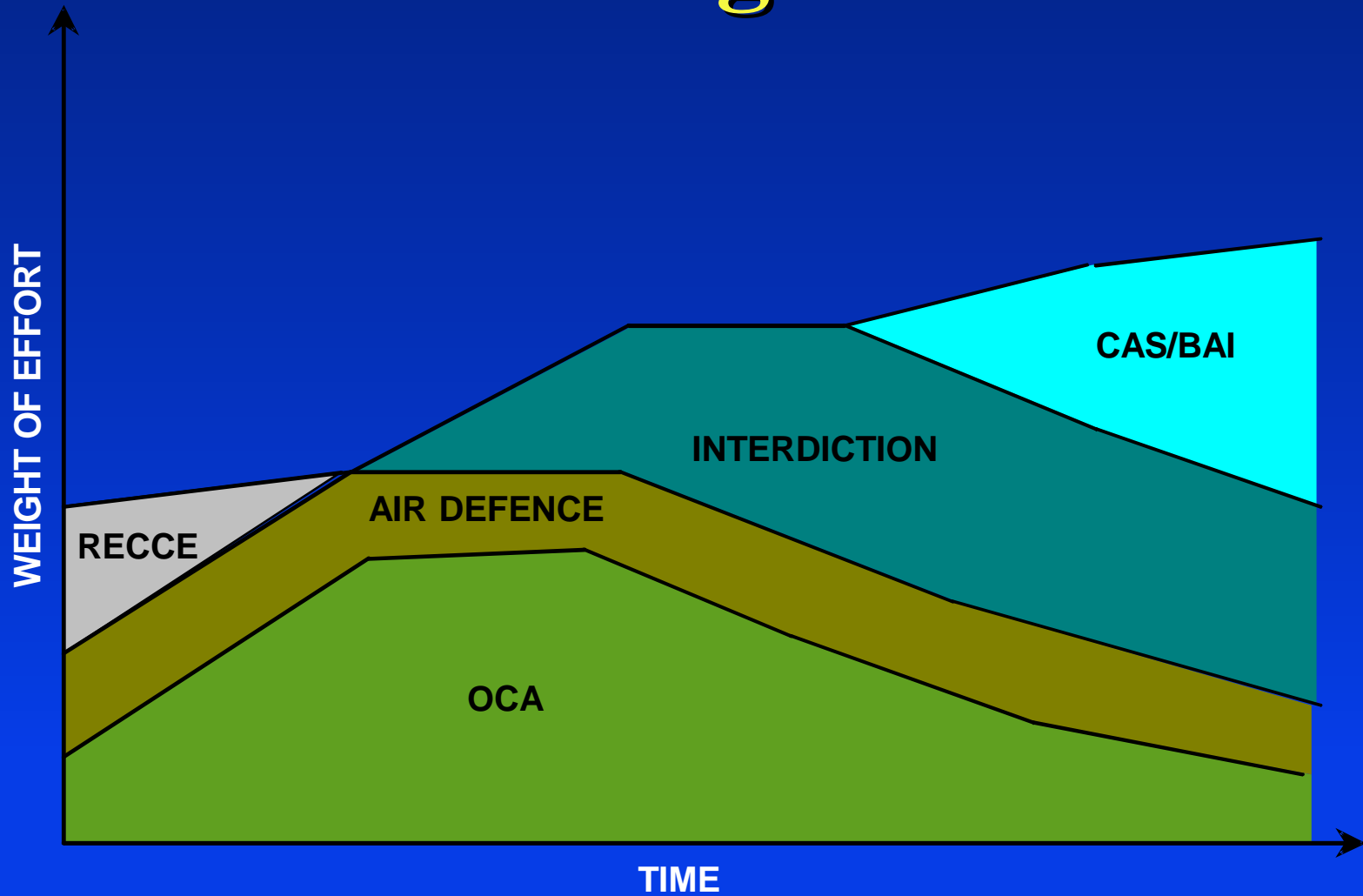
**OPFOR sortie
generation
capability
(estimated)**

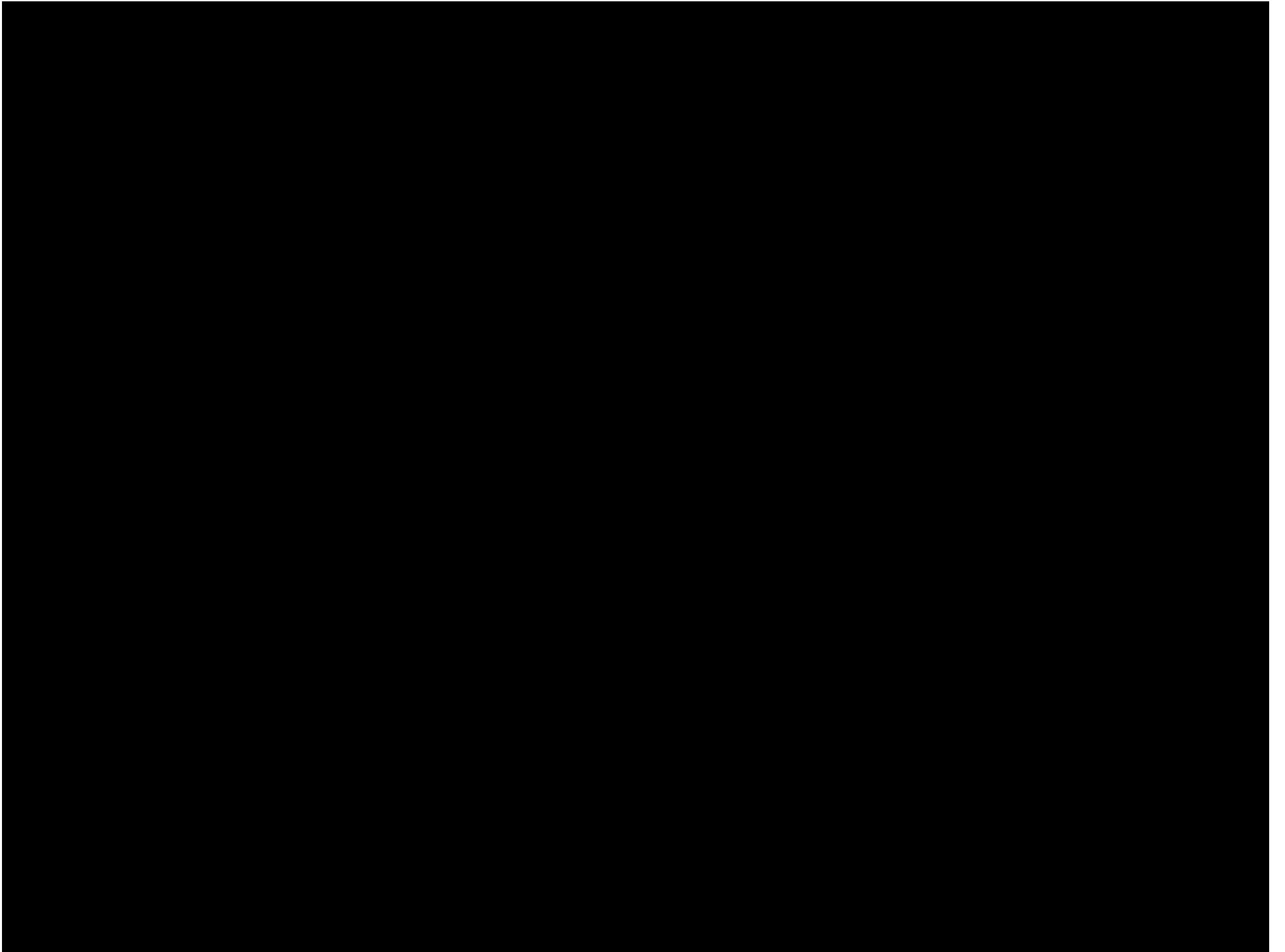
**OPFOR Air Orbat
(estimated)**

The Stages of a Game

- ◆ **Planning Phase:**
 - ◆ *Establish Strategic Goals*
 - ◆ *Set Objectives & MOEs*
- ◆ **Implementation Phase:**
 - ◆ *Monitor and re-assess*
- ◆ **De-briefing Phase:**
 - ◆ *Results and Conclusions*

The "Battlegram"





Technology Issues

- ◆ Synthetic Environments
- ◆ Vertical Networking:
 - ◆ *Between levels of detail*
- ◆ Aggregate Level Simulation Protocol (ALSP)

New Technologies

- ◆ Neural Networks
- ◆ Agents
 - ◆ *“Independent” software entities*

Agents - Characteristics

- ◆ Self-organizing
- ◆ Self-modifying “populations”
- ◆ Exploit genetic algorithms
- ◆ “Adapt” to intractable problems
- ◆ Enhance distributed processing

New Technologies

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- ◆ Virtual Interfaces

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- ◆ Scenario Compilers

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- ◆ TFADS (Tools for Aggregation/disaggregation)

TFADS (1)

Upwards:

Processes:

**Averaging
Encapsulation**

Type of Information:

**Facts
Probabilities**



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TFADS (2)

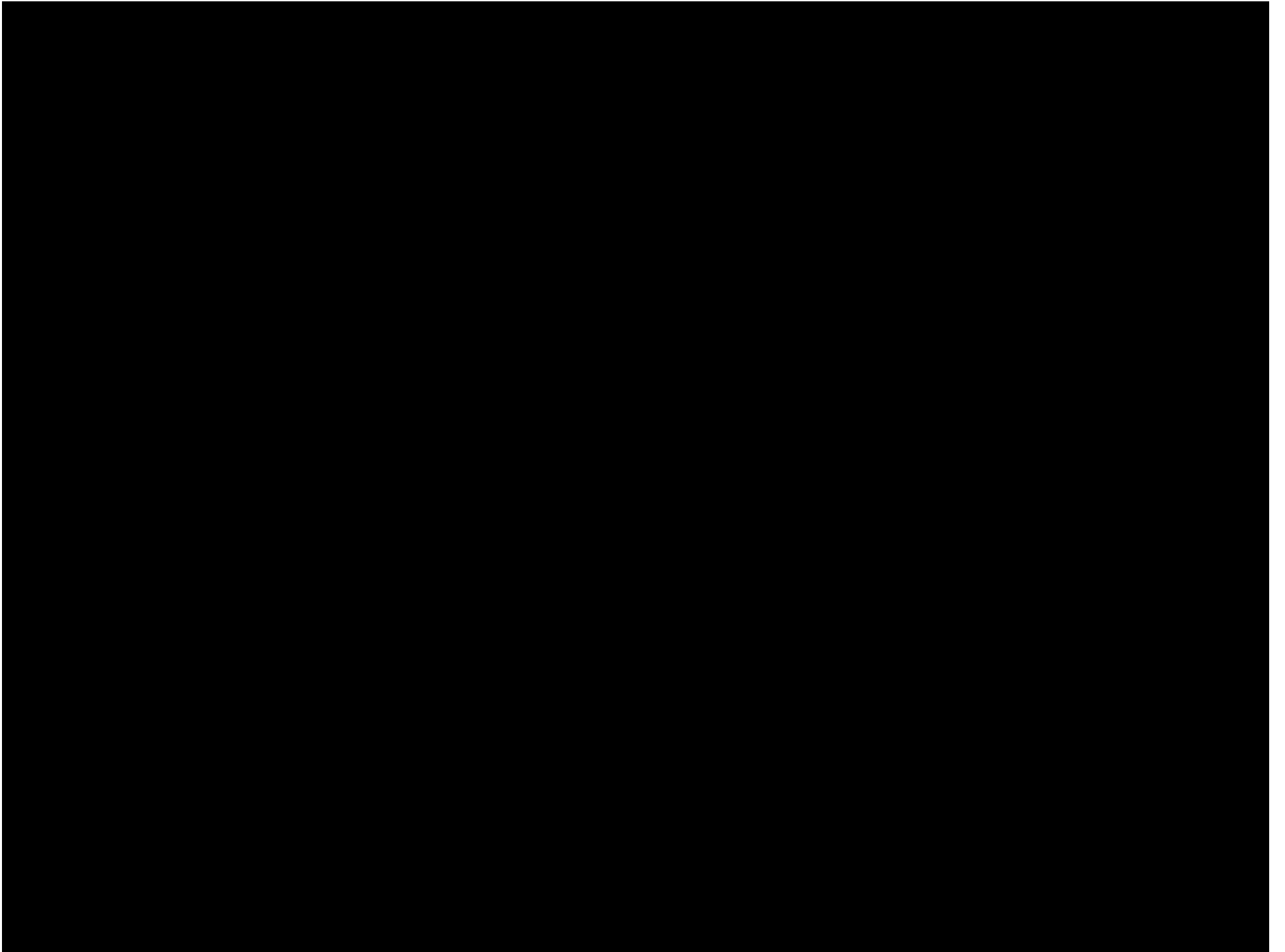
Upwards:
Processes:
Averaging
Encapsulation
Type of Information:
Facts
Probabilities



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Downwards:
Processes:
Dissemination
Interpretation
Type of Information:
Orders
Instructions

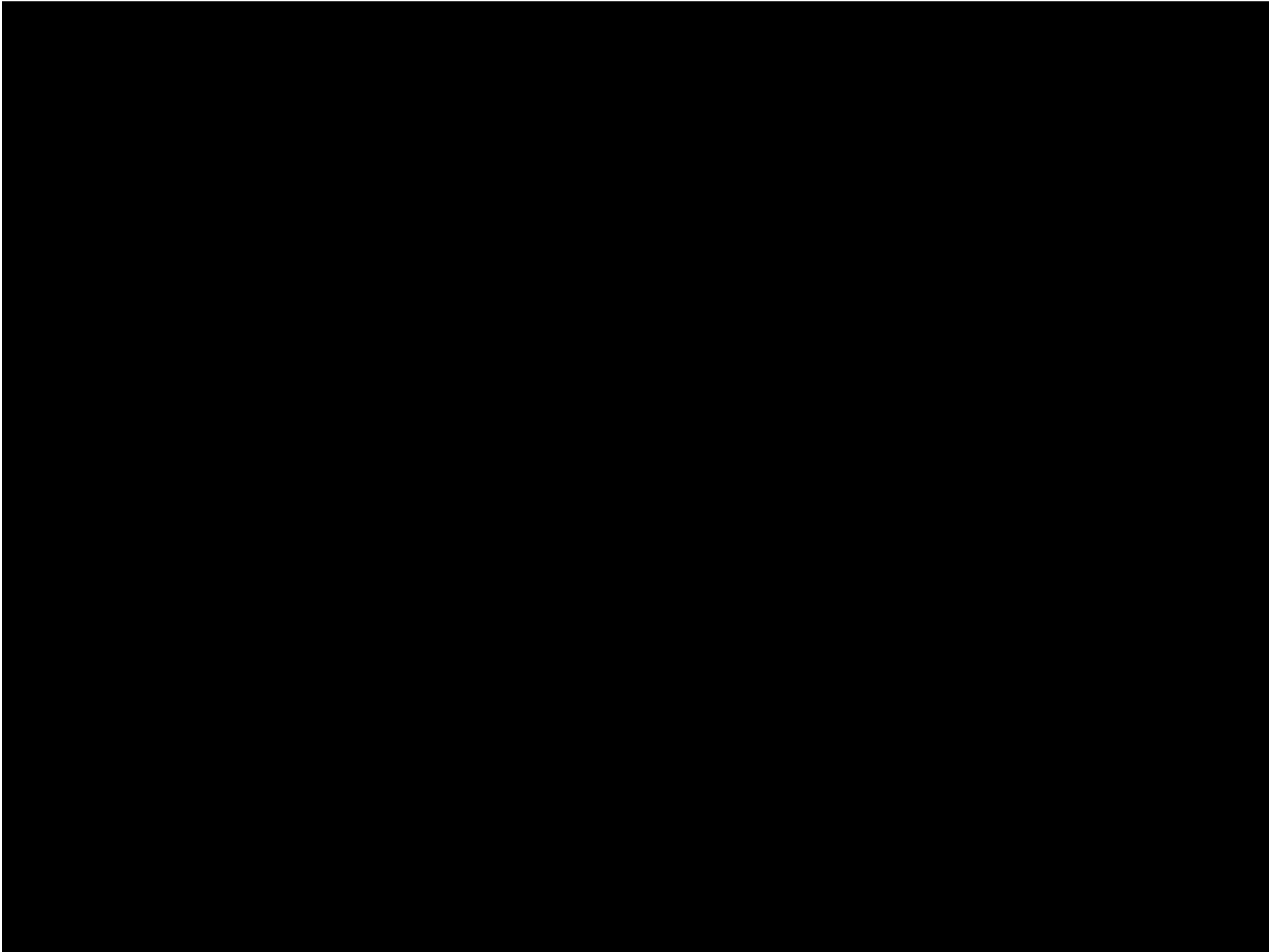


Wargaming - the Future

- ◆ From Training to Action mode
- ◆ As an Experience Collector
- ◆ As an Advisor

Wargaming - the Future

- ◆ From Training to Action mode
- ◆ As an Experience Collector
- ◆ As an Advisor
- ◆ A Growing Industry



Questions Please ...



