

Strategic Deterrence Joint Operating Concept



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PREFACE

Why the concepts?

The future Joint Force will operate in a complex and uncertain global security environment in which adversaries seek to apply asymmetric threats to our perceived vulnerabilities. International organizations, nation states, rogue states, and terrorist organizations are prominent actors in this environment. Taken together, these have led to a shift in the characteristics of joint warfare and crisis resolution. By extension, the Joint Force's role in this security environment has changed.

What the concepts are

The Range of Military Operations (ROMO) identifies 43 activities for which the Joint Force must prepare. The ROMO reflects this changed security environment and is the foundation for the development of Joint Operations Concepts (JOpsC) – a strategic guidance document that identifies the future capabilities and modes of operation needed to realize the Chairman's vision of achieving Full Spectrum Dominance by the Joint Force. JOpsC serves two roles. First, the JOpsC is a concept paper that describes how the Joint Force is envisioned to operate in the next 15-20 years. Second, the JOpsC is the overarching concept for a new family of joint concepts that describes the attributes and capabilities that tomorrow's Joint Force requires. JOpsC helps guide the development of Joint Operating Concepts, Joint Functional Concepts, and Joint Experimentation, all designed to assist in the development of enhanced joint military capabilities needed to protect and advance U.S. interests.

What the concepts do

This new family of joint concepts will play a central role in the capabilities-based methodology for Joint Force development. This concept paper is an important extension of that effort. As you read and use this concept paper, it is important to understand its role in helping guide the Joint Force and enhancing joint warfighting capabilities – two of the Chairman's key strategic priorities.

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EXECUTIVE SUMMARY

*“To be prepared for war is the most effectual means to promote peace.”
George Washington*

Purpose and Scope

U.S. military forces have always played an important deterrent role throughout our country’s history. During the Cold War, deterrence expanded to become the military centerpiece of a successful grand strategy (containment) aimed at countering Soviet expansion. The opening years of the 21st Century, however, present many new and different challenges for our military deterrence efforts. As stated by the President, “Deterrence based only upon the threat of retaliation is less likely to work against leaders of rogue states more willing to take risks, gambling with the lives of their people, and the wealth of their nations . . . Traditional concepts of deterrence will not work against a terrorist whose avowed tactics are wanton destruction and the targeting of innocents; whose so called soldiers seek martyrdom in death and whose most potent protection is statelessness.”¹

Deterrence must remain a vibrant tool in support of our national leadership. Deterrence must now work in concert with the defense policy goals of assuring allies and friends, dissuading future military competition, and decisively defeating any adversary. Additionally, deterrence efforts must incorporate a reinvigorated homeland security posture and evolve with emerging concepts of major combat and stability operations to protect and further U.S. security interests.

These new challenges require a new concept for “waging” deterrence paired with revised joint force capabilities that together provide the President a wider range of military deterrent options. Strategic deterrence requires a national deterrence strategy that integrates and brings to bear all elements of national power: diplomatic, informational, military, and economic. The military component of that strategy involves strategic deterrence operations conducted in accordance with the joint operating concept presented here.

This Strategic Deterrence Joint Operating Concept (SD JOC) describes how Joint Force Commanders (JFCs) will plan, prepare, deploy, employ, and sustain a joint force to contribute to a strategic deterrence strategy set forth by national leadership through 2015. This in turn will help guide the transformation of the joint force. It will provide the basis for the development of integrated

¹ National Security Strategy, Sep 02, p. 15.

architectures and experimentation approaches that enable both analysis of future Joint Strategic Deterrence capabilities and further concept development.

Definition

Strategic Deterrence is defined as the prevention of adversary aggression or coercion threatening vital interests of the United States and/or our national survival. Strategic deterrence convinces adversaries not to take grievous courses of action by means of decisive influence over their decision making.

Enduring U.S. vital interests include: Maintaining the integrity of U.S. territory; preventing mass casualties at home and abroad; providing critical infrastructure protection (CIP) for our essential U.S. and international infrastructures (energy, telecommunications, water, essential services, etc.) that support our basic standard of living and economic viability; promoting democracy and free trade, and supporting the defense of U.S. allies. Because of the uncertain future security environment, specific vital interests may arise that are identified by senior national leadership. Strategic deterrence must be sufficiently robust and flexible to accommodate these changes if and when they occur. The broad view of strategic deterrence taken in this concept allows for this potential future expansion. The SD JOC also hedges against uncertainty by adopting a portfolio approach towards implementation.

The Military Problem: Today to 2015

The SD JOC addresses both near-term (today to 2010) and mid-term (2010 to 2015) international security environments. In the near-term, JFCs will be called on to pursue strategic deterrence objectives vis-à-vis both nation-states and non-state actors that possess a broad range of capabilities. Because of uncertainty regarding who, where, and when we might fight (and over what issues), JFCs will face a paradigm shift from optimized planning against specific adversaries to planning designed to address a wider spectrum of contingencies. Deterrence of both initial and escalatory use of weapons of mass destruction is especially important, as it will enable the JFC to fully leverage our advantages in conventional combined-arms operations. This includes deterring the transfer of WMD capabilities (i.e., counterproliferation) to terrorists determined to harm the U.S. and its interests.

Regardless of the shape of the post-2010 environment, strategic deterrence must continue to stabilize the global landscape by providing a permissive environment for pursuing constructive U.S. policy goals worldwide.² Beyond

² Conceptually, the aim of deterrence is to preserve a status quo condition. By itself, deterrence cannot achieve positive aims. However, successful deterrence sets conditions for other, positive actions to improve conditions and achieve desired endstates.

2010 our strategic deterrence success will depend in large part on how well we address key near and long(er)-term challenges:

Multiple, Less Well Understood Adversaries: For the foreseeable future, the United States will face an array of potential adversaries whose political, cultural, and idiosyncratic differences will complicate our efforts both to understand and to influence their perceptions for deterrent purposes. The increased potential for mutual miscalculation that can result must be taken into account.

Widely Varying Risk-Taking Propensity: A broad array of potential adversaries means that strategic deterrence must handle a similarly broad array of adversary risk-taking propensities. An adversary's risk-taking behavior can profoundly influence both his perception of a situation and the best means of influencing those perceptions.

Asymmetry of Stake vs. Power: Despite the fact the United States is almost certain to be more powerful than its adversaries in future strategic deterrence scenarios, some adversaries may perceive their stake in the outcome of the crisis/conflict to be great enough to disregard U.S. military superiority. This can undermine the effectiveness of strategic deterrence. The U.S. must address this challenge by providing the means of overcoming potential imbalances of stake and power to bolster the credibility of U.S. strategic deterrence efforts.

Technological Vulnerabilities of U.S. Society and Forces: Both the U.S. economy and U.S. military forces will use advanced technologies to enhance their competitive advantages. While this technological superiority yields tremendous capabilities, it also creates potential vulnerabilities that adversaries might exploit. Planners must address U.S. vulnerabilities, identify ways of eliminating them where feasible, and compensate for them when necessary.

Synopsis of the Central Idea: Ends, Ways, and Means

The central idea of the SD JOC is to exercise decisive influence over a potential adversary's strategic deterrence Center of Gravity: the decision-making calculus of key adversary decision-makers. The SD JOC outlines the "ways" and "means" by which the "end" of strategic deterrence is achieved through decisive influence over adversary decision-making.

An adversary's strategic deterrence decision calculus contains three primary elements:³

- Adversary perception of the benefits of a course of action
- Adversary perception of the costs of a course of action
- Adversary perception of the consequences of restraint (i.e., what will happen to them if they do not take the course of action)

The “ways” listed below are the tools for implementing effective strategic deterrence. These “ways” are closely linked in practice and often overlap in their application; however, it is useful to consider them conceptually separate for planning purposes. Success in these three areas implemented through joint military operations and activities contribute to the “end” of strategic deterrence by affecting the adversary's decision calculus elements:

- Denying Benefits
- Imposing Costs
- Inducing Adversary Restraint

Military strategic deterrence efforts must integrate all three “ways” across a variety of adversaries and deterrence objectives. These objectives may change over time and must be synchronized with the application of the other instruments of national power (economic, informational, diplomatic). Strategic deterrence “ways” are not “either/or” propositions. Rather, when properly leveraged to convince an adversary his best option is not taking a course of action aimed against U.S. vital interests, they are complementary and synergistic. Because the threats in 2015 will be increasingly transnational and/or transregional, these military strategic deterrence efforts may involve simultaneous actions by multiple JFCs worldwide.

The specific military “means” required to credibly deny benefits, impose costs, and induce adversary restraint will vary significantly from adversary to adversary, and situation to situation. These capabilities are widely spread across the Joint Force and are much broader and encompassing than those forces previously associated with implementing our Cold War-era strategic deterrence strategy. Some aspects of these military means may contribute more directly to warfighting (i.e., “defeat”) than deterrence. However, it is possible to identify key capabilities (and deterrence-related attributes of those capabilities) that must be planned for regardless of their warfighting utility.

³ This concept expands upon the Strategic Deterrence Analytical Framework Model presented in the 2002 Strategic Deterrence JWCA Final Report. For additional detail, reference Nagy, Sievers, Weaver, et al., “Understanding Deterrence – A Seesaw Model” (unpublished, 2003).

The military “means” of the SD JOC fall into two categories: those that directly and decisively influence an adversary’s decision calculus, and those that enable such decisive influence.

Enabling “means” include:

- Global Situational Awareness
- Command and Control
- Overseas Presence
- Allied/Coalition Military Cooperation and Integration

Direct “means” include:

- Force Projection
- Nuclear Strike Capabilities
- Active and Passive Defenses
- Global Strike
- Strategic Deterrence Information Operations
- Inducement Operations
- Space Control

The SD JOC describes how each of these “means” (capabilities and attributes) contributes to the “ways” of achieving the strategic deterrence “end”. It identifies how the joint force attributes identified in Joint Operations Concepts impact these capabilities. Additionally, the SD JOC calls out those attributes that are unique to strategic deterrence and successful implementation of this joint operating concept. Thus, each capability requirement identified is tied directly back to its role in joint strategic deterrence operations as envisioned in the SD JOC.

Application

The SD JOC outlines the “ways” and “means” necessary to achieve the “end” of strategic deterrence. It focuses strategic deterrence on the appropriate Center of Gravity: the adversary’s decision calculus. It describes how an adversary’s decision-making can be decisively influenced through denying benefits, imposing costs, and inducing adversary restraint. It identifies those capabilities and associated attributes required to exercise such decisive influence. Further, it proposes a means of evaluating the effectiveness of alternative strategic deterrence choices, making future experimentation and further concept development possible.

DETAILED DESCRIPTION

STATEMENT OF PURPOSE

Today's threats are far more diverse and less predictable than those of the past. States hostile to the United States and to our friends and allies have demonstrated their willingness to take high risks to achieve their goals, and are aggressively pursuing WMD and their means of delivery as critical tools in this effort. As a consequence, we require new methods of deterrence.

National Strategy to Combat Weapons of Mass Destruction, December 2002.

Introduction. In the current and future security environment, strategic deterrence must address a broader range of potential adversaries and situations than in any previous era of U.S. history. Future deterrent success will be heavily influenced by how potential adversaries perceive U.S. national will and resolve in the face of severe threats to ourselves and our allies. Thus, strategic deterrence requires a national deterrence strategy that integrates and brings to bear all elements of national power: diplomatic, information, military, and economic. The military component of that strategy involves strategic deterrence operations conducted in accordance with the Joint Operating Concept presented here. Such strategic deterrence operations must now work in concert with a reinvigorated homeland security posture and continuously evolving concepts of major combat and stability operations. These new strategic deterrence challenges require revised joint force capabilities that provide the President with a wider range of timely military options to discourage aggression or any form of military coercion against the United States or its vital interests.

Strategic Deterrence:⁴ The prevention of adversary aggression or coercion that threatens vital interests of the United States and/or our national survival. Strategic deterrence convinces adversaries not to take grievous courses of action by means of decisive influence over their decision making.

U.S. vital interests include: maintaining the integrity of U.S. territory; preserving basic political and societal integrity within the U.S; preventing mass

⁴ "Strategic" Deterrence is not currently defined in JP 1-02, *DoD Dictionary of Military and Associated Terms*. Deterrence is defined as "The prevention from action by fear of the consequences. Deterrence is a state of mind brought about by the existence of a credible threat of unacceptable counteraction." The word "strategic" is not currently defined in JP 1-02 as a standalone modifier. This joint operating concept intends to meaningfully deepen the Joint Force understanding of deterrence generally (as a national strategy) and of DoD military contributions to strategic deterrence in particular.

casualties among the U.S. population; securing critical U.S. and international infrastructures (energy, telecommunications, water, essential services, etc.) that support our basic standard of living and economic viability; and supporting the defense of U.S. allies. Because of the uncertain future security environment, additional vital interests may arise that are identified by senior national leadership. Strategic deterrence must be sufficiently robust and flexible to accommodate these changes if and when they occur. Flexibility in our strategic deterrence construct also hedges against the possibility that an adversary might incorrectly perceive their actions to be “below the radarscope” of U.S. resolve and response.

The ultimate purpose of the Strategic Deterrence Joint Operating Concept (SD JOC) is to help guide the transformation of the joint force. This concept will generate thought and discussion about new methods for waging strategic deterrence in response to current and emerging military threats. This concept will also provide the basis for military experiments and exercises. If validated, this joint operating concept will influence subsequent concept development and will lead to capability development efforts that could result in doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) changes. There are a number of capabilities and attributes derived from this joint operating concept unique to strategic deterrence.

In addition, because successful strategic deterrence requires many of the same credible capabilities needed to conduct military operations in accordance with other joint operating concepts—(Major Combat Operations, Stability Operations, Homeland Security, and eventually others) there is considerable overlap of capabilities and attributes with all of them.⁵ This joint operating concept highlights those overlaps that are critical to strategic deterrence, and illustrates how they are relevant to influencing an adversary’s decision-making regarding possible attacks that would threaten U.S. vital interests. This concept also highlights functional capabilities and attributes that are uniquely required for strategic deterrence to conduct operations in support of defense policy goals and national objectives.

⁵ Not all activities and functions conducted by the Joint Force support strategic deterrence. Some Joint Force capabilities exist that benefit the security of the U.S. through their warfighting application but may conflict with the strategic deterrence methods outlined herein. Additionally, some capabilities have complementary characteristics that support both deterrence and warfighting aims. Capabilities common to multiple joint operating concepts are noted throughout this document.

TIME FRAME, ASSUMPTIONS, AND RISKS

Time Frame.

The intended timeframe covered by this Strategic Deterrence JOC is 2015, including actions required between current-day through 2015 to meet the desired endstate.⁶

Assumptions.

- The deterrent strategies that restrained nations during the Cold War do not necessarily apply in all cases today and may not apply in 2015. Improperly-applied “lessons learned” could, if not repudiated, foster “negative training” within the joint force.
- Nearly all adversary decision-makers will act in accordance with the logic of rational self-interest. Self-interest, by definition, is viewed from the respective adversary’s cultural, religious, ideological, and personal perspective, often contrary to U.S. or western norms. For example, the perceived value of human life varies among cultures, influence groups, and organizations. Rewards for the elimination of those deemed “unworthy” (for cultural, religious, or ideological reasons) may motivate actions contrary to U.S. interests. Rational self-interest may involve internal organizational factors as well as external considerations.
- Because the perceptions and capabilities of potential adversaries vary, the specific military “means” required to credibly deny benefits, impose costs, and induce adversary restraint may vary significantly from adversary to adversary, and situation to situation.
- Some rational actors (both state and non-state) will be extremely difficult to deter, given their worldview and the resulting content of their decision-making calculus.⁷ Policy and related military options other than strategic deterrence will be required to deal with such rational but difficult to deter adversaries in the event strategic deterrence fails.
- Irrational actors are extremely rare. They may not be influenced by deterrence efforts and will require other methods to prevent or counter their actions. The capabilities required for successful strategic deterrence may support these other methods.
- Reliance on overwhelming U.S. conventional superiority (specifically, the ability to defeat adversaries through major combat operations) may not by itself provide effective strategic deterrence.

⁶ Although acquisition of some complex systems may not be feasible before 2015, many of the non-materiel organizing concepts discussed in this paper could be implemented readily.

⁷ Choice of U.S. policy objectives can significantly impact such actors’ perceptions as well, affecting the relative difficulty of strategic deterrence success.

- Third parties, both state and non-state actors, will learn lessons from deterrence successes and failures over time. These “lessons learned” may profoundly affect future U.S. strategic deterrence success.

Risks.

- Strategic deterrence effectiveness is critically dependent on adversary perceptions of U.S. national will and political resolve. DOD strategic deterrence efforts cannot be divorced from an overarching national strategic deterrence strategy.⁸ Events, circumstances, or decisions outside the purview of DOD could undermine the effectiveness of the joint operating concept.
- Adequate funding to procure, retain, or sustain DOD military strategic deterrence capabilities may not be available given the wide range of adversaries the U.S. will face through 2015. Specifically, military capabilities that contribute substantially to deterring state actors may not significantly deter non-state actors, or vice versa.
- While seeking the most efficient mix of capabilities, force developers must consider the possibility that adversaries may prove more capable and military operations may be more difficult than anticipated. The degree to which the U.S. is willing to accept such risks dictates the type and kinds of capabilities the Joint Force must procure, retain, and sustain to meet more demanding requirements.
- A strategic deterrence posture that relies solely on the threat of counterstrike may artificially constrain the range of available deterrent options. There exists a wide range of other U.S. military actions and activities that can contribute to decisive influence over an adversary’s decision-making (e.g., information operations, active and passive defense, etc.). In fact in some cases, an overwhelming U.S. offensive response may be exactly the result a potential adversary is counting on (e.g., an adversary’s martyrdom that ultimately furthers their cause elsewhere).
- U.S. ability to rapidly respond to adversary technological breakthroughs could atrophy from inadequate investment in innovative DOD and industrial research and development capabilities.
- U.S. overreliance on technology, if not balanced by a mature understanding of the fundamental human nature of war could become an “Achilles’ Heel”.
- Failure to expand strategic deterrence efforts to explicitly consider the defense policy goals of assurance and dissuasion could risk unilateral action by allies and friends to preserve their interests. Additionally, this

⁸ At the time of publication, no overarching national strategy or directive exists to integrate U.S. strategic deterrence efforts across the entire Executive branch of the Federal government.

could result in lost opportunities to influence an adversary's decision making prior to the point of crisis.

- Piecemeal development and application of military strategic deterrence efforts that fail to incorporate all instruments of national power may produce deterrence gaps with regard to trans-regional concerns and failed states, (e.g., ungoverned spaces and rogue states) where non-state actors might operate with impunity.
- Inadequate understanding of adversary perceptions and decision-making processes may promote mirror imaging on the part of the U.S., and lead to incorrect U.S. deterrent decisions.
- The U.S. could miscalculate regarding an adversary's reaction to our policies and actions, in spite of every effort to avoid such an outcome.
- The U.S. may be unable to determine what specific strategic deterrence actions or combination of actions deterred an adversary from a course of action that threatened U.S. vital interests, or even whether adversary restraint indicated deterrence success. This could hamper efforts to draw important "lessons learned" needed to enhance strategic deterrence operations in the future.
- Failure to recognize that strategic deterrence is dynamic could result in the U.S. adopting a static strategic deterrence posture in peacetime, modifying that posture only in response to severe crisis. Doing so would forgo a broad range of peacetime opportunities to influence potential adversaries' decision-making and shape the "deterrence battlefield", and could result in deterrence failure.

DESCRIPTION OF THE MILITARY PROBLEM

Political/Military Environment.

The military problem that the Strategic Deterrence Joint Operating Concept must address could change profoundly over the 2003-2015 timeframe. To reflect this potential for significant change, addressed in detail in various DOD documents including the National Security Strategy (NSS), the Quadrennial Defense Review (QDR), and Nuclear Posture Review (NPR), the following description of the political-military environment divides this timeframe into two periods. Significant change is not anticipated in the near-term period (present day-2010), but such change is possible in the mid-term period (2010-2015). The Strategic Deterrence Joint Operating Concept is explicitly designed to be effective across both periods, regardless of the potential for profound political-military uncertainty in the mid-term.

Near-term (present day-2010). The near-term global political-military environment (through 2010) is a complex web of regional, cultural, and political competitions and conflicts, marked by U.S. military preeminence. In this time frame no single state will be capable of engaging in a comprehensive,

global political-military competition with the United States. However, numerous threats to U.S. vital interests will persist through 2010, making the near-term political-military environment increasingly convoluted in terms of both the number of potential state and non-state adversaries and their interrelationships.

The potential remains for serious interstate conflict that could threaten U.S. vital interests in the Middle East, South Asia, and Northeast and East Asia. These interstate conflicts could involve one or more countries armed with nuclear weapons, or other weapons of mass destruction, and pose threats to the survival of U.S. allies and friends. During this period, the United States faces a complex international security environment in which strategic deterrence of nation-state threats plays an important, but not preeminent, role in U.S. national security policy. However, deterrence of both the initial and intra-war escalatory use of weapons of mass destruction will remain important since it enables the joint force to fully leverage our preeminence in large-scale, combined-arms operations.

The near-term security environment will also be marked by threats to U.S. vital interests posed by a variety of non-state actors, primarily in the form of transnational terrorism. The ongoing Global War on Terrorism is focused, first and foremost, on defeating Al Qaeda and associated terrorist organizations. Strategic deterrence has two roles in this effort. First, our deterrence efforts seek to deter additional terrorist organizations from joining forces with Al Qaeda in attacking U.S. vital interests; second, we seek to deter other nation-states from arming, aiding, or providing sanctuary to Al Qaeda and other transnational terrorist groups. In this regard, deterring the transfer of weapons of mass destruction and associated technologies/know-how to terrorists is of acute concern.

In this near-term period, crisis and conflict will primarily take the form of asymmetric struggles characterized by adversary attempts to exploit niche advantages against an otherwise dominant U.S. military. Because of uncertainty regarding who, where, and over which issues we might fight, JFCs will face a paradigm shift from optimized planning against well known, specific adversaries to more adaptive, capabilities-based planning, explicitly designed to cope with a wider spectrum of contingencies. Continued proliferation of WMD and associated delivery means, as well as the emergence of additional actors who are capable and willing to conduct other forms of asymmetric operations (e.g., commercial/private aircraft, maritime vessels, and other non-traditional weapons), underscore the need of U.S. joint forces to continue improving capabilities for power projection and homeland defense.

Mid-Term (2010-2015). In the mid-term period, it is exceedingly difficult to predict the nature and shape of the global political-military or economic

environments. Foreseeing the shape of longer-term international political alignments and power relationships is challenging. For example, the political-military environment of 1930 compared to 1950 (or 1980 to 2000) illustrates how radically the global security situation can change. Accurate projection of longer-term economic developments is equally difficult, and no less important, as economic strengths, weaknesses, and vulnerabilities shape international power balances and political relationships. For example, it is unclear how energy needs and access to water rights will impact the global economy in the 2010-2015 timeframe. Increasing demand for limited resources due to rapid economic development in major states such as China and India could worsen future security problems, creating international tensions that do not exist today. Alternatively, revolutionary advances in energy or desalinization technologies could make competition for resources a far less prominent source of international tension than it is today.

These difficulties in making accurate longer-term political and economic projections are exacerbated in the 21st Century by accelerating technological advancement capable of changing a nation's military capabilities or potential nearly overnight. The possibility for anomalous events or profound shocks to the international system may dramatically shift the relative power or strategic outlook of major actors. China could become a near-peer competitor. The long-term course of the Global War on Terrorism and the Arab-Israeli dispute will fundamentally shape the future of U.S. relations with the Islamic world. Increasing individual empowerment and association with transnational or nongovernmental interest groups may weaken traditional nation-state relationships and interactions.

While mid-term global political and economic trends are difficult to discern, analysis of mid-term capability trends is more manageable. These trends suggest we will face a world with one to three additional nuclear-capable states, and a substantial number of potential adversaries with WMD and missile delivery capabilities. Commercially available information and cyber services (many enabled through space systems) will provide an element of global reach for actors once limited to only exerting regional influence.

Successful near-term strategic deterrence may result in adversaries adopting new strategies based on lessons learned from the Global War on Terrorism and other recent and future U.S. military operations. These adversaries will continue to operate on the periphery of an asymmetric battleground narrowed significantly by an increasingly persistent and intrusive U.S. intelligence capability. Adversary anti-access and area denial strategies will proliferate. Failed states may increasingly serve as havens for training camps and bases of operations for hostile non-state actors. Increasingly effective U.S. ballistic missile defenses may force shifts in preferred adversary WMD delivery mechanisms. These adapted capabilities may include cruise missile or

unconventional delivery systems. The Homeland Security JOC addresses these threats that the U.S. may face in the future.

The proliferation of commercial dual-use technology, including the addition of satellite-assisted precision-guided weapons, will make this adaptation more feasible for a wider variety of potential adversaries. The emergence of Weapons of Mass Effect (WME)⁹ will leverage advanced technologies such as computer network attack or directed energy weapons to achieve objectives once attainable only via the use of WMD. Future “arms” races will focus on predicting the emergence of (and providing integrated plans for thwarting) next generation adversary capabilities. These capabilities may not be “military” in the traditional sense, but they will be enabled through the prevalence of Information Age technologies, organizations, and actors in societies of all levels of technological sophistication. Strategic deterrence must continue to stabilize the global landscape by providing a permissive environment for pursuing constructive U.S. policy goals worldwide.

Implications for Strategic Deterrence.

Both the near- and mid-term security environments described above are marked by characteristics having profound implications for U.S. strategic deterrence strategy and practice.

Multiple, Less Well Understood Adversaries: For the foreseeable future, the United States will continue to face an array of potential adversaries whose political, cultural, and idiosyncratic differences will complicate our efforts both to understand and to influence their perceptions for deterrent purposes. Not only are these potential adversaries less well understood, but they will almost certainly have problems understanding U.S. perceptions, commitments, and capabilities. This increases the likelihood of unilateral or mutual misperception, threatening to undercut strategic deterrence if not addressed through deterrence-focused intelligence efforts, effective information operations, and deterrence-enhancing transparency efforts.

Widely Varying Risk-Taking Propensity: A broad array of potential adversaries means that strategic deterrence must be capable of successfully handling a similarly broad array of adversary risk-taking propensities. An adversary’s risk-taking behavior can profoundly influence both his perception of a situation and the best means of influencing those perceptions. For example, the U.S. emerged from its Cold War experience with an unquestioned assumption that instilling uncertainty in an adversary’s mind (regarding how the U.S. would respond to deterrence failure) would enhance deterrence by complicating the

⁹ Weapons of Mass Effect are non-WMD capabilities that inflict widespread damage, disruption, and/or denial of material/non-material assets to include population. Some WMD effect mechanisms can also produce WME-like results.

adversary's decision-making. However, this assumption is only appropriate vis-à-vis adversaries who are relatively risk-averse. Risk-averse adversaries view uncertainty as a threat because it makes careful, prudent calculation difficult or impossible, thus increasing their risk. However, an adversary with a greater propensity to run risks might well perceive the same uncertainty as an opportunity to be exploited (rather than as a threat to be avoided). Strategic deterrence needs to be sufficiently flexible to address both risk-averse and risk-taking adversaries, and provide means to exploit both adversary characteristics to enhance overall deterrence.

Asymmetry of Stakes vs. Asymmetry of Power: U.S. military supremacy is not a guarantee of successful strategic deterrence. Despite the fact that the United States is almost certain to be militarily dominant over its adversaries in future strategic deterrence scenarios, those adversaries may believe that they have an asymmetrically higher stake in the outcome of the crisis or conflict. This asymmetry of stakes can undermine the effectiveness of strategic deterrence. If an adversary perceives that his stake in the confrontation is extremely high (e.g., regime preservation), while the U.S. stake in the crisis is not commensurate with the possible cost of U.S. military involvement, he may find the threat of U.S. military action non-credible. This asymmetry of stakes can also work in the opposite direction. If the U.S. alone perceives its own outcome stake is incommensurate with the potential costs of involvement or escalation, the result could be "self-deterrence".

The challenge for strategic deterrence is to find ways of overcoming potential imbalances of stakes versus power that bolster the credibility of U.S. capabilities and prevent self-deterrence. An example of this would be military capabilities that significantly enhance the ability of U.S. forces to limit the damage an adversary can do to U.S. and allied/coalition forces and populations. For instance, to deter adversary WMD use, this new approach would require the synergistic, integrated combination of active and passive defenses combined with the capability to effectively employ preemptive or responsive counterforce attacks. Through the reduction of potential conflict costs to the U.S. and its allies, these capabilities help mitigate the negative effects of an asymmetry of stakes that would threaten to undermine deterrence.

Vulnerabilities of U.S. Society and Forces: Both the U.S. economy and U.S. military forces are increasingly dependent on advanced technologies for their significant competitive advantages. While this technological superiority yields tremendous capabilities it also creates potential vulnerabilities that adversaries might exploit. Advanced computer network attack capabilities, capabilities to disable space systems, and electromagnetic pulse weapons could all provide adversaries means of undermining potentially decisive U.S. advantages. Both state and non-state actors will have significant abilities to conduct devastating covert attacks on the U.S. population, infrastructure, forces, and overseas

interests. Free and open societies are uniquely vulnerable to terrorist tactics. The diffusion of biotechnology may allow states and well-organized groups to develop devastating bio-engineered weapons. U.S. strategic deterrence strategy needs to take these potential U.S. vulnerabilities fully into account, eliminating them where feasible, and compensating for them when necessary.

SYNOPSIS OF THE CENTRAL IDEA

The Strategic Deterrence JOC describes how a JFC will plan, prepare, deploy, employ, and sustain a joint force to achieve strategic deterrence objectives set forth by the national leadership of the United States. In order to achieve these objectives (ends), joint forces must be able to employ various capabilities (means) to undertake operations and activities (ways) that can decisively influence the strategic deterrence center of gravity of potential adversaries: the decision-making calculus of key adversary decision-makers (see Figure 1).

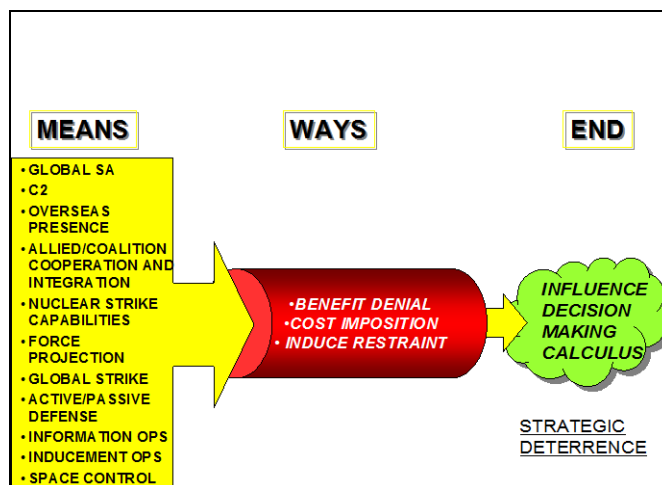


Figure 1: Strategic Deterrence Joint Operating Concept

Strategic Deterrence Center of Gravity: Decisively Influencing the Adversary's Decision Calculus to Achieve Deterrence (Ends)

Adversaries decide among alternative courses of action (COAs) based on their perception of the alternative outcomes that may result. They choose the course of action they believe will best serve their interests, as they perceive them. The objective of strategic deterrence is to convince potential adversaries that courses of action that threaten U.S. vital interests will result in outcomes that are decisively worse than they could achieve through alternative courses of action available to them. Strategic deterrence achieves this objective by decisively influencing an adversary's decision calculus.

An adversary's strategic deterrence decision calculus contains three primary variables or factors:¹⁰

1. The adversary's perception of the benefits of a COA
2. The adversary's perception of the costs of a COA
3. The adversary's perception of the consequences of restraint or inaction (i.e., what will happen to them if they do not take the COA in question)

Understanding how these factors are interrelated is critically important to determining how best to influence an adversary's decision-making calculus. Adversaries weigh the perceived benefits and costs of a given COA in the context of their perceived consequences of restraint or inaction. Deterrence success is not solely a function of whether an adversary perceives the costs of a given COA as outweighing the benefits.¹¹ The costs of taking the action must also exceed the expected consequences of not taking the COA in question. Otherwise, deterrence may fail because an adversary will choose to undertake his minimum-consequence alternative rather than take no action at all (our strategic deterrence aim).

As an example, the Japanese in World War II saw their loss of international stature, caused by the denial of access to raw materials to feed their industrial base, as a greater evil than a prolonged conflict with the U.S. This was despite the fact that numerous senior military leaders were well aware of the likelihood of ultimate defeat. For these reasons, the actions taken to induce adversary restraint may be comparable in importance to capabilities that impose cost or deny benefits.

The perceived benefits and costs of a given COA 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 will he gain by reaping a given benefit or how much will he lose by incurring a particular cost. Second, each benefit and cost has a relative probability estimate associated with it, i.e., how likely is it that he will reap a given benefit or incur a particular cost.

¹⁰ Adapted from the Strategic Deterrence Analytical Framework Model presented in the 2002 Strategic Deterrence JWCA Final Report. Additional model development (specific to SD JOC implementation) can be found in Nagy, Sievers, Weaver, et al., "Understanding Deterrence – A Seesaw Model" (unpublished, 2003).

¹¹ This is a stylized view of deterrence often associated with rational choice/expected utility deterrence models of the Cold War era. The SD JOC expands upon rational choice considerations and incorporates elements of prospect theory in its approach. See Chapter 2, "U.S. Regional Deterrence Strategies" by Watman and Wilkening, RAND Corporation, 1995.

One additional factor profoundly influences an adversary's decision calculus. 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. Therefore, national leadership and the JFC need to understand the adversary's risk-taking propensity before formulating a set of joint operations and activities designed to achieve effective strategic deterrence.

The central idea behind the Strategic Deterrence Joint Operating Concept is decisively influencing the adversary's strategic deterrence center of gravity, the decision-making calculus described above. This is the "end" or objective of joint operations designed to achieve strategic deterrence.

Methods to Achieve Strategic Deterrence (Ways)

Effectively exercising decisive influence over an adversary's decision-making calculus in peacetime, crisis, and in war to achieve deterrence is best achieved by integrated, systematic efforts.¹² A "portfolio" approach reduces the likelihood of deterrence failure (through misunderstanding or miscalculation) and decreases the severity of consequences should a failure occur. Joint force operations and activities must be synchronized with the exercise of other instruments of national power to produce effective deterrence. Thus, military staffs must be engaged in the interagency process. Strategic deterrence stretches from peacetime operations and activities designed to shape the conditions for peace or war, through crisis, armed conflict, escalation/de-escalation, war termination, and post-hostilities operations. While the primary focus of strategic deterrence will be a specific adversary's key decision-makers, there may be overlapping deterrence objectives vis-à-vis the same adversary. For example, strategic deterrence aimed against a regional adversary might seek to deter: the invasion of a U.S. ally; use of WMD at the outset of such an invasion (if the primary objective is not achieved); escalation to the use of WMD during subsequent phases of the conflict; and the adversary exporting WMD during the conflict. Additional strategic deterrence efforts aimed at other adversaries can also occur during a specific crisis or conflict. For example, in the regional war outlined above, measures intended to: 1) deter third parties from intervening in the conflict (or instigating a separate conflict) and 2) deter aggression by other regional adversaries could readily be taking place in combination with the strategic deterrence efforts aimed at the primary belligerent. Thus, strategic deterrence often spans both time (including the various situations of peace, crisis, and war) and geographic space encompassing multiple AORs simultaneously.

¹² For an illustrative example of systematic integration of these "ways" see Appendix A.

Effective strategic deterrence results from tailoring and orchestrating available ways and means to achieve specific ends. The “end” of a joint strategic deterrence effort is to achieve decisive influence over the adversary’s decision calculus. The “means” of a joint strategic deterrence effort are the panoply of military capabilities and activities under the control of the JFC in peacetime, crisis, and war. The “ways” of strategic deterrence efforts, however, form the heart of the Strategic Deterrence Joint Operating Concept.

There are three “ways” to exercise influence over an adversary’s decision-making calculus to achieve strategic deterrence. These “ways” are closely linked in practice and often overlap in their application; however, it is useful to consider them conceptually separate for planning purposes. The first is to credibly threaten to deny him the benefits or gains sought. The second is to credibly threaten to impose costs that are viewed as too painful to incur. The third is to induce adversary restraint by influencing his perception of what will happen to him if he does not act (his consequences of restraint).¹³

For maximum effectiveness, strategic deterrence must incorporate all three of these “ways” of deterring threats to U.S. vital interests in an integrated manner. These “ways” of strategic deterrence are not to be treated as “either/or” propositions. All three “ways” of strategic deterrence must be integrated in a mutually reinforcing manner to maximize our prospects of success across the full range of adversaries we may face. Both U.S. national deterrence strategy and the military component of that strategy (operations, activities, and capabilities governed by this Strategic Deterrence Joint Operating Concept) must present all potential adversaries (capable of posing a strategic threat to U.S. vital interests) with an overarching American strategic deterrence posture. That posture must convince adversary decision-makers that in taking an action the U.S. seeks to deter they will:

1. Fail to achieve their objectives/reap the benefits they seek
2. Incur severe costs that outweigh perceived benefits
3. Suffer a worse outcome than had they opted not to take the action the U.S. seeks to deter.

¹³ Costs and benefits, as described herein, may equate broadly to an adversary’s assessment of potential outcomes when considering a given course of action. This assessment can incorporate a wide range of political, economic, military, and even personal factors. Deterrence can be successful when the outcome of not taking an action is perceived as preferable (from the adversary’s perspective) when compared to the outcome of taking the action. The assessment associated with an adversary’s decision-making calculus includes not only his contentment with the current situation, but also his evaluation of his future prospects. See Watman and Wilkening, Chapter 2.

However, because the perceptions and resulting decision calculus of specific adversaries in specific circumstances are fundamentally different, our deterrence efforts must also be tailored in character and emphasis to address those differences.¹⁴

This Joint Operating Concept applies equally to deterring both state and non-state actors. Rational, human decision-makers choose among alternative COAs based on their perceptions of the potential outcomes that may result. However, there are likely to be profound differences in the content of state and non-state actors' decision-making calculations, differences that (in many cases) make non-state actors more difficult to deter, especially with the means traditionally used to deter state actor aggression.¹⁵ While there is considerable overlap of the specific means used to influence both state and non-state actor decision-making, there will be significant differences as well (see Figure 2, page 47, for applicability). Such differences are also called out in the capabilities section of this document, where appropriate.

In crafting U.S. strategic deterrence operations a careful balance must be struck between oversimplifying an adversary's decision calculus and imparting greater understanding of an adversary's calculus than is realistically achievable. Thus, a critical element of successful strategic deterrence operations is identifying and managing key uncertainties. Such uncertainties will always exist, and U.S. strategic deterrence operations must be planned and conducted so as to take these inevitable uncertainties into account.¹⁶

Key strategic deterrence uncertainties take two main forms. The first is U.S. uncertainty regarding key adversary perceptions, the core ingredient in an adversary's decision calculus. As an example, before the 9/11 attacks how did the al Qaeda leadership perceive the potential costs of carrying their terror campaign to U.S. territory? Such perceptions cannot be fully and unambiguously known with high confidence, and the extent of our uncertainty

¹⁴ Deterrence by Cost Imposition, Benefit Denial, and Inducing Adversary Restraint are presented as 'pure' types for illustration. Real-world applications must incorporate elements of all to varying degrees, depending on how each influences a given adversary's decision-making calculus. It is useful to consider the three 'ways' separately, however, when considering the required capabilities needed to implement each.

¹⁵ For example, non-state actors may: 1) see benefit in violent action in and of itself, 2) likely have few overt, high value assets to hold at risk, and 3) often perceive the continuation of the status quo as intolerably costly (as opposed to merely less desirable than achieving their objective).

¹⁶ While managing these uncertainties, strategic deterrence operations must also recognize the role Clausewitzian "friction" can play in deterrence failure. Our strategic deterrence efforts must seek to so decisively influence adversary decision-making that these frictional effects are overcome. However, friction could cause deterrence to fail despite our best efforts, necessitating combat operations to protect/further U.S. interests.

will vary significantly from adversary to adversary. However, considerable insight into the critical content of adversary decision calculations can be developed through dedicated intelligence collection and analytical effort. There is much room for improvement in this area. We may be unable to resolve some key uncertainties regarding adversary perceptions, but still be able to identify deterrence COAs that take such uncertainties into account. Our planning must explicitly recognize that it is critically important to determine what “we know we don’t know”.

The second form is adversary uncertainty regarding factors that critically influence their assessment of alternative COA outcomes. For example, a key uncertainty influencing Imperial Japanese calculations (regarding whether to attack the United States in 1941) was how the U.S. would respond. Again, our strategic deterrence operations must be developed and conducted with these adversary uncertainties in mind, increasing or reducing them as our deterrence strategy dictates.

Deterrence by Denying Benefits

Deterrence by denying benefits involves the threatened use of joint forces to convince an adversary that the benefits sought are of little value and/or are unlikely to be achieved by taking the COA the U.S. seeks to deter. Denying benefits can include both defensive and offensive capabilities and activities. For example, ballistic missile defenses that successfully shoot down adversary missiles are an example of an operational capability that helps provide deterrence by denying benefits. Another example is having the capability to sustain continuity of effective military operations in the midst or wake of a major enemy attack in the homeland (this capability is discussed under the “Emergency Preparedness” mission set in the Homeland Security JOC). Possession of this capability reduces the prospect that an adversary could cripple the U.S. ability to execute effective military operations. Offensive operations that contribute to deterrence by denying benefits include counterforce attacks on adversary WMD stocks and means of delivery that prevent him from achieving military gains through the procurement (or actual use) of WMD.

In circumstances marked by a pronounced asymmetry of stakes, and confrontation with highly risk-acceptant adversaries, denying benefits takes on increased importance due to the potential for such adversaries to discount the severity and/or the likelihood of the costs the U.S. might impose should the adversary undertake the proscribed act. This makes deterrence by denying benefits increasingly important in both the near-term and mid-term security environments discussed earlier.

Deterrence by Imposing Costs

Deterrence by cost imposition involves the use of joint forces to convince an adversary that the costs incurred (if he takes the COA the U.S. seeks to deter) will be severe--and there is high probability that the United States will impose these costs. Cost imposition includes the full array of traditional offensive operations associated with strategic deterrence during the Cold War. For example, U.S. nuclear forces will continue to play a unique role in enhancing strategic deterrence for the indefinite future. However, new forms of both offensive and defensive operations will also provide capabilities to impose high costs. Advanced information operations and direct action raids by special operations forces can impose costs that many potential adversaries would perceive to be unacceptable. These operations can be accomplished at modest cost to the United States. Highly precise, conventional strike systems targeted on highly-valued adversary assets can also achieve physical effects that are psychologically intimidating and qualitatively different than traditional conventional strike capabilities. These attacks can create a widespread sense of hopelessness, sanctuary denial, and demonstrated escalation dominance, while still limiting collateral damage. Missile and other active and passive defenses can serve to increase the perceived probability of severe responses by increasing the confidence of U.S. leaders in their ability to limit damage to the United States and its allies.

The key challenge to improving the effectiveness of deterrence by cost imposition is to overcome adversary perceptions that they can successfully deter the U.S. (or the U.S. will be self-deterred) from imposing severe costs. Improved offensive and defensive damage limitation capabilities for the U.S. homeland, U.S. allies, and forward-deployed U.S. forces are essential to addressing this challenge.

Deterrence by Inducing Adversary Restraint

Inducing adversary restraint is the “way” to influence an adversary’s decision calculus that is least amenable to military means. However, the JFC can achieve this effect under certain circumstances, and such deterrent measures should be considered if they are consistent with broader U.S. interests and war aims in a crisis or conflict. For example, U.S. joint doctrine might call for theater operations to be conducted in a manner that could inadvertently mislead an adversary about the nature of U.S. objectives in the conflict, or that might impose unintended severe costs on the adversary. Either of these circumstances could result in the adversary choosing to escalate a conflict that could have remained limited in scope and means. A JFC could alter the way in which his forces operate under such circumstances in order to avoid making undesirable adversary escalation the adversary’s “least bad alternative”. It is

crucial that these mitigation actions are clearly communicated to (and understood by) the adversary and other third parties to the conflict.

In some scenarios the nature of U.S. war aims will be fundamentally inconsistent with inducing adversary restraint. This is primarily true when overarching U.S. objectives conflict with the adversary's critical objectives, such as regime survival. In such instances, the role of strategic deterrence in an integrated U.S. strategy may be significantly diminished, or eliminated altogether. However, it may still be possible for the JFC to conduct inducement operations to sway adversaries below the primary decision-making level who can react positively to U.S. strategic deterrence efforts.

NECESSARY MILITARY CAPABILITIES AND ATTRIBUTES (MEANS)

Military strategic deterrence capabilities are the "means" by which the JFC implements the overarching joint operating concept. These capabilities must be effective against a range of potential adversaries across a multitude of scenarios, including both state and non-state actors. These capabilities must be sufficiently credible to deter any adversary through their perceived utility and usability. Successful strategic deterrence requires the capability impact be visible to the adversary and be perceived as implementing an unequivocal national will to protect and further U.S. vital interests. The ability to communicate this resolve and associated deterrent capabilities in a tailored way to individual adversary decision-makers is vital. Coalition support should be integrated, when available, to enhance deterrence credibility, but strategic deterrence also must be viable as a unilateral strategy.

Consequently, future U.S. joint forces must be capable of successfully carrying out denial and cost imposition operations and of providing unmistakable signals of national resolve to a wide range of potential adversaries. This means U.S. joint forces must be able to defend against unprovoked attack, provide responsive global delivery of intended cost imposition effects, and possess the clear-cut ability to combine these capabilities to dominate an escalating conflict. Should deterrence fail, these forces must provide a seamless transition in support of major combat and/or homeland defense operations, as well as coexist with other major combat, homeland defense, and/or stability operations.

Direct capabilities required for strategic deterrence include the ability to carry out: force projection operations, including the capability to decisively defeat regional aggression; kinetic and non-kinetic Global Strike operations, including the possible employment of nuclear weapons; active and passive defense measures; strategic deterrence information operations; inducement operations; and space control operations. All of these efforts are enabled by global situational awareness, command and control, overseas presence, and

allied/coalition military cooperation and integration. Because these enabling capabilities underpin the more direct capabilities required for strategic deterrence, they are discussed first in this section.

Global Situational Awareness

Global situational awareness is the foundation of strategic deterrence and includes specific strategic deterrence intelligence efforts. Strategic deterrence intelligence takes two forms. The first is the underlying information regarding adversary decision-makers' perceptions of benefits, costs, and consequences of restraint on which deterrence operations are based. The second is the operational intelligence information about adversary assets, capabilities, and vulnerabilities required to conduct credible and effective deterrence operations.

Improved understanding of adversary decision-makers' value structures and perceptions (beyond what is typically provided to U.S. decision-makers today) enhances our ability to tailor deterrence operations against each potential foe under varying scenario conditions. The JFC, supported by the national intelligence community, must identify and profile adversary decision-makers to identify adversary value structures, as well as the decision-making structures and processes in which adversary decision-makers interact. Data already existing in numerous military, agency and allied/coalition databases must be mined and analyzed for its deterrence value. The ability to translate foreign language information (electronic or hardcopy) in near-real time is needed to improve our understanding of diverse adversaries. Because strategic deterrence is a full spectrum campaign conducted predominantly in peacetime, many crucial elements necessary to fully characterize potential adversaries need to be given a higher collection priority than has been traditionally associated with non-crisis periods.

The ultimate goal of this information collection and analysis is to develop actor-specific analyses of adversary decision-making that describe an adversary's values, culture, decision calculus, risk propensity, and capacity for situational awareness to the maximum extent possible. These ISR efforts also seek to identify the adversary's potential attack means (that our forces will seek to deny success) and the most appropriate targets to be attacked (to deliver on deterrent cost imposition threats). Interagency cooperation will be a key to achieving success in these efforts. It will require creation of a collaborative environment that incorporates intelligence community, diplomatic, law enforcement, armed service, and multinational inputs to achieve true global situational awareness for strategic deterrence.

Effective and credible strategic deterrence operations will also require specific enabling improvements in our global situational awareness regarding key adversary assets and capabilities. Assets (military, economic, social, etc.)

highly valued by adversary leaders will need to be identified, catalogued, targeted, weaponized, and maintained in digital format readily available for strike planning. Where information gaps exist, full-spectrum ISR will seek to provide persistent surveillance of leadership figures, facilities, proliferation mechanisms and high-value forces, and do so in the face of increasingly sophisticated adversary denial and deception efforts. ISR efforts must be persistent across time, be seamless across key geographic regions, take advantage of the most capable collection platforms, gather data across the information spectrum (from human sources to the most sophisticated technical means available) and benefit from cooperation and timely cross-cueing of national agency, overhead and sensitive reconnaissance assets. Human intelligence must focus on gaining access and insights into the most difficult "targets," e.g., terrorist cells, hard and deeply buried targets, closed regimes, WMD/E weapons development efforts, and deployment plans. Effective human intelligence will enable better positioning of technical collection systems. Human intelligence reporting must be integrated into situational awareness displays that provide joint forces with battlespace visualization. Once cued on a foreign 'target' of interest, seamless machine-to-machine interfaces amongst technical collection systems will help ensure no activity of interest goes unnoticed or unanalyzed.

Because WMD/E play such an important role in adversary strategies, our ability to identify their location, specific nature, origin, ownership, supporting capabilities, or the source of their employment is crucial for strategic deterrence. WMD/E attribution is particularly important for deterring state sponsorship of WMD/E terrorism and some covert attacks by nation-states. Technical capabilities to support attribution are required for nuclear, chemical, biological, radiological and explosive weapons as well as attacks on space systems and computer networks.

Successful strategic deterrence also requires much improved understanding of our own capabilities, limitations, and current situation (blue force tracking and force status, to include our allies and interagency partners). Such understanding can be achieved by exploiting shared information, shared awareness, and shared understanding of the situation across a networked infrastructure by means of a collaborative information environment. Highly networked forces will increase the commander's flexibility to substitute widely varying types of forces or capabilities to achieve the same deterrence value.

Contributions to Denying Benefits: Strategic deterrence intelligence on adversaries' perceptions will identify the key benefits adversaries may seek from courses of action we intend to deter. Additionally, this intelligence will provide insights into how to convince them that the U.S. has the capability and will to deny them those benefits with high confidence. Global situational awareness improves our ability to defeat adversaries' critical capabilities and

operations. An example would be U.S. global situational awareness sufficient to convince an adversary that his chances of achieving the strategic or tactical surprise he deems necessary are extremely low.

Contributions to Imposing Costs: Strategic deterrence intelligence on adversaries' perceptions will identify the key costs adversaries fear, and provide insights into how to convince them it is highly likely that the U.S. can (and will) impose such costs. In the face of increasingly sophisticated adversary efforts to conceal and protect key assets and capabilities from U.S. strike warfare operations, improved global situational awareness is absolutely essential to conducting credible cost imposition operations. This is a particularly acute strategic deterrence challenge vis-à-vis holding adversary WMD/E and national leadership assets credibly at risk. Improved global situational awareness also reduces strategic or tactical surprise, thereby improving force survival. This increases the likelihood the U.S. will conduct preemptive or escalatory response options to impose costs on the adversary.

Contributions to Inducing Adversary Restraint: Global situational awareness capabilities can have two distinct impacts here. In the case of state actors, undetected escalation in the adversary's perception of the consequences of "being deterred" is the most likely cause of strategic deterrence failure. Therefore, accurate strategic deterrence intelligence (regarding an adversary's perceived consequences of his own restraint) throughout an unfolding crisis or conflict is required to induce adversary restraint. We cannot mitigate a critical adversary concern of which we are unaware, or that we underestimate. Second, global situational awareness provides the JFC with information regarding an adversary's ability to understand the current situation. This allows the JFC to shape U.S. operations so as to ensure they do not pose unintended threats to key adversary interests.

Command and Control

All capabilities supporting strategic deterrence rely on the existence of robust, reliable, secure, survivable, timely, unambiguous and sustainable DOD-wide command and control. A horizontally and vertically integrated distributed network is required to provide key leadership (e.g., President, Secretary of Defense, Chairman of the Joint Chiefs of Staff (CJCS), Combatant Commanders, Service Chiefs, and subordinate JFCs) with an effective command and control capability. This network must be resilient and provide for secure collaboration, and real-time decision making. It must support planning, tasking and dynamic control for the efficient conduct of strategic deterrence. This strategic capability requires a redundant system of multi-domain communications technologies to convince adversaries they cannot easily disrupt or deny U.S. command and control. The C2 system must provide secure, wideband communications that will degrade gracefully to a survivable

thin-line backbone--providing connectivity to decision-makers under the most severe circumstances. Additionally, senior U.S. leadership may require the ability to directly communicate with fielded forces or initiate weapons employment without support from intermediate levels of command.

In addition to physical C2 systems, today's organizational C2 constructs may prove inadequate for the Joint Force of 2015. Today's joint forces, operating in complex environments from over the horizon in situations with a high political-military context, must act in concert with the interagency and coalition partners. Addressing C2 process is as critical as more bandwidth, especially as increased bandwidth leads to increased quantities of data transmitted to diverse users. Today, dispersed groups across the DoD and interagency coordinate independent actions to achieve overall objectives, but not in a truly integrated fashion. National strategic unity of effort encompasses elements of national power beyond military force, to include diplomatic, information and economic tools. JFC mission accomplishment increasingly relies upon successful integration of enhanced joint, interagency and coalition capabilities outside his direct control. Therefore, JFCs must incorporate synchronized, collaborative decision-making and decision support environments with unique theater knowledge to leverage a shared Commander's Intent.¹⁷ Providing the "right" data to national decision-makers at the "right" time will allow for consistent unity of effort when implementing strategic deterrence activities.

Contributions to Denying Benefits: Without robust, reliable, secure, survivable, timely, unambiguous and sustainable C2 capabilities, an adversary might perceive a decisive asymmetric advantage in launching a surprise attack. This would permit him to attain his key benefits while U.S. forces were rendered temporarily incapable of counteraction or response. Therefore, C2 capabilities contribute to denying benefits by ensuring no adversary believes he can prevent U.S. forces from being brought to bear in the effective and timely manner intended by the American national leadership.

Contributions to Imposing Costs: Similarly, the C2 capabilities outlined above are an essential enabler of credible American threats to impose unacceptable costs on potential adversaries. If adversaries perceive an opportunity to significantly disrupt or delay a decisive American response to their aggression or coercion, they may convince themselves they can escape such a response altogether. In addition, such C2 capabilities are essential to make full, effective

¹⁷ The command and control requirements for conducting future Global Strike missions provide an example of this. Global Strike may lead to relationship changes between functional and regional combatant commanders to meet the overarching needs of national leadership. Successfully striking critical, time-sensitive, targets may require expedited coordination with the regional combatant commander in whose AOR the strike is being conducted. The solution to this command and control challenge must achieve a balance between the need for coordination and/or integration and the need for speed and security.

use of the global situational awareness capabilities described above to credibly impose carefully-tailored costs on the adversary.

Contributions to Inducing Adversary Restraint: Conducting operations that achieve U.S. objectives without inadvertently crossing key adversary thresholds requires sophisticated C2 capabilities to exploit global situational awareness. Convincing adversaries that U.S. war aims are limited (through exercise of positive C2), and that U.S. forces can rapidly transition to the pursuit of escalated war aims, is essential to inducing adversary restraint.

Overseas Presence

In 2015, strategic deterrence will continue to be enhanced by U.S. military capabilities resident in forward-stationed and forward-deployed multi-purpose combat and expeditionary forces across the globe. Our overseas presence demonstrates commitment to the defense of U.S. vital interests, in some cases ensuring that an attack on a U.S. ally will be an attack on U.S. forces as well. Overseas presence also enhances U.S. global situational awareness by providing forward-based ISR assets that significantly augment national technical means. Overseas presence is an enabler of both allied/coalition military cooperation and integration and force projection operations.

Contributions to Denying Benefits: Overseas presence of U.S. forces has several powerful impacts on adversary perceptions. It reduces the likelihood of an adversary achieving strategic or tactical surprise. It forestalls surprise attacks that may be costly for the U.S. to reverse by force. It also reduces the probability that U.S. allies will rapidly capitulate in the face of coercion or attack, making it more likely that they will fight and persevere alongside American forces. In those cases where a key adversary's benefit is the reduction or elimination of U.S. overseas presence (e.g., al Qaeda), the continued forward basing of U.S. forces in itself serves to convince the adversary (and/or potential supporters and recruits) that he cannot achieve his objectives through aggression or coercion. Proper force protection measures are critical, as is an understanding of host nation perceptions of the U.S. presence. This helps ensure the presence does not provide "targets" for adversaries, and our presence is properly weighted so as not to antagonize local populations.

Contributions to Imposing Costs: Overseas presence indicates U.S. political will and resolve to oppose potential adversary aggression and coercion in a region, particularly with reference to formal alliance and security relationships. This in turn makes U.S. threats to impose key costs on potential adversaries more credible. Overseas presence can both enable preemptive use of force and reduce the perceived response time of the joint force. This can be a decisive factor in some strategic deterrence situations. Overseas presence also provides

the JFC with an established set of basing and logistical infrastructure enabling rapid reinforcement, improved force projection, and Global Strike operations. Overseas presence in some cases serves to extend the U.S. nuclear deterrent over both forward-based forces and regional allies, significantly increasing an adversary's perceptions of the potential costs involved in taking courses of action we seek to deter.

Contributions to Inducing Adversary Restraint: The role of overseas presence in inducing adversary restraint is primarily seen by imagining its absence. Without overseas presence, a U.S. decision to deploy major combat forces to a region in anticipation of (or in response to) adversary coercion or aggression could be seen as a more threatening American response than the alert or reinforcement of forward-based forces. Thus, overseas presence provides American national leadership a more measured, and potentially less provocative, set of deterrent options.

Allied/Coalition Military Cooperation and Integration

U.S. vital interests are increasingly intertwined with those of U.S. friends and allies. As a result, strategic deterrence can in some instances be enhanced through military cooperation and integration with allied/coalition forces. The deterrent impact of such cooperation and integration is both political and military in nature. The political impacts are primarily derived from: 1) the effects that coalition-based responses have on an adversary's perception of U.S. and allied political will, and of 2) the potentially long-lasting, harmful post-conflict political and economic effects of taking on a U.S.-led international coalition. The military impacts are derived from improvements in both U.S. and coalition capabilities to defeat adversary military operations. Allied and Coalition contributions to the joint fight are significant. For example, they can provide host nation security, fly additional sorties, supplement naval presence, provide additional maneuver forces, conduct maritime and ground mine clearing operations, to name just a few. These actions contribute significantly to force protection and overall operational success.

Contributions to Denying Benefits: Allied/coalition military cooperation and integration creates a shared political security burden and an improved ability to limit the damage an adversary can inflict. This undercuts an adversary's ability to coerce the U.S. and its allies. It also reduces the potential benefits to be reaped from a surprise attack before the U.S. is fully deployed in theater. In many cases, allied/coalition military cooperation and integration provides U.S. forces the basing and logistical support needed to accelerate reinforcement and force projection, making adversary gains less likely. In some instances, allies can provide force capabilities essential to deterrence by denying benefits that would be difficult or costly for the U.S. to match (e.g., extensive ground forces). There are even cases where focused allied/coalition military cooperation and

integration allows an ally to deter on its own through denying benefits without U.S. involvement in combat operations.

Contributions to Imposing Costs: Allied/coalition military cooperation and integration can have a tremendous impact on the adversary's perception of the political will of the U.S. and its allies. These activities increase the perceived probability that an adversary will incur costs should they take actions contrary to U.S. vital interests. Such costs include, but are not limited to: U.S. intervention itself; the loss of critical military and economic capabilities; longer-term political and economic costs associated with becoming a "pariah" state (as a result of conflict with a U.S.-led coalition); and even regime destruction at the hands of an internationally sanctioned military campaign. Most of the military impacts of allied/coalition cooperation and integration that contribute to denying benefits contribute to cost imposition efforts as well. An additional significant cost imposition impact is the potential for U.S. and allied force synergies that free up U.S. military assets to focus on imposing costs, rather than only denying benefits. An example would be allied/coalition air forces providing air defense, freeing U.S. air assets to be employed primarily in strike operations.

Contributions to Inducing Adversary Restraint: A potential impact of these activities is to convince an adversary that U.S. allies will exercise increased restraining influence over American war aims and associated military operations. However, additional contributions of allied/coalition military cooperation and integration to inducing adversary restraint are limited.

Force Projection

The capability to project U.S. military power globally and conduct effective theater-level, military operations across the domains of air, sea, land, space, and information--including the capability to win decisively in a Major Combat Operation (MCO)--is essential to strategic deterrence. Force projection capability greatly enhances the JFC's capacity to use all three "ways" of influencing an adversary's decision-making. U.S. force projection capabilities need to be responsive, sustainable, and executable in the face of anti-access strategies, WMD employment, and other means of asymmetric warfare. For strategic deterrence it is especially critical that force projection operations be executable such that we can limit the damage an adversary can inflict--on U.S. forces, allies, and potentially their own civilian populace.

Contributions to Denying Benefits: Force projection capabilities provide the means to deny a broad range of perceived benefits that adversaries might seek through aggression and coercion. These perceived benefits could include (but are not limited to): seizure and occupation of allied territory; destruction of (or damage to) key allied political, military and/or economic assets; closure or

interference with geographic choke points of strategic significance; coercive threat or use of force against U.S. allies; deterrence of U.S. intervention in a regional conflict; and coercive limitation of U.S. war aims in such a conflict.

Contributions to Imposing Costs: Force projection capabilities also provide the JFC with the means to impose a set of critical costs on adversaries. These include, but are not limited to: seizure/occupation of high-value adversary territory; interdiction of adversary access to international air and sea lines of communication; destruction of highly valued political, military, and/or economic assets; destruction/disruption of the adversary's internal political control; and forcible regime change. The same force projection attributes delineated above are required for the cost imposition role.

Contributions to Inducing Adversary Restraint: Finally, our force projection capabilities can induce adversary restraint prior to (or in the midst of) a conflict only if they can be employed in a selective and highly controlled manner that permits adversaries to discern U.S. restraint and the potential for this restraint to be lifted (should deterrence fail and escalation occur). For example, in a scenario in which U.S. war aims are limited, the JFC should have the ability to project force in a way that communicates the limited nature of his objectives, and does not render the adversary incapable of discerning whether current operations are merely a precursor to a more ambitious set of U.S. aims. In this strategic deterrence context, disabling a regional state's entire political-military command and control system (when U.S. military objectives do not require such a strategic effect) could profoundly undermine strategic deterrence.

Nuclear Strike Capabilities

Survival of the U.S. as a free and independent nation, with its fundamental values intact and its institutions and people secure, remains our nation's permanent and primary security interest. This interest is best achieved by a defense posture that makes possible nuclear war outcomes so dangerous, as calculated by potential adversaries, that the adversary's desire to initiate aggression is removed. U.S. nuclear forces contribute uniquely and fundamentally to strategic deterrence--through their ability to impose costs and deny benefits to an adversary in an exceedingly rapid and devastating manner no adversary can counter.

Nuclear weapons provide the President with the ultimate means to terminate conflict promptly on terms favorable to the United States. They cast a lengthy shadow over a rational adversary's decision calculus when considering coercion, aggression, WMD employment, and escalatory courses of action. Nuclear weapons threaten destruction of an adversary's most highly valued assets, including adversary WMD/E capabilities, critical industries, key resources, and means of political organization and control (including the

adversary leadership itself). This includes destruction of targets otherwise invulnerable to conventional attack, e.g., hard and deeply buried facilities, “location uncertainty” targets, etc. Nuclear weapons reduce an adversary’s confidence in their ability to control wartime escalation.

The revitalization of our nuclear support infrastructure (including the transition to an improved testing posture), the retaining of scientific expertise and tradesmen and the ability to produce new weapons is critically important to dissuading potential adversaries from engaging in a potentially costly arms race. Barring these improvements, a legacy force structure supported by a neglected infrastructure invites adversary misbehavior and miscalculation.

The use (or threatened use) of nuclear weapons can also reestablish deterrence of further adversary WMD employment. Alternatively, nuclear weapons can constrain an adversary’s WMD employment through U.S. counterforce strikes aimed at destroying adversary escalatory options. Nuclear weapons provide the U.S. with proportionate and disproportionate response options that an adversary cannot counter. They can also help deter intervention by adversary allies in an ongoing conflict.

Although advances in conventional kinetic and non-kinetic means {e.g., computer network attack (CNA), High Energy Radio Frequency (HERF), directed energy (DE), etc.} by 2015 will undoubtedly supplement U.S. nuclear capabilities to achieve these effects, nuclear weapons that are reliable, accurate, and flexible will retain a qualitative advantage in their ability to demonstrate U.S. resolve on the world stage. These capabilities should be further enhanced by improving our capability to integrate nuclear and non-nuclear strike operations. Providing the President an enhanced range of options for both limiting collateral damage and denying adversaries sanctuary from attack will increase the credibility of U.S. nuclear threats, thus enhancing deterrence and making the actual use of nuclear weapons less likely. Additionally, nuclear weapons allow the U.S. to rapidly accomplish the wholesale disruption of an adversary nation-state with limited U.S. national resources. While the legacy force was well suited for successful deterrence throughout the Cold War, an enhanced nuclear arsenal will remain a vital component of strategic deterrence in the foreseeable security environment.

Contributions to Denying Benefits: U.S. nuclear capabilities can help convince an adversary that even the defeat of U.S. or allied/coalition conventional forces can be rapidly and decisively reversed. The most prominent example of this is the ability of U.S. nuclear responses to deny an adversary any military advantage from WMD/E use. Nuclear capabilities also provide U.S. national leadership with a wide range of escalation control and damage limitation options that aid in convincing adversaries they are unlikely to deter U.S. intervention in a conflict they initiate (or coerce the U.S. and its allies through

threats and intimidation). Nuclear weapons assure allies that the U.S. can (and will) deter, prevent, or limit damage to them from adversary attack, thereby bolstering allied political will, and making the benefits of adversary aggression or coercion less likely. Finally, the ability of nuclear weapons to deny an adversary sanctuary from attack helps convince him the benefits he seeks through aggression are unlikely to be achieved.

Contributions to Imposing Costs: Nuclear capabilities provide in many cases the ultimate means to impose costs. They have the potential to deny an adversary sanctuary for his key assets. The nature of the costs nuclear weapons impose, and the speed and inevitability with which those costs can be imposed, is qualitatively different from even our most advanced conventional capabilities. The most important limitation on their cost imposition impact is the credibility of our willingness to use them in conflict. Clearly, this credibility is in large part a function of the threat magnitude that nuclear weapons use would counter. However, selective improvements and innovations in our nuclear capabilities could significantly enhance their use credibility.

Contributions to Inducing Adversary Restraint: In many cases where the adversary is convinced that the cost of aggression or coercion will be a U.S. nuclear response, other considerations will tend to pale in comparison. The costs potentially imposed by credible U.S. nuclear use can (in many scenarios) obviate consideration of such consequences of restraint. However, it should be noted that when an adversary perceives truly severe consequences of restraint, and has reason to doubt U.S. willingness to use nuclear weapons, deterrence could fail despite our nuclear capabilities.

Active and Passive Defenses

The development and deployment of effective active and passive defenses will contribute significantly to strategic deterrence, particularly in the areas of deterring adversary WMD use or attacks on U.S. population and critical U.S. military and civil infrastructure.

Ballistic and cruise missile active defenses will be a crucial element of U.S. military capabilities in 2015. These defenses will be layered and networked, incorporating land-, sea-, air-, and space-based elements, and will use both kinetic and non-kinetic means to achieve target destruction and/or negation. Regionally oriented defenses will protect fielded U.S. forces and allies, and will seamlessly integrate with homeland defenses to provide overlapping and complementary global protection. Additionally, the ISR and C2 elements of active missile defenses will enable a robust offense/defense integration, to include long- or very-long range counter-battery fires aimed at destroying the adversary's missile launch capabilities. The ability to thwart adversary missile attacks prior to launch as well as to shoot missiles down in flight is key to

achieving effective strategic deterrence while enhancing a JFC's economy of force efforts. Near-peer nation-state adversaries may seek to defeat such active defenses in order to hold the American homeland hostage and constrain U.S. freedom of action. However, most potential adversaries are unlikely to be able to overcome U.S. active missile defense capabilities through 2015. Passive defenses complement active defenses, reducing the effectiveness of attacks that active defenses fail to prevent. They consist of measures taken to reduce the probability of (and to minimize the effects of) damage caused by hostile action. Examples include WMD/E force protection measures that reduce the vulnerability of U.S. force projection capabilities, homeland security civil defense measures (e.g., consequence management) that limit the potential damage done by WMD/E attacks, and critical infrastructure protection measures that make such infrastructure more resilient in the event of attack.

The increasingly networked joint force of the 21st Century will capitalize on passive defense effects achieved through widely dispersed forces. While still able to achieve operational objectives through their ability to more efficiently communicate, maneuver, and share a common operating picture, networked forces will present a decreasingly lucrative target for an adversary's WMD. However, because adversaries are more likely to use WME weapons (e.g., EMP) to attempt asymmetric defeat of technologically superior U.S. forces, improved weapons-effects hardening/survivability will be required for a broader range of joint force systems than required today. Effective interoperability and functional redundancy between joint force units (particularly in the areas of ISR and C2) will reduce the potential for single points of failure within complex systems and organizations, and ensure that critical C2 capabilities degrade gracefully. Information assurance for networked forces will ensure only trusted data are shared between users. Camouflage, concealment, and deception will increase in importance as adversaries become increasingly sophisticated users of widely available global information sources.

Contributions to Denying Benefits: Both active and passive defenses clearly contribute to deterrence by denying benefits. Such defenses reduce an adversary's probability of achieving benefits from attacks (or threats of attacks) on the U.S., its forces, and its allies. When focused on reducing U.S. asymmetric vulnerabilities, such defenses enhance the benefit denial contributions of other force elements. Defenses have particularly important effects on adversaries' perceptions of the coercive political benefits they can derive from WMD/E capabilities. Active and passive defenses not only reduce the damage such capabilities can inflict--they also indicate U.S. willingness to invest in defenses to retain the freedom of action necessary to defend its vital interests.

Contributions to Imposing Costs: When combined with U.S. force projection, Global Strike (described below), and nuclear capabilities, active and passive

defenses have a synergistic effect on deterrence by imposing costs. By reducing U.S. vulnerability to a wide range of asymmetric attacks, defenses increase adversaries' perceived probability of incurring costs from U.S. military intervention, and from American counterstrikes on key assets. In other words, effective active and passive defense powerfully influence an adversary's perception of the likelihood of their aggression or coercion eliciting an extremely costly American military response.

Contributions to Inducing Adversary Restraint: Active and passive defenses have little or no ability to induce adversary restraint. In fact, because they have the synergistic impact on deterrence by imposing costs described above, they have the potential to increase adversary concerns regarding preemption. Such concerns, in certain circumstances, could worsen an adversary's consequences of restraint. Joint strategic deterrence planning and operations need to account for this possibility.

Global Strike

Global Strike is the ability to rapidly plan and deliver limited-duration and extended-range attacks to achieve precision effects against highly valued adversary assets. Effects-based targeting, analysis, planning, and execution are combined to support attacks on high-payoff/high-value targets. These targets may include WMD production, storage, and delivery systems, adversary decision-makers, critical command and control facilities, and various adversary leadership power bases. U.S. leadership could use Global Strike capabilities both to impose costs and to deny benefits to an adversary in a highly customized manner appropriate to the future security environment. Global Strike capabilities must be capable of defeating anti-access strategies imposed by distance, physical hardening or active and passive defenses and be able to operate in an environment where friendly forces may not have battlefield dominance. Because of the potentially urgent employment timelines, Global Strike will primarily rely upon long-range, high-speed, kinetic (advanced conventional and nuclear) and non-kinetic aerospace delivery platforms, unmanned systems, cyber systems, and/or small numbers of special operations forces employed over extended distances. In-theater capabilities will supplement these forces if available and appropriate, but the defining characteristic of Global Strike will be its unique blend of "high-end" and "low-end" military capabilities without resort to large numbers of general purpose forces traditionally associated with major combat operations.

Global Strike normally will be conducted with an abbreviated logistics footprint and have limited objectives and rapid execution timelines (minutes to hours). Because adversaries will continue to pursue anti-access strategies, Global Strike must allow for independent operations anywhere in the world with minimal, if any, support from overseas forces and facilities. In many cases,

senior national leadership will want to delay a Global Strike execution decision until the last possible minute. Future Global Strike missions will use weapons possessing two-way secure communications that allow for real-time command, targeting, retargeting, disarm, and disablement from the time of weapons release through impact/detonation. Since most Global Strike targets will be well protected, future forces must leverage stealth, speed, and low probability of intercept (e.g., ballistic) attack profiles to ensure arrival on target.

Threatened use of Global Strike will be more effective to the degree that both U.S. and adversary leaders are confident effects can be achieved without inflicting significant collateral damage. Our ability to create only intended strategic effects raises the credibility of strategic deterrence. Effects can be achieved through either kinetic or non-kinetic means, and may be massive or limited depending upon specific objectives, although the number of forces involved will be substantially less than those involved in major combat operations. In some cases, rapid execution against fleeting, “time-sensitive targets” will be needed to create desired effects against high-value targets such as mobile missile launchers or adversary decision-maker convoys.

Because many Global Strike scenarios involve threatened (or actual) preemptive attacks on very-high value targets that will only be exposed for brief periods, Global Strike capabilities must also be highly reliable. Single-string operations lacking the redundancy commonly associated with traditional military operations will be common. The Global Strike philosophy will be “one shot equals one kill.” Simultaneous attacks against all the major targets in a given category, e.g., all division headquarters, all WMD facilities, may be required against more capable adversaries, although the total scope of operations will remain dramatically less than those associated with major combat.

Key elements of Global Strike capabilities should be periodically demonstrated openly on the world stage--to ensure adversaries fully comprehend the credible threats they face. However, in all scenarios, it will be highly desirable to conduct strike operations without alerting in advance the adversary, who, if warned, might employ certain capabilities (e.g., WMD) rather than lose them. A “black” or covert component within an otherwise highly visible Global Strike capability is highly desirable. This capability could assure allies without provoking an adversary. If subsequently revealed, this capability will serve to deter third parties by reminding them of their inability to fully characterize the United States’ capability to wage war.

Contributions to Denying Benefits: Global strike capabilities contribute to denying benefits by providing the U.S. national leadership with credible and effective preemption and response options in the event of impending (or ongoing) adversary aggression or coercion. These capabilities can either

supplement or supplant force projection options under a wide variety of circumstances, including strategic surprise, adversary WMD or other asymmetric attacks on theater forces and allies, and rapidly developing threats. The ability to rapidly and precisely bring decisive strike forces to bear around the world significantly reduces adversary temptations to conduct asymmetric operations aimed at countering U.S. or allied theater capabilities.

Contributions to Imposing costs: The ability to rapidly and precisely accomplish Global Strike operations also serves to convince potential adversaries that the costs of aggression or coercion are likely to be severe. Global Strike capabilities could provide options to rapidly escalate attacks on strategic centers of gravity without lengthy preparatory theater operations. A glimpse of our eventual capabilities in this area was provided by long-range bomber operations in Operation Enduring Freedom in Afghanistan, though the timelines for initiating and completing such operations in the future will be far shorter, facilitated in part by innovative command relationships and planning improvements.

Contributions to Inducing Adversary Restraint: The ability to conduct “strategic” preemption or response to adversary aggression/coercion (without reliance on large scale, forward deployed theater forces) could have important impacts to inducing adversary restraint. Global Strike capabilities may not be perceived as posing the same kind of regime destruction threat that major theater combat operations present. Under certain circumstances, this could be critically important to strategic deterrence success.

Strategic Deterrence Information Operations

This capability takes two forms. The first is information operations designed to indirectly influence adversaries’ perceptions of U.S. intent, political will or resolve, and non-information operations capabilities. The second is information operations that shape adversaries’ perceptions directly through their potential or actual operational impact (e.g., electronic warfare). Both forms of strategic deterrence information operations are a subset of all national strategic information operations.¹⁸ There may be a high degree of coordination required among the military, other US Government (USG) departments and agencies, and allies/coalition partners to achieve these objectives.

Successful strategic deterrence information operations of the first type will reliably communicate to adversary decision-makers the information necessary to deter. This includes the ability to inform adversaries explicitly of U.S.

¹⁸ Defined as “the spectrum of activities directed by POTUS and SECDEF to achieve national objectives by influencing or affecting all elements (political, military, economic, or informational) of an adversary’s or potential adversary’s national power and perceptions, while protecting similar friendly elements.”

national interests and intentions, communicate our confidence in our ability to limit damage to ourselves and our allies, reveal their vulnerability to U.S. attack through a wide range of capabilities, provide terms and conditions for adversary compliance, and influence other elites or centers of power to undermine adversary decision-makers, if required. Successful information operations must leverage the full range of communications means available today and in the future, and allow for both one- and two-way communications with adversary decision-makers at a variety of levels. Examples include television/radio broadcasts, email, text messaging, voice, leaflet drops, and other direct/indirect lines and means of communication yet to be developed. Because deterrence is about influencing adversary decision making, the ability to efficiently and effectively communicate in the adversary's native language is imperative.

The operational role of deterrence information operations focuses on psychological operations, computer network operations, deception, and electronic warfare capabilities that can affect adversary morale and unit cohesion, decision superiority, lines of communication (LOCs), logistics, command and control (C2), and other key adversary functions. Simultaneously, it is essential that we are able to protect similar friendly capabilities and activities through advanced network security, information assurance and OPSEC capabilities. Continued advances in these areas enhance strategic deterrence greatly, as they have the potential to affect how an adversary perceives the potential benefits and costs of actions we seek to deter.

Contributions to Denying Benefits: Strategic deterrence information operations that communicate U.S. and allied/coalition capabilities and deny an adversary the benefits of aggression or coercion can take many forms. They range from efforts to convince adversaries the U.S. stake in a crisis or conflict is high, to the publicizing of military exercises and weapons tests that demonstrate U.S. and allied capabilities to defeat an adversary attack. Operational information operations, such as Computer Network Attack and Defense (CNA and CND) can also undermine an adversary's confidence in his ability to use force to his advantage. For example, CND capabilities that convince an adversary his attacks on U.S. computer-based networks will likely fail could significantly enhance deterrence in some scenarios.

Contributions to Imposing Costs: Strategic deterrence information operations can favorably influence an adversary's perception of the costs he may incur in a wide variety of ways. For example, they can be designed to convince an adversary that U.S. will intervene (and resolve to persevere) in the face of escalation is high; that the U.S. is likely to escalate its war aims in response to certain adversary actions; that the U.S. is willing to use nuclear weapons under certain circumstances, etc. In its more operational form, computer network

attack and electronic warfare capabilities convince adversaries the U.S. can rapidly suppress air defenses, disrupt or terminate command and control, disrupt or damage vital production, etc. Finally, computer network defense capabilities can enhance an adversary's cost perceptions by protecting U.S. strike warfare capabilities against asymmetric attack, thereby enhancing the credibility of U.S. counterstrikes by limiting the damage an adversary can achieve.

Contributions to Inducing Adversary Restraint: The contributions of strategic deterrence information operations to inducing adversary restraint are covered in the below section on inducement operations.

Inducement Operations¹⁹

For strategic deterrence, the JFC has a limited number of means available to influence or mitigate an adversary's consequences of restraint. These options are almost exclusively limited to nation-states and are not generally intended for non-state actors. Diplomatic, economic, and informational instruments of power can effectively assure allies and dissuade adversaries and non-committed states. Several of these means could also extend to strategic deterrence.

For example, shared early warning of aerospace and WMD attack can be used to improve an adversary's (or potential adversary's) situational awareness. Although perhaps counterintuitive, the deliberate dissemination of accurate information by the U.S. will reduce the likelihood of an unconsidered (or inappropriate) adversary reaction to U.S. or third-party activity. Information systems processing shared early warning must allow ad hoc warning networks to be seamlessly created and modified based on the current situation. Data must be presented in a manner understandable to diverse cultures. Finally, the U.S. must maintain the ability to add or delete membership from warning networks under changing circumstances while protecting U.S. information networks from adversary attack or exploitation.

The JFC must be prepared to respond to an adversary's decision to forgo WMD ownership in response to U.S. strategic deterrence efforts. The JFC must be ready to assist in securing WMD storage sites and participate in dewatering or agent neutralization activities. These activities may occur in uncertain environments and may require transporting WMD to more secure locations, possibly under international inspection regimes. These activities enhance deterrence by providing the adversary with an alternative that, if presented properly in concert with the other instruments of national power,

¹⁹ Many potential inducement operations are, in a sense, a subset of broader strategic deterrence information operations (with the narrowly focused aim of inducing adversary restraint).

may enhance the adversary decision-maker's prestige at home or in international venues.

The JFC may conduct or facilitate strategic information operations (to achieve influence and induce adversary restraint) in the form of direct monetary compensation or other kinds of support to individuals or groups within adversary decision-making centers--if such actions can reasonably be expected to enhance strategic deterrence. Support must be deliverable by overt and covert means, as appropriate, consistent with the JFC's objectives, national policy, and international/third-party considerations. These activities aim to shape the decision calculus of second-tier adversary influence groups, particularly those deeper in the military chain of command that implement senior-level directives or orders.

Particularly in instances where the U.S. has limited objectives, the JFC needs to be able to conduct military operations in a manner that makes U.S. restraint and intent as clear as possible to the adversary. Adversary decision-makers must comprehend that the joint force could be doing more harm to him than is taking place, and those operations currently ongoing are not simply a precursor to broader operations with more ambitious objectives. Techniques to accomplish these goals are discussed in the Stability Operations JOC.

To enable each of these efforts, the JFC requires robust lines of communications (more capable than those available today) with potential adversaries. Inducement operations most often require a detailed street address and knowledge of the occupant's whereabouts, not just "to whom it may concern." Methods of communication may be one-way, two-way, and/or multi-party and must allow for secure, rapid, and unambiguous transfer of information in crisis and non-crisis environments. Textual, visual, voice, and data communications will be required, as well as safe passage of personnel and material in some instances. Communications media must accommodate widely varying cultural norms and diverse situations. Flexibility will be the key to success in this area.

Contributions to Denying benefits: Not applicable

Contributions to Imposing costs: Not applicable

Contributions to Inducing Adversary Restraint: Inducement operations contribute to inducing adversary restraint by directly reducing the unwanted deleterious effects of U.S. actions on adversary decision-makers. Inducement operations can also improve an adversary's decision-making capability by providing better information on which to base decisions. Additionally, by separating second-tier leadership, inducement operations can undermine

critical adversary activities and adversary leadership's corresponding bases of power.

Space Control

America's national security and economic well-being are increasingly dependent on activities conducted in space. For instance, the US military is increasingly reliant on very precise air-delivered munitions guided by space-based assets such as GPS. In the 12 years between Operation Desert Storm and Operation Iraqi Freedom, new concepts of operations leveraged improved intelligence, surveillance, and reconnaissance (made possible by space systems) along with cheaper precision guided munitions. These concepts of operations enable more effective military operations by improving logistics efficiencies, reducing manpower requirements, and placing smaller numbers of U.S. troops under the threat of battlefield attack.

The greatest shift in commercial space activity over the last decade has been the global proliferation of enterprises providing space system services that rival those of the U.S. Commercial investment in space services today is roughly \$100 billion and will grow considerably by 2015. Once available only to the senior leaders of industrialized nation-states, all state and non-state actors are now (and will be increasingly so by 2015) "space capable" due to commercially available space products and services. These products and services include: high-bandwidth satellite communications, high-resolution imagery of the earth's surface, precise navigation and timing signals, near real-time environmental hazard data, Internet-based space surveillance data, and the ability to move information as rapidly and as securely as U.S. forces. The growing availability of space services data marketed over global networks will make it difficult to determine exactly who is exploiting space services for potential hostile actions against the U.S., its allies, and friends. The global free market economy and the democratization of information will fuel commercial space technology development, as well as provide an opportunity for adversaries to disrupt these services and threaten our standard of living.

In many ways, the growing role of space to U.S. and international security is analogous to the role of the high seas since the 17th century. The ability of the United States to access and use space, and to deny such access and utilization to adversaries if necessary, is a vital national security interest directly impacting strategic deterrence. Potential adversaries will target U.S., allied, and commercial space assets to counter or reduce U.S. military operational effectiveness, intelligence capabilities, economic and societal stability, and national will. A credible adversary capability against space systems decreases our overall strategic deterrence posture unless we can respond to these threats.

Space control is defined as operations to ensure freedom of action in space for the United States and its allies and, when directed, deny an adversary freedom of action in space. Because space systems rely upon space, terrestrial, link, and user segments to achieve their effectiveness, space control operations may take place in any of the operational domains of land, sea, air, space, and information. Applicable space control tasks include: space situational awareness; protection of U.S. and friendly space systems; prevention of adversary use of space systems and services; and negation of space systems and services used for purposes hostile to U.S. national security interests. More broadly, space control must also provide for assured U.S. access to the space environment. The JFC must accomplish space control activities consistent with U.S. obligations under international law and pursuant with national policy.

By 2015, space control will be most greatly enhanced by the joint force's ability to use space systems in a highly-networked, peer-to-peer manner--to deny an adversary the easy means of holding critical U.S. space system link, user, terrestrial, or space segments at risk. This approach (for capabilities, systems, and forces alike) is best characterized as one of "integrated, assured defense" where the U.S. can see first, understand first, and act first. This will be accomplished by proliferating, networking, protecting and integrating each of these segments in a manner previously considered unachievable. The combination of low-cost production combined with miniaturization and shared understanding will enable both response and denial options for strategic deterrence.

Space systems will incorporate improved protection measures throughout the space, terrestrial, link, and user segments. These measures may include: ground facility protection (hardening/dispersal of systems and facilities; security; covert facilities; camouflage, concealment, and deception; mobility), alternate nodes, spare satellites, link encryption, increased signal strength, adaptable waveforms, satellite radiation hardening, on-board environmental sensors, redundant architectures, and space debris protection measures. Protection measures must provide unambiguous indications of whether a failed satellite was deliberately attacked, suffered a natural environmental failure, or experienced an onboard anomaly (either operator induced, latent, or subtle/dispersed attack).

Satellite design will migrate toward small, single-purpose, distributed constellations providing continuous earth coverage. This will deny an adversary the ability to easily target a small number of critical nodes and create a much-needed measure of defensive redundancy. Command and control of these constellations will rely heavily on automated machine-to-machine interfaces. Terrestrial ground support infrastructure will not be stovepiped by specific mission area (i.e., ISR, PNT, communications, etc.) but

instead will service a variety of functions in a scalable, tailorable fashion. This support infrastructure will rely more heavily on camouflage, concealment, and deception than today, and will widely migrate across the joint force to include deployed forces in-theater.

To populate, replenish, and rapidly reconstitute these constellations, low-cost responsive spacelift is essential. This capability will allow the U.S. to respond to an adversary WME attack by rapidly reconstituting systems destroyed or degraded by enemy action. Responsive spacelift requires mobility and proliferation that reduces an adversary's opportunity to target systems while in preparation for launch. Modular, production-line methods that allow for "mass customization" of satellites, launch systems, terrestrial C2 and user segments are required. To achieve economies of scale and increase flexibility and robustness, the same components, infrastructure, and joint force operational procedures that enable long-range Global Strike capabilities should be considered for their potential dual-use application for responsive spacelift.

Space situational awareness, a subset of global situational awareness, will be achieved through the integration of land, air, sea, space, and information systems deployed worldwide. This includes legacy joint force capabilities not previously considered in the context of space situational awareness (such as airborne or shipborne radars) or new expeditionary systems (such as low-cost, mobile optical telescopes) in direct support of fielded forces. The global distribution and proliferation of sensors, combined with full-spectrum integration and information fusion, will enhance space situational awareness and enable the JFC to take effective denial and response actions to counter adversaries.

Denying enemy freedom of action in space is accomplished through prevention (primarily non-military means) and negation (military actions). Prevention capabilities include elements of the diplomatic, informational, and economic instruments of national power. Negation consists of five elements: deception, disruption, denial, degradation, and destruction. Deception consists of those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce the enemy to react in a manner prejudicial to their interests. Disruption is the temporary impairment (diminished value or strength) of the utility of space systems, usually without physical damage to the space system. These operations include the delaying of critical, perishable operational data to an adversary. Denial is the temporary elimination (total removal) of the utility of the space system, usually by stopping access to a system without creating any physical damage. This objective can be accomplished by such measures as denying electrical power to the space terrestrial nodes or computer centers where data and information are processed and stored. Degradation is the permanent impairment of the utility of space systems, usually with physical damage. This option includes attacks

against terrestrial nodes and capabilities. It may also include the use of information operations. Destruction is the permanent elimination of the utility of space systems. This last option includes any means to interdict critical terrestrial nodes; use of attacks to destroy uplink/downlink facilities, electrical power stations, and telecommunications facilities; and attacks against space segments themselves.

For a variety of reasons, the JFC will generally approach these space control negation options in ascending order. The wide and increasing existence of multinational space system ventures (involving a host of state and non-state actors) creates the need to limit collateral damage to the greatest extent possible. Additionally, the JFC must minimize hazards to navigation created by space debris that impacts all spacefaring activity. Finally, strategic deterrence is enhanced both by the ability to achieve precision effects (enhancing credibility) as well as providing the option to escalate conflict should an adversary take COAs counter to U.S. vital interests.

The joint force in 2015 will use a variety of techniques to achieve desired negation effects. These will include reversible effects (such as jamming, dazzling, or data corruption) that allow for space systems to be disrupted or denied during conflict but remain viable subsequent to conflict resolution. These effects must also be scalable to threaten an adversary with degradation or destruction. Adversary decision-makers must perceive they cannot credibly pursue COAs (such as “hiding behind” third-party systems) without the U.S. imposing unacceptable costs or denying them intended benefits.

Contributions to Denying Benefits: U.S. space control capabilities play an increasingly important role in convincing adversaries that the benefits they seek through aggression or coercion cannot be achieved. By denying adversaries access to space-based means of surveillance, command and control, precision weapon guidance, etc., space control capabilities severely constrain adversary military options across a wide range of operations and courses of action. Space control capabilities also assure U.S. access to space, further undermining an adversary’s belief that they will benefit through aggression or coercion by reducing their probability of achieving surprise. Space control facilitates (and networked joint force operations enhance) the global situational awareness needed to counter adversary attacks, and (in some cases) compensates for the loss of allied/coalition support. Access to space has become so important to U.S. military operations that effective space control is itself a benefit denial mechanism, denying the adversary the benefits associated with disrupting or denying U.S. space access.

Contributions to Imposing Costs: Because space-based capabilities provide a wide range of enabling functions for Global Strike and force projection operations, space control significantly enhances the costs the U.S. can impose

on an adversary. For example, global situational awareness/ISR are critical to effective targeting of key adversary assets, especially in the face of increasingly sophisticated denial and deception techniques. Global space-based C2 capabilities enable the conduct of Global Strike operations and enhance the conduct of theater strike and force projection operations. Finally, U.S. space control capabilities offer the prospect of imposing costs directly by denying an adversary access to, or destroying, their military or commercial space assets.

Contributions to Inducing Adversary Restraint: Space control capabilities play little, if any, direct role in inducing adversary restraint. However, the information or services provided by space systems (e.g., shared early warning, remote sensing, etc.) may directly contribute to inducing adversary restraint. U.S. space control planning must fully account for these impacts to avoid unintended adversary aggression or escalation.

Applicability of Means to State vs. Non-State Actors²⁰

Figure 2 illustrates the applicability of enabling and direct means when considering state and non-state adversaries²¹. Joint force planners should consider the applicability of particular means when crafting specific strategic deterrence efforts.

Tgt Audiences → Means ↓	<u>State Actors:</u>	<u>Non-State Actors:</u>
Cost Imposition	All capabilities except Inducement Ops.	All capabilities except Inducement Ops.
Benefit Denial	All capabilities except Inducement Ops.	All capabilities except Inducement Ops.
Induce Adversary Restraint: (3 below)	<u>State Actors:</u>	<u>Non-State Actors:</u>
Incentives	Inducement Ops, Global Situation Awareness, C2	Inducement Ops, Global Situation Awareness, C2
Exploit Adversary Leadership Seams	Force Projection, Inducement Ops, Global Situation Awareness, C2	Allied/coalition Military Cooperation & Integration, Inducement Ops, Global Situation Awareness, C2
Improve Adversary Sit. Awareness and/or Exercise U.S. Operational Restraint	Force Projection, Global Strike, Inducement Ops, Global Situation Awareness, C2, Allied/coalition Military Cooperation & Integration	Inducement Ops, Global Situation Awareness, C2

Figure 2: Enabling/Direct Means Applicability

²⁰ A recommended area for follow-on SD JOC development is the interaction between state and non-state actors, as well as identifying the impact of failed states on strategic deterrence implementation efforts.

²¹ Non-state actors are defined as organizations or individuals capable of significant international aggression who do not take official direction from government decision-makers of a nation-state.

METRICS AND EXPERIMENTATION

In order to evaluate and improve the SD JOC, techniques and metrics will be developed to assess alternative deterrence strategies, postures, and courses of action. However, the focus of the SD JOC is ultimately on influencing adversary decision-making. Because the inner workings of an adversary's mind are not readily amenable to external measurement the assessment of strategic deterrence operations is inherently subjective. Developing metrics for deterrence evaluation is further complicated by the fact that deterrence success is marked by adversary inaction, a "result" which may or may not be attributable to U.S. deterrence efforts (the so-called "paradox of deterrence").

Deterrence assessment metrics need to focus on measuring the relative impact of U.S. deterrent capabilities and actions on the key variables in a given adversary's decision calculus. While it is virtually impossible to identify with confidence the "threshold values" of these key variables (i.e., the net valuation of perceived benefits, costs, and consequences of restraint or inaction at which deterrence will fail), a rigorous comparative assessment of how effective alternative U.S. deterrent approaches can be is within our reach.

A deterrence effectiveness assessment requires a two-part process. The first step is Adversary Decision Calculus Assessment. The second step is Deterrence Impact Assessment. This two-part process can be repeated, using alternative adversaries and scenarios, to build a deterrence effectiveness database that facilitates identification and prioritization of high-leverage strategic deterrence capabilities, attributes, and operations. Both steps may include effects of (or observations from) efforts to assure or dissuade which are applicable to the scenario and/or region.

Adversary Decision Calculus Assessment

Deterrence effectiveness assessment is inherently adversary specific and scenario dependent. This is because it is based first and foremost on how an adversary perceives the benefits, costs, and consequences of restraint or inaction of a course of action the JFC seeks to deter. The first step in evaluating the deterrence effectiveness of alternative joint deterrence operations is to rigorously assess the content of a subject adversary's decision calculus in a scenario of interest. This decision calculus assessment will focus on identifying the key variables that constitute the adversary's decision calculus and their perceived values and probabilities. The assessment must also address how those variables may shift over time. This will require significant intelligence community and other Subject Matter Expert (SME) involvement, to provide an in-depth understanding of adversary perceptions (rather than "objective reality," which is less important for achieving effective strategic

deterrence). The focus of this adversary decision calculus assessment will be on identifying both the key variables U.S. deterrence efforts should seek to influence favorably, and the critical factors that decisively influence the adversary's perceptions of those key variables.

Deterrence Impact Assessment

The second process step is to assess the deterrent impact of alternative U.S. deterrence operations, activities, and capabilities (and associated attributes) on the adversary decision calculus assessed in the first step. The focus of this effort is to answer two central questions. If the United States has X capabilities or conducts Y operations and activities:

- A. How much deterrent impact will result on which variables in the adversary's decision calculus?
- B. What impacts will there be on 3rd parties of interest to the U.S.?

The answer to Question A will identify potentially high-leverage deterrent actions and capabilities for the JFC to conduct and employ. It should also provide important insights into how and why those high-leverage actions and capabilities have the deterrent impacts sought, helping the JFC tailor their use for maximum deterrent effect. This analysis should also explicitly aim at identifying potential unintended consequences of specific deterrent actions and capabilities, aiding in the avoidance of inadvertently undermining strategic deterrence.

The answers to Question B should focus on two critical issues. First, what impacts exist that are relevant to deterring 3rd parties from intervening in the scenario of interest? Second, what impacts on potential future scenarios involving key 3rd parties will result from strategic deterrence operations in the scenario of interest? In other words, what lessons might key 3rd parties (potential future adversaries) learn that will shape their own decision calculus in future scenarios involving the United States?

Strategic Deterrence Assessment Lab

Effective implementation of this approach to metrics and experimentation will require a dedicated, long-term assessment effort. Establishment of a "Strategic Deterrence Assessment Lab" would focus DOD activities and create a national asset for strategic deterrence effectiveness assessment. This would aid in the continued development of strategic deterrence joint operating concepts and strategies. The results of these assessments would be folded into JFC deliberate planning and support rapid development of suggested courses of action in crisis action planning.

SUMMARY AND CHALLENGES

The dawn of the 21st Century brought the advent of multiple, diverse, and difficult strategic deterrence challenges for the United States. Some observers contend these challenges are so difficult they put in question the relevance of deterrence to our security policy and posture. The techniques of deterrence are not obsolete, however. Strategic deterrence will continue to be a critical element of an overarching American national security strategy--a first (but by no means last) line of defense against adversaries that threaten our vital interests or our national survival.

Our national approach to strategic deterrence, including this DOD concept for conducting strategic deterrence operations, must adapt to meet the changes of the 21st Century. As highlighted in this document, such adaptation will (in some instances) require new or enhanced capabilities. Our understanding of how deterrence works must undoubtedly mature beyond our previous concepts.

Deterrence is ultimately in the eye of the beholder: the adversary. Adversary perceptions are the focus of all our strategic deterrence efforts. As a result, effective strategic deterrence involves far more than just DOD capabilities, operations, and activities. Rather, it demands a national level effort involving extensive interagency (and in some cases, intra-alliance) integration and coordination. Our future strategic deterrence success will be a function of how well we bring all our capabilities and resources to bear to achieve decisive influence over adversary decision-making. This Strategic Deterrence Joint Operating Concept offers a description of how we envision the DOD role in achieving this success.

In summary, this joint operating concept outlines a new approach to understanding the “ways” and “means” necessary to achieve the “end” of strategic deterrence. It focuses strategic deterrence on the appropriate Center of Gravity: the adversary’s decision calculus. It describes how adversary decision-making can be decisively influenced through denying benefits, imposing costs, and inducing adversary restraint. It identifies a set of capabilities and associated attributes required to achieve decisive influence. Finally it proposes a means of evaluating the effectiveness of alternative joint strategic deterrence options, making future experimentation and further concept development possible. The Strategic Deterrence Joint Operating Concept Version 1.0 is the first step in improving our understanding of deterrence as applied to the security challenges of the opening decades of the 21st Century.

Glossary

AOR	area of responsibility
C2	command and control
C4I	command, control, communications, computers and intelligence
CBRNE	chemical, biological, radiological, nuclear, and/or high-yield explosive
CJCSI	Joint Chiefs of Staff Instruction
CNA	computer network attack
CND	computer network defense
COA	course(s) of action
CIP	critical infrastructure protection
DE	directed energy
DOD	Department of Defense
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel and facilities
EMP	electromagnetic pulse
HERF	high energy radio frequency
HQ	headquarters
ISR	intelligence, surveillance and reconnaissance
JCDE	joint concept development and experimentation
JCIDS	Joint Capabilities Integration and Development System
JFC	joint force commander
JOC	joint operating concept
JOpsC	joint operations concepts
JP	joint publication
JROC	Joint Requirements Oversight Council
JTF	joint task force
JWCA	Joint Warfare Capabilities Assessment
LOC	lines of communication
MCO	major combat operation
NMS	national military strategy
NSS	national security strategy
OIF	Operation Iraqi Freedom
PNT	positional navigation timing
POTUS	President of the United States
QDR	Quadrennial Defense Review
ROMO	range of military operations
SECDEF	Secretary of Defense
SD	strategic deterrence
SME	subject matter expert
UCP	unified command plan
WMD	weapons of mass destruction
WME	weapons of mass effect

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Appendix A: Illustrative Example for Strategic Deterrence

The following illustrative example explores strategic deterrence challenges the JFC must consider in the timeframe covered by this JOC (present-day to 2015). The unprecedented degree of global joint force collaboration required shows why no single regional or functional commander can approach deterrence actions independently. Strategic deterrence must be integrated across regions, organizations, DOD activities, and be considered in the context of other defense policy goals and instruments of national power.

The scenario starts with detection of a terrorist conversation (Adversary X) discussing plans to rapidly procure a portfolio of capabilities (computer network attack, WMD, ballistic and cruise missiles) aimed at inflicting mass casualties and economic disruption within U.S. borders. The conversation is traced to one specific country in a regional combatant commander's area of responsibility (AOR) (AOR [A]). In another country/AOR (B), apparently unrelated activities by rogue nation-state actors (Adversary Y) to sell highly-prized capabilities/weapon(s) are detected by human intelligence sources and corroborated by persistent surveillance (national technical means). Effective global situational awareness (specifically in this case, automated database mining conducted against standing requests for information) allows these events to be identified and correlated. Combatant commanders, in conjunction with the Joint Staff, defense agencies, and other essential federal organizations collaboratively determine the next sequence of required events. This includes decisions on what, if any, additional global ISR assets, capabilities, or legal authorization is needed to develop a better understanding of this possible threat. Decision-support tools and common operating pictures incorporating strategic deterrence intelligence enhance the commander's battlespace awareness, highlight "possible emerging" crises early, and show/predict interrelationships with not only potential adversaries, but also allies and non-committed actors.

Information from additional sources is received [that by itself, due to sources and collection methods, would not stand alone] indicating that efforts to lease a cargo ship through a third party, in a third AOR(C), are in progress. The individuals involved are using aliases and accounts linked to known terrorist profiles operating in AORs A and B. Similarly, federal homeland security agencies add yet another seemingly unrelated piece to the puzzle that provide indications and warning of a larger plan to attack critical infrastructure installations in the U.S. and Canada. These attacks are recognized by the U.S. as an opening prelude to Country Y's planned invasion of its neighbor (a U.S. ally) with the intent of undermining U.S. national resolve and diverting attention/resources towards the U.S. homeland. Specific attacks planned by Adversary X include a biological weapon attack on a major U.S. metropolitan area, a radiological attack on a major U.S. seaport serving both commercial and military traffic, and a computer network

attack aimed at the main satellite and fiber-optic telecommunications links connecting the U.S. to overseas financial markets.

Adversary Y attempts to covertly move air, land, and sea forces towards the border of the U.S. ally. U.S. and allied persistent, intrusive ISR assets monitor these movements. Adversary Y is equipped with WMD and possesses both short-range delivery systems as well as a handful of long-range missiles capable of reaching the U.S. homeland. Adversary Y also operates a single optical remote sensing satellite that also provides meteorological data to third-party users when overflying their respective countries.

At this time enough credible information is available that the CJCS informs senior national leadership on this emerging threat. All relevant elements of the joint force have already been alerted through robust collaborative networks. Effective interagency cooperation allows a range of options involving all instruments of national power to be presented to the President during initial strategy formulation. Since the perceived military threat involves 3-4 AORs and 4-5 different agencies/departments, the SECDEF tasks a single combatant commander to rapidly integrate and coordinate DOD global efforts supporting strategic deterrence. The resulting COAs are presented to the SECDEF by CJCS and integrated with other federal agency efforts to develop a range of crisis responses for the President. Aboard Air Force One, the President assembles (via secure video teleconferencing) the SECDEF, CJCS and combatant commanders. The President selects strategic deterrence COAs and directs their execution by the integrating combatant commander and supporting commanders. Strategic deterrence efforts are also integrated with DOD homeland defense and emergency preparedness activities as well as preparations for possible major combat operations in defense of the threatened ally.

Strategic deterrence activities must be aimed at the decision calculus of both Adversary X and Adversary Y. The efforts aim to deter the following adversary COAs:

- Adversary X use of WMD/E against the U.S. homeland
- Adversary Y attack against our regional ally
- Adversary Y use of WMD on the theater battlefield
- Adversary Y use of WMD against the U.S. homeland
- Continued sanctuary/support of Adversary X within Country A

Potential military strategic deterrence actions by the U.S. could include:

- Moving theater ballistic missile defenses to protect our ally from Adversary Y (denying benefits)

- Increasing the level of persistent, intrusive ISR visible to Adversary Y decision-makers to improve our ability to respond to aggression and demonstrate awareness of ongoing adversary actions (denying benefits)
- Increase public visibility of U.S. declaratory policy regarding U.S. responses to the use of WMD against the United States or its allies, to include the potential use of all of our options. (denying benefits and imposing costs)
- Alerting in-theater U.S. forces and preparing for embarkation, deployment, and arrival of additional expeditionary U.S. forces (denying benefits and imposing costs)
- Conducting kinetic and/or non-kinetic Global Strike on transshipment activities associated with Adversary X efforts to assemble and mate WMD and associated delivery means (denying benefits)
- Denying (but not degrading) Adversary Y's satellite with a laser dazzler so it cannot be used to monitor U.S. force deployments in support of the regional ally, yet still be available for legitimate third-party peaceful purposes (denying benefits)
- Conduct robust information operations against Adversary Y military personnel responsible for WMD use, convincing them not to follow WMD employment orders (inducing adversary restraint)
- Conduct demonstration of long-range precision Global Strike capabilities as a reminder of the joint force capability to credibly threaten adversary decision-makers with destruction or to preempt fielded WMD delivery systems (imposing costs/denying benefits)
- In coordination with the other instruments of national power, conduct strategic information operations to deter the WMD arms sale or ship leasing. (denying benefits)
- Conduct CNA to sabotage [e.g., discredit financial data] systems associated with Adversary X's WMD acquisition activities and undermine their support relationships with other third-party actors. (denying benefits)
- Publicize CONUS exercise of joint force consequence management resources and critical infrastructure protection in HLS support role (denying benefits)
- Communicate to Adversary Y decision-makers the fact of U.S. knowledge of support for Adversary X, as well as threaten to expand U.S. war aims should open conflict occur (inducing adversary restraint)
- In coordination with the other instruments of national power, conduct inducement operations directed at stopping Country A's support of Adversary X (denying benefits/inducing adversary restraint)

COAs would be collaboratively coordinated to include all combatant commanders and defense agencies so that strategic deterrence actions in one AOR are understood and planned for in all AORs.

Appendix B: Information requirements for evaluating an adversary's decision calculus²²

To deter an opponent, the JFC must exercise decisive influence over adversary decision-making regarding specific adversary courses of action that pose strategic threats. Answers to the following questions will help the JFC conduct his strategic deterrence mission:

Does the JFC know who is being deterred?

Does the JFC know whether the potential adversary is capable of rational decision-making?

Do the adversary decision-makers targeted for deterrence actually control policy decisions and military actions? If so, to what degree?

Does the JFC understand (even approximately) the adversary's will or resolve in challenging the United States? Does the JFC know if there is sufficient softness in the adversary's determination such that particular U.S. capabilities can pose an effective deterrent?

Is the JFC sufficiently familiar with the adversary's decision-making process to be confident that it can be affected?

Can the JFC approximate or understand the decision-maker's value hierarchy and rationality?

Does the JFC know the types of capabilities that would dominate the potential adversary's decision-making and value hierarchy?

Does the JFC know the adversary decision-makers' value "thresholds" sufficiently well to avoid situations in which they are "undeterrable" for all practical purposes, or in which U.S. responses will serve to provoke rather than deter?

Can the JFC U.S. national leadership communicate reliably with the adversary?

Has the JFC identified key cultural or idiosyncratic factors and accommodated these considerations within the overall deterrence construct?

Does the JFC know the level of credibility likely to be ascribed by the potential adversary to U.S. capabilities?

Does the JFC know what factors determine the United States' overall level of credibility in the adversary's view, and can the JFC affect that level?

²² Adapted from Keith B. Payne, *Deterrence in the Second Nuclear Age* (University Press of Kentucky, 1996) p. 126-127.

Appendix C: C2 Capabilities Required for Strategic Deterrence

The success of the Strategic Deterrence Joint Operating Concept requires the development of a global C4 capability that is both agile and responsive, with capabilities for:

- Secure, assured, survivable, and readily accessible, global command, control, and communications capability between and among the President, SECDEF, Combatant Commanders, DOD Agencies, interagency departments, selected allies, and assigned/augmenting forces
- Continuous access to relevant, all-source intelligence, displayed via a common (configurable) global operational picture that can be shared by all mission partners
- Collaboratively developed operations intelligence, Operations Plans (OPLANS), Contingency Plans (CONPLANS), and ISR campaign plans which are rapidly disseminated by Integrated Tasking Orders
- Assured access to, and communications with assigned engaged forces, sensors, intelligence, and analysis capabilities that foster rapid, collaborative planning, execution, and “real-time” re-tasking/re-targeting capabilities
- Collaboration in a multilevel secure environment with multiple partners using a common, relevant, configurable global operational picture. Because deterrence activities will require a tailored approach emphasizing “coalitions of the willing,” information provided in this environment must be configurable by individual partner with the ability to add or delete membership. Additionally, achieving successful strategic deterrence will require (in some cases) the ability to distribute this information directly to the targeted adversary to demonstrate the futility of attempting to challenge U.S. vital interests.
- Collection, fusion, and assessment of battle damage and effects-based assessment reports impacting strategic, operational, and tactical operations
- Collaborative integration with key DOD and USG agency capabilities and operations to leverage their unique expertise, synchronize respective efforts and avoid unintended consequences

Appendix D: Linkages Between Strategic Deterrence and Other Defense Policy Goals

The Strategic Deterrence JOC outlines the ways a JFC will bring U.S. military capabilities to bear in deterring threats to U.S. vital interests under a wide variety of current and future circumstances. However, strategic deterrence is not “waged” in a vacuum. Rather, the U.S. constantly pursues other defense policy goals* that have impacts on, and are impacted by, the goal of strategic deterrence. This appendix provides a high level overview of the nature of those impacts.



Figure 1: Strategic Deterrence Impacts on other Defense Policy Goals

* The 2001 Quadrennial Defense Review identified the following four defense policy goals: 1) Assuring allies and friends; 2) Dissuading future military competition; 3) Deterring threats and coercion against U.S. interests; and, 4) If deterrence fails, decisively defeating any adversary. For purposes of this document, Strategic Deterrence is considered to be the DoD contribution for achieving (3) above.

Deterrence Impacts on Assure, Dissuade, and Defeat (Figure 1)

Assure. Effective strategic deterrence has three primary impacts on the assurance of U.S. allies. Through political commitments to defend our allies, the strategic deterrent effect of U.S. capabilities is extended to our friends by assuring their security needs will be met. This central assurance impact of extended deterrence has two important secondary effects. First, allied perception that extended deterrence will be effective tends to ease the formation and maintenance of U.S.-led coalitions. Second, effective extended deterrence encourages allies to forgo indigenous development or procurement of duplicative military capabilities, thereby enhancing U.S. counterproliferation efforts.

Dissuade. Adversaries that perceive U.S. strategic deterrence efforts and operations as effective may also be dissuaded from militarily competing with us in certain areas. For example, if U.S. deterrence efforts are successful, some adversaries may view the acquisition or maintenance of certain threatening capabilities as superfluous and excessively expensive. As an example, effective ballistic missile defenses minimize an adversary's benefits and reduce incentives for acquiring ballistic missiles. Defenses also magnify an adversary's financial burdens, since the adversary that continues to pursue missile development must develop better (and more expensive) countermeasures when attempting to overcome defenses.

It should be noted that effective deterrence might not always have this effect. Some potentially threatening capabilities may still be attractive because an adversary believes they are essential to their own deterrence efforts aimed at the U.S. or at other regional competitors or adversaries. Effective strategic deterrence may even result in adversaries changing their policy vis-à-vis the U.S. and its allies, opting for a less hostile or competitive approach given the futility of military competition.

Defeat. Finally, effective strategic deterrence can powerfully enhance the pursuit of the "defeat" defense policy goal if necessary. First and foremost, deterring adversary use of WMD enables the U.S. to bring its overwhelming conventional supremacy to bear, thereby facilitating adversary compliance on U.S. terms. Deterrence of adversary coercion efforts against U.S. allies also can facilitate adversary defeat by strengthening U.S.-led coalitions and ensuring allied/coalition participation in (and support of) defeat-focused operations.

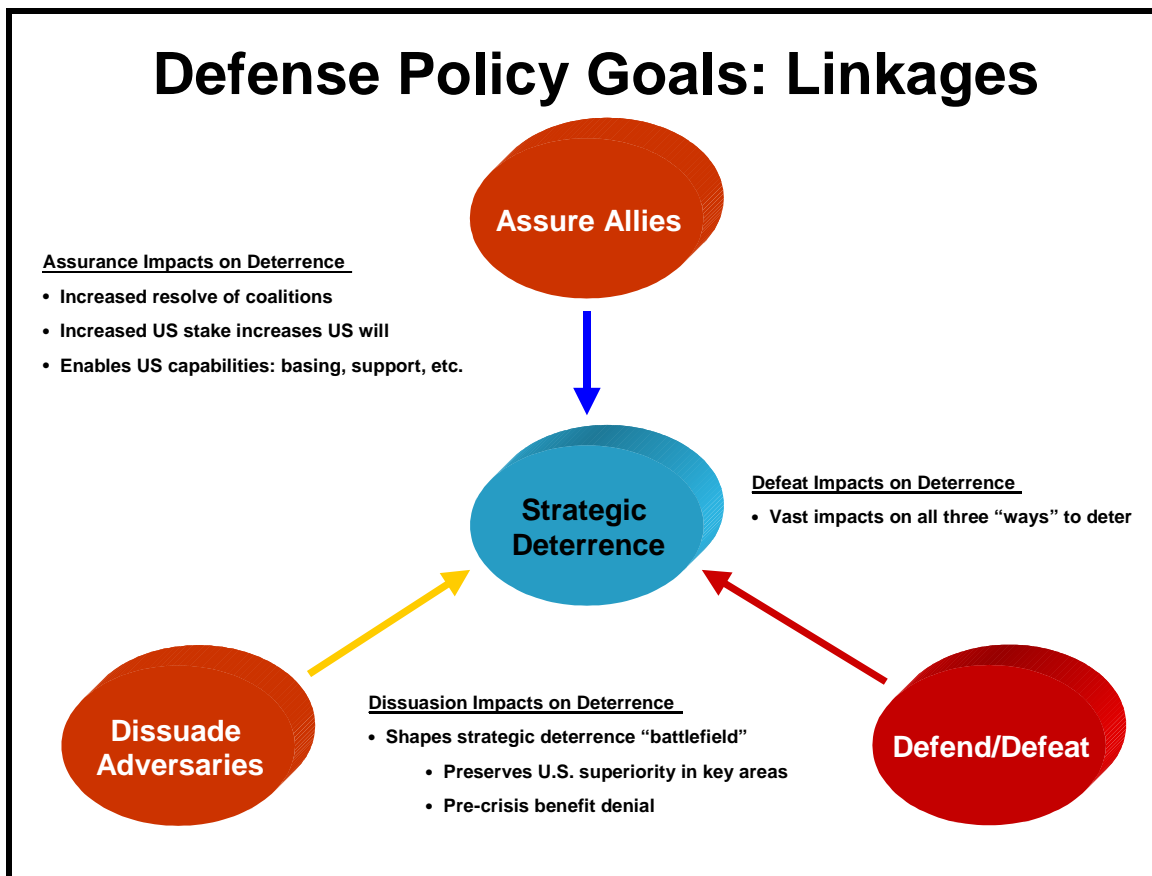


Figure 2: Impact of other Defense Policy Goals on Strategic Deterrence

Assure, Dissuade, Defeat Impacts on Strategic Deterrence (Figure 2)

Assure. Successful assurance of U.S. allies has three key impacts on our strategic deterrence efforts. First, assured allies are resolute allies, particularly in the face of determined coercive actions by our adversaries. Increased coalition resolve in turn enhances deterrence by convincing adversaries that there is no indirect means of undermining U.S. involvement and prosecution of military operations. Second, assurance efforts also have the effect of convincing adversaries that the U.S. stake in the outcome of a conflict involving our allies is high. This enhances deterrence by increasing adversaries’ perception of U.S. political will and determination. As an example, the forward basing of U.S. forces in areas of potential conflict raises the profile of U.S. interests while assuring allies at the same time. Finally, assured allies are far more likely to provide U.S. forces the basing and other support that enable the JFC to bring our full array of capabilities to bear in a timely and sustained manner.

Dissuade. The deterrence impact of effective dissuasion efforts is derived primarily from a “shaping the strategic deterrence battlespace” effect. Adversaries that opt not to compete with us in certain areas of military capability indirectly enhance our own strategic deterrence by bolstering perceived U.S. credibility. Dissuasion preserves our military supremacy in areas critical to effective deterrence, and aids in convincing adversaries that we can and will deny them the benefits of contemplated aggression in the pre-crisis, day-to-day peacetime period.

Defeat. The deterrence impacts of successfully achieving the “defeat” defense policy goal are too vast to describe in detail here. What is important to understand is that how and at what cost we successfully defeat one adversary will have critical impacts on our deterrence efforts vis-à-vis other adversaries. The JFC must take these potential impacts into account (and explicitly plan to exploit them) as we plan and conduct adversary defeat operations.

Appendix E: Required Capabilities and Attributes for Strategic Deterrence

Joint operating concepts must include enough measurable detail to support experimentation, permit the development of measures of effectiveness, and allow decision-makers to assess and compare alternative ideas and make programmatic decisions. This appendix summarizes the required capabilities (and their associated attributes) described earlier in this document. The appendix is divided into five sections:

Capabilities: Specific required capabilities (defined by CJCSI 3170.01C as "the ability to execute a specified course of action") are grouped under their associated enabling/direct means category. These capabilities are derived directly from the text descriptions found in this document. Numerical designators are assigned in the left-hand column for purposes of brevity.

JOpsC Attributes: This section identifies where the Joint Operations Concepts (JOpsC) attributes are applicable to individual strategic deterrence capabilities. Per CJCSI 3170.01C, an attribute is "a testable or measurable characteristic that describes an aspect of a system or capability." The numerical designators indicate the capability being specified. Attributes are ordered left-to-right based on their relative applicability (*italic* number at bottom of column).

SD Unique Attributes: Attributes unique to strategic deterrence are identified in this section. A given capability may have different attributes for deterrence and warfighting purposes. Again, the numerical designators indicate the specified capability. Attributes are ordered left-to-right based on their relative applicability (*italic* number at bottom of column).

SD Unique Attribute Definitions: SD JOC-unique attribute definitions are included in this section.

Functional Concept Impact: This section highlights the functional concepts specifically impacted (for strategic deterrence purposes) by each enabling/direct means category. For the Focused Logistics functional concept, this includes where the impact involves industrial base (vice operational employment) considerations.

Section 1 - Means and their associated capabilities ("the ability to . . .") for strategic deterrence

Global Situational Awareness

The ability to conduct effective battlespace awareness of the spatial and temporal domains in support of national objectives

The ability to conduct effective battlespace awareness of the adversary cognitive domain (strategic deterrence intelligence and assessment)

The ability to identify and profile adversary senior leadership

The ability to identify adversary value structures and high-value assets

The ability to accomplish datamining on disparate government databases

The ability to translate foreign language information in near-real time

The ability to maintain robust targeting databases for planning purposes

The ability to identify nature of/location/origin/ownership/support capabilities/employment source for WMD/E

The ability to discriminate and surveil mobile targets of interest

The ability to integrate C4ISR and C2 activity via networked operations

Command and Control

The ability to conduct blue force tracking and status monitoring

The ability to dynamically conference senior civilian leadership/CJCS/COCOMs/Service Chiefs/JFCs via electronic means

The ability for senior U.S. leadership to directly communicate with fielded forces/initiate weapons employment with minimal intervening support

The ability to conduct adaptable and flexible command and control from course of action development through selection and execution

The ability to conduct enduring C2 activities across the range of military operations and threat environments (to include WMD/E) in support of senior national and military leadership

Overseas Presence

The ability to maintain responsive forward stationed/forward deployed combat expeditionary forces

Allied/coalition Military Cooperation & Integration

The ability to form responsive coalitions to counter adversary aims

The ability to implement coalition actions to an equal degree of rapidity and unity of effort as compared to unilateral action

Force Projection

- The ability to project U.S. military power globally
- The ability to conduct major combat operations across all operational domains
- The ability to defeat adversary anti-access strategies
- The ability to deny adversary sanctuary from U.S. attack ops
- The ability to conduct military operations subsequent to WMD/E employment
- The ability to limit adversary damage to U.S./allies/noncombatants
- The ability to rapidly position forces and focus efforts in areas of crisis or potential conflict

Nuclear Strike Capabilities

- The ability to destroy or neutralize adversary WMD/E
- The ability to destroy adversary leadership and command and control
- The ability to destroy adversary critical industries/resources/means of political organization & control
- The ability to destroy hard and deeply buried facilities
- The ability to target and destroy location uncertainty targets
- The ability to reconstitute nuclear weapons production and testing infrastructure
- The ability to achieve tailored weapons effects (limit collateral damage and/or enhance lethality)

Active & Passive Defenses

- The ability to maintain a robust Homeland Security posture
- The ability to conduct global ballistic missile defense
- The ability to conduct global cruise missile defense
- The ability to integrate active defenses with offensive counterforce operations
- The ability to reduce U.S. vulnerability to attack through passive defense measures
- The ability to prevent or seriously limit damage through passive defenses and CBRNE consequence management
- The ability to sustain critical infrastructure in face of adversary attacks
- The ability to disperse U.S. forces to decrease target concentrations
- The ability to ensure functions of critical joint force systems are survivable against WMD/E
- The ability to achieve interoperability and functional redundancy
- The ability to achieve information assurance and provide effective computer network defenses

Global Strike

- The ability to conduct limited-duration, extended-range precision kinetic and non-kinetic attacks in support of national objectives
- The ability to defeat adversary anti-access strategies
- The ability to deny adversary sanctuary from U.S. attack ops
- The ability to integrate in-theater and global forces/capabilities
- The ability to plan & conduct independent operations with minimal outside support and/or redundancy
- The ability to support real-time weapons command/targeting/retargeting/disarm/disablement
- The ability to minimize collateral damage
- The ability to conduct simultaneous attacks against target classes/categories
- The ability to demonstrate Global Strike capabilities openly to friends and adversaries alike
- The ability to maintain covert Global Strike capabilities to assure allies and dissuade adversaries
- The ability to conduct effective computer network attack

SD Information Operations

- The ability to inform adversaries explicitly of U.S. national interests and intentions
- The ability to communicate U.S. confidence in our ability to limit damage to ourselves and our allies
- The ability to communicate to adversaries their vulnerability to U.S. attack
- The ability to provide adversaries with terms and conditions for compliance
- The ability to communicate with or persuade non-leadership adversary elites
- The ability to conduct one- and two-way multiparty communications with a flexible, changing target audience
- The ability to efficiently and effectively communicate in the adversary's native language
- The ability to maintain robust electronic warfare capabilities

Inducement Operations

- The ability to provide shared early warning of aerospace/WMD attack to both friends and adversaries as needed
- The ability to seamlessly create and modify ad hoc warning networks
- The ability to secure adversary WMD and accomplish dewatering
- The ability to transport and deliver direct compensation or other support to individual adversaries as appropriate
- The ability to communicate U.S. restraint and intent when in pursuit of limited objectives
- The ability to provide safe passage of personnel and material

Space Control

The ability to provide assured U.S. access to space

The ability to proliferate space, link, user, and terrestrial segments

The ability to leverage low-cost production and miniaturization within space systems

The ability to harden/disperse/camouflage ground segments

The ability to provide robust space system electronic links

The ability to provide unambiguous indications of deliberate attack/environmental failures/onboard anomalies for on-orbit satellites and associated C2

The ability to maintain continuous whole-earth coverage from a space vantage point

The ability to automate interfaces within disparate space system elements

The ability to rapidly reconstitute on-orbit satellite capabilities

The ability to provide production-line methods for satellite/launch vehicle/C2/user segments

The ability to ensure dual-use compatibility for Global Strike and responsive spacelift capabilities

The ability to integrate land/air/sea/space/information systems to achieve space situational awareness

The ability to deceive/disrupt/deny/degrade/destroy adversary space systems or capabilities

The ability to limit collateral damage to the space environment and/or third-party systems

The ability to achieve reversible negation effects on space systems

Section 2 - JOpsC Attributes Crosswalk

	Networked	Decentralized	Adaptable	Decision Superiority	Fully Integrated	Expeditionary	Lethal
GSA							
1	X	X	X	X	X	X	
2	X	X	X	X	X		X
3	X	X	X	X	X		X
4	X	X	X	X	X		X
5	X	X	X	X	X	X	
6	X	X	X	X	X	X	
7	X	X	X	X	X	X	
8	X	X	X	X	X	X	
9	X	X	X	X	X	X	
10	X	X	X	X	X	X	
C2							
1	X	X	X	X	X	X	
2	X	X	X	X	X	X	
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	
5	X	X	X	X	X	X	
OP							
1	X	X	X	X	X	X	X
AMC&I							
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X

	<u>Networked</u>	<u>Decentralized</u>	<u>Adaptable</u>	<u>Decision Superiority</u>	<u>Fully Integrated</u>	<u>Expeditionary</u>	<u>Lethal</u>
FP							
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X
7	X	X	X	X	X	X	
NSC							
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X
6	X	X	X	X	X		
7	X	X	X	X	X	X	X
A&PD							
1	X	X	X	X	X		X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	
5	X	X	X	X	X	X	
6	X	X	X	X	X	X	
7	X	X	X	X	X	X	
8	X	X	X	X	X	X	
9	X	X	X	X	X	X	
10	X	X	X	X	X	X	
11	X	X	X	X	X	X	

	Networked	Decentralized	Adaptable	Decision Superiority	Fully Integrated	Expeditionary	Lethal
GS							
1	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X
4	X	X	X	X	X	X	
5	X	X	X	X		X	
6	X	X	X	X	X	X	X
7	X	X	X	X	X	X	
8	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X
11	X	X	X	X	X	X	X
SDIO							
1	X	X	X	X	X		X
2	X	X	X	X	X		X
3	X	X	X	X	X		X
4	X	X	X	X	X		X
5	X	X	X	X	X	X	X
6	X	X	X	X	X	X	
7	X	X	X	X	X	X	
8	X	X	X	X	X	X	X
IndOps							
1	X	X	X	X	X	X	
2	X	X	X	X	X	X	
3	X	X	X	X	X	X	
4	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X
6	X	X	X	X	X	X	

	<u>Networked</u>	<u>Decentralized</u>	<u>Adaptable</u>	<u>Decision Superiority</u>	<u>Fully Integrated</u>	<u>Expeditionary</u>	<u>Lethal</u>
SC							
1	X	X	X	X	X	X	
2	X	X	X	X	X	X	
3	X	X	X	X	X		
4	X	X	X	X	X	X	
5	X	X	X	X	X	X	
6	X	X	X	X	X	X	
7	X	X	X	X	X	X	
8	X	X	X	X	X	X	
9	X	X	X	X	X	X	
10	X	X	X	X	X		
11	X	X	X	X	X	X	X
12	X	X	X	X	X	X	
13	X	X	X	X	X	X	X
14	X	X	X	X	X	X	
15	X	X	X	X	X	X	X
	82	82	82	82	81	71	40

Section 3 - SD JOC Unique Attributes Crosswalk											
	Survivable	Timely	Reliable	Resilient	Unambiguous	Secure	Redundant	Persistent	CD Limiting	Kinetic	Non-kinetic
<u>GSA</u>											
1	X	X	X	X	X		X	X			
2	X	X	X	X				X			
3	X	X	X					X			
4	X		X					X			
5	X	X	X					X	X		
6	X	X	X		X						
7	X	X		X		X	X	X			
8	X	X	X	X	X		X	X	X		
9	X	X	X	X	X	X	X	X			
10	X	X	X	X	X	X	X	X			
<u>C2</u>											
1	X	X	X	X	X	X	X	X			
2	X	X	X	X	X	X	X				
3	X	X	X	X	X	X	X				
4	X	X	X	X	X	X	X	X			
5	X	X	X	X	X	X	X	X			
<u>OP</u>											
1					X						
<u>AMC&I</u>											
1		X			X						
2		X		X	X						

	<u>Survivable</u>	<u>Timely</u>	<u>Reliable</u>	<u>Resilient</u>	<u>Unambiguous</u>	<u>Secure</u>	<u>Redundant</u>	<u>Persistent</u>	<u>Limits CD</u>	<u>Kinetic</u>	<u>Non-kinetic</u>
FP											
1	X	X		X					X	X	X
2	X	X		X					X	X	X
3	X	X	X	X						X	X
4	X	X	X	X			X		X	X	X
5	X			X				X		X	X
6	X		X								
7		X	X	X	X			X			
NSC											
1	X	X	X			X			X	X	
2	X	X	X			X					
3	X	X	X			X				X	
4	X	X	X			X			X	X	
5	X	X	X			X			X	X	
6	X	X	X								
7	X	X	X						X		
A&PD											
1	X		X		X			X			
2	X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X				
5	X		X	X	X		X	X			
6	X	X	X	X	X		X	X			
7	X		X	X	X	X	X	X			
8	X	X			X	X					
9	X		X	X	X		X				
10				X			X				
11		X	X	X	X	X	X	X	X	X	X

	Survivable	Timely	Reliable	Resilient	Unambiguous	Secure	Redundant	Persistent	Limits CD	Kinetic	Non-kinetic
GS											
1	X	X	X		X	X			X	X	X
2		X	X							X	X
3	X	X	X	X	X	X	X	X	X	X	
4	X	X					X				
5		X	X			X					
6	X	X	X	X	X	X	X				
7	X		X						X		
8	X	X	X						X	X	X
9	X		X		X						
10	X		X			X					
11	X	X	X	X	X	X	X	X	X		X
SDIO											
1	X	X	X	X	X	X	X				
2	X	X	X	X	X		X				
3	X	X	X	X	X	X	X				
4	X	X	X	X	X	X	X				
5	X	X	X	X	X	X	X				
6	X	X	X	X	X	X	X				
7	X	X	X	X	X						
8	X	X	X	X	X		X	X	X		X
IndOps											
1	X	X	X	X	X	X	X	X			
2	X	X	X	X	X	X	X				
3	X	X	X			X					
4	X	X	X		X	X				X	X
5	X	X	X	X	X	X	X				
6	X	X	X			X					

	Survivable	Timely	Reliable	Resilient	Unambiguous	Secure	Redundant	Persistent	Limits CD	Kinetic	Non-kinetic
SC											
1	X	X	X				X	X			
2	X	X					X				
3	X			X			X				
4	X			X		X	X				
5	X	X	X	X	X	X	X	X			
6	X	X	X	X	X	X	X				
7	X							X			
8	X	X		X		X					
9	X	X		X	X		X				
10	X			X							
11	X										
12	X	X						X			
13	X	X	X	X		X		X	X	X	X
14	X								X		
15	X	X	X	X		X		X	X		X
	74	64	62	49	43	42	40	30	20	18	15

Section 4 - SD JOC Unique Attribute Definitions

Collateral Damage-limiting (new) - that which prevents (or reduces) secondary or unintended loss and harm

Kinetic (Webster's) - of (or relating to) the motion of material bodies and the forces and energy associated therewith

Non-kinetic (new) - the intrinsic quality of that which is not kinetic

Persistent (Webster's) - existing for a long (or longer than usual) time or continuously

Redundant (Webster's) - serving as a duplicate for preventing failure of an entire system upon failure of a single component

Reliable (Webster's modified) - giving the same result on successive trials (or uses) of a system, procedure, or process.

Resilient (Webster's) - tending to recover from or adjust easily to misfortune or change

Secure (Webster's modified) - free from risk of loss (or intrusion) and affording safety; inviolable

Survivable (Webster's modified) - resulting in or permitting the continuation of existence and function

Timely (Webster's modified) - coming early or at the right moment as applied within a specific operational context

Unambiguous (Webster's modified) - clear and precise; not subject to misinterpretation

Section 5 - Functional Concept Impacts

JFCs CAPABILITIES	Protection	Joint Cmd and Control	Battlespace Awareness	Force Application	Focused Logistics	Focused Logistics (Industrial Base Issues)
Global Situational Awareness	X		X		X	
Command and Control	X	X				
Overseas Presence			X	X	X	
Allied/coalition Military Coop & Integration		X		X	X	
Force Projection	X	X	X	X	X	X
Nuclear Strike Capabilities	X	X		X		X
Active and Passive Defenses	X	X	X	X		X
Global Strike		X	X	X		X
Strategic Deterrence Information Ops	X	X	X	X		
Inducement Ops	X	X	X			
Space Control	X	X	X	X	X	X



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