An Introduction to Wargaming

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The views expressed in this briefing are those of the speaker and do not necessarily represent those of the Air Force Research Laboratory or the United States Air Force.

My Bio

- Civilian positions
  - Professor of Wargaming, ACSC
  - Research Associate, SAAS
- USAFR Assignments
  - Senior Reservist, AFRL, Info Directorate
  - Chief Wargaming, AF/XOOC (Checkmate)
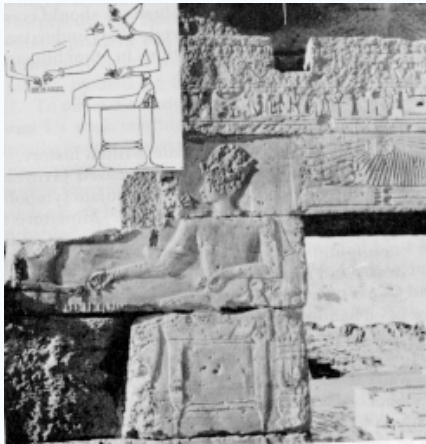- Co-author Gulf War Fact Book

Why Should I Care?

Why Should **I** Care?

Overview

- History

- Definitions

- Applications

- Lessons from the History of Wargaming

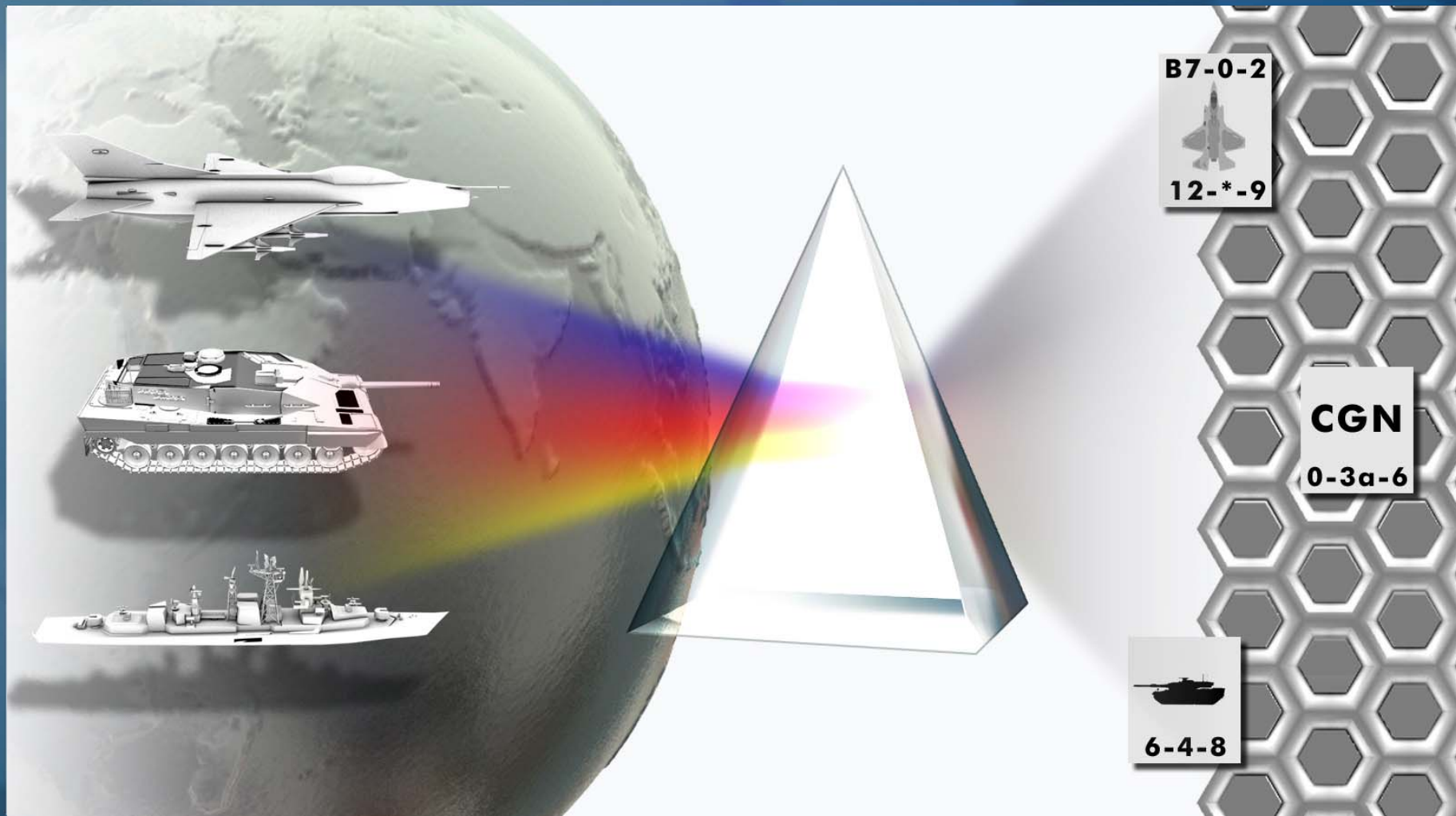# A One Slide History of Wargaming

Wargames are literally as old as civilization...

...and they have often been credited with making the difference between victory and defeat
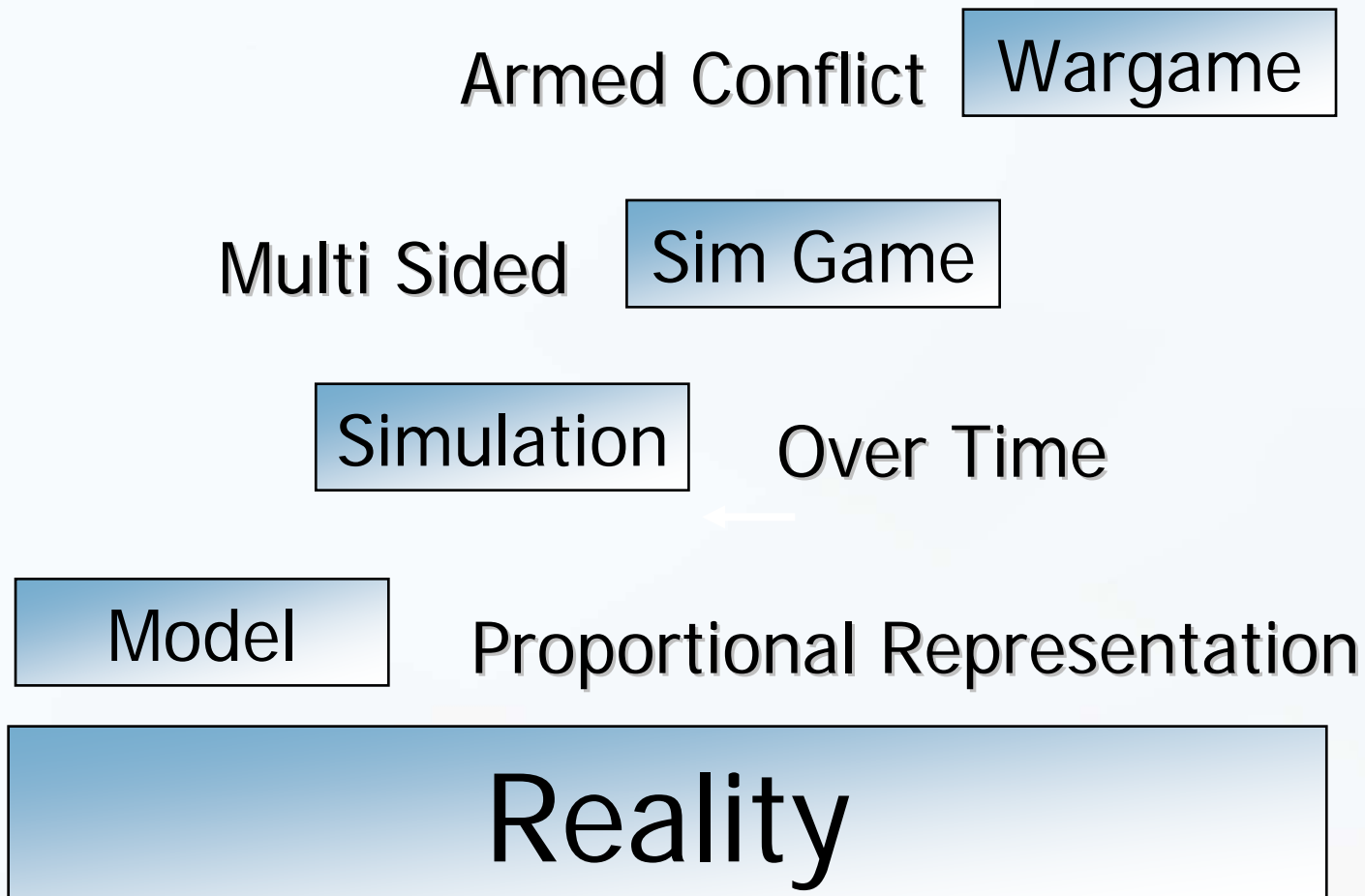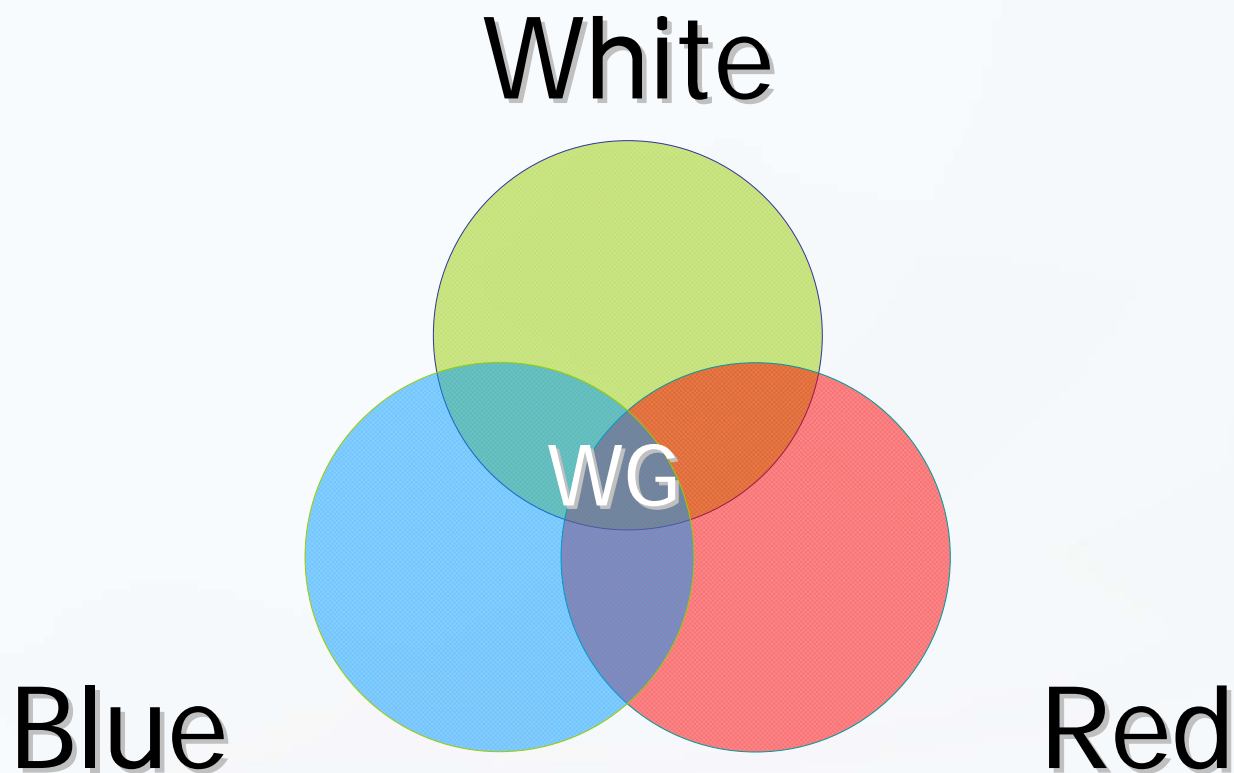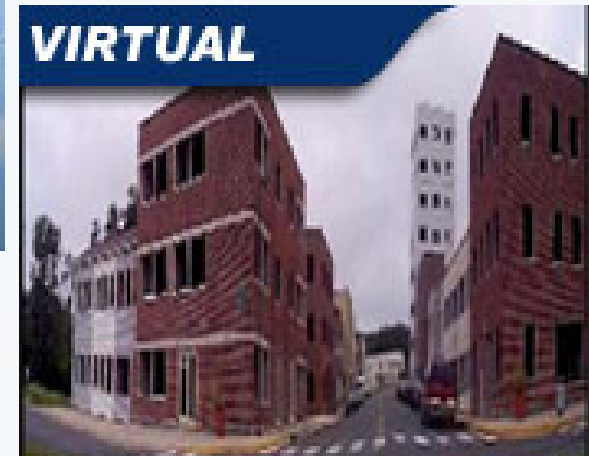
What is a Wargame?

What is a Wargame?

Armed Conflict   Wargame

Multi Sided   Sim Game

Simulation   Over Time

Model   Proportional Representation

Reality

What is a Wargame?

White

WG

Blue

Red
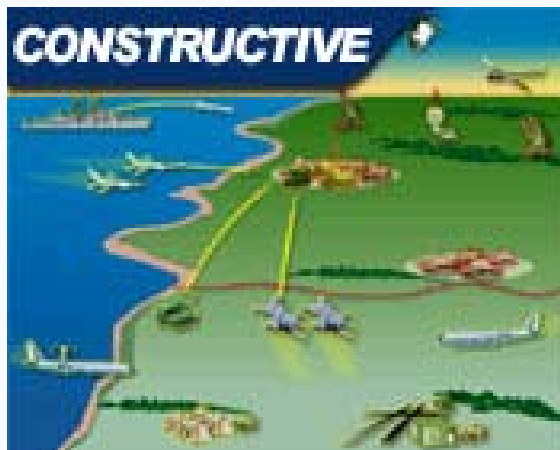
What is a Wargame?

Types of Wargames

CONSTRUCTIVE

LIVE

VIRTUAL
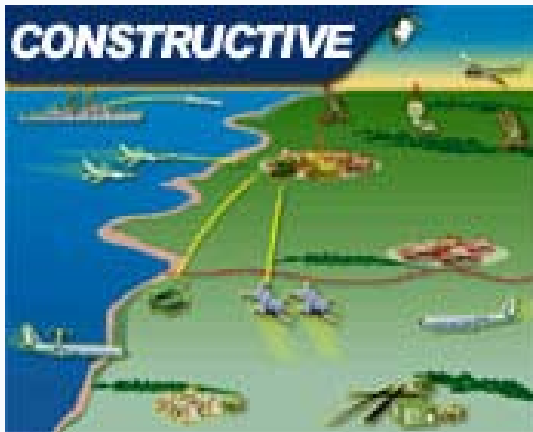
- Each has advantages and disadvantages
- Some wargames include all three

What is a Wargame?

Methods of Adjudication
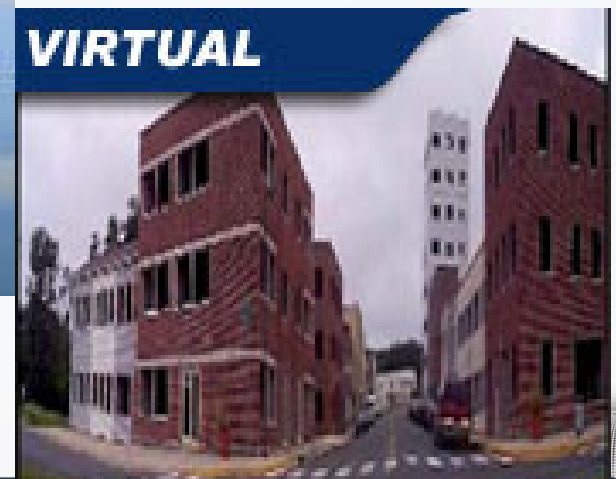
CONSTRUCTIVE

LIVE

VIRTUAL

**Rule Based
or
BOGSAT**

Umpires

What is a Wargame?

Methods of Adjudication

CONSTRUCTIVE

Computerized M&S

LIVE

VIRTUAL
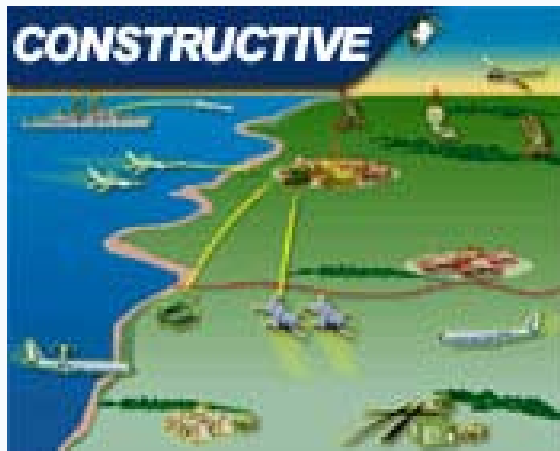
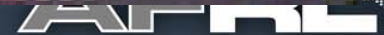**Rule Based or BOGSAT**

Umpires

Types of Constructive Wargames

Miniatures/Terrain Table

Map/Chart/Paper

Computerized

Applications

Civil Use of Wargaming

- Recreational

- Educational

Defense Uses of Wargaming

- Develop Strategist – Professional Development

- Develop Strategies – Decision Support

Spectrum of Military Wargaming Today

Develop Strategies

Develop Strategists

National

Strategic

War College

Theater

Operational

Staff College

Local

Tactical

Branch Schools

Decision Support

Professional Dev

Develop Strategist – Professional Development

Develop Strategists

Strategic — War College

Operational — Staff College

Tactical — Branch Schools

Professional Dev

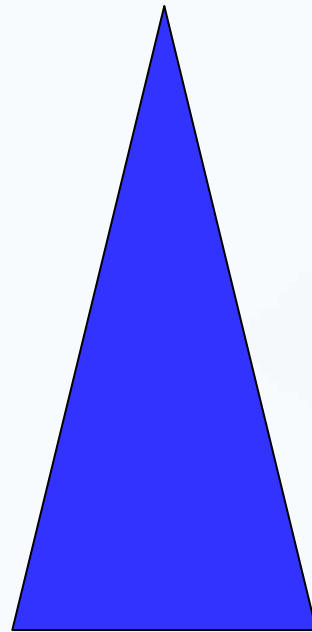# Develop Strategist –
Professional Development

Strategic

Operational

Tactical
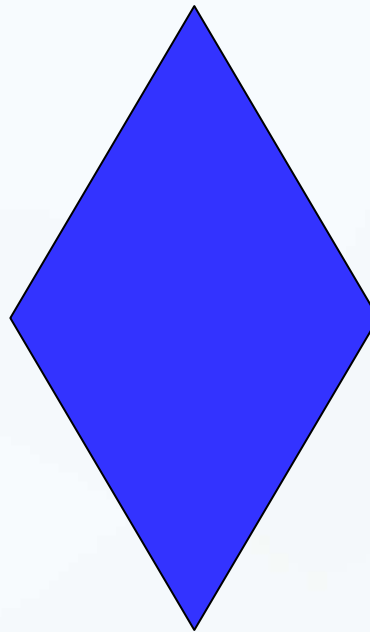
Initial   Intermediate   Senior
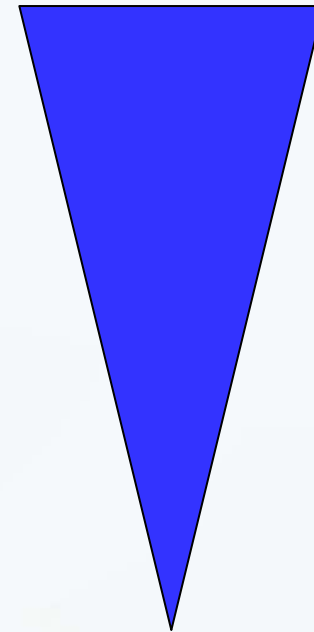
Develop Strategies – Decision Support

Develop Strategies

National

Theater

Local

Decision Support

Strategic

Operational

Tactical

Defense Planning Systems

ACRONYM SOUP
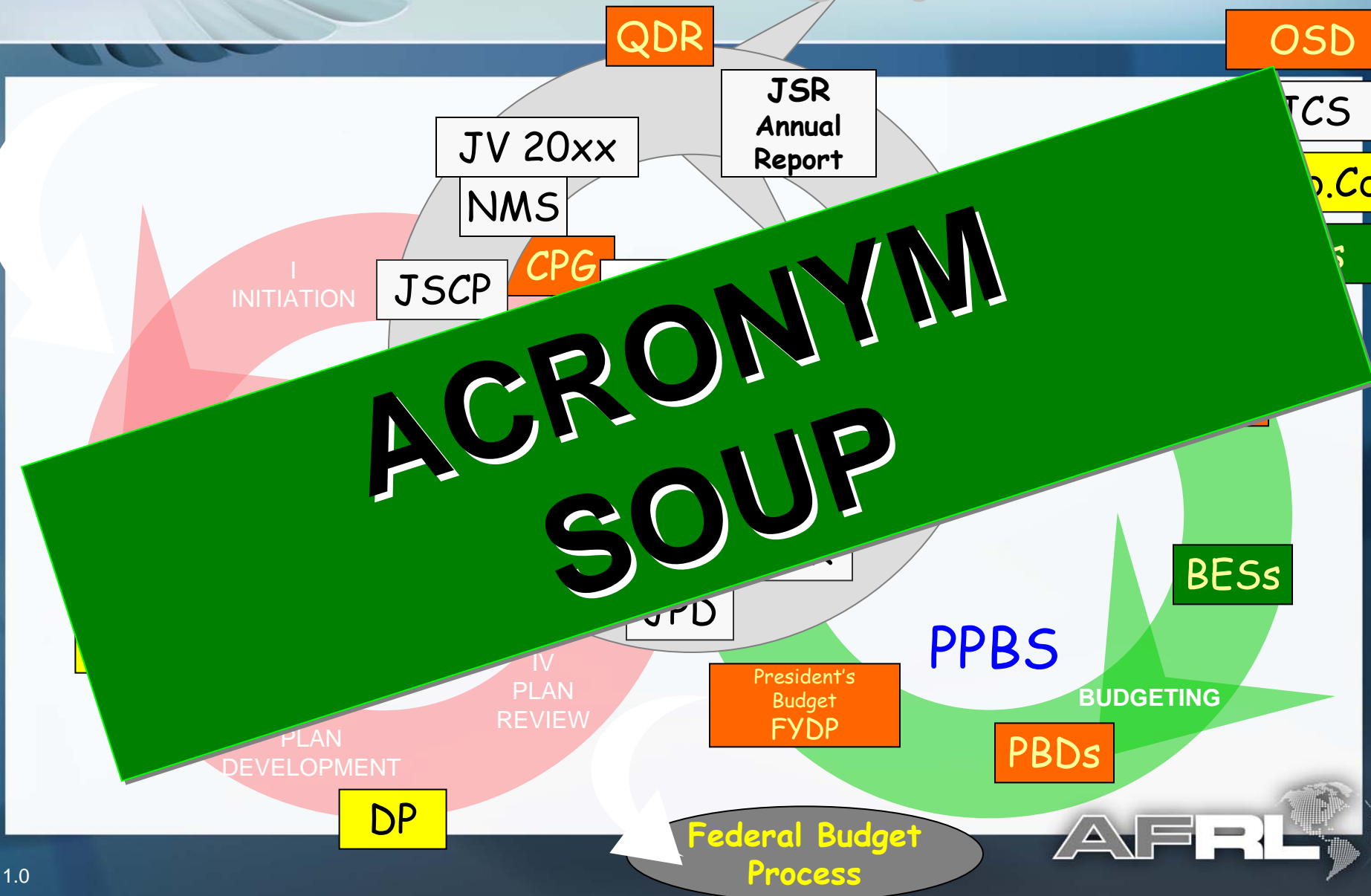
Wargaming as Decision Aide
US Government, DoD/CoComs/Services

Strategic Planning
National Strategy

Campaign Planning
Theater Strategy

Force Planning
Service Strategy

Pol/Mil

Theater Wargaming

Title 10

Strategic Wargaming and
The Defense Planning Systems
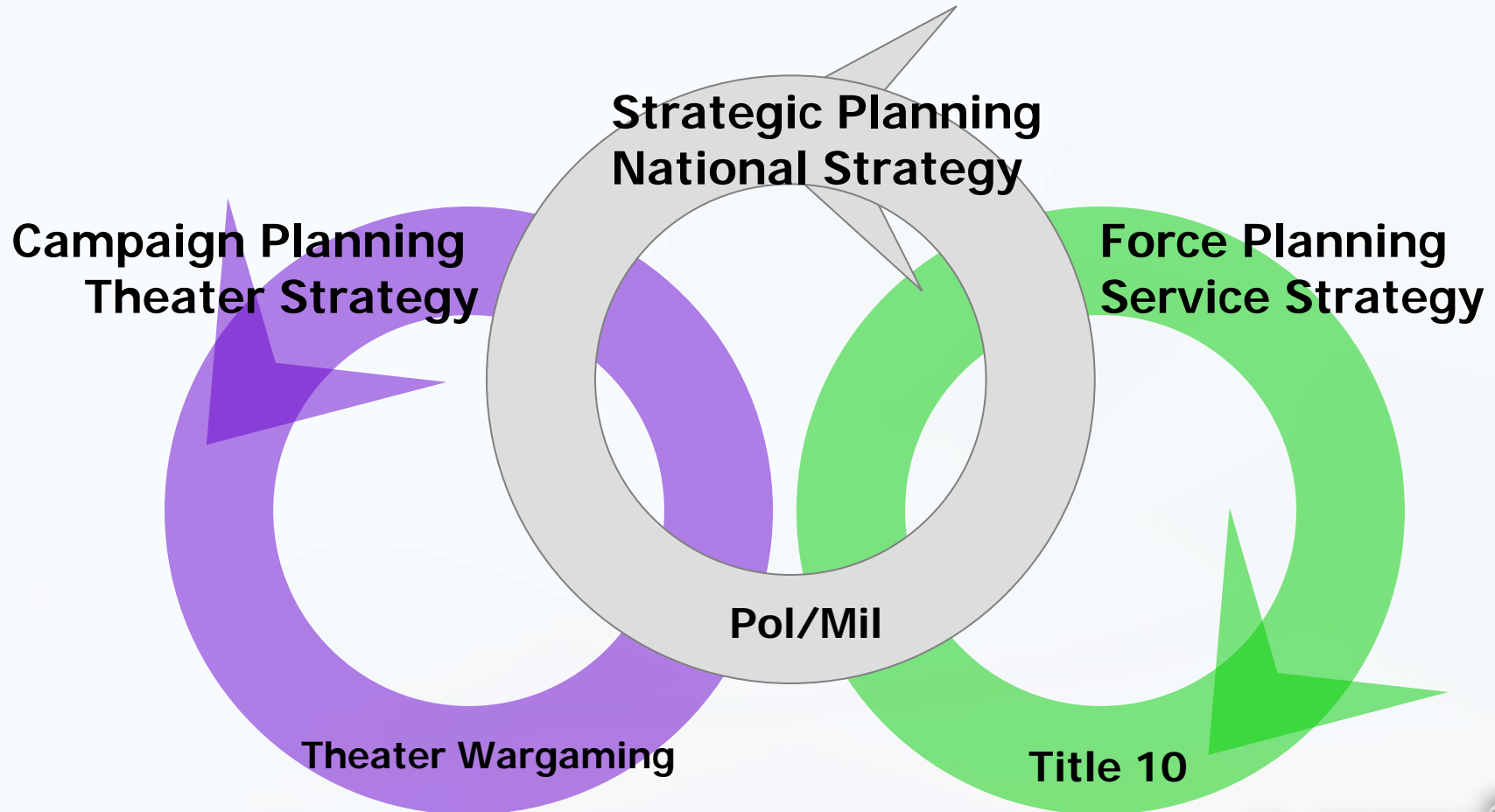
Strategic Planning
National Strategy

Pol/Mil

National Strategy Pol/Mil Wargaming

- Joint and Interagency

- BOGSAT adjudicated

- Not only secret – very

  close hold

Strategic Wargaming and The Defense Planning Systems

Immediate - Orders
Mid term – JSCP*

Strategic Planning
National Strategy

Campaign Planning
Theater Strategy

Theater Wargaming

JSCP = Joint Strategic Capabilities Plan

v 1.0

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Theater Strategy, Campaign Wargaming

Deliberate Planning

JSCP

IPL

Initiation	Concept Development	→	Plan Development	Plan Review	Supporting Plans

**OPLAN
CONPLAN
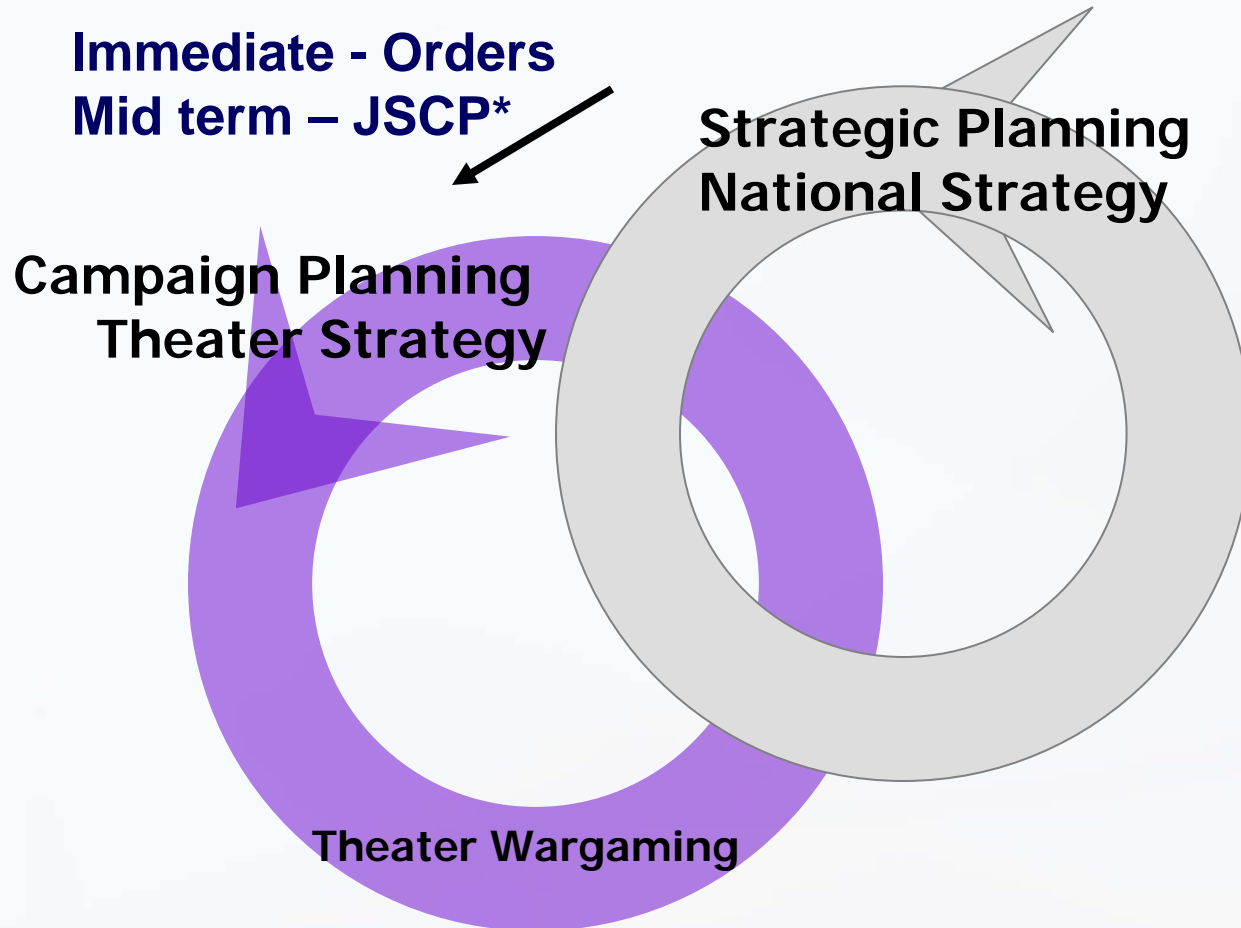FUNCPLAN**

No Plan

Expand

Event

Develop

Modify

Situation Development	Crisis Assessment	Course of Action Development	Course of Action Selection	Execution Planning	Execution
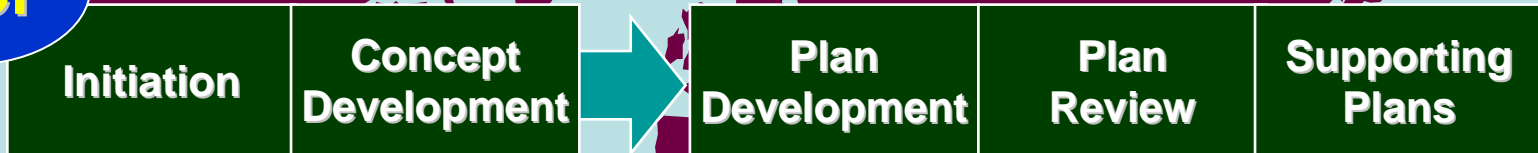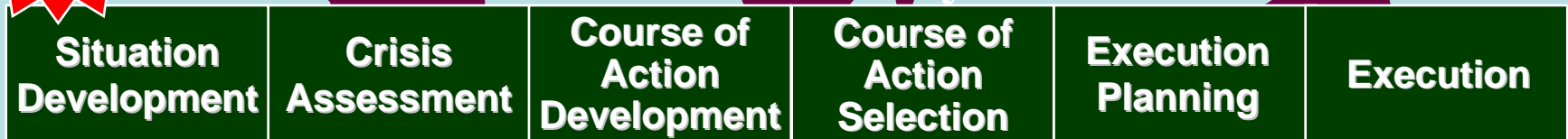
Crisis Action Planning

Campaign Plan OPORDs

Adaptive Planning

Activities, Functions, Products

Situational Awareness

Operational Activities

Planning

Execution

Planning Functions

Strategic Guidance	Concept Development	Plan Development	Plan Assessment (Refine, Adapt, Terminate, Execute)

IPR   **IPR**   **IPR**   **IPR**

Products

Contingency

- Approved Mission
- Approved Concept
- Approved Plan
- BASE PLAN
- CONPLAN
- OPLAN
- OPORD

- Execute Order
- Deployment Order

Crisis

- Warning Order
- Planning Order
- Alert Order

Strategic Wargaming and The Defense Planning Systems

Defense Planning Guidance

Strategic Planning
National Strategy

Force Planning
Service Strategy

Title 10

Service Strategy, Title 10 Wargaming
Example Air Force

Execution

Even Year	Odd Year
AF/XOX	AF/XPX

Lessons Learned from Joint, Service, Other Events

Lessons Learned to Further Explore

Service & RCCs

Service Responsibility

Actionable Insights

AF Corporate Structure

Lessons Learned to Further Explore

POM

RCCs

POM	2 X POM	4 X POM

v 1.0

AFRL

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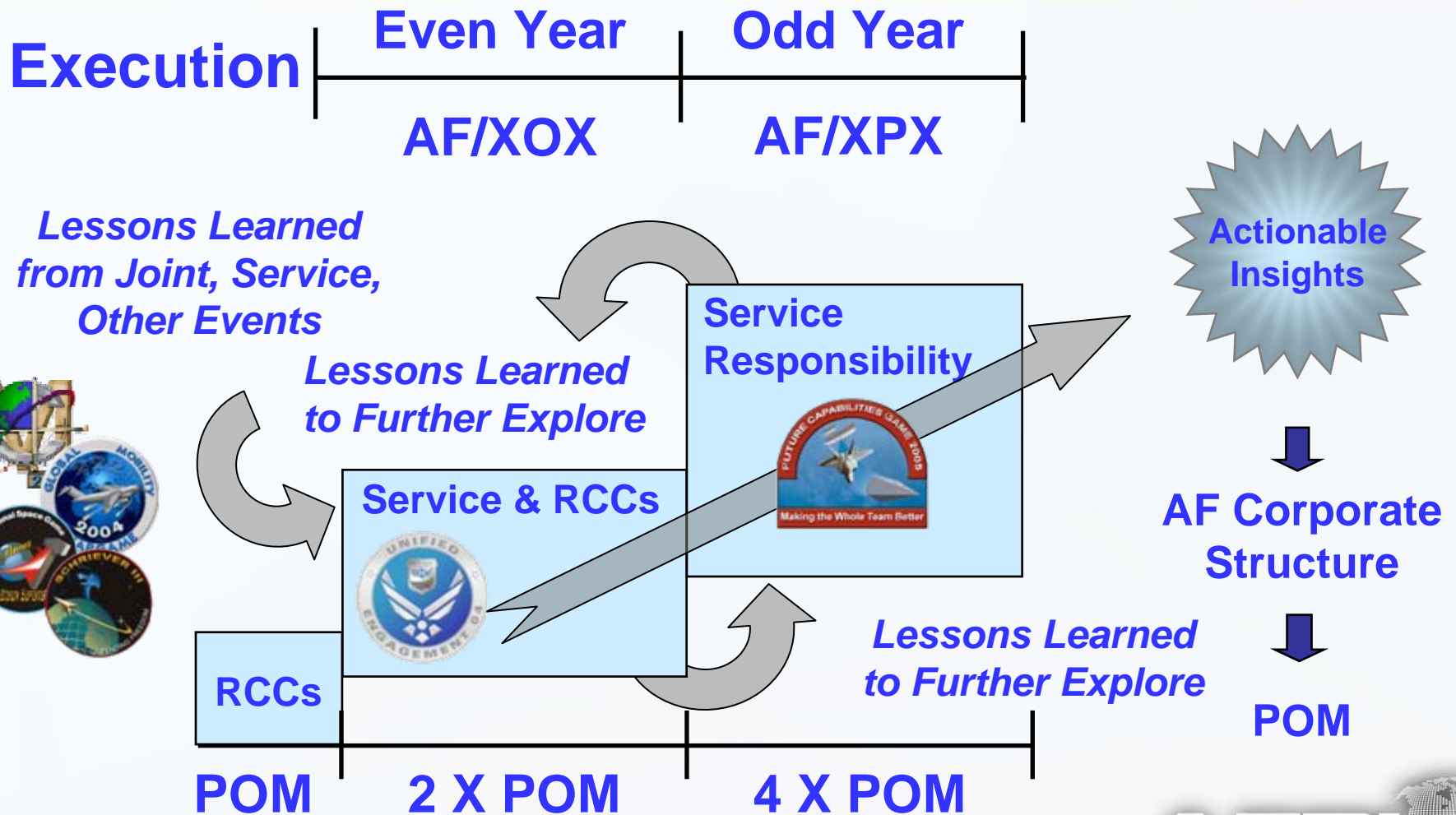
Lessons From
The History of Wargaming

So far we have covered:

- What wargames are

- What are their applications

Now we will cover:

- How to receive the maximum benefit from wargaming

More Value From Wargaming

Professional Development

- Efficient
  - Minimize cost in $$
  - Minimize cost in time
  - Deployable

- Effective
  - Memorable
  - Fits curriculum
  - Avoids "dis-training"

Decision Support

- Efficient
  - Minimize cost in $$
  - Minimize cost in time
  - Deployable

- Effective
  - Fit to adversary/scenario being considered
  - Probability envelope of outcomes matches actual envelope

Assessing Relative Confidence In Wargame Outcomes

How Accurate Is Wargaming?

- Each wargame is one pass through a series of chance events - play many wargames and a range of outcomes will occur:
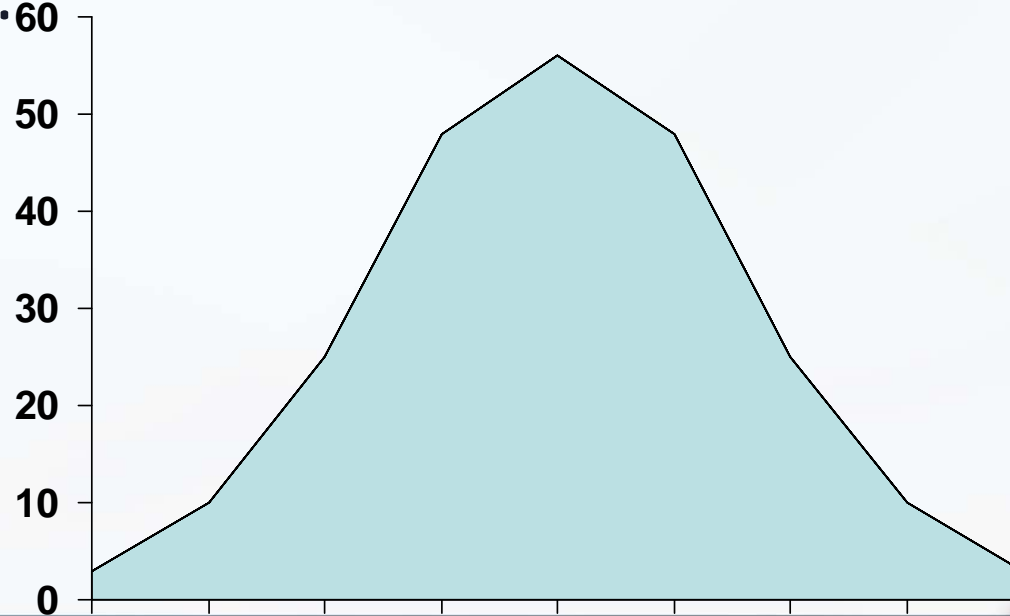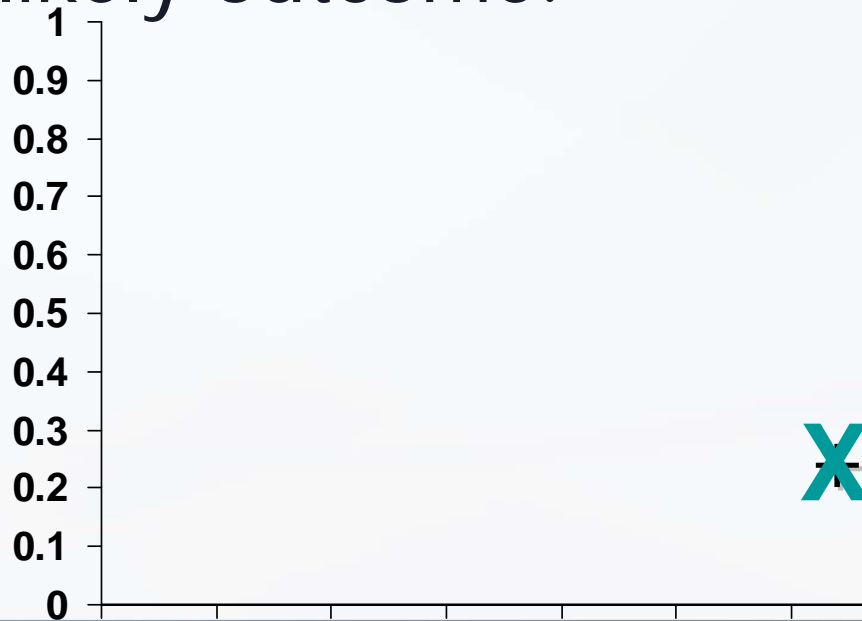
How Accurate Is Wargaming?

- Each **war** is one pass through a series of chance events – as such many outcomes are possible while some are more likely then others
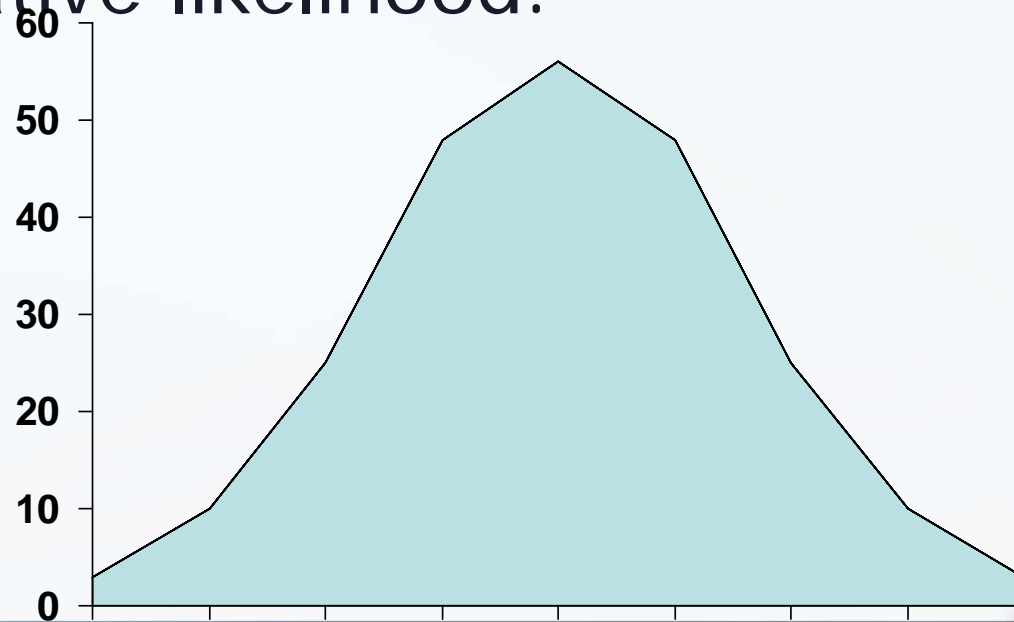
How Accurate **I**s Wargaming?

- Each **war** is one pass through a series of chance events – however what actually happened is not necessarily the most likely outcome.

How Accurate Is Wargaming?

- At best the outcome distribution of our wargames should match the outcome distribution of reality- then wargames can suggest which outcomes are possible along with relative likelihood.

How Accurate Is Wargaming?

- However BOGSAT adjudicated wargames are so time consuming they typically produce only one outcome. Even if the most likely outcome is determined the range and likelihood of other outcomes is not captured

X

How Accurate Is Wargaming?

- Even when there are many runs the outcome distribution of wargames seldom matches the outcome distribution of reality
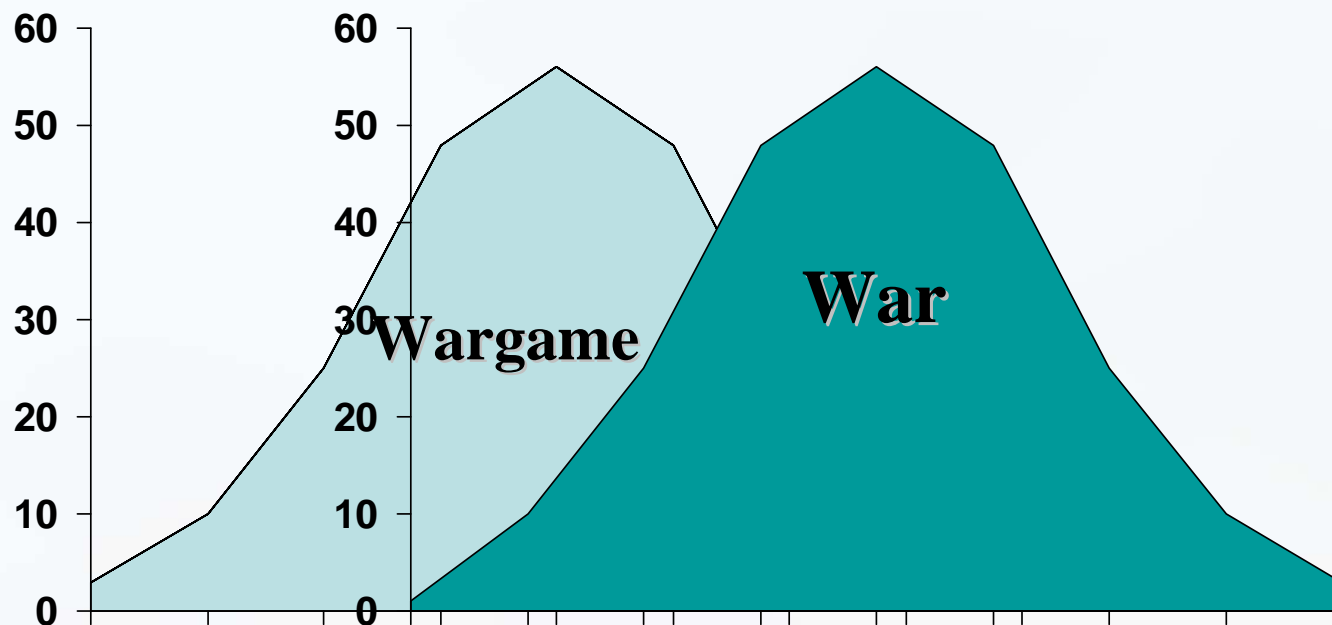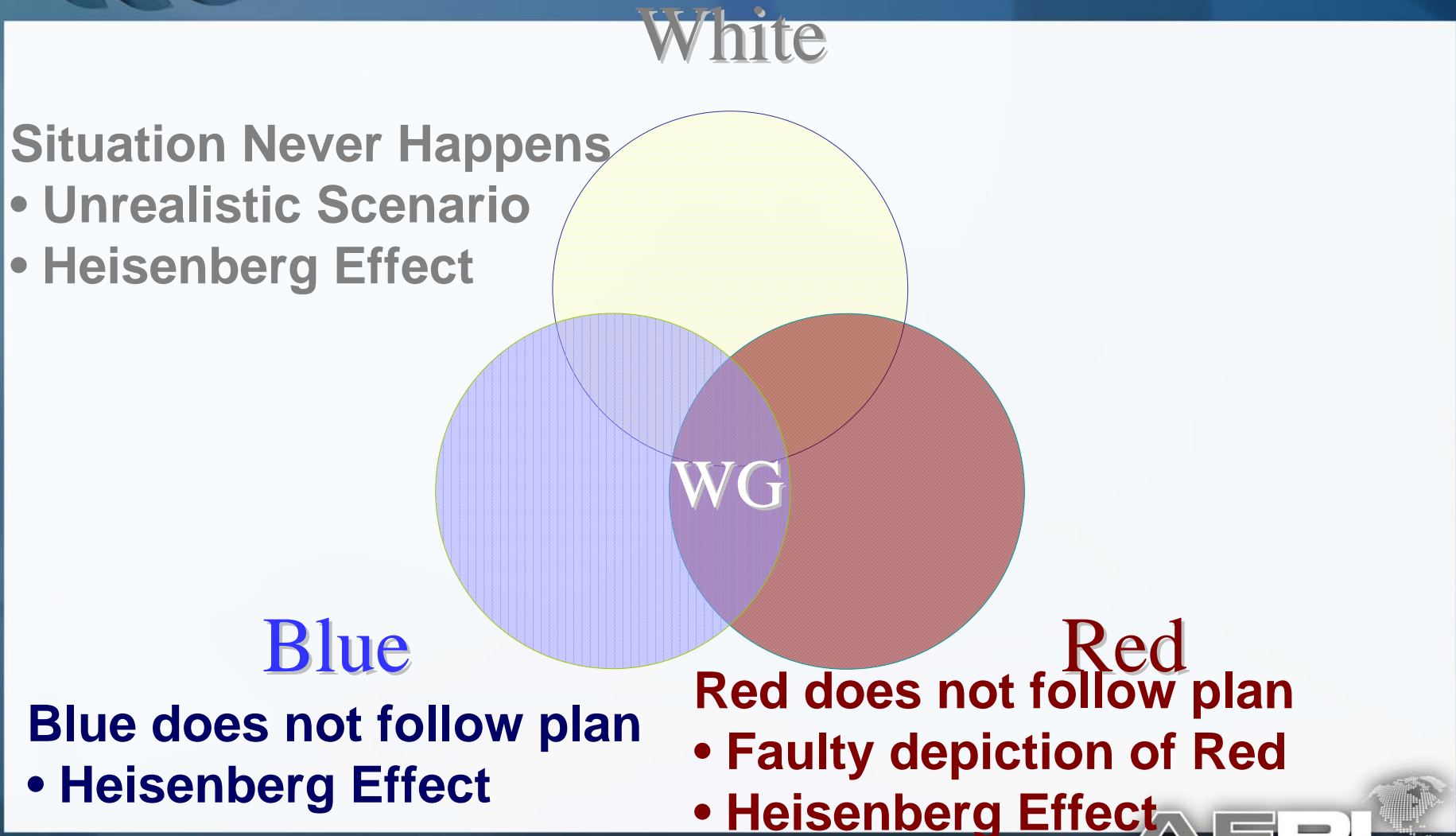
Coping with Uncertainty

- Achieve the best accuracy you can given your goals and resources

- Honestly assess and communicate the "standard deviation" of your wargame

Sources of Inaccuracy

White

Situation Never Happens
- Unrealistic Scenario
- Heisenberg Effect

WG

Blue

Red

Blue does not follow plan
- Heisenberg Effect

Red does not follow plan
- Faulty depiction of Red
- Heisenberg Effect

Toward More Effective Scenarios

- Collaborative/Joint Development

- Increased use of "Move Zero"

Depicting Blue More Accurately

"Players" during wargame need to be decision makers during actual event

- Combining Deliberate and Crisis Action Planning (CAP)

- Wargames increasingly Joint and Combined

- Increased interagency NGO participation

Also, increased professional development wargaming should increase overall quality of Blue play.

Depicting Red More Accurately

"This is not (exactly) the enemy we wargamed against."

Lt Gen William Wallace
Commanding Gen V Corps
Operation Iraqi Freedom

Depicting Red More Accurately

Easy

- Study Red History
- Study Red Culture
- Study Red Doctrine

Depicting Red More Accurately

Less Easy

- Determine Objectives
- Determine Training Heritage
- Determine Planning Methods

Depicting Red More Accurately

Hard

- Determine how Red is actually training

- Determine how Red sees Blue

- Anticipate when Red will shift strategy/doctrine

Assessing the Likelihood of Accurate Adjudication

Factor	More Accurate		Less Accurate
Executions	Many	⟷	Few
Factors	Physical Sci	⟷	Social Sci
Scope	Detailed	⟷	Comprehensive
Level	Tactical	⟷	Strategic
Adversary	Symmetric	⟷	Asymmetric
	Doctrinaire / Centralized		Decentralized
Technology	Old	⟷	New
Strategy	Attrition	⟷	Effects

Achieving More Accurate Adjudication Historical Challenges

- Command interference in adjudication

- Failure to adjudicate key factor

- Failure to adjudicate full event

- "Bad" data

Achieving More Accurate Adjudication
Emerging Challenges

- New Threats
  - Asymmetric Adversaries
  - Global Terrorism
  - Anti Access
- New (and rediscovered) Concepts
  - Network Central Warfare
  - Effects Based Operations
  - Campaign Planning
- New (and rediscovered) Tasks
  - Rapid Adaptive Planning
  - Expeditionary Air Operations
  - Winning the Peace

Generations of Wargaming

3rd Generation - sy **EFFECTS** stem

2nd Generation **ATTRITION** force

1st Generation - mind **STRATEGY**
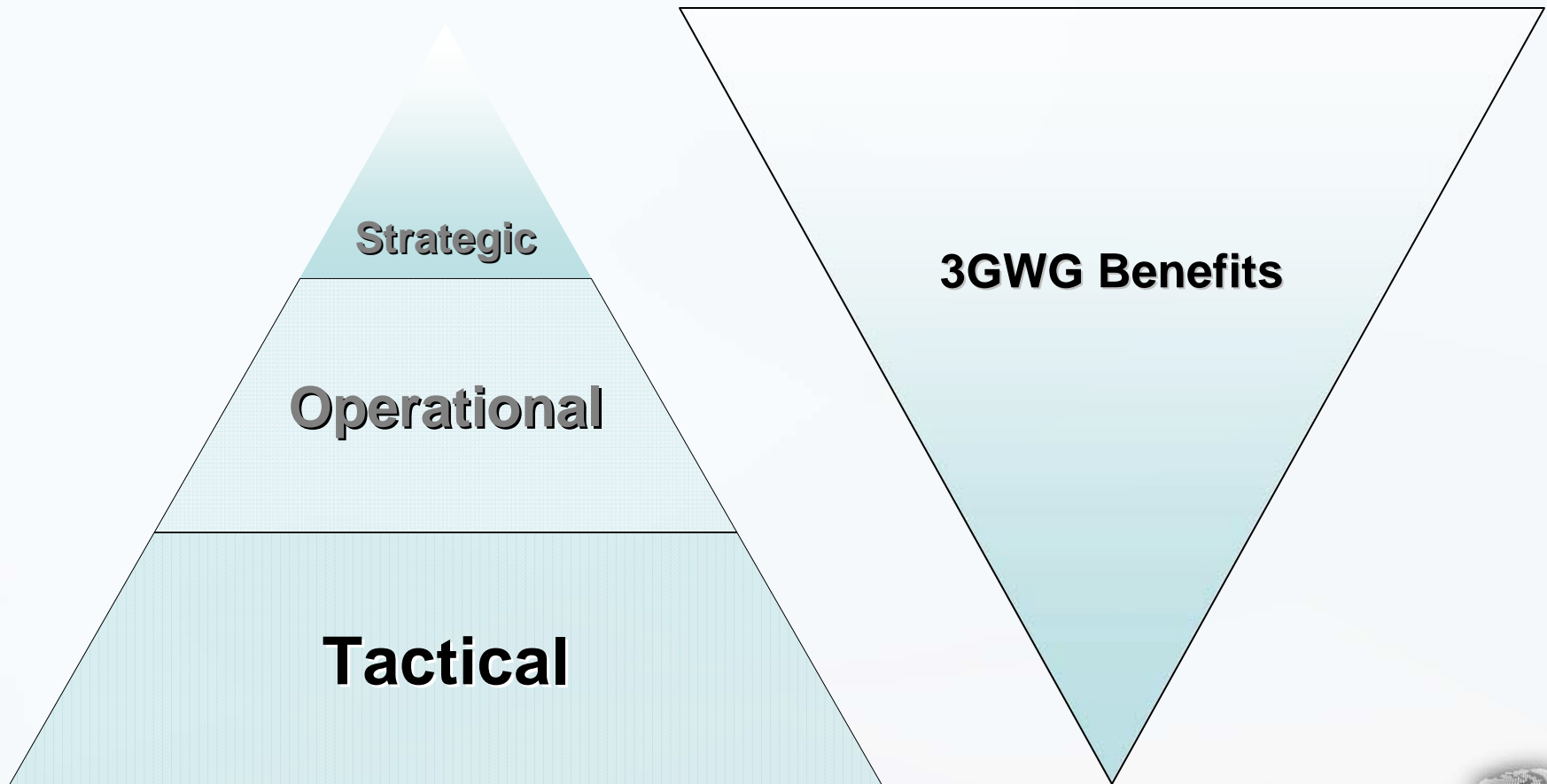
Evolve the State of the Art

Third Generation Wargaming

- Adjudicates EBO through adding
  - Human Factors
  - System Effects
  - Decision Cycle
- Shrinks warfighter's Decision Loop
  - Expeditionary hardware
  - Fast to learn and execute interfaces
  - Inherent reach back capability

Third Generation Wargaming's Contribution

Strategic

Operational

Tactical

3GWG Benefits

Conclusion

- **Wargaming can give us an important edge over our adversaries, or they can give our adversaries an edge over us**

- **Today tactical attrition wargames are more accurate than strategic effects wargames**

- **Better Blue, Red and White (adjudication) can increase the accuracy of all wargames – especially at the campaign and strategic**

- **Better Wargames can help us shorten wars – and win the peace**

To Learn More

- History
  - The Art of Wargaming, Peter Perla, 1990
  - www.airpower.maxwell.af.mil/airchronicles/cc/caffrey.html
- Current Events
  - www.au.af.mil/au/awc/awcgate/awc-sims.htm
  - www.msrr.dmso.mil/
  - www.afmsrr.afams.af.mil/
  - www-leav.army.mil/nsc/warsim/index.htm

Assessing Confidence in Insights

More Confident

- Tactical
- Physics
- Kinetics
- Red Similar Culture
- Short Duration (battle)
- Many "Runs"
- Attrition

Less Confident

- Strategic
- Human Factors
- Non- Kinetics
- Red Dissimilar Culture
- Long Duration (War)
- Few or 1 "Run"
- Effect

A One Slide History of Wargaming

Forecasting the Future