ARMY WAR COLLEGE NIGERIA

STRATEGIC WARGAMING

BY

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INTRODUCTION

## WHAT IS A GAME ?

INTRODUCTION (CONT)
McGONIGAL'S GAME TRAITS

McGonigal studied the unique characteristics of Games and how they can be applied to the real world

Jane McGonigal

❖ In the Book titled, 'Reality is Broken', McGonigal tries to explain why so many people spend so much time playing video games.

❖ She analyzed the qualities and characteristics of video games, and suggested that these unique characteristics can be applied in real life
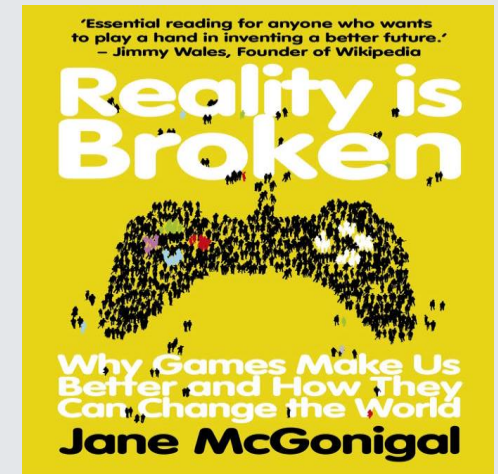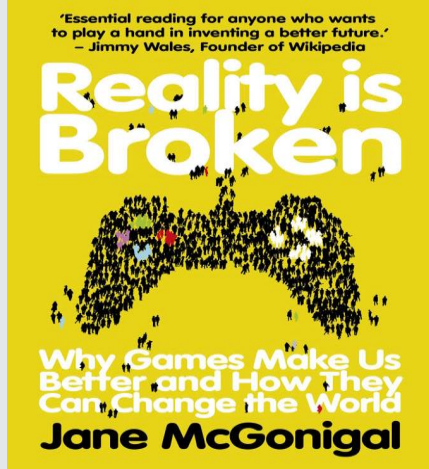
INTRODUCTION (CONT)

McGONIGAL'S GAME TRAITS

Jane McGonigal

Her idea is that, if the 'real world' had some of the perks video games have, people would be more willing to perform their duties, emotionally activated, and be able to collaborate with each other more effectively
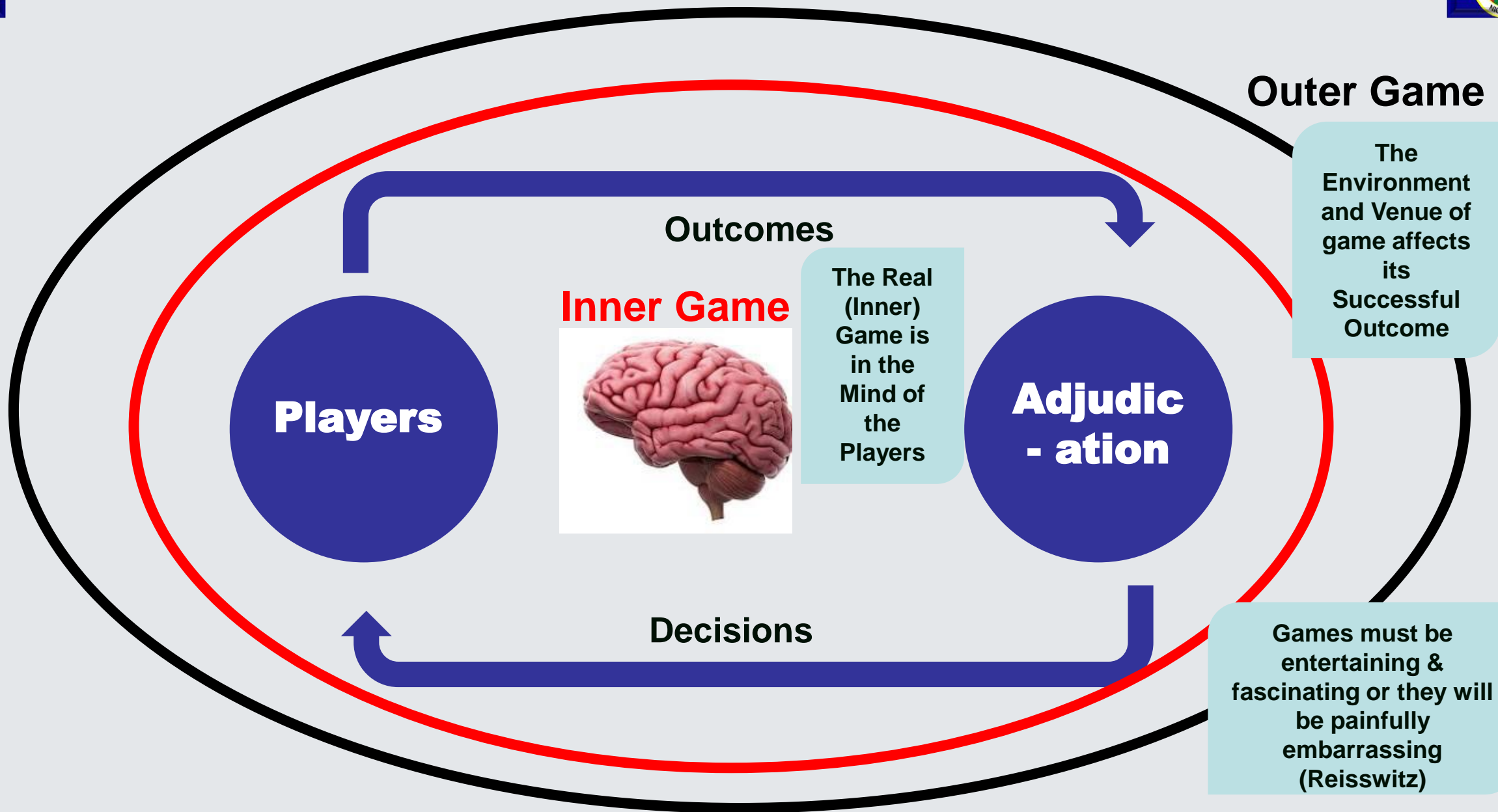
FOUR BASIC TRAITS OF A GAME
(McGONIGAL)

❖**The Goal** (Specific Outcome)

❖ **The Rules** (Limitations on how Players achieve Goals

❖ **The Feedback System** (Progress towards achieving Goal)

❖ **Voluntary Participation**

FOUR BASIC TRAITS OF A GAME

❖ **The Goal (Specific Outcome).** The goal of a video game is the ultimate achievement for players. Players focus their attention on the goal. The goal provides players with the sense of purpose

❖ **The Rules (Limitations on how players achieve Goals).** The rules of the game create limitations as to what the players can do to achieve the game's goal. Players are challenged to use creativity and strategic thinking to reach their desired outcome within the confines of the rules

❖ **The Feedback System (Progress towards achieving Goal).** Through the feedback system, players are informed on how close they are to achieving the game's goal. Gives players the motivation that the goal is achievable

❖ **Voluntary Participation.** The freedom to enter or leave the game at any point, guarantees its safety and pleasure as an activity

Outer Game

Outcomes

Inner Game

The Real (Inner) Game is in the Mind of the Players

Players

Adjudic - ation

The Environment and Venue of game affects its Successful Outcome

Decisions

Games must be entertaining & fascinating or they will be painfully embarrassing (Reisswitz)

GAME THEORY

Game Theory:

❖ A way to model strategic interactions of (mostly) intelligent and rational actors; then use that model to generate mathematical insights

❖ Strategic: Individuals know their actions have an effect on others and their opponents do too, etc.

❖ Game Theory Applications: Politics, Economics, Warfare, Marketing, Voting etc

Game Theory/Wargaming Differences:

Unlike Wargames, Game Theory does not require Real People

Wargames are typically one-off events (do not predict); Game Theaory is well grounded theoretically and generalizes well (can predict, quantify, replicate)

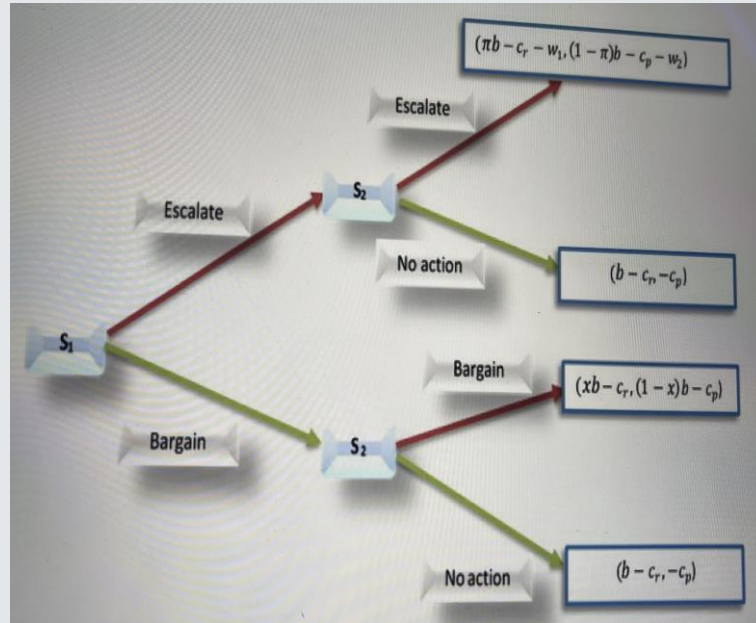# GAME THEORY

Game Theory/ Wargame Design Takeaways

After the Game: Post-Game Analysis:

❖ Chance to bolster one-off wargame results.

❖ Build and run a simulation based on Strategic Decisions that arise in the Wargame.

❖ Game Theory Insights from Wargame Choices that arise.

In Summary:

Wargame Decisions and Outputs can become Game Theoretic Inputs for Analysis

INTRODUCTION (CONT)

The Birth of Wargame

❖ *Nobody really knows when or where human beings first used small objects to represent the maneuver of warriors on a stylized piece of terrain.*

❖ *Nor do we really know who was responsible for the first formal rules for moving the objects around the board and fighting with them.*

❖ *What we do know is that toys and games based on warlike subjects existed long before the dawn of written history.*

❖ *Archaeologists have unearthed sets of miniature soldiers representing ancient Sumerian and Egyptian armies; chess and games with military concepts have been played for centuries.*

INTRODUCTION (CONT)

- ❖ *Some scholars gives credit to Sun Tzu for the invention of first wargame. He created the game 'Wei Hai' meaning, "encirclement" about 5,000 years ago.*

- ❖ *Little was known about the game or its actual origin. However, it was said to have used a specially designed abstract playing surface upon which each of the contestants maneuverer their armies of coloured stones.*

- ❖ *In keeping with Sun Tzu's philosophy of resorting to the chances of battle only as a last resort, victory went not to the player who could attack his opponent head-on, but to the first player who could outflank his enemy.*

INTRODUCTION (CONT)

- ❖ *Over the century, games like chess grew in popularity until it achieved its current status as one of the world's foremost games.*

- ❖ *The chess-like games require the players to focus on a well-defined objectives and to evaluate the abilities of their own and opponent's forces.*

- ❖ *They must analyse the strengths and weaknesses of various dispositions, and devise strategies and tactics to overcome the enemy's strengths and compensate for their own weakness, and thus achieve the objective.*

- ❖ *All of these skills are central to military thinking, yet it is a tremendous step from playing chess on a board of 64 squares to leading an army on the battlefield.*

INTRODUCTION (CONT)

Von Reisswitz

- ❖ As the 19th century broke over a war-torn Europe, the pieces of the wargaming puzzle were scattered around the continent.
- ❖ The process of fitting those pieces began by Von Reisswitz.
- ❖ He discarded the game board of war chess in favour of a sand table in which actual terrain could be modelled in relief. Pieces made out of wood and cut to scale to represent military units.

- ❖ Von Reisswitz and his game had come into contact with the Princes and their father, King Friedrich Wilheim III.
- ❖ The King was fascinated by the idea of this new, much more accurate **representation of war**
- ❖ Von Reisswitz felt making such a presentation on a table sand wont be ideal. He took more time to polish the physical presentation (one year).

Was not a Sldr but a Civilian War Counselor

INTRODUCTION (CONT)

❖ *His son, Lt George Heinrich Rudolph Johann von Reisswitz; an artillery officer, developed and introduced the revised version of his father's game in 1824.*

❖ *The difference between his game and his father's was that he replaced the table sand with detailed topographic maps drawn to the scale of 1:8000.*

❖ *He codified actual military experience and introduced the details of real-life military operations lacking in his father's game. In particular, he quantified the effects of cbt so that results of engagements were calculated rather than discussed.*

❖ *He later published rules to his game in 1824 as, '**Instructions for the Representation of Tactical Maneuvers under the Guise of a Wargame**'.*

INTRODUCTION (CONT)

❖ *The publication which was due to the intervention of the Prince who advised von Reisswitz and his friends that he intended to recommend the game to the King, and to the Chief of General Staff, Yon Muffling.*

❖ *The General was skeptical but allowed von Reisswitz carry on with the presentation.*

❖ *Von Reisswitz calmly set up his Kriegsspiel map………The General on seeing this, responded, 'You mean we are to play for an hour on a map? Very well, show us a Division with the Troops'.*

INTRODUCTION (CONT)

❖ *"May I ask your Excellency," replied Reisswitz, "to provide us with General and Special Idea for the Manoeuver, and choose 2 officers to be the Commanders for both sides. Also, it is important that we only give each commander in the special idea the information he would have in reality".*

❖ *The General became more and more interested as the game went on, until at the end, he exclaimed…………*

INTRODUCTION

General Karl von Muffling
1775 - 1851

This is not a game! This is training for war! I must recommend it to the whole Army!

INTRODUCTION (CONT)

❖ *Wargaming in its modern form originated in Prussia in the 1820s under the guise of a Kriegsspiel (war game).*

❖ *In 1824, the Kriegsspiel was demonstrated to General von Muffling, the Chief of the Prussian General Staff who, in turn, introduced the concept to the Army.*

❖ *While the Prussians were the first to embrace wargaming, other nations soon copied the technique.*

INTRODUCTION (CONT)

❖ *Over the next two centuries, the armed forces of most nations employed various forms of wargaming for training and planning purposes.*

❖ *Wargaming was generally accepted across the military by the mid-twentieth century.*

INTRODUCTION (CONT)

❖ *The wargame is a means of testing new methods and checking certain cbt principles.*

❖ *Wargaming was generally accepted across the military by the mid-twentieth century.*

INTRODUCTION (CONT)

Alfred Von Schlieffen

❖ One of its earliest uses occurred under the regime of a Prussian/German Chiefs of the General Staff, Alfred Graf Von Schlieffen.

❖ Von Schlieffen led the German armed forces from 1892 to 1906; a period of intense war planning by all the European powers.

❖ He used wargaming and wargaming techniques, along with staff rides and standard exercises, to help him test his various plans for fighting the French again, who might this time have British and Russian aid.

❖ The Germans continued to use high-level wargaming even during the actual fighting in WW I especially in the final German offensive of 1918.

INTRODUCTION (CONT)

Maj Gen Sir JM Grierson
1859 - 1914

❖ *In 1905, Maj Gen JM Grierson ran an extensive 5-month long strategic wargame to simulate the outcome of war between Germany and France.*

❖ *The wargame allowed Grierson to presciently anticipate the Schlieffen plan and the British commitment to Belgium in 1914.*

❖ *The game highlighted serious deficiencies in mobilising the British Army and transporting it across the Channel in case of a German invasion.*

INTRODUCTION

British Army Kriegsspiel Equipment circa 1890

INTRODUCTION (CONT)

Admiral Chester W Nimitz
1885 - 1966

The war with Japan had been re-enacted in the game room by so many people and in so many different ways that nothing that happened during the war was a surprise – absolutely nothing except the kamikaze tactics towards the end of the war; we had not visualised those.

INTRODUCTION (CONT)

❖ *A wargame is a simulation of a military operation by whatever means, using specific rules, data, methods and procedures.*

- NATO

❖ *A wargame is a scenario-based warfare model in which the outcome and sequence of events affect, and are affected by, the decisions made by the players.*

- British Army

❖ *A wargame Is a dynamic representation of conflict or competition in a synthetic environment, in which people make decisions and respond to the consequences of those decisions.*

- Dr Peter Perla

INTRODUCTION (CONT)

❖ *Wargaming, in military context, is a warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decisions made by players representing the opposing sides.*

- Dr Peter Perla

❖ *Fundamentally, wargaming is an experiment in human interaction and is best used to investigate the processes, not to calculate outcomes. Military wargames are designed and conducted to test a strategy or battle plan in a virtual environment.*

- British Army

SOURCES OF CONTEMPORARY GUIDANCE
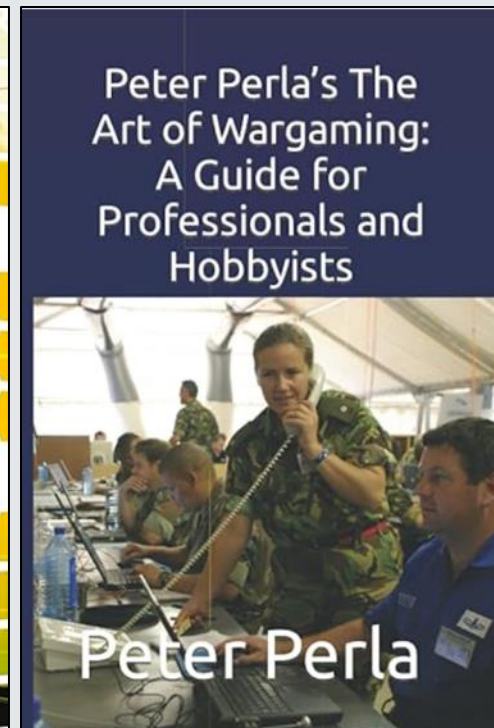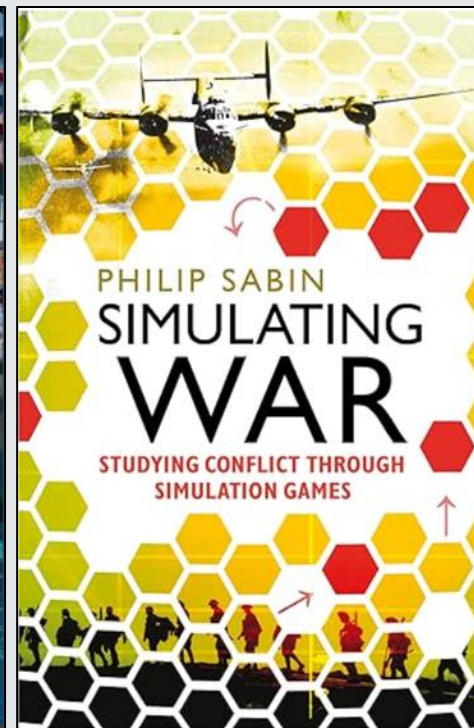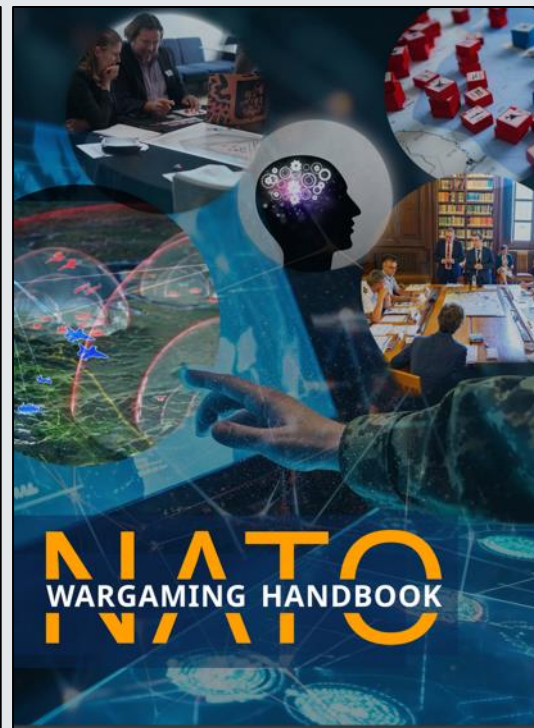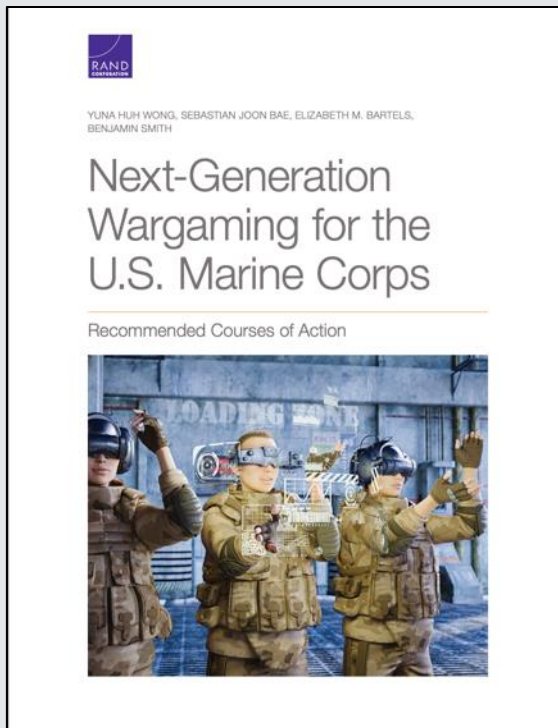
INTRODUCTION (CONT)

❖ *At the core of wargames are:*

    ❖ *The players.*

    ❖ *The decisions they take.*

    ❖ *The narrative they create.*

    ❖ *Their shared experiences.*

    ❖ *The lessons they take away.*

❖ *Wargames immerse participants in an environment with the required level of realism to improve their decision-making skills and/or the real decisions they make.*

INTRODUCTION (CONT)

❖ *Wargames should not be confused with:*

    ❖*Constructive Simulation Models.*

    ❖*Synthetic Environments.*

    ❖*Course of Action Wargaming.*

Perla's Cycle of Research

Reality · Exercises · Wargames · Decisions · Actions · Outcomes · Data · Analysis

From *The Art of Wargaming* by Peter Perla
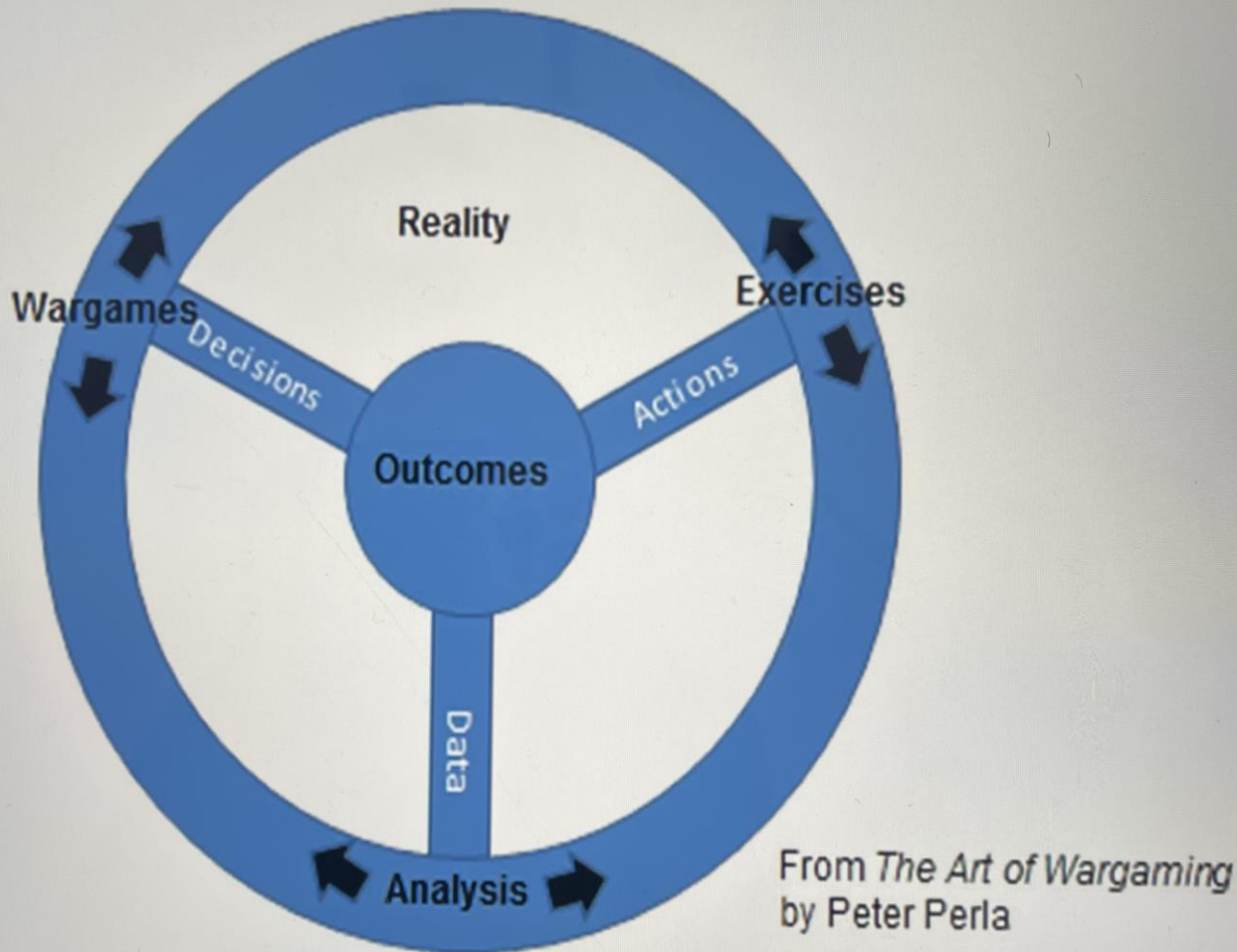
Wargame: Evaluating human decisions or giving players "synthetic" experience.

Exercise: Active opponent is not feasible or desired or actual forces or materiel is priority.

Analysis or Simulation: Quantitative or Systematic Outputs, Optimization, Statistical Confidence Levels.

Meeting/Seminar: Discussion of Questions or Insufficient Time or Resources for othet Tools

INTRODUCTION (CONT)
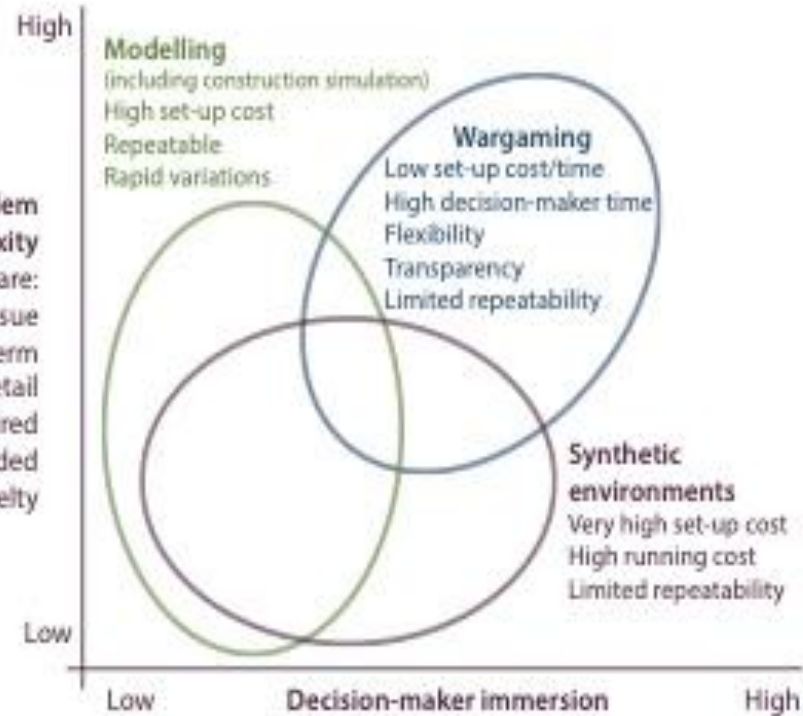
Fig: Strengths, Weaknesses and Overlaps Between Wargaming, Modelling and Synthetic Environments.

Model: Simplification of Reality

Simulation: Model over Time (may support adjudication in some professional games)

Games: People-Centric

❖ Can discover new process and inputs

❖ Not repeatable

❖ Require human interactions

Models and Simulations: Data-Centric

❖ Uses predefined processes and inputs

❖ Repeatable

❖ Can run without human interactions

<u>PURPOSE</u>

To provide fundamental knowledge of the Concept of Wargaming and particularly the Conduct of Strategic Wargaming to participants of AWCN Course 8/2024 for use during modules and exercises on the Course.

AIM

To discuss the concept of Strategic Wargaming with participants of AWCN Course 8/2024.

SCOPE

❖ Elements of a Wargame.

❖ Reasons for Wargaming.

❖ Application of Wargames.

❖ Benefits and Limitations of Wargaming.

❖ Types of Wargames.

❖ Wargaming at Various Levels of War.

❖ Methods of Course of Action Wargaming.

❖ Wargaming Functionaries.

❖ Guidelines for Good Wargaming.

❖ Planning and Playing a Strategic Wargame.

ELEMENTS OF A WARGAME

❖ **<u>Aim and Objectives</u>**. Well-considered aims and objectives are essential to ensure that a problem to be wargamed has been properly framed. The statement of objectives should be as specific as possible to allow game design efforts to focus on those elements critical to the production of that experience and information and to the assimilation of trg lessons or the collection of research data.

❖ **<u>Scenario</u>**. The scenario sets the stage for the game by placing players in specific situations and giving them a context for their decision making. The scenario can have a significant effect on the decisions players are able to make. Thus, the game designer must carefully determine how the scenario may affect the factors he is most interested in exploring.

ELEMENTS OF A WARGAME

❖ **A Set of Models**. Usually, a set of look-up tables and mathematical expressions, translates the game's data and the players' decisions into game event. Models must be flexible enough to deal with unforeseen player decisions. Just as real battles are affected by chance, game battles should usually reflect the role of luck in carrying out any operation.

❖ **Simulation**. Simulation can be computer-assisted, computerised or manual. It bears the model being executed over time by the wargame.

❖ **Players (and Their Decisions)**. Player decisions drive all wargames. Referred to as the primacy of player decisions. A real wargame must have human players whose decision affect and are affected by the flow of game events

ELEMENTS OF A WARGAME (CONT)

❖ **Rules, Procedures and Adjudication**. A wargame must have a set of rules or procedures that dictate how and when to apply the models. Wargames require robust rules and procedures. Adjudication is the process of determining the outcomes of player interactions. It is a key concept in wargaming.

❖ **Data and Sources**. The data base contains the information players may use to help them make decisions. Typically, this information includes the forces available, some measure of their capabilities, physical or environmental conditions, and other technical facts. Because of its importance to decision making, the data base must present clearly and concisely the information players would reasonably have available to them in an actual situation and it must do so in a manner easy for them to use during play. Data is required to build the setting and scenario. All simulations rely on data and data sources to populate their models.

ELEMENTS OF A WARGAME (CONT)

❖ **Supporting Personnel and Subject Matter Experts**. Supporting personnel and SMEs are required to assist with the design and delivery of a wargame.

❖ **Analysis**. Analysis is normally required to help understand what has happened during a wargame and consolidate the benefits of wargaming.

REASONS FOR WARGAMING

- ❖ Training and Education.

- ❖ Senior Leadership and Strategic Decision Rehearsals.

- ❖ Concept Development.

- ❖ Capability Development

- ❖ Operational Plans and Decisions

WARGAMING FOR TRAINING AND EDUCATION

. Wargames often draw on historic cases to inform strategic thinking. A wargame is designed as an education and training tool to instil **best practices**, lessons learned, and **develop creativity and agility among future leaders.**

Wargames used in professional military education (PME) (integrating wargames into career-level curriculum to provide emerging leadership **with decision-making experiences).**

SENIOR LEADER ENGAGEMENT AND STRATEGIC DISCUSSION

Senior Leader Engagement and Strategic Discussion Wargaming that **supports senior leader engagement and discussion**.

In this category, the focus is not on adjudicating outcomes, but instead on **enabling discussion and gaining feedback from decision makers**.

CONCEPT DEVELOPMENT

Wargaming for Concept Development. Wargaming that assesses a **vision of how the military may employ capabilities** to meet future challenges and exploit future opportunities. Types of concepts include concepts of operations, functional concepts, and concepts of employment.

Doolittle Wargames run by USAF are TTX games used for the development of doctrine as it relates to USAF's future JADC2 concept.

WARGAME TO SUPPORT CAPABILITY DEVELOPMENT AND ANALYSIS

Wargaming that supports the assessment, validation, or prioritization of military (or service- level) capability requirements, gaps, and solutions. Typically quantitative and closely aligned with operations research and systems analysis.

For example: Use of Matrix Games' Combat Mission to assess Army capabilities

WARGAMING FOR OPERATIONAL DECISIONS AND PLANS

Wargaming used to **support operational decisions and plans**. This class of games focuses on informing current and future plans and challenges, both at the service and joint level. This is the most common type of wargaming and is widely done at the service level. It can also be called course of action (COA) wargaming.

APPLICATION OF WARGAMES (CONT)

A war game

|

is a

↓

simulation of selected aspects of a conflict situation

in accordance with

↓

predetermined rules, data, and procedures

to provide decision-making experience

to provide decision-making information

that is applicable to
real-world situations
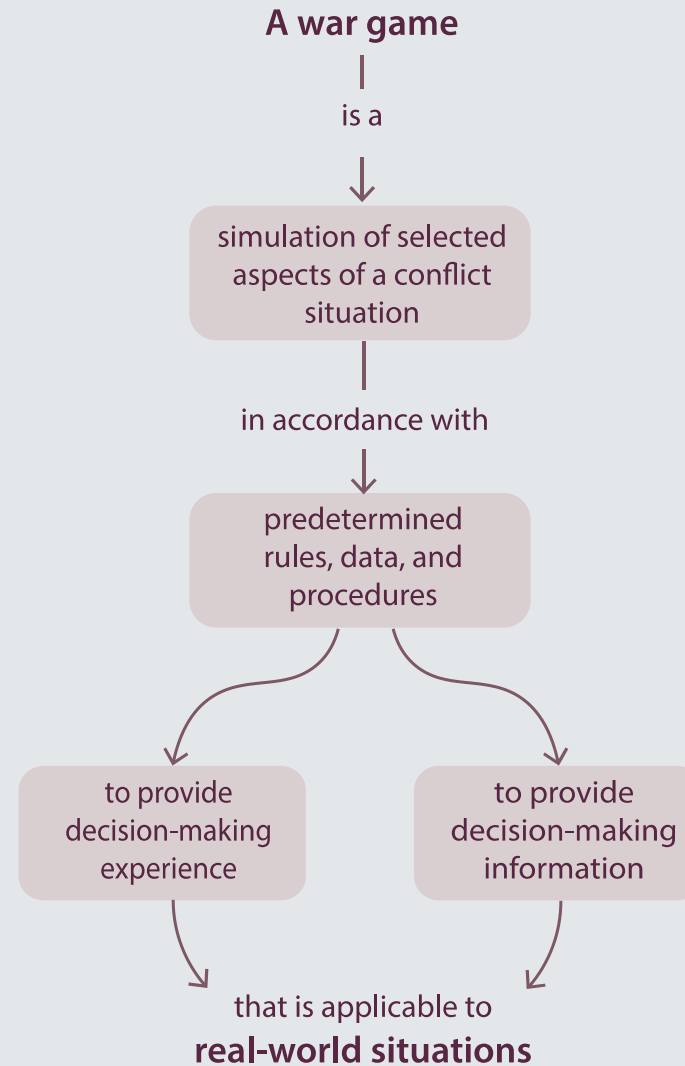
Fig: The General Purposes of Wargames.

BENEFITS AND LIMITATIONS OF WARGAMING

❖ There are a number of benefits of wargaming. They include:

  ❖ Opportunity to explore options and take risks without risking lives or disrupting business continuity.

  ❖ Cost-effective way to practise command and exercise staff procedures and management skills.

  ❖ Exposure to friction and uncertainty, including adaptive, thinking adversaries, competitors, allies and stakeholders.

  ❖ Mechanism for exploring innovation in the art of war and business.

  ❖ Method for discovering new factors and questions not previously identified.

<u>BENEFITS AND LIMITATIONS OF WARGAMING (CONT)</u>

❖ The limitations of wargaming include:

  ❖ Wargames are not reproducible. Since they are driven by player decisions, the conduct will always be different.

  ❖ Wargames are qualitative. If the output required from an event is numerical, a wargame is unlikely to be an appropriate tool.

  ❖ Wargames are not predictive. They illustrate possible outcomes so there is a risk of false lessons being identified from a single run of a wargame. Wargames can illustrate that something is plausible but may not be able to definitively predict that it is probable, hence the use of multiple games with different scenarios.

  ❖ Wargames are only as good as the participants. An uninformed, unqualified or overconfident wargame team is unlikely to add value and may be detrimental to the project.

TYPES OF WARGAME

❖ Seminar – or "BOGSAT"

❖ Matrix

❖ Expert Adjudicated (Free)

❖ Rigid

TYPES OF WARGAMES

Seminar Wargames

❖ Seminar wargames are often used in the discovery process, particularly when attempting to draw new creative insights or build consensus around new phenomena.

❖ Players typically sit around a table and conduct a structured discussion.

❖ Various tools, such as maps, counters to represent resources, or entities rendered via a computer simulation may be used to aid in the dialogue.

❖ In most seminar wargames there is no adjudication between the opposing sides.

❖ *Sometimes called a BOGSAT ="bunch of guys sitting around talking"*

TYPES OF WARGAMES

Matrix Games

❖ In matrix wargames, players typically take turns making an argument about what they wish to do, why they believe it would be successful, and what effects they expect to have.

❖ Other players are invited to identify counterarguments.

❖ The outcomes are then adjudicated by an umpire—with or without dice.

TYPES OF WARGAMES

Expert Adjudicated (Free) Wargame

❖ In expert adjudicated wargames, an expert on the phenomena involved acts as the control— they adjudicate the game.

❖ The opposing players in the wargame choose actions and the expert takes all inputs from the participants but does not seek consensus.

❖ The expert then adjudicates the outcome, bounding the player to that outcome for their further reflection and decision.
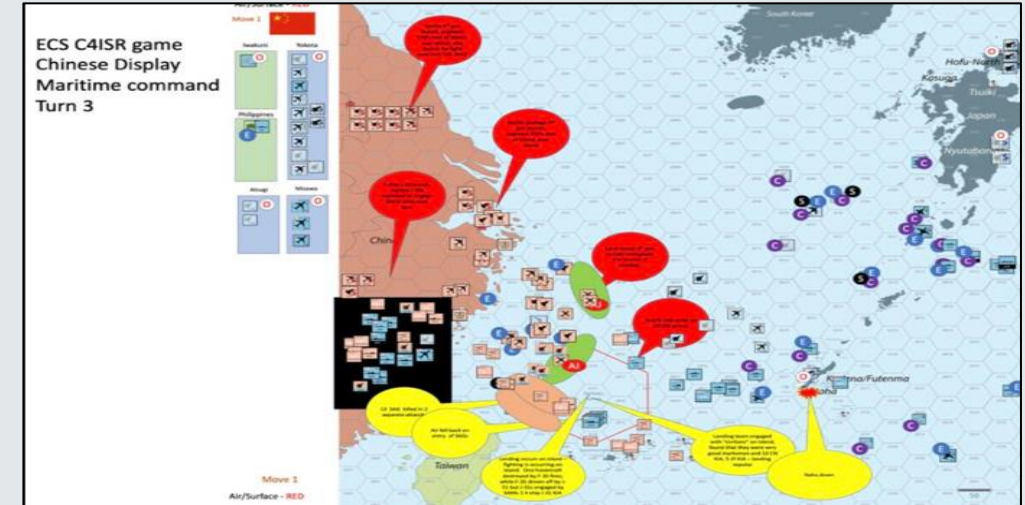
TYPES OF WARGAMES

Rigid Adjudicated Wargame

❖ In rigid adjudicated wargames, the game designer is the expert in the phenomena involved but can communicate the means to adjudicate to someone reading the rules.

❖ The rules for adjudication are either written in a gamebook or in computer code.

❖ Players follow the rules and are bound by them throughout the game.

Command PE
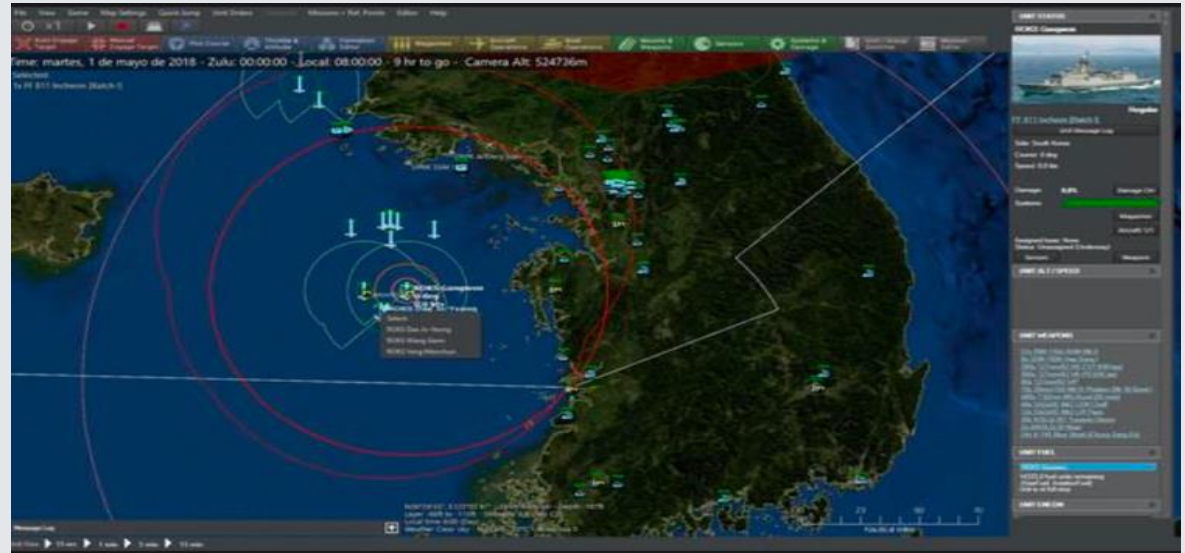
WARGAMING AT VARIOUS LEVELS OF WAR

❖ Wargames can be designed and played at the tactical, operational and strategic levels. Wargames are equally used to test and refine policy during the formulation phase.

❖ Tactical and operational wargames can be similar in outlook when conducting COA wargaming. Operational wargames however, tend to be more similar to strategic wargames when playing matrix games.

WARGAMING AT VARIOUS LEVELS OF WAR
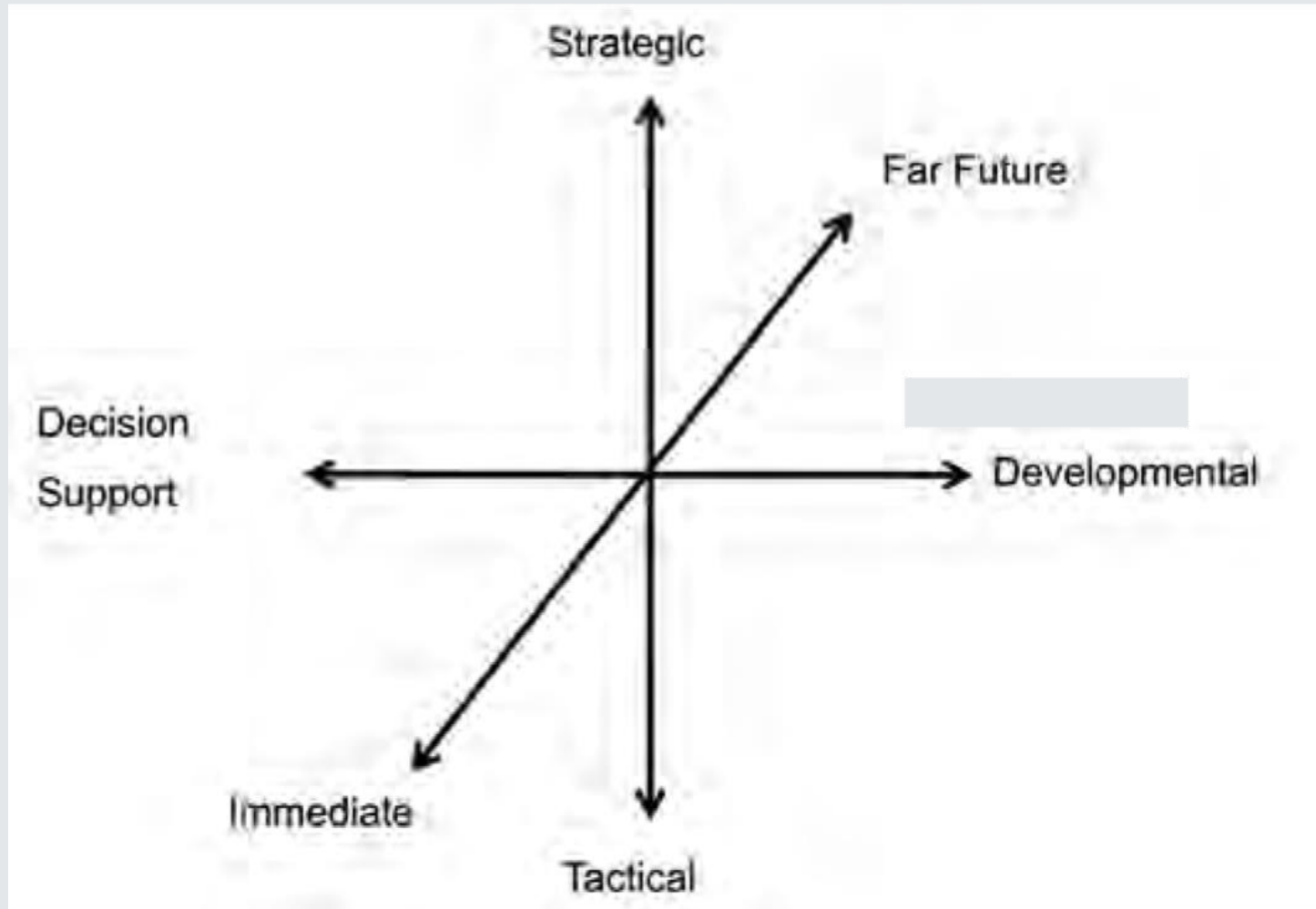
Fig: Scope of Wargames.

TACTICAL WARGAMES

❖ Tactical wargames are a type of wargame that model military conflict at the tactical level. They involve such entities as individual vehicles and squads, platoons or companies.

❖ Early tactical wargames were played as miniatures before being extended to board games. Now they are enjoyed as video games.

❖ For instance, an engineer squadron can wargame the launching of a pontoon bridge during an assault river crossing operation. This helps to appreciate threats, refine plans, determine the best approach to the task and decide on the necessary liaison for the success of their endeavour.

❖ The nature of tactical wargames makes them more analytical than educational.

TACTICAL WARGAMES (CONT)

❖ Tactical wargames are designed so that a knowledge of military tactics can facilitate good gameplay.

❖ These games offer more of a challenge to the designer than operational wargames. This is because fewer variables or characteristics inherent in the units being simulated are directly quantifiable.

❖ Tactical wargames deal with easily defined problems, such as kinetic activity thus they are more suited to a rigid, computerized approach requiring free or minimal adjudication.

❖ The guidelines for tactical wargaming are similar to that of operational wargaming.

OPERATIONAL WARGAMES

❖ The operational level is the realm of operational art. It is the nexus in which strategic objectives are converted into tactical actions through creative thinking and resourceful planning. This is the point in which the art of the possible is engaged.

❖ Wargaming at this level is therefore more in the arena of planning and could cover wargaming of campaign plans, phases, campaign objectives, decisive conditions and geographical areas.

❖ In line with the mission statement of the AWCN, the major focus of wargaming in the College is at the operational level. This is usually in the form of COA wargaming either as part of the process of evaluating various COAs or to refine the selected COA.

OPERATIONAL WARGAMES (CONT)

COS – Chairman
Ch J5 – Game controller
J3 Staff – Joint Action Synchronisation Matrix (JASM)
Assessments

Non Aligned
❖ Host Nation
❖ OGDs/HA
❖ Component LOs

OBSERVERS

BIRD TABLE

BLUE TEAM

RED TEAM
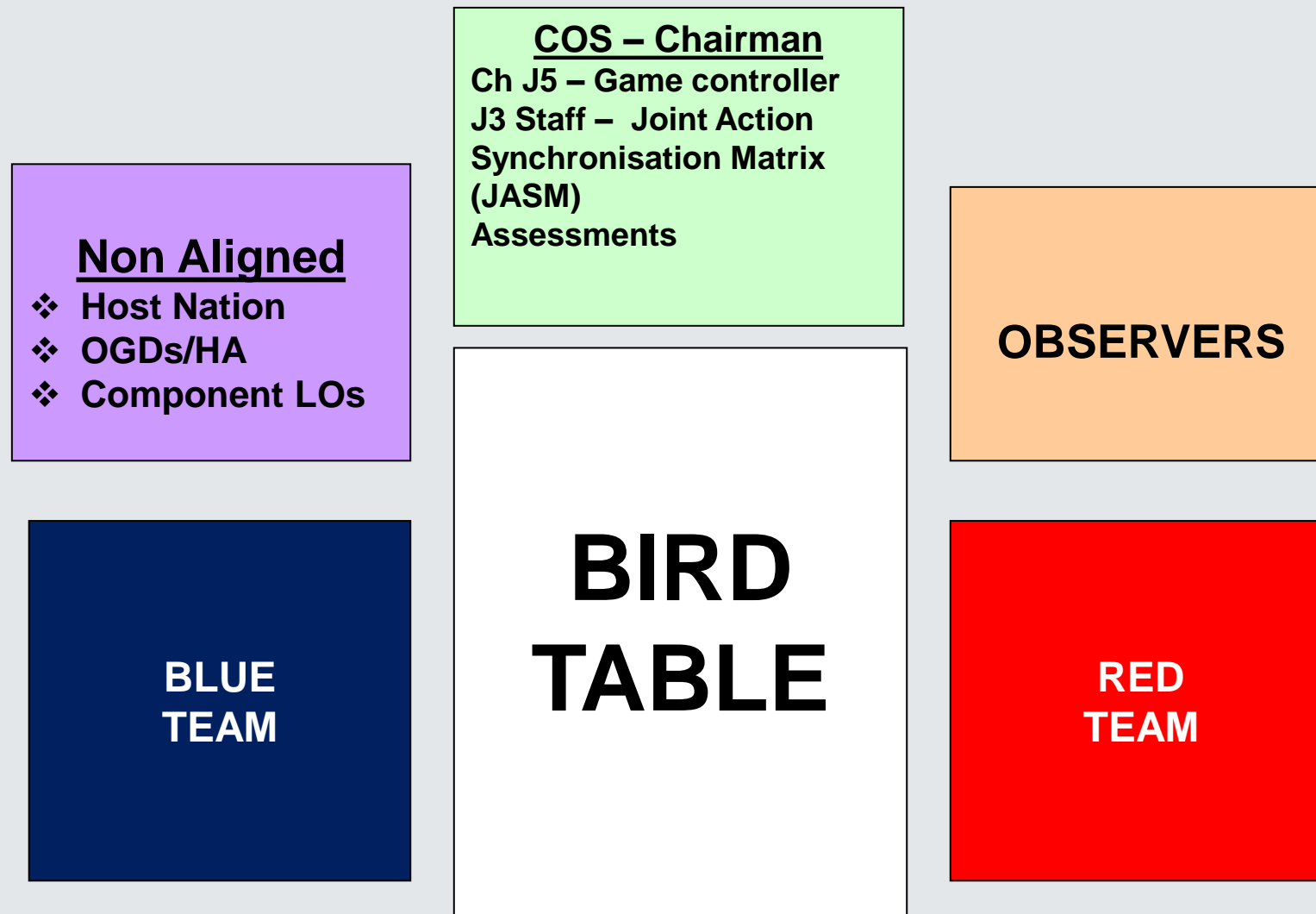
Fig: Operational Wargaming Birdtable Setup

OPERATIONAL WARGAMES (CONT)

Explains the rules
- Explains the rules
- Conducts the introduction
- Supervises the timeline
- Makes all decisions and
- Clarifies definitions as required
- supervises the adherence to the rules, definitions, decisions and assumptions
- controls the game

Coord J5

- Out Of The Box Thinking

Red Team

Sync Matrix J3

CURRENT SITUATION

- Prepares Red CoAs
- Presents Red CoAs
- Records results

Red Cell

Deep Dive (Red)

Deep Dive (Blue)

Blue Cell

- Prepares Blue CoAs
- Presents Blue CoAs
- Records results

Observers/ SMEs

- Provide functional expertise as required

- Provides functional expertise as required (HN Security forces/ government)

Green Cell

Director (COS)

- Overall **responsibility**
- Sumarises the results
- Ensures CoA stay within COMs Guidance

Referee

- Makes final **decision** for situations not clearly determined

Grey/ White Cell

- Provides functional expertise as required (IO/GO/NGO/etc, Civil situation)
- Malign Actors

Observers/ SME

- Provides functional expertise as required

➢ Liaison officers from Component HQs: representing the Component Commanders' interests.

Fig: Operational Wargaming Birdtable Setup and Responsibilities.

STRATEGIC WARGAMES

❖ Strategic wargames are used to support educational, research and outreach missions.

❖ They are used to provide information and insights into issues of a national or military strategic nature to inform decision-making of the senior-most leaders of the Army, sister Services and across operations within and outside the shores of the country.

❖ For example, the implications of a national policy could be wargamed at the strategic level.

❖ The ideas, issues and insights uncovered during the conduct of such a wargame can have far-reaching effects on national and military policy, planning and decision-making.

STRATEGIC WARGAMES (CONT)

❖ Strategic wargames are specially designed to fit a particular scenario or solve a targeted problem.

❖ They are specially designed to solve wicked problems and are bespoke to the strategic context and environment.

❖ The process of building a strategic wargame requires skill, critical analysis, creativity and knowledge to ensure that the aims and objectives are met and that adequate lessons are mined from the process.

METHODS OF COA WARGAMING

❖ The methods of wargaming apply only to COA wargaming at the tactical and operational levels.

❖ The various methods of COA wargaming are:

    ❖ Avenue in Depth Method.

    ❖ Belt Method.

    ❖ Box Method.

METHODS OF COA WARGAMING (CONT)

to induce the most friction and where the plan needs testing most. Figure 10.1 illustrates the most common methodologies for wargaming:

BELT TECHNIQUE

BELT-IN-TIME

AVENUE IN DEPTH TECHNIQUE

BOX TECHNIQUE
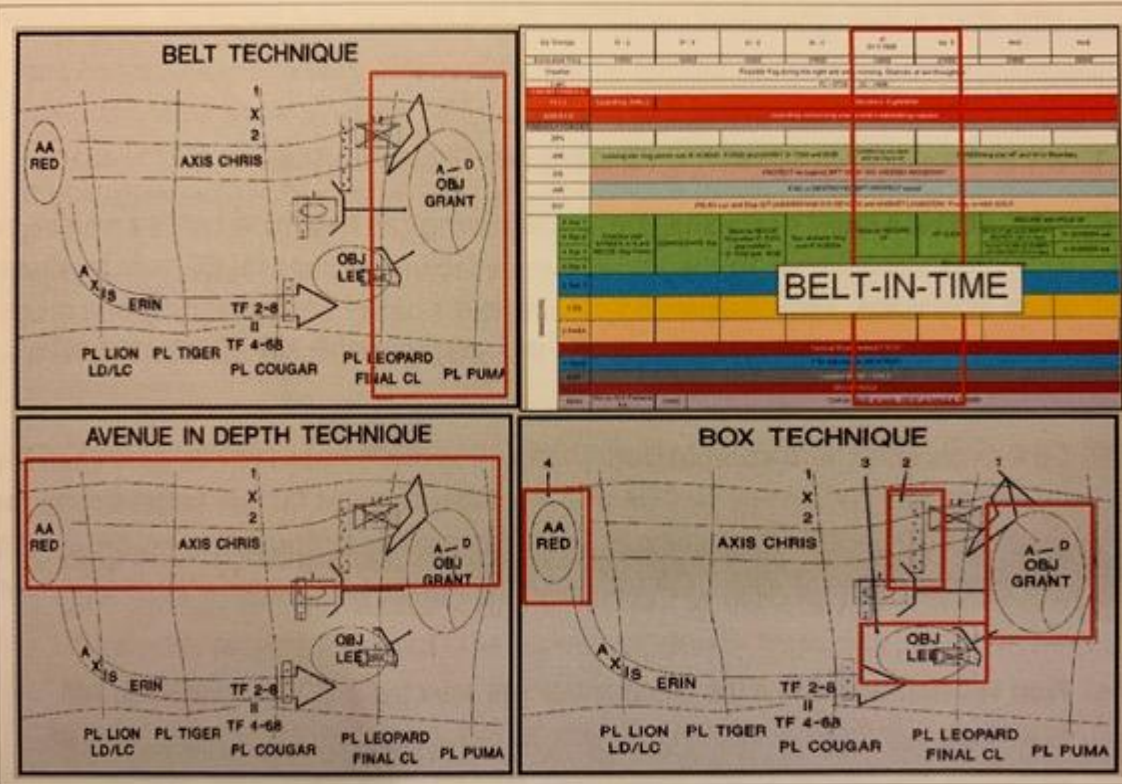
Figure 10.1. Wargaming methodologies

(4) **Select the enemy COA.** The red cell should advise the commander/chief

❖ **What to Wargame**
  ➢ Campaign Plan

  ➢ Phase

  ➢ Campaign Objective
  ➢ Decisive Condition
  ➢ Geographical Area

  ➢ Line of Operation or Effort

❖ **Method to Use**

  ➢ Belt

  ➢ Box

  ➢ Avenue in Depth

WARGAMING FUNCTIONARIES

❖ There are certain constant functionaries in a wargame. They include:

   ❖ Game Sponsor.

   ❖ Game Director.

   ❖ Wargame Team.

   ❖ Game Controller.

   ❖ Players.

WARGAMING FUNCTIONARIES (CONT)

❖ **Game Sponsor**. The sponsor is the senior officer or official under whose authority the game is being conducted. The sponsor:

  ❖ Inculcates a common and widespread culture of wargaming at all levels, characterized by senior sponsorship and active participation.

  ❖ Defines the problem to be wargamed and approves aims and objectives.

  ❖ Remains open-minded to wargame insights, cognitive bias and ensure Service and individual interests are avoided.

WARGAMING FUNCTIONARIES (CONT)

❖ **Game Director**. The game director represents the sponsor and is responsible for delivering a wargame that satisfies the problem.

❖ He is the Project Team Leader.

❖ He is responsible for organizing, synchronizing, scheduling, and successfully accomplishing all game project tasks.

❖ As the primary interface with the game sponsor, he drives discussions btw the game sponsor's representative and the war game project team to discern and articulate mutually understood and agreed upon war game problem and purpose statement, as well as game objectives.

❖ He is the WGD chairman's single point of contact to lead the project through to completion.

WARGAMING FUNCTIONARIES (CONT)

Game Designer.

❖ The game designer takes the problem statement, purpose statement, and game objectives approved by the sponsor, and creatively merges them into a design suitable for gaming.

❖ All team members support the game designer during the design phase, especially the game analyst and game adjudicator, who provide design inputs from the analysis and adjudication perspectives.

❖ The designer's workload is greatest in the initial phases of the game project process.

WARGAMING FUNCTIONARIES (CONT)

Game Analysts.

❖ The game analyst delivers a postgame analytical report that:

    (a)   Addresses the sponsor's problem.

    (b)   Provides a response to the sponsor's stated game purpose.

    (c)   Provides a coherent organization of player insights relevant to game objectives.

❖ The analyst develops a data collection and analysis plan (DCAP) that describes what data will be collected, and how the data will be collected, stored, and analyzed.

❖ The analyst's workload is greatest in the latter phases of a game.

WARGAMING FUNCTIONARIES (CONT)

<u>Game Adjudicator</u>.

❖ The lead adjudicator serves as the principal game umpire.

❖ He manages subject matter adjudication and the sharing and coordination of expert responses to promote attainment of game objective. (Common in Matrix Games).

❖ The lead adjudicator must ensure that the adjudication plan is addressed in the game design document, to ensure the plan is executable during the game.

WARGAMING FUNCTIONARIES (CONT)

❖ **Players**. Wargame players can number from one to thousands. They are usually organized into cells, the size and shape of which can vary considerably. Colour codes are used for these players. Note that red cell should not be confused with red team. Thus, the word "team" is avoided in wargames except when referring to the red team. Player colour codes are as follows:

  ❖ Blue for friendly forces.

  ❖ Red for opposing forces.

  ❖ Orange for armed non-state actors.

  ❖ Black for **organized and transnational organized criminals**.

  ❖ Green for indigenous security forces.

  ❖ Brown for neutral actors or civilian population.

  ❖ White for national and supranational political organisations and diplomats, humanitarians, international organisations and NGOs.

GUIDELINES FOR GOOD WARGAMING

❖ Successful wargames are a combination of science and art as are successful operations. Wargames must not be designed to reinforce preconceived answers to problems. Thus, the following characteristics act as a guide to successful wargaming:

  ❖ Adversarial. Blue for friendly forces.

  ❖ Chance.

  ❖ Uncertainty.

  ❖ Primacy of player decisions.

  ❖ Control.

  ❖ Safe to fail.

  ❖ Engagement.

  ❖ Processes.
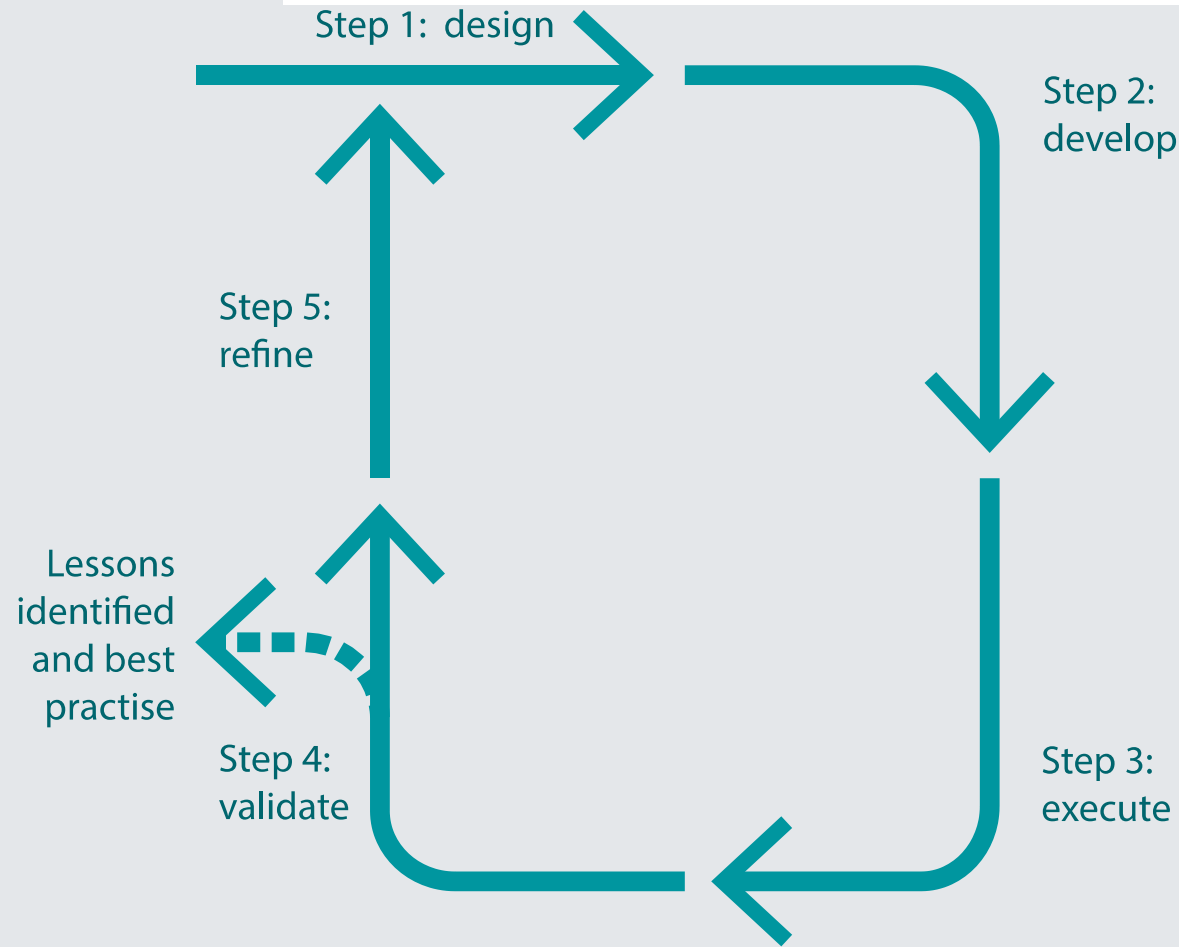
  ❖ Wider Context.

  ❖ Cheap, Frequent and Small Scale.

PLANNING AND PLAYING A STRATEGIC WARGAME

❖ The process of building a strategic wargame requires skill, critical analysis, creativity and knowledge. The major phases of the strategic wargame process are:

  ❖ Design the Wargame.
  ❖ Develop the Wargame.
  ❖ Execute the Wargame.
  ❖ Validate the Wargame Results.
  ❖ Refine the Wargame.

PLANNING AND PLAYING A STRATEGIC WARGAME (CONT)

Designing a wargame is an art rather than science. Designing a wargame is more akin to writing an historical novel than proving an algebraic theorem.

Step 1: design

Step 2: develop

Step 5: refine

Step 3: execute

Step 4: validate

Lessons identified and best practise

Steps in Wargame Design

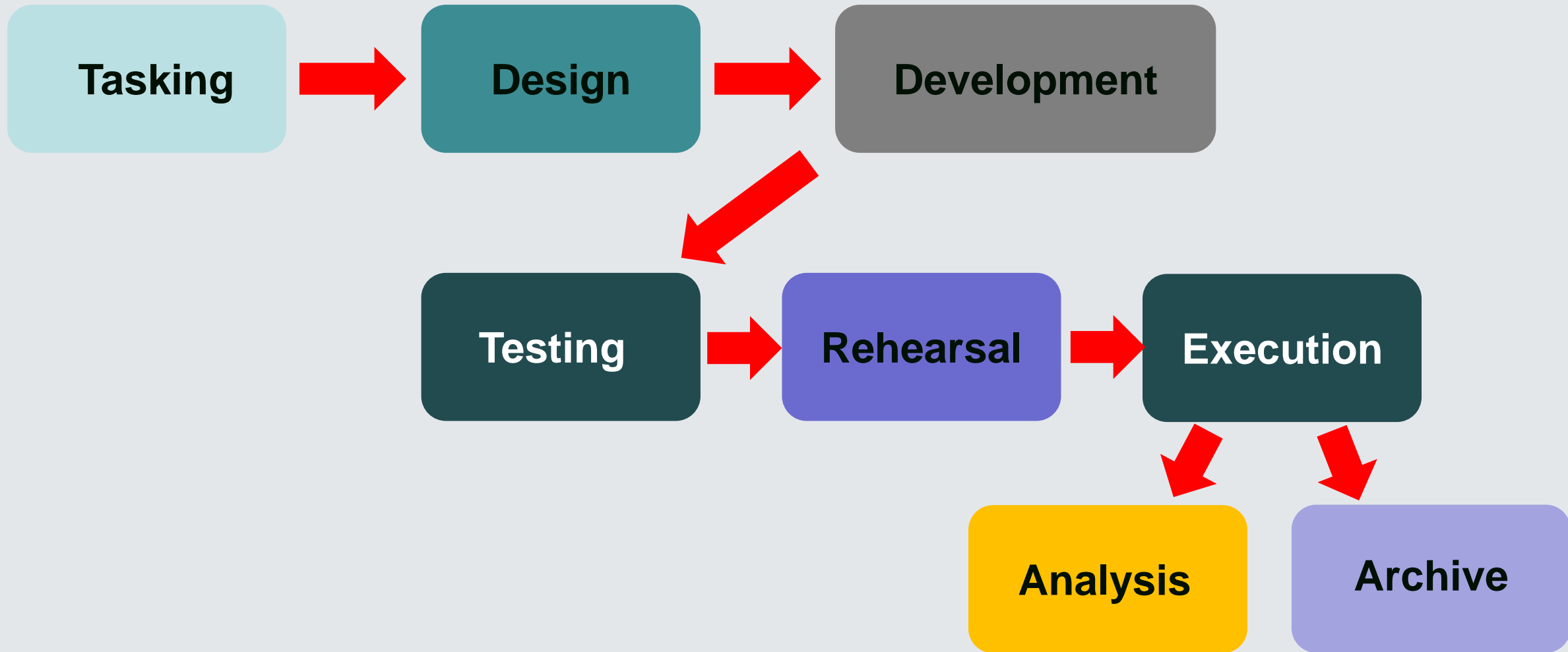- ❖ Concept Development
- ❖ Research
- ❖ Integration of Ideas into a Prototype
- ❖ Fleshing out the Prototype (adding the "chrome")
- ❖ First Draft of the Rules
- ❖ Game Development
- ❖ Blind-Testing
- ❖ Final Rules Edit
- ❖ Production
- ❖ Feedback

Fig: The Wargaming Process.

GAME PROJECT MANAGEMENT PROCESS

Tasking → Design → Development → Testing → Rehearsal → Execution → Analysis / Archive

TASKING PHASE

❖ The tasking phase is primarily about managing expectations, both of the sponsor (external) and the department (internal).

Starting Point: Game Request Letter Received. **(1.5 – 2 months)**
Transition: Game Proposal Approved/Initial Planning Conference

❖ In addition to being the lead for the entire project, the Game Director has primary responsibility for the tasking phase.

❖ Receipt of a sponsor request is the primary input in this phase while internal and external proposal documents form the key output.

❖ This tasking phase describes:

Initial Coordination with the Sponsor.

Identification of the Game Problem.

Identification of the Game Purpose.

Identification of the Game Objectives.

Articulation of Research Questions.

PPOR

TASKING PHASE (CONTD)

Initial Contact with the Sponsor.

❖ The tasking phase initiates with a request from a prospective game sponsor.

❖ Request may be received through formal or informal means. Formal game request means may consist of a letter to the Chairman of AWCN Governing Board and informal could be via emails or telephone.

Concept Development Conference.

❖ To better understand the nature of the sponsor's need, a CDC is held as soon as is practical with the sponsor.

❖ The CDC will help solidify the problem definitions, game purpose, initial objectives, and will identify initial assumptions and restraints.

TASKING PHASE (CONTD)

Problem Definition.

❖ An essential and challenging task completed in the tasking phase is working with the game sponsor to articulate the problem prompting the request for a game.

❖ A problem has been described as the difference btw what one sees and what one wants (Gause & Weinberg, 1989)………..Recall the components of a problem statement in your writing lab; ideal, reality and consequences. It is used to discern the root cause of undesirable symptoms.

Elements of a Problem Statement

❖ Description of the Problem Components.

❖ Identification of who may be affected by the Problem.

❖ The impact of the problem on those affected.

❖ Identification of benefits to Problem Solution.

❖ The game purpose, objectives, and all subsequent game actions should be mapped back to this problem.

> The integration of New Concept into land operations in a high-cbt intensity, has not been comprehensively exployed. Understanding the underlying problem prompting a wargame is essential, since a misidentified problem may lead to a game design unsuitable for answering the sponsor's underlying questions

TASKING PHASE (CONTD)

Purpose.

❖ Development of a clearly articulated problem statement informs identification of a game's broad purpose.

❖ The game purpose statement articulates why a game is being conducted, and is the guiding rationale for the entire game project management process.

> An example of a game purpose statement is, "this game will explore implications to the JTFLC's war fighting effectiveness when operating in a degraded C2 environment in order to inform the integration of xxx capability/concept into land operations".

❖ From the above purpose statement, understanding the possible impacts of JTFLC effectiveness after introduction of a new "xxx capability/concept" is the main reason for conducting the game.

❖ The game purpose statement helps the game team orient, prioritize and focus team efforts.

TASKING PHASE (CONTD)

Objective.

❖ Game objectives describe subordinate, intermediate goals that together result in achievement of the overall game purpose.

❖ Formulating game objectives is a critical, difficult, and iterative game project activity.

❖ Objectives are written as a statement.

❖ Creators of objective statements may be aided by the acronym SMART; specific, measurable, achievable, relevant, and time-bound.

An example of a game objective is, "identify the strengths and weaknesses of XYZ command and control structure during an anti-access, area-denial operation".

❖ Social science researchers use terms such as "central question" to describe the purpose, and research questions to describe subordinate questions related to the purpose (Creswell, 2009).

TASKING PHASE (CONTD)

Research Questions.

❖ Research questions are derived from the game objectives, and inquire about discrete facets of the broader game objectives.

❖ Development of research questions begins after game objectives are determined.

❖ Research questions influence data collection and game design, and can be both qualitative and quantitative.

❖ Quantitative questions often focus on **what type** questions, while qualitative questions focus on **why or how** type questions.

> An example of a quantitative research question is; what command and control structure is preferred by players according to xxx attributes?".

> An example of a qualitative research question is; why do players prefer ABC command and control structure over XYZ command and control structure?".

DESIGN PHASE

❖ The design phase begins with the game objectives and ends with a game design document – the blueprint of how the game will be organized and run.

> **Starting Point:** Game Proposal Approved/Initial Planning Conference. **(2.5 – 3 months)**
> **Transition**: Game Design Document with Draft DCAP, Adjudication Concept

❖ The design phase, led by the game designer, provides the backbone of the war game.

❖ The primary focus driving the design phase is creation of a game design document.

❖ All games are required to produce a game document which serves as a guide for the intended game and as a reference for future game designs.

Design Considerations

❖ Initial design concepts are exploed following the estb of a problem statement and initial discussion with the sponsor on game objectives.

❖ The game analyst and adjudicator mutually collaborate with the game designer in design deliberations.

❖ Design, analysis and adjudication are related, overlapping and integrated project tracks.

DESIGN PHASE (CONTD)

❖ Keeping the game design simple and straightforward facilitates participant comprehension.

❖ Simplicity in design may help one work through unanticipated problems during execution, while a complex design gone awry may be difficult to complete as envisioned.

It is very difficult to keep a game-design project simple. Once you get going, there are tremendous temptations to add this and that. A game design is a very dynamic activity. It soon acquires a life of its own, asking questions and providing parts of the answers. The game designer is solely tempted to go deeper.

Without some years of experience and a high degree of professional discipline, it is extremely difficult to do an unsimple game that is not a truly incomprehensible one. For a game is in addition to being a source of information, also a form of communication. If the information cannot be communicated, the game does not work. You have got to keep it simple.

(Dunnigan, 1992, p.114

DESIGN PHASE (CONTD)

Design Considerations (Contd)

Level of War.

❖ Design is also influenced by the selection of a strategic, operational, or tactical focus.

❖ The key is to ensure the level of war played in the game addresses the sated objectives.

Number of sides.

❖ While traditional war games have 2 opposing groups, characterised as sides in war gaming jargon, war games may involve just one-player groups or multiple-player groups, depending on the purpose and objectives of the game.

❖ One-sided games have no active player adversary, such as in the case of a sustainment game with the purpose of approximating replenishment rates.

❖ Another type of one-sided game is one in which a control cell represents aspects of an opponent's actions but with no intent to try to win. Such a design is used to promote participants learning.

DESIGN PHASE (CONTD)

Design Considerations (Contd)

Scenario.

❖ A game scenario is the scenic backdrop for a game, selected to serve the game's purpose and facilitate attainment of game objectives.

❖ A scenario should provide a plausible set of conditions and circumstances that contribute to a minimum level of believable acceptance of their role-playing responsibilities.

> For example, an educational, one-sided game intended to explore disaster response coordination btw Fed and State agencies could use a hurricane or flood scenario to provide a plausible backdrop to facilitate player interaction towards game objectives.

❖ Scenarios should include only the required degree of detail and complexity necessary to achieve game objectives

DESIGN PHASE (CONTD)

Design Considerations (Contd)

Level of Information Sharing.

❖ For multi-sided games, depending on game objectives, each side may be given different levels of information.

> For example, all players would receive general types of information, such as geography, or the year that the game developed, while other information, such as special capabilities, may be provided to one side only.

❖ Additionally, there may be some information deliberately withheld from all players and known only to the umpires, such as weather conditions, or international responses to player actions.

❖ Games where player information is reduced to only that which they would realistically receive is known as closed game. However, in open games, all players possess equal access to all information.

DESIGN PHASE (CONTD)

Design Considerations (Contd)

Adjudication.

❖ For multi-sided games, depending on game objectives, each side may be given different levels of information.

❖ Design consideration related to adjudication include selection of free, rigid, or semi-rigid adjudication methods.

Game Design Document.

❖ After consideration of the above noted items, the designer organizes these ideas into a game design document.

❖ The game design document serves as a blueprint for the remainder of the game creation process.

❖ Since planning for analysis and adjudication are part of game design, the game design document will include a DCAP, written by the game analyst, and an initial adjudication plan, written by the game adjudicator

DEVELOPMENT PHASE

Starting Point: Game Design Document/Draft DCAP   **(2.5 months)**
Transition: Game Products and Interfaces Complete and Functional

Game Development

❖ Development is about playability.

❖ The goal of the developer is to mold the designer's ideas into a refined process for the participants to be able to play the game.

❖ Game development is bringing the game concept to life, through a process of design refinement.

Building Game Components

DEVELOPMENT PHASE

Development Best Practices

❖ Play and study lots of different good games

❖ Development follows design

❖ Playtest (only way to know what really works)

❖ Minimize component density (impacts length of planning and adjudication)

❖ Minimize confusion (include short player aids with all major rules)

❖ Minimize set up time (hints on components, post game storage)

Building Game Components

Scan and Cut

Large Format Printer (40"+)

1" Plastic Tiles

1 cm Cubes 1" Cardboard Tiles

Laminator (w/5-10mm sheets)

Full Page Sticker/Label Sheets

Boxes

Wooden Blocks (12-24mm)

Pieces and Miniatures

Stackable Chips

3D Printer

Card Sleeves (66x91mm)

Dice (multiple sizes and colors)

"Arts and crafts" critical and (usually) time-consuming

TESTING PHASE

❖ The testing phase is about integration.

❖ At the end of the development phase, all of the individual pieces of the game have been identified, created, refined, and initially tested for functionality.

❖ The testing phase brings all of these pieces together.

❖ The game Director determines how much and what level of testing is required during the testing phase.

REHEARSAL PHASE

❖ The rehearsal phase contains practice sessions for the game.

❖ Rehearsals are a final opportunity to mentally prepare for one's duties in a game, hopefully improving individual performance during execution.

❖ Individual practice is the focus of the rehearsal and should only produce minor tweaks to in-cell timing and flow.

❖ The game Director is the lead for this phase.

EXECUTION PHASE

❖ Game execution commences when the first participant arrives for a game, and concludes when the last participant departs.

❖ The game execution phase includes all activities previously described in the rehearsal phase. The key difference btw the final rehearsal and game execution is the process of actual game participants, versus department-internal proxies.

ANALYSIS AND ARCHIVE PHASE

❖ After game completion, the sponsor receives a report summarizing what was learned in the game relative to game objectives.

❖ In order to provide meaningful results to the game sponsor, player data must be reviewed in a systematic manner.

❖ Analysis is the process of organizing, reviewing, distilling, and presenting player data in a useful format.

❖ By recording how games are designed, analyzed, and what is learned in games, we contribute to war gaming scholarship.

C0NCLUSION

THANK YOU FOR YOUR
RAPT ATTENTION