

Global Competition: Planning Globally Integrated Operations

Lt General (Retired) Robert Elder Dr. Alexander H. Levis

September 2019



System Architectures Laboratory

This page intentionally blank

PLANNING GLOBALLY INTEGRATED OPERATIONS

Project Report for Strategic Multilayer Assessment (SMA): Future of Global Competition & Conflict (GCC)

This work was supported under Subcontract No D8413-S1 to George Mason University with funding provided by the Strategic Multilayer Assessment (SMA) office of the Department of Defense through U.S. Army Aviation and Missile Command, under Prime Contract No. W31P4Q-18-D-0002 Task Order No. W31P4Q18F0029 to the Georgia Institute of Technology.

Submitted to: Dr. Hriar Cabayan Strategic Multilayer Assessment Office The Pentagon Washington, DC Prepared by: Dr. Robert J. Elder, Lt Gen (USAF, Ret) System Architecture Lab George Mason University Fairfax, VA 22030 relder@gmu.edu

Table of Contents

| Abstract | 5 |
|--|----|
| Introduction | 6 |
| Strategic Risk Analysis | 9 |
| Technical Approach | 11 |
| Strategic Risk Computational Experiments | 17 |
| Observations | 20 |
| Conclusions and Recommendations | 24 |
| References | 25 |

Abstract

With support from GTRI, GMU worked with Strategic Multilayer Assessment (SMA) Subject Matter Experts (SMEs) to identify preferred, acceptable, and sustainable strategic outcomes for the U.S. and its partners. Decomposing these outcomes into causal effects and influencers served as a starting point to identify opportunities for Joint Force leaders and their inter-organizational partners to integrate military efforts and align military and non-military activities to avoid unacceptable strategic outcomes while pursuing U.S. national interests. A specific focus was to identify opportunities to counter competitorshaping activities (particularly China and Russia) that limit U.S. freedom of action. The approach was based on challenges outlined in the Joint Staff Globally Integrated Operations Concept document. Using TIN models, GMU found that comparing U.S. and competitor regional objectives and identifying those that are in conflict with one another were a good way to highlight likely areas of competition that could develop into crises. This approach was also found useful as a means to develop potential indications and warnings. Computational experiments highlighted that U.S. and partner activities in response (counter-shaping) to one competitor's actions can be easily misinterpreted by other competitors due to lack of context, as well as purposefully misinterpreted to use as leverage for their own counter-U.S. or counter-West campaigns. Finally, the experiments suggest that U.S. or partners taking actions to shape the environment as a prophylactic against competitor counter-west shaping activities has the potential to be misinterpreted which could create disturbances affecting regional stability and potentially lead to inadvertent escalation during periods of crisis.

1. Introduction

At the request of the Joint Staff J-39 and in collaboration with USEUCOM, USINDOPACOM, USCENTCOM, USSOCOM, the Services, Department of Homeland Security (DHS), Department of State (DOS), the Office of the Director of National Intelligence (ODNI), and NATO, the Joint Staff Strategic Multilayer Assessment (SMA) office initiated and effort to address the key question: How might the U.S. strategize to defend global interests across the spectrum of cooperation to competition and conflict through the coming decade?

Subject matter experts conducted a deep dive on the geopolitics of Chinese, Russian, and other emerging regional and non-state threats to better understand how actors view the parameters of cooperation, competition, and conflict, as well as the points at which information and deterrence activities may become escalatory. This included an examination of how the strategic communities in China, Russia, and key regional actors view U.S. motivations and decision-making.

SMA participants explored means to defend U.S. security, economic and influence interests in ways that are effective at an individual, state, and regional level, and that are complementary to U.S. global goals and objectives, including avoiding Chinese-Russian cooperation harmful to U.S. interests.

Today's operating environment presents the Department of Defense (DoD) with a difficult military challenge: develop a methodology, with associated capabilities, that enables the Joint Force to collaborate and synchronize with inter-organizational partners and conduct globally integrated operations to achieve acceptable and sustainable outcomes. Furthermore, any solution to the military challenge must account for several additional factors: the complexity of the environment; interactions with adaptive adversaries; the persistence of enduring competitions; trans-regional challenges; emerging patterns of competitions below the threshold of armed combat; and the challenge of integrating military activities within the DoD and aligning those activities with inter-organizational partners. (United States Joint Staff, 2018)

The overarching issue of Globally Integrated Operations is to defend U.S. global interests against activities across the spectrum of conflict that are intended to undercut those interests. The challenge for planners is to coordinate global activities and messaging to promote U.S. objectives and disrupt adversary objectives detrimental to the U.S. and its global partners. Today's threats have global reach, act with unity of effort, integrate globally across domains, operate without borders in the information domain, and are able to exploit U.S. organizational arrangements based on geographical boundaries which differ among the Department of Defense and other U.S. government agencies (Fig. 1).



Figure 1: A Globally Integrated Threat Environment (Joint Staff J2, 2018)

The Joint Staff J7 identified seven Globally Integrated Operations capability development goals (Stephenson, 2018):

- 1. Identify potential crises before they develop and manage escalation favorable to the U.S.
- 2. Identify and counter competitor shaping activities that limit U.S. freedom of action
- 3. Coordinate, synchronize, and de-conflict activities and messages across COCOMs and with DoD partners (U.S. and coalition)
- 4. Counter competitor influence messaging when adverse to U.S. objectives
- 5. Assess intent of adversary activities (and messaging) and respond where appropriate
- 6. Assess adversary assessment of U.S. and partner global activities and messages
- 7. Assess risk of potential U.S. and partner mitigation options

GMU used these goals to guide its Strategic Multilayer Assessment efforts. In order to address these issues, the research team conducted a number of activities, listed below, and further described in Sections 3 and 4.

- Proposed a decision calculus construct for use in assessing strategic risk (Section 2).
- 2. Developed a workflow process for operational planner use (Section 3).
- 3. Developed Timed Influence Net (TIN) models and conducted computational experiments to identify potential risks and opportunities for operational planners. (Section 4)
- Collected observations and insights (Section 5) and offered conclusions (Section 6).

2. Strategic Risk Analysis

In the past, operational planning has focused primarily on developing concepts to defeat a potential adversary militarily. However, such an approach does not always satisfy political requirements. The research team developed an alternative approach to influence the decision calculus of key regional actors based on the Deterrence Operations Joint Ops Concept (DO-JOC). Elements of this concept were adapted to assess potential U.S. strategic risk due to global competition (Fig. 2).



Figure 2. U.S. Global Competition Strategic Risk

The DO-JOC posits that an actor must make cost-benefit decisions to either conduct an adverse action or exercise restraint. The central idea of the DO-JOC is to decisively influence the adversary's decision-making calculus in order to prevent hostile actions against U.S. vital interests. This is the objective of joint operations designed to achieve deterrence. For purposes of this study, the central idea is to influence actor behaviors in a way that do not undermine U.S. strategic geopolitical interests.

Understanding how these factors are interrelated is critically important to determining how best to influence the decision-making calculus of adversaries. Success is not solely a function of whether adversaries perceive the costs of a given course of action (COA) as outweighing the benefits. Rather, adversaries weigh the perceived benefits and costs of a given course of action in the context of their perceived consequences of restraint or inaction. For example, deterrence can fail even when adversaries perceive the costs of acting as outweighing the benefits of acting if they believe the costs of inaction are even greater.

Joint military operations and activities traditionally contribute to the objective of deterrence by affecting the adversary's decision calculus elements in three ways: Deny benefits, impose costs, and encourage restraint. However, military capabilities can also enable other U.S. and partner instruments of power to be more effective. Collectively, the Department of Defense groups these capabilities together as "Unified Action" of which "Whole of Government" operations are a subset. Direct military means include force projection, active and passive defenses, global strike (nuclear, conventional, and non-kinetic), and strategic communication, i.e., the alignment of actions with intended message. This is often confused with communication strategy. Enabling means include global situational awareness (ISR), command and control (C2), forward presence, security cooperation and military integration and interoperability, and assessment, metrics, and experimentation. Additionally, military planners can be of great assistance to other parts of government by helping them analyze the mission, develop and assess courses of action, and model effects of actions.

The perceived benefits and costs of a given Course of Action (COA) to either conduct an adverse behavior (relative to another actor's perception) or to exercise restraint have two essential elements that influence adversary decision-making. First, each benefit and cost has some relative value to the adversary, (i.e., how much does he perceive he will gain by reaping a given benefit or how much does he perceive he will lose by incurring a particular cost). Second, each benefit and cost has a relative probability estimate associated with it in the mind of the adversary; i.e., how likely does he believe that he will reap a given benefit or incur a particular cost by acting or not acting.

One additional factor profoundly influences an adversary's decision calculus: his risktaking propensity. An adversary's risk-taking propensity affects the relationship between values and probabilities of benefits and costs when in the process of reaching a decision. Risk-averse adversaries will see very low probability but severe costs as a powerful deterrent, while risk acceptant adversaries will discount costs in their pursuit of significant gains.

Finally, an actor's decision calculus may be influenced by its perception of the other actors' decision calculus and the time he believes is available to reach a decision. It is important to note that perceptions are more important to an actor's decision calculus than the actual facts underlying these perceptions. Therefore, the conceptual model assumes that stability increases when the actors assess that each other's decision calculus will favor restraint over adverse action.

3. Technical Approach

The operational challenge is to coordinate global activities and messaging to promote U.S. objectives and disrupt adversary (China and Russia focus) objectives detrimental to the U.S. and its global partners. A workflow (see Fig. 3) was developed to assist operational planners as they worked to apply the decision calculus construct to either develop strategies to reduce the strategic, long-term risk of behaviors (effects) adverse to U.S. interests or to develop response plans for potential disturbances to global stability. The objective is to provide a framework for planners to examine a competitor's decision calculus from the competitor's perspective, particularly with respect to cost-benefit elements that are different from those that would influence national security decisions in the United States. This same framework was also used to develop the TIN Model. Note that while the framework depicts the United States and two competitors, it can be expanded reflect additional U.S. competitors. This approach works as long as none of the U.S. competitors feel threatened by shaping or response actions of the other U.S. competitors; however, should such a situation present itself, the framework and associated TIN model can accommodate such a relationship.



Figure 3. TIN Model Framework for China-USA-Russia Competition

The research team employed the TIN Model framework using the following steps:

- Identify U.S. objectives to be protected or advanced, and adversary objectives to be disrupted because they are detrimental to the U.S. and its global partners
- Identify potential U.S. and adversary shaping actions to achieve their respective objectives
- Identify potential U.S. and adversary response actions to each other's shaping actions and assess their impact on U.S. and adversary objectives
- Conduct experiments to assess effectiveness of possible U.S. and adversary courses of action
- Apply insights to inform Globally Integrated Operations planning (to achieve operational goals)

Although GMU employed a TIN Modeling tool to visualize and conduct computational experiments, operational planners can gain value from exercising the framework even when personnel familiar with using a TIN modeling tool are not available.

Using SME inputs for China and Russia (see list of References), and the National Defense Strategy, the following actor goals and objectives where employed in the Unclassified TIN model:

China Strategic Goal: Most powerful country in the world with China-led international order

- Global economic and trade leader
- Promote ideology across globe
- International socio-political leader (Chinese system)
- Regional security and economic hegemony
- Counter U.S. influence in Pacific and other Chinese areas of interest

Russia Strategic Goal: Restore the Russian Empire with Russia-led international order

- Central and Eastern Europe security hegemon
- Recognized global military power with favorable nuclear balance with respect to U.S.
- Expand Eurasia Economic Union
- International socio-political leader (balance of power politics)
- Counter U.S. freedom of action in Europe

U.S. Strategic Goal: Leader of free world – democracy, freedoms, equality, justice, capitalism

- Favorable U.S. balance of power in all regions security, economic, trade
- Atlantic and Pacific security Power
- Promote democratic and capitalism ideology
- US-led international order
- Pre-eminent global military power
- Counter Chinese socialist ideology across globe
- Counter Chinese influence in Northeast Asia
- Counter Russian influence in Europe

A critical first step is to examine the actor's objectives relative to the potential adverse behavior (Fig. 4). If alternative actor actions (behaviors) can be identified that support the actor's objectives but are more favorable to U.S. interests, one of these alternatives may offer a potential avenue to successfully influence the actor's decision calculus toward a more favorable behavior. The next step is challenging: It is important to analyze the actor's perception of the need to act based on the actor's perception of the USG's decision calculus. Does the actor see a need for preemptive action to counter a perceived threat from the U.S. or a U.S. partner based on normal shaping activities? How does the competitor perceive the USG's likelihood to exercise restraint in the face of domestic pressure for action that the competitor would find unfavorable following a U.S. response to a competitor's shaping actions? A complicating factor is that perception is often different from the reality which USG and partner planners intended. On the other hand, identifying the discrepancies between the competitor's perceptions and facts provide a useful foundation for designing the USG plan to favorably influence the competitor's decision calculus. It can also highlight areas for collaboration with partners whose own actions may be causing undesirable effects on the competitor's perceived need for action.



Figure 4: Global and Regional Sources of Competition

Armed with these insights, the planner now begins the process of analyzing the competitor's perceptions of the costs and benefits of executing the adverse behavior, not performing the adverse behavior, and if alternative behaviors have been identified, the same cost-benefit analyses of acting and not acting. The cost-benefit analysis for acting is similar to the traditional approach to deterrence which considers the potential U.S. and allied response and the likelihood of the action achieving the desired effect in the face of USG and partner efforts to deny the actor effective benefit from the action. The cost-benefit analysis for exercising restraint (not executing the adverse behavior) considers the response of the competitor's population, governing structures (particularly opposition leaders), the impact on relationships (diplomatic, economic, trade, military) with friends, and the perception of the target actor internationally.

Recalling that the planners started with effects (behaviors) that the USG considers to be adverse or a source of potential risk to U.S. interests and working back to identify sources of influence that could lead to this effect, the planners now identify potential USG activities that would influence the decision favorably, both steady-state shaping and engagement, as well as potential response actions to regional stability disturbances. Categorical lists of potential shaping, engagement, and response activities can be used to stimulate the planners imagination (Annex A).

The planners now can use traditional planning tools to develop and assess courses of action (COAs). The information compiled through the decision calculus workflow process can also be used to construct a Timed Influence Net model which enables the planners to graphically represent their analysis, assign conditional probabilities to the cause-effect relationships depicted throughout the model, and where appropriate, factor in the time required for a given cause to have its desired effect. The Timed Influence Net (TIN) model

was developed using the GMU/SAL Timed Influence Net tool "Pythia," which has been used in academic research for many years.

Several modeling techniques are used to relate actions to effects. With respect to effects on physical systems, engineering or physics based models have been developed that can predict the impact of various actions on systems and assess their vulnerabilities. When it comes to the cognitive belief and reasoning domain, engineering models are much less appropriate. The purpose of affecting the physical systems is to convince the leadership of an adversary to change its behavior, that is, to make decisions that it would not otherwise make. However, when an adversary in imbedded within a culture and depends upon elements of that culture for support, the effects of physical actions may influence not only the adversary, but the individuals and organizations within the culture that can choose to support, be neutral, or oppose the adversary. Thus, the effects on the physical systems influence the beliefs and the decision making of the adversary and the cultural environment in which the adversary operates. Because of the subjective nature of belief and reasoning, probabilistic modeling techniques such as Bayesian Nets and their influence net cousin have been applied to these types of problems. Models created using these techniques can relate actions to effects through probabilistic cause and effect relationships. Such probabilistic modeling techniques can be used to analyze how the actions affect the decision calculus of the adversary.

Influence Nets (IN) and their Timed Influence Nets (TIN) extension are abstractions of Probabilistic Belief Nets also called Bayesian Networks (BN) (Wagenhals et al., 2000, Wagenhals and Levis, 2001). BNs and TINs use a graph theoretic representation that shows the relationships between random variables. Influence Nets are directed acyclic Graphs where nodes in the graph represent random variables, while the edges between pairs of variables represent causal relationships. A key differences between Bayesian Networks and INs and TINs is that the letter two use CAST Logic (Wagenhals et al., 2001, Haider and Levis, 2005) a variant of Noisy-OR (Haider et al., 2006, Wagenhals and Levis, 2007), as a knowledge acquisition interface for eliciting conditional probability tables. The modeling of the causal relationships in TINs is accomplished by creating a series of cause and effect relationships between some desired effects and the set of actions that might impact their occurrence in the form of an acyclic graph. The actionable events in a TIN are drawn as root nodes (nodes without incoming edges). Generally, desired effects, or objectives the decision maker is interested in, are modeled as leaf nodes (nodes without outgoing edges). In some cases, internal nodes are also effects of interest. Typically, the root nodes are drawn as rectangles while the non-root nodes are drawn as rounded rectangles. Figure 5 shows a partially specified TIN. Nodes B and E represent the actionable events (root nodes) while node C represents the objective node (leaf node). The directed edge with an arrowhead between two nodes shows the parent node promoting the chances of a child node being true, while the roundhead edge shows the parent node inhibiting the chances of a child node being true. In Figure 5, there is a triplet associated with each link. The triplet is defined a (**h**, **g**, t). Parameter **h** is the influence that a parent node will have on the child node, if the parent node is TRUE. Parameter **g** is the influence the parent node will have on the child node if the parent node is FALSE. The third parameter, t, indicates the time delay associated with this link. For instance, event B, in Fig. 5, influences the occurrence of event A after 5 time units.



Fig 5: An Example Timed Influence Net (TIN).

The purpose of building a TIN is to evaluate and compare the performance of alternative courses of actions. The impact of a selected course of action on the desired effects is analyzed with the help of a probability profile. Consider the TIN shown in Fig. 5. Suppose the following input scenario is decided: actions B and E are taken at times 1 and 7, respectively. Because of the propagation delay associated with each arc, the influences of these actions impact event C over a period of time. As a result, the probability of C changes at different time instants. A probability profile draws these probabilities against the corresponding time line. The probability profile of event C is shown in Fig. 6.



Fig 6: Probability Profile for Node C

To construct and use a TIN to support the determination of courses of action to deter competition activities by an adversary, analysts and planners can employ the following process:

- 1. Determine the set of desired and undesired effects expressing each as declarative statement that can be either true or false. For each effect, define one or more observable indicators that the effect has or has not occurred.
- 2. Build an IN that links, through cause and effect relationships, potential actions to the desired and undesired effects. Note that this may require defining additional intermediate effects and their indicators.
- 3. Use the IN to compare different sets of actions in terms of the probability of achieving the desired effects and not causing the undesired effects.
- 4. Transform the IN to a TIN by incorporating temporal information about the time the potential actions will occur and the delays associated with each of the arcs and nodes.

- 5. Use the TIN to experiment with different timings for the actions to identify the "best" COA based on the probability profiles that each candidate generates. Determine the time windows when observation assets may be able to observe key indicators so that assessment of progress can be made during COA execution.
- 6. Create a detailed execution plan to use the resources needed to carry out the COA and collect the information on the indicators.
- 7. Use the indicator data to assess progress toward achieving the desired effects.
- 8. Repeat steps 2 (or in some cases 1) through 7 as new understanding of the situation is obtained.

To analyze the TIN (Step 5), the analyst selects the nodes that represent the effects of interest and generates probability profiles for these nodes, and then compares the probability profiles for the different courses of action under consideration.

4. Strategic Risk Computational Experiments

The basic TIN model developed for this assessment is depicted below (Fig. 7) and also at Annex B. With this, planners could conduct computational experiments to evaluate and compare their proposed courses of action. In the case of this assessment, the TIN model was used to observe the effects of different courses of action on achievement of combined actor goals based on the previously identified globally integrated ops concept objectives. Subject matter experts served as the source of data used to construct the model.



Figure 7. China-USA-Russia Strategic Risk TIN Model

The team conducted a series of computational experiments to observe the impact of China, Russia, and U.S. actions on the other actors' core objectives, as well as assessing their combined effect, which when compared with each individual effect, provides an indication of both global stability, and U.S. stability relative to each region.

Proactive China Course of Action Experiment

For example, the proactive China probability profile (Fig. 8) illustrates the effect of China exercising a course of action designed to limit U.S. global political influence, contain U.S. global freedom of action, and dominate the international economy, while the U.S. conducts actions to preserve its military advantage.



Figure 8: Proactive China Probability Profile

Proactive Russia Course of Action Experiment

The effect of an aggressive Russian course of action is evident in the Russia probability profile (Fig. 9). In this example, Russia took actions to alter its nuclear balance with the U.S., undermine U.S. relationships with Russian border states, challenge U.S. freedom of action in Central Europe, re-establish control in former Russian empire states, stimulate Russian economy at expense of West, expand the Russia-led Eurasia economic union, expand the Russian social order to adjacent states, and control the global social and economic messaging.



Proactive Russia Course of Action (time):

- Undermine U.S. relationships with Russian border states (0)
- Challenge U.S. freedom of action in Central Europe (3)
- Re-establish control in former Russian empire states (3)
- Expand the Russian social order to adjacent states (3)
- Stimulate Russian economy at expense of West (5)
- Expand the Russia-led Eurasia economic union (5)
- Control global social and economic messaging (7)
- Alter nuclear balance with the U.S. (7)

Figure 9: Proactive Russia Probability Profile

Proactive United States Course of Action and China Response Experiment

In the last example chart (Fig. 10), the probability profile for a proactive U.S. and a possible Chinese response is depicted. In this case, the U.S. acts to preserve its military advantage relative to China, limit China's Northeast Asia (NEA) security role, limit China's access to the U.S. information environment, expand U.S. social order to China clients, contain Chinese influence in NEA, stimulate the U.S. economy with counter-China policies, and expand western socio-economic order to China clients. In response, China acts to contain U.S. global freedom of action, serve as NEA's sole regional security guarantor, and expand its social order across the region.



Proactive U.S. Course of Action (time):

- U.S. preserves its military advantage relative to China (0)
- Limits China's Northeast Asia (NEA) security role (3)
- Limit China's access to the U.S. information environment (3)
- Expand U.S. social order to China clients (3)
- Contain Chinese influence in NEA (3)
- Stimulate the U.S. economy with counter-China policies (5)
- Expand western socio-economic order to China clients (7)

China Response (time)

- Contain U.S. global freedom of action (11)
- Serve as NEA's sole regional security guarantor (11)
- Expand China social order across the region (13)

Figure 10: Proactive United States and China Response

5. Observations

The GMU TIN model efforts focused on providing support to operational planners in support of Globally Integrated Ops objectives at the Strategic level, but could be adapted to inform operational and tactical-level decisions. Initial insights aligned to each of the Globally Integrated Ops objectives follow:

Objective: Identify potential crises before they develop and manage escalation favorable to the U.S.

The TIN model does not identify potential crises but does suggest areas where U.S. and partner actions may disturb stability among actors operating in a region,. Any disturbance to stability has the potential to develop into a crisis unless the escalation can be managed.

The model framework can also be used to identify possibly nefarious intent of competitor actions, and then the model can be used to develop response courses of action to mitigate the unfavorable effects of the action or identify the need to conduct further investigation.

Objective: Identify and counter competitor-shaping activities that limit U.S. freedom of action

The global competitor strategic risk model was used to inform analyst assessments of possible competitor shaping activities that may be designed to limit U.S. strategic options. A different model could be effective at identifying activities designed to limit U.S. freedom of action at the operational or tactical level.

Computational experiments supported the assessment of subject matter experts that China operates strategically, while Russia instead postures to exploit opportunities.

Objective: Coordinate, synchronize, and de-conflict activities and messages across COCOMs (as they affect Russia and China) and examine opportunities to extend this coordination to DoD partners (U.S. and coalition)

The model does assist analysts and planners to identify potential unintended consequences of activities and messages directed toward any of the model actors (China, Russia, or U.S. domestic).

Since the activities of multiple U.S. and partner agencies must be coordinated to provide synchronization and de-confliction, but no definitive leader has been designated, it is difficult for the U.S. to shape the environment and respond to aggressive competitors (such as China and Russia) effectively.

For similar reasons, it is also relatively easy for U.S. competitors to identify and exploit seams in U.S. and its partners' lines of effort.

Use of the model framework can identify situations where actions and messages intended for one actor could be misinterpreted (even purposely) by other actors.

Objective: Counter competitor influence messaging when adverse to U.S. objectives

The competitor influence messaging objective relates to competitor influence on third party actors. Due to the focus of the subject matter experts participating in this Strategic Multilayer Assessment, the current model reflects only China, Russia, and the United States. However, the model has been designed to allow additional actors to be added in the future.

Objective: Assess intent of adversary activities (and messaging) and respond where appropriate

Although not able to assess intent, the model does offer opportunities to consider the value and effects of U.S. response activities designed to counter competitor shaping courses of action.

These counter-shaping responses can be formulated to act as probes to help determine if the activities are intended to be nefarious relative to U.S. and partner objectives.

Experimentation suggests that treating competitor activities as "worst case" and conducting activities or messaging to mitigate potential "worst case" intent may be a useful approach for planners to consider.

Objective: Assess adversary assessment of U.S. and partner global activities and messages

The model as built reflects the competitor strategic risk framework, which is based on each competitor assessing U.S. and partner activities and messages from their own perspective. Based on SME inputs, the model assumes that competitors believe that the U.S. and its partners are actively working to undermine their governments politically, militarily, economically, and socially.

The experiments suggest that U.S. and partner response activities directed at one competitor, whether countering that competitor's shaping activity or that competitor's response to a U.S. shaping activity, are often misinterpreted by other competitors due to lack of context. Although not specifically modeled, from the competitor strategic risk framework it is clear that competitors can purposely misinterpret U.S. activities, even when targeted to a different actor, to use as leverage for their own campaigns to counter the United States or its partners.

Objective: Assess risk of potential U.S. and partner mitigation options

From use of the competitor strategic risk model, risk of the U.S. and/or its partners taking actions to shape the environment as a prophylactic against competitor counter-west shaping activities is the potential for the U.S. shaping actions to be misinterpreted and cause an unintended disturbance to stability. The disturbance can lead to escalation resulting in crisis. The potential for escalation from disturbance to crisis also holds true for U.S. and partner counter-shaping actions in response to a competitor's activities.

On the other hand, the risks of not taking mitigation actions are: (1) Allowing the competitor an advantage (political, military, or social) which prevent the U.S. and partners from later responding in a non-escalatory manner. (2) Allowing the competitor to take

action without response implies concurrence and the potential establishment of a new "normal" for future competitor activities

Objective: Inform exercise and message dynamic force employment courses of action (COAs) to achieve Globally Integrated Ops objectives

Dynamic Force Employment (DFE) provides the SECDEF, Chairman, and affected Combatant Commanders (CCDRs) the means to counter nefarious (or potentially nefarious) competitor activities more rapidly and with greater flexibility. It also creates uncertainty on the part of the competitor that it can act without fear of a U.S. response.

As a result, proper messaging of exercise DFE activities can serve as an effective deterrent against opportunistic competitor actions when the U.S. or partners are engaged in military activities in other parts of the world, which in the past, would have made a timely U.S. response to competitive activity unlikely.

There is an opportunity for planners to send a powerful signal of commitment with low risk of escalation and relatively low cost by rapid deploying or pre-positioning "non-threatening" platforms—such as JSTARS, Rivet Joint, Compass Call, naval groups, and mobility aircraft--to areas of concern.

6. Conclusions and Recommendations

Comparing U.S. and competitor regional objectives and identifying those that are in conflict with one another highlight likely areas of competition that could develop into crises. Analysts can decompose these potential areas of competition for use in developing indications and warning for monitoring purposes. Examples of competition include activities that advance competitor political, economic, and social systems, increase regional influence, promote acceptance as a regional security guarantor, or counter U.S. objectives in a region. Operational planning teams can employ a similar approach to anticipate shaping strategies that the competitor might employ to limit U.S. freedom of action in a region. Operational planners can use these predicted strategies in the development of proactive plans to counter competitor activities in non-escalatory ways.

The U.S. and its partners do not conduct activities under a single leader: Competitors can easily identify seams in U.S. and partner lines of effort. Globally Integrated Ops (GIO) addresses this problem through use of a "conductor" to coordinate integrated campaign planning and manage Dynamic Force Employment. This makes it more difficult for competitors to exploit seams to their advantage. Since the activities of multiple U.S. and partner agencies must be coordinated to provide synchronization and de-confliction, unless there is clear agreement that the U.S. will lead the effort, it is difficult for the U.S. to shape the environment and respond to aggressive competitors (such as China and Russia) effectively. In working with the Air Force and Joint Staff during this assessment, researchers found that the Joint Staff's Globally Integrated Operations (GIO) Concept is a useful approach to coordinate regional strategies and reduce this problem, at least across U.S. military combatant commands.

Since it is often difficult to assess the true intent behind a competitor's activities, planners can develop strategies based on their worst-case assessment. Where the worst-case effect would undermine U.S. objectives in a region, planners can develop shaping strategies to mitigate the potential nefarious effects of the competitor's actions and develop response plans to counter the competitor strategies when they are no longer ambiguous.

U.S. and partner counter-shaping activities in response to one competitor's actions can be easily misinterpreted by other competitors due to lack of context, as well as purposefully misinterpreted to use as leverage for their own counter-U.S. or counter-West campaigns.

Russia and China essentially have a single competitor--the U.S. and its partners--so they can conduct opportunistic activities much more easily. Furthermore, compared to the U.S. and its partners, very little planning and coordination is required.

The risk of the U.S. or its partners acting to shape the environment as a prophylactic against a competitor's counter-west shaping activities is the potential for misinterpretation by not only the targeted competitor, but potentially other competitors as well. Such misunderstandings can cause disturbances affecting regional stability and unless the U.S. and its partners manage these disturbances, they can potentially escalate into crises. However, a greater risk is to allow the competitor any advantage which would prevent the U.S. and its partners from later challenging a competitor's adverse behaviors or signal acceptance of a new "normal."

8. References

Joint Staff J2. (2018, October 30). Globally Integrated Operations. Retrieved from JCS: https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2018/globally_integrated_ops .pdf?ver=2018-10-30-085737-770

L. W. Wagenhals, I. S. (June 2000). Course of Action Development and Evaluation. Proceedings of 2000 Command and Control Research and Technology Symposium. Monterey, CA: Naval Postgraduate School.

L. W. Wagenhals, T. J. (June 2001). Course of Action Analysis for Coalition Operations. Proceedings of 6th International Symposium on Command and Control Research and Technology. Annapolis, MD.

Lee W. Wagenhals and A. H. Levis. (April 2007). Course of Action Analysis in a Cultural Landscape Using Influence Nets. Proceedings of IEEE Symposium On Computational Intelligence for Security and Defense Applications 2007. Honolulu.

Levis, L. W. (April 2001). Modeling Effects-Based Operations in Support of War Games. Proceedings of SPIE, Vol. 4367, Enabling Technologies for Simulation Science, V, A. F. Sisti & D. A. Trevisani, Eds.

Levis, S. H. (June 2005). Dynamic Influence Nets: An Extension of Timed Influence Nets for Modeling Dynamic Uncertain Situations. Proceedings of 10th International Command and Control Research and Technology Symposium. Washington.

NSI, Inc. (February 2019). Strategic Multilayer Assessment's Future of Global Competition & Conflict (GCC) China Panel Discussion. Washington: NSI, Inc.

NSI, Inc. (May 2019). Strategic Multilayer Assessment's Future of Global Competition & Conflict (GCC) China Panel Discussion. Washington: NSI, Inc.

Peter Pachowicz, L. W. (April 2007). Building and Analyzing Timed Influence Net Models with Internet-enabled Pythia. Proceedings. of SPIE, 2007 Defense and Security Symposium. Orlando.

Pierre, P. B.-C. (2019). Russian Challenges from Now into the Next Generation: A Geostrategic Primer. Washington: Institute for National Strategic Studies.

S. Haider and A. H. Levis. (2007). Effective Courses of Action Determination to Achieve Desired Effects. IEEE Trans. on Systems Man and Cybernetics – Part A, 37 (6) , 1140-1150.

S. Haider and A. H. Levis. (October 2008). Modeling Time-varying Uncertain Situations using Dynamic Influence Nets. International Journal of Approximate Reasoning, Vol. 49, No. 2, 488-502.

S. Haider, A. K. (2008). Identification of Best Set of Actions in Influence Nets. International Journal of Hybrid Intelligent Systems (IJHIS), vol. 5, No. 1, 19-29.

Spalding, D. R. (2019). Clash of Strategic Cultures. Washington: NSI, Inc.

Stephenson, M. R. (2018, November 28). Director, Office of Irregular Warfare, Joint Staff J7. (D. H. Cabayan, Interviewer)

United States Joint Staff. (2018). Joint Concept for Integrated Campaigning. Washington DC: Department of Defense.

Vera Zakem, P. S. (November 2015). Mobilizing Compatriots: Russia's Strategy, Tactics, and Influence in the Former Soviet Union. Washington: CNA Occasional White Paper.

Annex A: Potential USG and Partner Influencing Actions (Categories)

Shaping Activities

- Assist U.S. Citizens located abroad (promote U.S. civilian involvement)
- Strengthen regional relations
- Enhance Mutual Understanding
- Strengthen Democratic Systems
- Enhance U.S. regional Influence
- Inform International Public Opinion
- Strengthen security institutions of coalition partners
- Strengthen Terrorism Prevention & Response capabilities
- Gain/sustain access required to bring U.S. capabilities to bear in the region
- Support regional economic growth and development
- Encourage policies favoring open markets and free trade
- Assist international disaster relief operations
- Improve the quality and availability of formal education

Deter & Engage Activities

- Military Engagement
- Security Cooperation
- Deterrence (Competitors)
- Assurance (Partners)
- Regional Presence
- Global Force Projection demonstrations
- Regional military exercises
- Freedom of Navigation
- Global Information Engagement

Disturbance Response Activities

- Diplomatic Response Actions
- Armed Group Demobilization and Transformation Activities
- Military Security and Regional Stability Actions
- WMD Deterrence and Control Activities
- Internal Political Transition & Democratization Activities
- Humanitarian Assistance Activities
- Refugee Activities
- Counter-Terrorism Activities
- Demining and Unexploded Ordinance Removal Activities
- Contagious Disease Prevention Activities
- Infrastructure Restoration Activities

- Consequence Management Activities
- Public Security and Civil Order Activities
- Border Control Activities
- Civil Administration Restoration Activities
- Public Diplomacy and Education Activities
- Rule of Law Activities
- Counter-Corruption Activities
- Economic Rehabilitation Activities
- Employment Generation and Business Development Activities
- Civil Society and Community Rebuilding Activities
- Human Rights Abuses and War Crimes Activities
- National Reconciliation Activities



Annex B: China-USA-Russia Strategic Risk TIN Model

UNCLASSIFIED