Executive Summary

1. **Problem Statement.**
   A. **Objective:** Determine what joint ISR assets best enhance the Multi Domain Task Force (MDTF)
   B. **Key Issues:**
      1) How are Intelligence, Surveillance, and Reconnaissance (ISR) capabilities enhanced within all domains, and which joint ISR/C2 capabilities augment the MDTF?
      2) How does the MDTF Defend against enemy capabilities to protect friendly ISR?
      3) What is the key/support terrain and infrastructure to maintain and ISR advantage?
   C. **Scenario.** The scenario involved a situation where ISR was stressed in the grey zone and in armed conflict.
      1) **Geographic region:** INDOPACOM AOR
      2) **Time:** 2022
      3) **Road to war:** 2022, a PRC fishing vessel was intercepted by Japanese Coast Guard ships. After non-compliance to the leave the area, the JPN Coast Guard rammed the PRC fishing vessel, boarded, and arrested the crew. The PRC fishing crew has been jailed for over a month and diplomatic relations are breaking down. Third party talks have taken place with the European Union to resolve the dispute. However, the PRC has increased civilian fishing and naval activity in the surrounding waters of the Senkaku Islands. INDOPACOM has issued deployment orders for the MDTF.

2. **Player Role List**. Wargame roles in the play included the Enemy Commander and the MDTF Commander. Each commander had support subject matter expertise on Joint systems to help inform their respective Courses of Action.
   A. **Player Role Objective(s)**. Enemy objectives are classified. MDTF commander objectives was to prevent the Enemy from achieving their objectives.
   B. **Available Resources**. The Enemy had access to classified material that details real world ISR infrastructure and employment of force considerations.
   C. **Relationships.** The red team represented a joint enemy force combined with military and civilian personnel. The blue force represented a deployed joint force with limited organic forces. As gameplay increased, the blue force acquires more forces representing a mock Time Phased Force Deployment Data.

3. **Wargame Description:**
   A. **Wargame Design**: The game was a hybrid format with mixed information. Primary objectives were open to both teams, but sub-objectives and critical information was kept closed to individual red and blue teams. The sub-objectives drove team's game strategy to achieve their primary objective.
   B. **Wargame Execution**: The purpose of this game is to identify the capabilities and limitations of ISR assets for both teams. Moves take place according to the sequence of gameplay and usually occur simultaneously. The key aspect of the game is the adjudication of what each team can see with their ISR assets. After each team moves their pieces, a "white cell" team tracks the moves and adjudicates which blue and red pieces are now visible to the opponent. Each team attempts to accomplish their objectives, or sub-objectives to the best of their ability with the information they have.
   C. The sequence of gameplay follows 5 phases:
      1) Place/Move ISR Assets (both teams)

         a) Strategic fires/cyber/EW capabilities (if necessary)

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      b)   Adjudicate ISR
2) Move Naval pieces (both teams)
      a)   Adjudicate ISR
3) Move Air pieces (both teams)
      a)   Adjudicate ISR
      b)   Adjudicate combat
4) Move Ground pieces (both teams)
5) Diplomatic communication/questions

4. **Methods, Models, and Tools (MMTs)**.

    A. **Adjudication**: Adjudication was conducted during each phase of gameplay. Each game piece had unique ISR acquisition capabilities based on SME input. Acquisition was indicated on the game piece and enabled players to strategically place pieces in unique positions for opponent identification. Each player had similar capabilities highlighting a near peer fight and forced opposing players to devise strategies around capabilities.

        1) When it came to combat adjudication, the white cell designed a computerized adjudication tool (CAT) based on probability of kill, probability of survival, and SME input. Additionally, players would provide their combat actions to the white cell and the white cell would input the action into the CAT, thereby populating the outcome of a "battle."

        2) For complex combat actions, the white cell used both the CAT and internal white cell discussions to determine the outcome of a "battle." This effort eliminated the CAT's probability of a lower capable game piece defeating a much superior game piece. While there are cases in which a lower capable piece could destroy a superior capable piece, the likely hood is small and additional factors would have to be considered to classify it as a win. The white cell would take these factors into account and judge them as necessary based on SME knowledge. E.g. a UAV armed with limited missiles destroys a naval aircraft carrier armed with 4th & 5th gen fighters and long-range air defenses.

            a) **Player Feedback/updates**: Players were provided immediate feedback and told what exactly happened during the combat adjudication. If the player had questions about the outcome, the white cell would tell them step by step the action the opposing player took to produce the outcome in question.

5. **Key Constraints, Limitations, and Assumptions.**

    A. **Constraints**: The wargame design team consisted of 3 students and was limited to 8 weeks.

        1) The design team consisted of three NPS students with a full academic schedule.

        2) Students spent the first 4 weeks learning how to design a wargame. The last 4 weeks were spent designing, playtesting, changing, and finalizing the wargame.

    B. **Limitations**. The secret classification and small wargame team increased the difficulty for research and coordination.

    C. **Assumptions**. Enemy composition and disposition provided by USARPAC to NPS would be the template start scenario for the red team.

6. **Findings.** The findings are classified. They include force structure recommendations, force employment recommendations to compliment the MDTF to better achieve A2AD effects.

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