Global Journal of Arts, Humanities and Social Sciences
Vol.9, No.5, pp.34-63, 2021
Print ISSN: 2052-6350(Print)
Online ISSN: 2052-6369(Online)

Defence Policy Foresight | Military Warfare Ecosystem

Ayodele A. Otaiku
DPA, Ph.D. Scholar | https://nda-ng.academia.edu/AyodeleOtaiku
Nigerian Defence Academy, Faculty of Arts & Social Science,
Department of Geography / Environmental Management, Kaduna, Nigeria.
+234 803 3721219 WhatsApp
aotaiku@gmail.com | otaiku.ajayiayodele@nad.edu.ng

GRAPHICAL ABSTRACT

ABSTRACT

The rules of war and its character has change, military doctrine now thrives in chaos, where military policy and defence strategy has merged as 'critical thinking ecosystem', where 'everything matter' because 'today war', is 'not declared' and dynamics of future conflict, 'unrestricted' underscores defence policy formulation. 'The United States military doctrine of 'The Joint Force 2020 concept' with integrated capabilities and the use of robotic and artificial intelligence apparatus for decision making is taking on a mass character. Russia military doctrine employs, 'multi-domain operations' in the diplomatic, information, cyber, economic, and military domains for regional hegemony. Both military powers seek 'defence foresight' to manage their national interests outside of their borders of its territory using 'high-precision weaponry and proxies'. Its execution requires the optimization of global strategic posture into the 'instruments of power' termed 'warfare ecosystem' schema - iterated exploration of alternatives paths for results that, 'optimize risk and uncertainty', with the principles of minimum regrets, flexibility, versatility and adaptability encapsulate the 'warfare strategy' as a wicked problem. The construct of space infrastructure capabilities today remains the final frontier for defence policy formulation that, ruthlessly attack inefficiencies of defence posture of modern military strategic thinking to migrate into 'warfare ecosystem' foresight.

KEYWORDS: military doctrine, defence policy, military strategy, national interest, defence foresight, multi-domain operations, warfare ecosystem, wicked problem, special military forces.

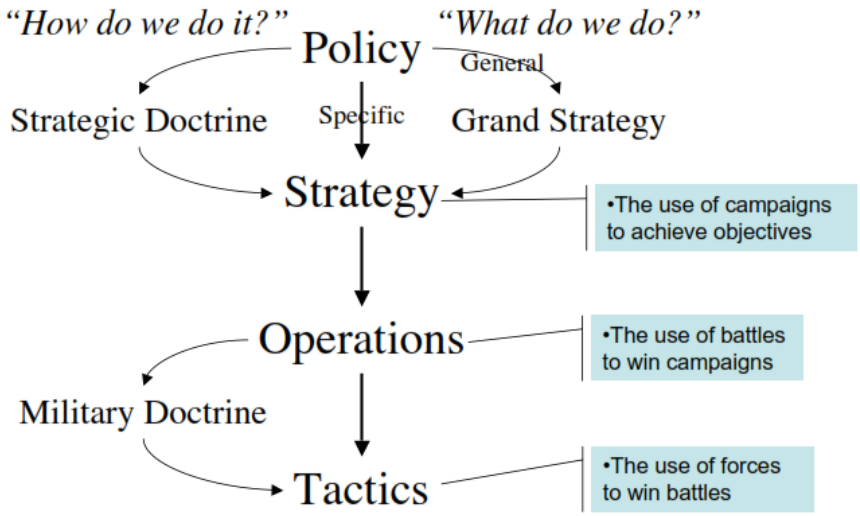
INTRODUCTION

Defence Policy

Defence policy is public policy dealing with international security and the military. It comprises the measures and initiatives that governments do or do not take in relation to decision-making and strategic goals, such as when and how to commit national armed forces. The military policy is used

to ensure retention of independence in national development, and alleviation of hardships imposed

from hostile and aggressive external actors. The defence ministry (or a synonymous organisation) minister is the primary decision-maker for the national military policy in every nation. Military policy identifies threats of hostility and aggression based on intelligence analysis, and defines military scope of national security, defence alliances, combat readiness, and military organisation of national forces and their use of military technology. The national military policy defines the national defence strategy, the "when" of committing national armed forces. The national military policy also defines the strategic posture, the "how", towards any possible threats to national territory, its society, environment, and economy, and defines options available to deal with such threats. The more options a military policy provides to the government, the better it is considered in its formulation. Strategic posture in turn, defines the 'military doctrine of the armed forces'. This doctrine may include confronting threats to national interests located outside of the national territory such as shipping lanes and alliances. The defence strategy and military doctrine are developed through strategic policy and capability development processes as narrated in Figure 1.



Source: Alex Montgomery https://www.scribd.com/document/266421120/1-2

Figure 1. The schematic of defence policy on military strategy.

Military Strategy

Military strategy is a set of ideas implemented by military organizations to pursue desired strategic goals (Smith,1999) derived from the Greek word *strategos*, the term strategy, when it appeared in use during the 18th century,[1] was seen in its narrow sense as the "art of the general" (Lewis,1999) or "'the art of arrangement" of troops[2]. Military strategy deals with the planning and conduct of campaigns, the movement and disposition of forces, and the deception of the enemy. The father of Western strategic studies, Clausewitz (1780 -1831), defined military strategy as "the employment of battles to gain the end of war." B. H. Liddell Hart's definition put less emphasis on battles, defining strategy as "the art of distributing and applying military means to fulfil the ends of policy (Mair,2007). Hence, both gave the pre-eminence to political aims over military goals (Figure 1). Sun Tzu (544 - 496 BC) is often considered as the father of Eastern military strategy and greatly influenced Chinese, Japanese, Korean and Vietnamese historical and modern war tactics.

[1].AAP-6(V) NATO Glossary of Terms and Definitions.
[2] ·Evaluation Division, Air University. "To Analyze the USAF Publications System for Producing Manuals", staff study, 13 July 1948, quoted in Futrell, Robert Frank. *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, 1907–1960. December 1989, Air University Press.

Gawlikowski (1993) *The Art of War* by Sun Tzu grew in popularity and saw practical use in Western society as well. It continues to influence many competitive endeavours in Asia, Europe, and America including culture, politics, and business, as well as modern warfare (Mair, 2007). The Eastern military strategy differs from the Western by focusing more on 'asymmetric warfare and deception'. Strategy differs from tactics, in that, strategy refers to the employment of all of a nation's military capabilities through high level and long-term planning, development and procurement to guarantee security or victory. Tactics is the military science employed to secure objectives defined as part of the military strategy; especially the methods whereby men, equipment, aircraft, ships and weapons are employed and directed against an enemy (Gawlikowski, 1993). The paper objective is to illuminate the impacts of 'defence policy foresight' executed by military policy formulation to the 'strategic posture of the Russia and the United State of America' as case studies in their 'theatre of war' and find 'an alternative schema' that encapsulates their defence posture.

The Policy Rationale

Russia - Expansionist Policy

After the collapse of the Soviet Union, 1991, 15 new independent states emerged on the geopolitical world map. These countries in the composition of the Soviet Union earlier with a common cultural, social and economic identity was similar. The consequence, Russia has been treating these states as the "near abroad", i.e., potentially existing within the area of Russia's influence. In 2004, when the Baltic States became members of NATO and the European Union, the influence of the Kremlin in this region began to dwindle. Globalization eastward was a signal for Russia that, it has to strengthen its influence in the remaining 11 post-Soviet states in seeking to maintain the position of the regional leader. The political and military elites of Russia constantly emphasize that Russia is a great power of the world, but losing the region and want to maintain the status of a powerful state hegemony where Russia's foreign and security policy should be a priority area of the state. The ruling class and a large part of the intelligentsia of Russia are more concerned about maintaining the 'international influence' rather than the low living standards of the country.[3]

Russia ambition to become the leader of the region was asserted with its aggressive foreign policy towards neighbouring countries. In the international arena, Russia is often treated as a state harbouring 'expansionist goals' by the current president of Russia, Vladimir Putin: "Its [Russia's] weight and authority will be strengthened.[4]" Russia want to restore the former might of the Soviet Union and pursues political leverages military capabilities of the state[5]. The consequence, Russia's reaction to some post-Soviet states (the Baltic countries, Ukraine, Georgia, Moldova), integrating into Euro-Atlantic organizations, is rather hostile. John J. Mearsheimer, asserted that, 'the ultimate objective of Russia is to seek regional hegemony since this is the only way for the state to ensure the absolute security of the state.[6] Russia goal is regional hegemony, comprising the geographical territory of the 'Russian world.'[7]Without any doubt, it would not be tantamount to the restoration of the Soviet Union as a global. Without any doubt, it would not be tantamount to the restoration of the Soviet Union as a global superpower but it would absolutely mean the creation of a state as a regional superpower capable of significantly influencing geopolitical processes in the neighbouring countries.

[3.] Pipes R., "Is Russia Still an Enemy?" Foreign Affairs 76 (5), 1997, pp. 65-78.

[4] "Weight and authority of Russia in the world will be strengthened"], Коммерсант, 2013, http://www.kommersant.ru/doc/2129338(in Russian).

[5]. De Haas M., "Russia's Military Reforms: Victory after Twenty Years of Failure?", The Clingendael Institute, Clingendael Diplomacy Paper, 2011; Capezza D., "Translating Russia's Military Reform", Small WarsFoundation, 2009; Grigas A., "Legacies, Coercion and Soft Power: Russian Influence in the Baltic States", Briefing Paper, 2012; Trenin D., Lecture at the Royal Swedish Academy of War Sciences, Stockholm, 2013a; Hedenskog J., Pallin C. V., eds., Russian Military Capability in a Ten-Year Perspective

[6].Mearsheimer J. J., The Tragedy of Great Power Politics, New York: W. W. Norton, 2001.

[7].The Russian world (Rus. Русский мир), according to the author of the Russian World Doctrine Piotr Shchedrovicky, is a net structure of larger or smaller communities speaking and thinking in Russian; therefore, in essence, involving the entire bloc of post-Soviet states.

The United States Policy – Global power

In 21st century, the relative power advantage that the United States has enjoyed is steadily declining, and defense leaders have publicly recognized the need to address the erosion of the technological edge that undergirds the U.S. military superiority globally.[8] The United States defence strategy focus on potential challengers to the U.S. interests, as well as the opportunities presented by ever-evolving technology trends. Effective strategy is the result of carefully aligning policy goals to realistic objectives with the resources necessary to obtain them.[9]This strategic coherence, achieving the right balance between ends, ways, and means, is the most critical consideration in strategy. To guide the development of the force of the future, the Pentagon will need an updated force design mechanism to size and shape that force with military policy options for decision makers.

METHODOLOGY

Doctrine represents an amalgam of 'collective and accepted advice' on the way to employ military forces. Threat perception and understanding of the international security environment, and the dynamics of 'future conflict underscores defence policy.' Military doctrine is 'what we believe' about the best way to conduct 'military affairs.' Doctrine is thus not dogmatic, but is intended to 'guide and advise'. New experiences and equipment might necessitate amendments to the doctrine. The crafting of a doctrine military, it should be a creative process born of experience and coherent with military strategy. The behaviour of forces at the operational, tactical and procedural levels is governed to a large extent by doctrine and culture. The expressions 'tactics', 'techniques' and 'procedures'(TTP) may be used for the mechanisms that allow for the practical application of doctrine with an integral factor of geography that will shape the policy. The wishes of the government are paramount for a society in which the armed forces are under democratic control. Changes to political structures, security policies and specifically the defence policy of a government will all have an influence on doctrine. Defence policy principally addresses the military instrument at the 'Military Strategic Level'. Importantly, defence policy should guide nations' defence programmes and force planning. A nation whose security and defence policies emphasize the importance of coalition operations can be expected to devote more resources to issues of technical interoperability than one whose policies favour autonomy of action. Modern art of defence policy should illuminate the following:

i. Defence policy should influence military doctrine but the relationship between policy and doctrine, now an ecosystem. Doctrine is after all written by the military as the professional view as to how armed forces are best used. A robust strategy should contain at least two elements: a coherent set of objectives; and a broad concept as to how the 'objectives are to be achieved with allocation of resources.' Defence policy may be expressed as a strategy if it contains these elements. Defence policy addresses the military instrument of power;
ii. The commitment to defence of the territory of the homeland, which may range from none to the dominant national characteristic; and
iii. No single nation is likely to pursue one of these choices to an extreme at the expense of the other two. However, each nation's enduring military strategic concept can be described as a 'compromise among these choices'. Countries illustrative defence policies concepts can be represented against these military instruments of power.

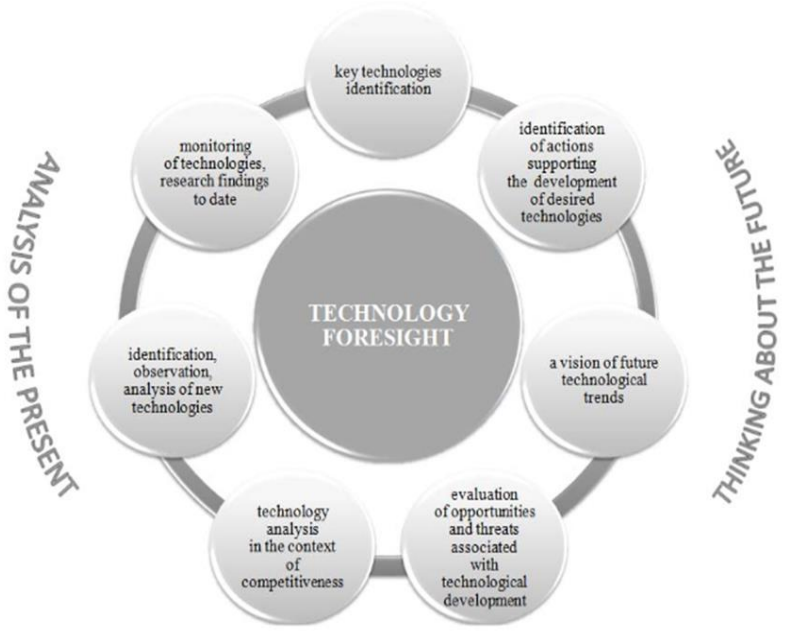
[8.] Robert Work, "The Third Offset Strategy," prepared remarks at the Ronald Reagan Defense Forum, November 17, 2015, available at <www.defense.gov/News/Speeches/ Speech-View/Article/628246/reagan-defense-forum-the-third-offset-strategy>; Frank Kendall, Under Secretary of Defense Acquisition, Technology and Logistics, testimony before the House Armed Services Committee, January 28, 2015.
[9.] Clark A. Murdock and Mark F. Cancian, Alternative Defense Strategies (Washington, Centre for Strategic and International Studies, 2016); Clark A. Murdock, Ryan A. Crotty, and Angela Weaver, Building the 2021 Affordable Military (Washington, DC: Centre for Strategic and International Studies, July 2014).

Justification - What is modern war? What should the army be prepared for?

The operation to force Georgia to peace exposed the absence of unified approaches to the use of formations of the Armed Forces outside of the Russian Federation. The September 2012 attack on the U.S. consulate in the Libyan city of Benghazi; land and sea the activation of pirate activities globally cum the hostage taking in Algeria, all confirm the importance of creating a system of armed defence of the interests of the state outside the borders of its territory in the 21st century. Developing a scientific and methodological apparatus for decision making that takes into account the multifarious character of military groupings (forces) is the crux of defence policy today. Modern defence policy must integrate capabilities, combined potential of all the component troops, and forces that mitigate risk and uncertainty with focus on resilience of the enemy. Existing models of operations and military conduct of the above narrative do not support these analytics. New models are needed. Defence strategy is at the centre of command and control for global impact, where geography has been 'collapse' by high-precision weaponry and artificial intelligence apparatus for decision making in war campaigns and theatre of war encapsulate by foresight (Figure 2).

Technology Foresight

One of the most important issues in our society is technological innovation (Schiling, 2010; Betz, 2011; Chung, 2011). A desirable future in a knowledge society can be achieved by technological innovation (Betz, 2011), Foresight defines as a "systematic, participatory process that involves gathering intelligence and building visions for the medium-to-long-term future, aimed at informing present-day decisions and mobilizing joint actions" (HKSF, 2002). This definition of foresight can be approached and achieved in three ways, namely, via future studies, networking, and planning (HKSF, 2002), Figure 2.



Source: Magruk, 2011

Figure 2. The technological context in foresight research.

First, foresight is based on future studies such as future reports, scenarios, and vision statements. In order to enable future studies, nowadays there are several reports, books, as well as science fictions movies providing an insight into future trends (HKSF, 2002). Second, foresight is also based on networking and participation. By utilizing this networking among technology experts and citizens and by employing surveys and Delphi methods, we can anticipate and imagine the future (HKSF, 2002; TFG, 2004). Third, foresight can be achieved by systematic and strategic planning (HKSF, 2002). There is a growing importance in technology foresight and technology intelligence at the military, corporate level because technology cycles are getting shortened and new technology emerges frequently (Chung, 2011; Andriopoulos and Gotsi, 2006; Major *et al*.,2001). Because organizations adapting to a new technology environment survive, issues pertaining to technology choice are very important for both chief executive officers (CEOs) and chief technology officers (CTOs). Global corporations such as IBM, Corning, and Samsung recognize the importance of technology foresight at the corporate level, and conduct technology foresight activities in their own way.

Technology Foresight Implementation Strategy

The first technology foresight implementation strategy is strengthening the relationship between technology foresight and innovation. When technology foresight can direct the national Research and Development (R&D) system, military defence strategy and the National Innovation System (NIS) will lead to a desirable future foresight (Martin and Johnston, 1999). The second technology foresight implementation strategy is making a linkage between technology foresight and a technology roadmap for strengthening execution. A desirable future with various future technologies can be achieved through technology development and R&D programs (Phaal *et al*, 2011, 2004). The future scenario can be connected via a technology development roadmap. With this roadmap, technology development is possible in proper development stages for a desirable future scenario for military strategic posture.

Military Doctrine

Prussia and German Empire

Prussian doctrine was published as *Regulations for the Instruction of the Troops in Field Service and the Exercises of the larger Units of the 17th June, 1870*. The doctrine was revised in 1887 and published in English in 1893 as The Order of Field Service of the German Army, by Karl Kaltenborn und Stachau and once again in 1908 as *Felddienst Ordnung (Field Service Regulations)*. In the period between the Napoleonic Wars and the First World War, doctrine was defined by the War Department in "Field Service Regulations." In addition, many officers wrote military manuals that were printed by private publishers, such as Hardee's Tactics, used by both Confederate and Union forces. General George B. McClellan wrote a cavalry manual, *Regulations and Instructions for the Field Service of the U.S. Cavalry,* in 1862. The General Staff became responsible for writing Field Service Regulations. They were published in 1908, were revised in 1913 and again in 1914 based on experiences of European powers in the first months of the war. As late as 1941 U.S. Army doctrine was published in *Field Service Regulations Operations*. This designation was dropped and replaced by U.S. Army Field Manuals (FM).

Russia

The Soviet meaning of military doctrine was very different from the U.S. military usage of the term. Soviet Minister of Defence Marshal Grechko defined it in 1975 as "a system of views on the nature of war and methods of waging it, and on the preparation of the country and army for war, officially adopted in a given state and its armed forces." In Soviet times, theorists emphasised both the 'political and military-technical' sides of military doctrine, while from the Soviet point of view, Westerners ignored the political side. However, the political side of Soviet military doctrine, Western

commentators Harriet F. Scott and William Scott asserted,[10] 'best explained Soviet moves in the international arena, Soviet (and contemporary Russian) doctrine emphasizes combined-arms warfare as well as operational warfare'. It emphasizes the initiation of military hostilities at a time, date, and location of it choosing of the extensive preparation of the battle space for operations. Former Soviet/Russian doctrine sacrifices tactical flexibility and adaptability for strategic and operational flexibility and adaptability; tactical personnel are trained as relatively inflexible executors of specific, detailed orders, while the 'operational-strategic level' of Russian military doctrine is where most 'innovation' takes place. The Soviet response to problems of nuclear strategy began with classified publications.

The United States

The United States Constitution invests Congress with the powers to provide for the common defence and general welfare of the United States and to raise and support armies. Title of the United States Code [10] states what Congress expects the Army, in conjunction with the other Services, to accomplish. These includes: Preserve the peace and security and provide for the defence of the United States, its territories and possessions, and any areas it occupies; support national policies; Implement national objectives; overcome any nations responsible for aggressive acts that imperil the peace and security of the United States. Under President Lyndon Johnson it was stated that, 'the US armed forces should be able to fight two at one point, two-and-a-half-wars at the same time.'[11] This was defined to mean a war in Europe against the Soviet Union, a war in Asia against China or North Korea, and a "half-war" as well-in other words, a "small" war in the Third World. When Richard Nixon took office in 1969, he altered the formula to state that, 'the United States should be able to fight one-and-a-half wars simultaneously'.

This doctrine remained in place until 1989-90, when President George H.W. Bush ordered the "Base Force" study which forecast a substantial cut in the military budget, an end to the Soviet Union's global threat, and the possible beginning of 'new regional threats. In 1993, President Bill Clinton ordered a "Bottom-Up Review," based on which a strategy called "win-hold-win" was declared-enough forces to win one war while holding off the enemy in another conflict, then moving on to win it after the first war is over. The final draft was changed to read that the United States must be able to win two "major regional conflicts" simultaneously.[12] The current strategic doctrine, which Defence Secretary Donald Rumsfeld issued in his Quadrennial Defence Review of early 2001 (before the 9/11 attacks), is a package of the U.S. military requirements known as 1-4-2-1. The first 1 refers to defending the US homeland. The 4 refers to deterring hostilities in four key regions of the world. The 2 means the US armed forces must have the strength to win swiftly in two near-simultaneous conflicts in those regions. The final 1 means that the US forces must win one of those conflicts "decisively". The general policy objectives are to (1) assure allies and friends; (2) dissuade future military competition, (3) deter threats and coercion against the U.S. interests, and (4) if deterrence fails, decisively defeat any adversary.[12] The Department of Defence publishes Joint Publications which state all-services doctrine. The current basic doctrinal publication is Joint Publication 3-0, 'Doctrine for Joint Operations'.

The National Interest and National Military Strategy

Russia's Conception of Future Warfare

Advanced military technologies are also force multipliers for enemy mobile forces; which could

[10]. Scott and Scott, 1979, pp. 37, 59.
[11]. Chapter 3 | U.S. Defense Policy and Strategy By F.G. Hoffman. Defense Policy and Strategy," In: R.D. Hooker, Jr., Charting a Course, Washington, D.C: National Defense University Press, 2016. https://ndupress.ndu.edu/Publications/Books/charting-a-course/Article/1026966/chapter-3-us-defense-policy-and-strategy/.
[12]. Ibid

jeopardise Russia's ability to dominate conflicts in its near abroad. Russia has devised a broader, 'whole-of-government approach' to the latter. This approach involves the combination of various capabilities in a multi-dimensional and flexible campaign that targets all the perceived weaknesses of the adversary (Johnson, 2015). Russia pursues its defence on 'three integrated levels government', military, and national - and employs broad coordinated operations in the diplomatic, information, cyber, economic, and military domains in order to fulfil its strategic objectives (IISS, 2019). Russia's use of a broad range of non-military tools, or 'measures short of war'- including, but not limited to, energy supplies, corruption, assassination (including out its borders and by using highly toxic substances[13]), disinformation and propaganda, the use of proxies and Private Military Companies (PMCs) are geared towards the manipulation of adversaries while avoiding the use of military force (IISS, 2019) and especially staying below NATO's threshold of reaction (Johnson, 2015). All such non-military measures are therefore backed by an increasingly capable military, with the armed forces retaining, as Gerasimov himself claimed, a "decisive role" (IISS, 2020). Russia's developing approach to conflict has led to an understanding that the defence of the state and its interests are not a solely military matter, but one that required 'significant shifts' in the country's security and defence landscape (IISS, 2019; IISS, 2020). A key element to this has been prioritising coordinated action across the government, military, and security structures in support of national defence (IISS, 2019). This whole-of-government coordination and cooperation is also evident in the national readiness exercises that combine all elements of the state in moving the country onto a war footing (IISS, 2020). The topic of patriotism has therefore become very prevalent in Russia's security and military ideology, being directly connected with Russia's national security and the preservation of the current political system and regime (Snegovaya, 2016). President Vladimir Putin formed the "Young Army" (Yunarmia), a network of youth associations providing training in military tactics and history (Shuster, 2016). Some cadets are trained in urban warfare, anti-protest training, and the control of public spaces (IISS, 2020), and they are expected to become a patriotic resilience instrument, to be used in case Russia faces a political or socio-economic crisis, as well as a pool of potential recruits for the armed forces.

The US Foreign Policy Framework for National interests

Understanding impacts of policy framework for the United States Defense, Diplomacy and Development (Three Ds) interagency coordination that provides a forum for DoD, DoS, and USAID to collaborate and align efforts in order to create synergy and avoid wasting resources in pursuit of national interests. The Joint Staff, DoS and USAID (Three D product). Three-Ds" also known as Department of Defense (DoD), Department of State (DoS), and USAID.[14] linking subordinate strategies, the Quadrennial Defense Review, Joint publications, USAID's Civilian - Military Operations Guide. Last decade in places like Iraq, Afghanistan, Pakistan, the Horn of Africa, Haiti and Japan, the United States military has been impelled to perform non - traditional mission sets, including civil development-type activities, in an effort to rebuild areas damaged by war or natural disaster and/or reduce the influence of violent extremists.[15] The military 'instrument of national power' is often chosen to conduct development activities for multiple reasons including DoD's ability to conduct operations in high threat environments, the requirement to stabilize post-conflict or post-natural disaster environments, the need to establish and maintain access to locations and populations, and the availability of DoD resources. These activities may take place in areas of conflict or in areas where the U.S. desires to provide stability or maintain peace, and they may be undertaken in support of other Unites States.

[13].De Haas M., 2011. Russia's Military Reforms. Victory of Twenty Years of Failure? Netherlands Institute of International Relations, 2011, pp. 16.
[14].Eric Heginbotham and Jacob Heim, "Deterring Without Dominance: Discouraging Chinese Adventurism Under Austerity," The Washington Quarterly 38, no. 1 (Spring 2015), 185–199.
[15]. Military personnel, often assigned to Civil Affairs (CA) teams or Provincial Reconstruction Teams (PRTs), undertake development activities that include conducting Key Leader Engagements (KLE) with tribal and government leaders, conducting Medical, Dental and Veterinary Civil Action Programs (MEDCAPs, DENTCAPs and VETCAPs), digging wells, distributing humanitarian assistance supplies, constructing schools, clinics and hospitals, and other engagements.

Government (USG) agencies or to attain military-specific goals. Due to the overlap with development activities normally conducted by the DoS and the USAID, it is important to ensure the efforts of the three agencies or "Three Ds" are aligned with the United States national interests and foreign policy goals. In his 2002 National Security Strategy (NSS), President Bush raised the significance of United States foreign assistance (Development) to the same level as Diplomacy (DoS) and Defense (DoD).[16] Without significant changes in defense policy, programs, and staffing, the U.S. strategic competitors will transform the nation's asymmetric advantage into an asymmetric vulnerability and will lay the foundations to disrupt civil society throughout all phases of conflict asserted by scholar Mineiro (2020) asserted Next Generation Defense Strategy: Space. One of the challenges with the term "Three-Ds" is that, it is a subset of the terms mentioned above, and it is difficult to find policy or doctrine that refers directly to Three Ds coordination. USAID's Civilian-Military Cooperation Policy is one of the few written documents that speaks directly to the Three Ds approach, defining it as "a policy that recognizes the importance of Defense, Diplomacy, and Development as partners in the conduct of foreign operations, particularly in the developing world.[17]" While the importance of aligning the efforts of DoD, DoS and USAID at all levels, from strategic to tactical, is recognized, and there is plenty of language indicating the need for interagency coordination. In the DoS 2010 Quadrennial Diplomacy and Development Review (QDDR), Secretary Clinton articulates "Department of State must also coordinate the development of integrated country strategies. The purpose is not to direct the operations or redirect the mandates of other agencies. It is rather to ensure that these operations are coordinated within an overall strategic framework.[18]"

The U.S. Defense Strategy

The need for a well-crafted the U.S. defense strategy has never been greater since the end of the Cold War.[19] Today, the United States confronts revisionist powers in three different regions (Russia in Europe, China in Asia, and Iran in the Middle East) that impinge on its vital interests and close allies. Currently its defense enterprise is facing an expanding mission range and increasingly constrained resources. The US present strategy hinges on sustaining deterrence but without the same degree of military dominance enjoyed in the past and with an admitted declining margin of technological superiority, producing appreciably increased risk.[20] The US defense policy and strategy, of necessity, must account for many factors and incorporate many competing elements of Nation's defined interests, its geographical realities and territorial security, overarching grand strategy, alliance structure, and war plans and existing doctrine.

CASE STUDIES – Defence Policies Foresight

Russia

Russian military modernisation and the loss of Ukraine Russia's Gross Domestic Product (GDP) is often considered to hover between that of Italy or Spain's - another study recently noted it is half the size of the United Kingdom or just slightly less than the state of New York (Dick, 2019). Russia has invested an average of approximately 4% of its GDP toward its defence institutions over the course of the State Armament Programmes (SAP) iterations [World Bank (SIPRI) [21]].

[16].George W. Bush, The National Security Strategy of the United States of America (Washington, DC: The White House, September 2002).
[17]. Clark A. Murdock and Mark F. Cancian, Alternative Defense Strategies (Washington, Centre for Strategic and International Studies, 2016); Clark A. Murdock, Ryan A. Crotty, and Angela Weaver, Building the 2021 Affordable Military (Washington, DC: Centre for Strategic and International Studies, July 2014).
[18]. Lorna S. Jaffe, The Development of the Base Force, 1989 - 1992 (Washington, D.C: Joint Chiefs of Staff Joint History Office, 1992); Les Aspin, Report of the Bottom-Up Review (Washington, DC: Department of Defense, October 1993).
[19]. "Hearing on Defense Strategy," October 28, 2015.
[20]. Eric Heginbotham and Jacob Heim, "Deterring Without Dominance: Discouraging Chinese Adventurism Under Austerity," The Washington Quarterly 38, no. 1 (Spring 2015), 185–199., 1992); Les Aspin, Report of the Bottom-Up Review (Washington, DC: Department of Defense, October 1993).
[21]. The World Bank figures from 2008 to 2019 draw upon the SIPRI Yearbook: Armaments, Disarmament and International Security. See World Bank, Military Expenditure (% of GDP) | Data (Russia).

If purchasing power parity (PPP) [22] is used to measure the amount Russia is able to get as a return on the Roubles it invests, then a far more accurate picture comes into focus than when looking at average market exchange rates. Various purchasing power parity (PPP) measures of Russia's defence spending show that total Russian defence spending averaged closer to the equivalent of USD$150-180 billion per year over the last five years (Barrie *et al*., 2020). Russia likely spends the equivalent of up to USD$ 200 billion (Connolly,2019). Russia's annexation and subsequent interference on the side of insurgent forces in Eastern Ukraine in 2014 cut Russia's defence industry off from the supply of many critical, and challenging to replace, defence technologies.[23]

Russia and Ukraine maintained a significant level of defence industrial exchange in the decades following the Cold War. During Soviet times, Ukraine, particularly eastern Ukraine,[23] hosted critical elements of the Soviet defence and space industries - the country inherited about 30% of the Soviet defence industry with the dissolution of the USSR in 1991; to include about 750 factories and 140 scientific and technical institutions (Mclees and Rumer, 2014).The Russian navy was not the only service impacted by the loss of the Ukrainian suppliers; the Russian air force's heavy transport modernisation ambitions were essentially abandoned due to the heavy reliance on cooperation with Antonov (Cooper,2018; Connolly and Boulègue, 2018). Admiral Gorshkov-class frigates and Admiral Grigorovich-class frigates were delayed to the Russian Navy due to the interruption of the supply of gas turbine engines from the Ukrainian supplier, Zorya-Mashproekt (Connolly,2018). Russia from 2014 has been able to slowly overcome the challenges of the disruption of formerly imported technologies into its defence production by reorienting domestic defence producers to fill the gaps (Connolly and Kofman, 2019). As a result of these import-substitution industrialisation measures, Russia's defence industry has become more isolated from the impact of sanctions or supply disruption, which could ultimately be a boon for the Russian domestic economy and for the success of the current forward-looking SAP 2027. By the end of 2017, Russian officials were credibly able to claim a 59.5% modernisation rate across the services of the Russian armed forces (Connolly and Boulège, 2018).

Russian National Security Strategy + Military Doctrine

Russia's military doctrine and national security strategy review, therefore, lends important insights into the 'nation's military posture, force planning and development, and modernisation efforts', as well as an understanding of the nation's worldview. Russia's current military doctrine and national security strategy state crated 2014/15 will change because: the 'cycle of Russian defence investment'; the advances of the State Armament Programme (SAP) driving Russia's military modernisation efforts; and, the rapidly evolving international security environment, particularly in the Euro-Atlantic space (Massicot,2019). Russian perceptions of both Russia's role in the international system and the evolution of threats to its national interests. The new strategic posture changes in perception have been a noticeable shift to a more aggressive foreign policy by Moscow, to include force deployment to Syria to shore up the government in Damascus, significant military support to insurgent forces in Ukraine, and a notable increase in military brinkmanship along NATO's eastern flank. The development and deployment of advanced strategic missile defence systems are described as 'undermining global stability' and established norms related to the balance of strategic forces (Military Doctrine of the Russian Federation, 2014).

---

[22]. Purchasing power parity (PPP) measures prices in different areas using a specific good (or goods) to contrast the absolute purchasing power between currencies. PPP often produces an inflation rate equal to the price of the basket of goods at one location divided by the price of the basket of goods at a different location. The PPP inflation and exchange rate may differ from the market exchange rate because of poverty, tariffs and other frictions. PPP exchange rates are widely used when comparing the GDP of different countries.

[23].Cities such as Kharkiv, Dnipro, and Mykolayiv are key centres of Ukrainian defence industrial production specifically - 45% of ground forces' equipment; 73% in the Aerospace Forces; 53% in the Navy; and 79% in the Strategic Nuclear Forces (Connolly and Boulègue, 2018).

The document also highlights concern about various actors using information warfare and political subversion in conjunction with or independent of military force to destabilise or overthrow regimes via internal interference to disrupt social cohesion. The military doctrine focuses on a broad restructuring and modernisation of the armed forces with SAP with the significant changes to the structure and equipment of the Russian military in line with the 'political, socio-economic, military-technical and demographic conditions and capabilities of the Russian Federation (Russia's Military Doctrine, 2015)'.The doctrine prioritises the development and employment of advanced, high-tech weapons and equipment, such as: high precision and hypersonic weapons, electronic warfare systems, drones and autonomous underwater vehicles, information and control system. At the strategic level, nuclear weapons are recognised as remaining the ultimate guarantor of the defence and security of the nation. It will also focus on advanced aerospace defence assets, communication systems, reconnaissance and command systems, radio jamming systems, unmanned aerial vehicles, and modern transport aviation, among others. Russia's National Security Strategy (NSS) breaks down Russian interests into sections: national defence, state and social security; Russian citizens' quality of life; economy; Russia's science, technology, and education sectors; and, health, culture, and environment (Russia's NSS, 2015; Facon, 2017). An interesting element about the Russian NSS noted by analysts is the repeated reference to 'traditional Russian spiritual-moral and cultural-historical values', which are, under threat from the 'West' on one end and terrorists/violent extremists on the other (Facon, 2017; Oliker, 2016).The extent of the nation's success in its drive to modernise its military is underscored as a key metric to determining the overall ability to maintain an effective defence and deterrence posture (Oliker, 2016; Facon, 2017). The State Armament Programme-2020 (SAP-2020) was complementary to a series of wide-ranging reforms introduced in the wake of the 2008 Russia-Georgia war, meant to transition the Russian military to a more mobile, interoperable, high-readiness force (DeGhett, 2016). The importance of strategic importance of coastal defence, SAP-2020 prioritised building new classes of small, well-armed surface combat vessels, particularly frigates, corvettes, and small missile ships (Cooper, 2018).

Russian officials declared significant progress towards achieving these goals by the end of 2017; reporting 59.5% equipment modernisation across the forces,[24] with aerospace and strategic nuclear forces receiving the most attention[25] (Connolly and Boulègue, 2018). Russia alleges the driver of these missile systems has been its long-standing concern over the proliferation of modern missile defence systems, which would jeopardise Russia's strategic deterrent capability. These missiles include a nuclear-powered and nuclear-armed system with global reach, an intercontinental hypersonic cruise missile, an air-launched ballistic missile, and a nuclear-powered and armed underwater drone. The Poseidon is reported to be armed with a 10-megaton nuclear warhead, which, when exploded underwater, would trigger a tsunami (Baev, 2019). A range of other new weapons are also being funded under the SAP. A range of potential anti-satellite weapons is reportedly making progress but is underreported by Russia due to Russia's obligations as a signatory of the 1967 Outer Space Treaty to not make any efforts to militarise space (Cooper,2019). While brigades proved suitable to conduct rapid response operations in low-level armed confrontations, they could not meet the demands of prolonged combat, much less large-scale conventional warfare conducted under conditions of possible nuclear escalation (Dick, 2019). The consequence, the division was re-established as a unit able to sustain such combat. Russia's end goal now appears to be the development of an order of battle comprising a mix of divisions and brigades capable of fulfilling different missions (Dick, 2019).

[24] Specifically - 45% of ground forces' equipment; 73% in the Aerospace Forces; 53% in the Navy; and 79% in the Strategic Nuclear Forces (Connolly and Boulègue, 2018).

[25]. While the modernisation of air and nuclear forces was clearly a strategic priority, the rate of equipment modernisation was also likely limited by defence-industrial capabilities (Connolly and Boulègue, 2018.

The United States of America

USAID maintains the Civilian-Military Cooperation Policy, which lays out USAID's policy to coordinate with DoD on foreign assistance issues and its guiding principles for policy implementation.[26] This four-page policy clearly, and in a non-biased way, provides a strong testament to USAID's institutional belief in the importance of Three D collaboration. Another USAID publication, the Civilian-Military Operations Guide, states that "USAID must develop closer coordination with the military community, to understand how to work alongside them, and to ensure that both civilian and military efforts are aimed at the same set of goals."[27] In an effort to bridge the gap between national level guidance and agency-specific direction on interagency coordination, the Office of the Secretary of Defense (OSD) stood up the "3D Planning Group (3DPG)" in the late 2009 to early 2010 timeframe.[28] Hybrid warfare has re-shape 3DPG, the hybrid framework (4GW), hides more than it reveals (Otaiku, 2018) but Lawrence Freedman asserted that "…the theory of 4GW suffers from poor use of history and lack of intellectual rigor."[29]

One of the products of that group, jointly written by representatives from the Joint Staff, DoS and USAID, is a pre-decisional working draft document entitled 3D Planning Guide, Diplomacy, Development, Defense with the stated purpose to "support collaboration between State, USAID, and Defense for more informed and effective planning coordination.[30]" First, "USAID is the lead the U.S. government agency for U.S. foreign assistance planning and programming.[30]" In Washington, at the national-strategic level, that means USAID should be in charge of Three Ds coordination, though the other two agencies have the responsibility to initiate communication and coordination with the other Ds on items of interest. Outside of the United States, having lead agency status does not necessarily mean USAID always leads, particularly within sovereign foreign nations. In the DoS Foreign Affairs Manual, the Chief of Mission (COM), usually an Ambassador "In the field, the Chief of Mission will ensure the coherence and coordination of development cooperation across U.S. agencies.[31]

In Washington, at the highest level, the National Security Council (NSC), Three Ds coordination is inherent since all three agencies are represented in the forms of the Secretary of State, who as a statutory member of the NSC represents both Diplomacy and Development, and the Secretary of Defense (also a statutory member of the NSC) as well as others the President may invite from OSD and DoD, who represent Defense. The twenty-first century warfare will likely involve irregular warfare in which development and assistance activities play a role to promote or protect the U.S. national interests using a combination of hard and soft power. The U.S. military will also increasingly be called upon to 'flex its soft power' in times of humanitarian crises. Coordination and collaboration among DoD, DoS and USAID will be keys to aligning efforts and reaping the cumulative benefit that will come from working synergistically as Three D partners. In concrete terms, diplomacy and development differ in four key areas: mission, targets, activities, and measures of success.

---

[26].According to Shoigu, between 2012 and 2017, 3,237 new and modernised tanks (Principally modern versions of the T-90, T-80, and T-72) and armoured vehicles were acquired (Cooper, 2018).

[27]"Prospective aviation complex for long-range aviation"

[28].Conscripts are considered to be less effective than career personnel, seeing as they only serve 12 months of service, half of which are spent in training (Crane, Oliker, and Nichiporuk, 2019).

[29]. Antulio J. Echevarria II, "Deconstructing the Theory of Fourth-Generation War," Contemporary Security Policy, August 2005, pp. 11-20; Lawrence Freedman, "War Evolves into the Fourth Generation," Contemporary Security Policy, August 2005, pp. 1-10.

[30] The speech was given at the Russian Academy of Military Science and was assumed by many to contain references to Russia's evolving threat assessment, changing perception on the nature of warfare, and developing military strategy.

[31]"Fact Sheet: U.S. Global Development Policy," September 22, 2010, http://www.fas.org/irp/offdocs/ppd/index.html (accessed December 18, 2011), 6.

Diplomacy is the management of relations with other countries for the US strategic and political interests. Development is making investments to save lives and fight poverty in countries or communities, with the ultimate goal of supporting sustainable economic, political, and social institutions. The US new administration should consider a number of key principles in its force design and development efforts. These principles are not an exclusive list but offer guidance to steer the U.S. military as it adapts to the rapidly changing strategic environment.

Force Design Options

The 21st century electoral campaign gave scant evidence that the U.S. taxpayer is willing to sacrifice existing entitlement programs in support of protracted policing of the world or global hegemony. Defense policymakers should not expect significant additional funding and will need to ruthlessly attack inefficiencies in overhead, acquisition, and personnel. Resource constraints, uncertainty, and risk are the constants of strategic planning. The national security space policy has remained remarkably consistent over multiple administrations, ongoing efforts at reform in this area require a re-examination of the underlying assumptions regarding operational definitions, classification, international participation, and commercial contributions asserted by Mineiro (2020).

1. Selective Partnership (Win / Deny)

The Obama administration sought to sustain America's leadership role, adapt to strategic competition in Asia, 2015 National Security Strategy details specific regional priorities, and heavily emphasized partnerships The planning force construct employed over the last 8 years justified enough ground combat power for forward engagement and one war, and an Air Force and Navy capable of fully contributing in one major war while providing the punishing strike assets to deny an aggressor state in the second scenario. This construct is aimed at the ability to conduct two nearly simultaneous wars, and it provides a limited degree of both re-assurance to allies and deterrence to opportunistic aggressors. However, it does this to a lesser degree than did U.S. defense strategies prior to 2010 since it reduces conventional combat power and forward presence levels in Europe. Additionally, because it generates a joint force limited to defeating an opponent in only one theatre, the U.S. allies/partners are less reassured like Pakistan. They have to be wary of their position should their region be challenged after the United States has had to react to another crisis elsewhere. This planning construct remains the basis for the U.S. defense policy, but it is somewhat challenged by sequestration and underfunding today with President Donald Trump administration.

Enduring Engagement (Win 1+2)

O'Hanlon's framework accounts for one major war, with two simultaneous prolonged smaller conflicts.[32] This framework emphasizes the role of land power in obtaining political objectives and in producing sustainable results in failed states, post-conflict stabilization tasks, and major disasters that calculates a planning force of 56 active brigades. O'Hanlon's outcome is not optimistic about allied partners augmenting the U.S. capacity or about the National Guard responding to the threats / scenarios in a timely manner. O'Hanlon asserted, "The notion that even with a few months of full-time training, they can reliably be expected to perform as well as active duty units in the early going of a future military operation is suspect.[32]" This planning construct does an excellent job of focusing on the most likely scenarios that, we could face and offers greater specialization for the full spectrum of conflict.[33] This option provides a more robust capacity for a global and protracted conflict against violent extremist organizations with additive special operations forces assets for persistent but low footprint forms of warfare.[34]

[32.] Michael E. O'Hanlon, The Future of Land Warfare (Washington, DC: Brookings Institution, 2014), 175.
[33.] Frank G. Hoffman, "Thinking About Future Conflict: Preparing for the Full Spectrum," Marine Corps Gazette 98, no. 11 (November 2014).

This force design covers the most likely scenarios but falls short in generating forces for the most dangerous ones. It would be better balanced between traditional military war fighting and non-traditional conflict stabilization tasks, with specialized forces designed, trained, and equipped for their specific tasks with loss of versatile combat forces like the Russia annexation of Crimea.

Forward Cooperative Security

Strategy operates forward with alliances and partners to leverage cooperative and preventive actions to preclude conflicts before they occur.[35] This strategy exploits command of the commons to both generate and sustain freedom of action for our alliances and partners.[36] Maritime forces would operate forward, ready to control the global commons and critical international chokepoints and trade links.[37] Given its emphasis on maritime power, a larger Navy would be the principal element of this strategy-one sized at roughly 346 ships, per the recommendations of the independent National Defense Panel. This option might be thought of as the "prevent forward/win by surge" strategy. This strategy focuses on assuring access to key regions and maintaining the global commons. This option generates deterrence and reassurance through the routine deployment of credible naval power projection assets and through increased undersea warfare capacity with additional strike capabilities.[38]

Decisive Force:
Win Two Major Theater War (MTWs)

This option maximizes the joint force's capacity to conduct high-intensity, sustained, combined arms warfare. It incorporates the assessments of various think tanks that the U.S. military is undersized.[39]
It provides for a balanced and conventionally oriented joint war fighting force with robust capacity and would be an inherently versatile force with the proper doctrine and training for full-spectrum operations.[40] Land power is an essential element of that joint force and while not the principal force in every theatre scenario, it is critical to strategic results in all campaigns waged on land. In the US military doctrine, the Pacific 'thought of as a maritime theatre', "in reality, the U.S. land forces are vital to the nation's capabilities in the Pacific."[40] The option does not deny the critical need for potent naval and air forces but rather emphasizes the value of balance in defence foresight. This option would reverse recent trends in cutting back on land power. The U.S. defense policy has designed and resourced an Army capable of fighting one major regional contingency, but it would take months to generate sufficient forces to win a second.[41] However, these theatre frameworks were developed for 20th century. Today analytics of past historical experiences of major wars and projections into the future suggest that larger ground formations, no less than six Army divisions and a reinforced Marine expeditionary force per MTW, would be needed in pacing scenarios in Asia.[42] Unlike the first three options, the two-MTW decisive force option generates sufficient credible combat power forces to re-establish some additive forces outside the continental the United States.

---

[34] Linda Robinson, The Future of Special Operations. Beyond Kill and Capture, Special Report No. 66 (New York: Council on Foreign Relations, April 2013); James Thomas and Chris Dougherty, Beyond the Ramparts: The Future of U.S. Special Operations Forces (Washington, DC: Centre for Strategic and Budgetary Assessments, 2013).
[35] Frank G. Hoffman, "Forward Partnership: A Sustainable American Strategy," Orbis 57, no. 4 (Winter 2013), 19–37.
[36] Abraham Denmark and James Mulvenon, eds., Contested Commons: The Future of American Power in a Multipolar World (Washington, DC: Centre for a New American Security, 2010); Patrick Cronin et al., Cooperation from Strength: The United States, China, and the South China Sea (Washington, DC: Centre for a New American Security, 2012).
[37] Mark E. Redden and Michael P. Hughes, Global Commons and Domain Interrelationships: Time for a New Conceptual Framework? INSS Strategic Forum 259 (Washington, DC: NDU Press, October 2010)
[38] Bryan Clark, The Emerging Era in Undersea Warfare (Washington, DC: Centre for Strategic and Budgetary Assessment., Jan 2015).
[39] Dakota L. Wood, ed., 2016 Index of U.S. Military Strength (Washington, DC: Heritage Foundation, 2016); Dakota L. Wood, "Alternative Approaches to Defense Strategy and Force Structure," testimony before the Senate Armed Services Committee, October 29, 2015.
[40] Michael Green, Kathleen Hicks, and Mark F. Cancian, Asia Pacific Rebalance 2025: Capabilities, Presence and Partnership (Washington, DC: Centre for Strategic and International Studies, 2016), 131.43. For force estimates, see Hooker, 6
[41] 2014 Quadrennial Defense Review, ix.
[42] For force estimates, see Hooker, 6.

DISCUSSION

Russia

Rapid Reaction Forces

The relatively poor performance of the Russian forces in the 2008 war with Georgia drove initial efforts, Russia's decision to act in Ukraine and Syria reinforced the initiative. A two-pronged effort drove the necessary reforms: a significant increase in airborne troops and the development of battalion tactical groups (BTGs) held at two-hours' notice to move. Russia's goal is to reach 60,000 airborne troops by around 2020, a 60% increase (Dick, 2019); Russia's conception of modern warfare underlines the need for significant investment in special operations forces (Spetsnaz).The Russian Spetsnaz efficiency was on display during the 2014 annexation of Crimea. It has also been essential to the training, equipping, and directing the pro-Russian insurgents operating in Eastern Ukraine (Beznosiuk, 2016).

Command and Control

The 2008 Russia-Georgia conflict highlighted the lack of efficient, flexible, and unified command and control in the Russian forces. Reforms have therefore focused on the simplification and unification of command and control systems to streamline decision-making. Russia has also carried out reforms directly related to command and control, with specific emphasis on the creation of the National Defence Management Centre (NDMC),[43] also known as the National Defence Control Centre, in December 2014 (McDermott, 2014).The centre is meant to significantly reduce the time involved in decision-making and to minimise the mobilisation gap (IISS, 2019), reportedly requiring no more than two hours to reach a full understanding of the situation and to adopt all needed decisions and orders to be carried out in full by the troops (Zakvasin, 2015). Russia announced the introduction of a new automated command and control system in the 'WeMD', supposed to allow the high-speed communication of information from the NDMC and other relevant commands, as well as the effective control of varied and complex force groupings, reducing the time involved in the command cycle by two/three times (McDermott, 2019).

Personnel

Russia's operations in Crimea, coupled with an intense campaign of patriotism, boosted the Armed Force's popularity and prestige (IISS, 2015). In 2017, Russia managed to form a non-commissioned officers (NCO) corps, leading to an increased level of professionalism in the armed forces (IISS, 2018). At the same time, even with increased pay and additional benefits, military service remains attractive mainly to those from economically disadvantaged and rural regions in Russia (IISS, 2020).

The United States of America

Embrace Uncertainty

The ability of the U.S. strategists to predict the time, place, and character of wars has been 'uniformly dismal,'[44] When one considers general principles about force planning, one cannot escape the conclusions of Colin Gray: 'we will certainly be surprised in the future, so it is our task now to try to plan against the effects of some deeply unsettling surprises'. The key to victory here is not the expensive creation of new conceptual, methodological, or electro-mechanical tools of prediction. Rather it is to pursue defense and security planning on the principles of minimum regrets and considerable flexibility and adaptability.[45]

---

[43].The centre has three levels of command: A supreme command centre, which controls the strategic nuclear forces; a combat command centre, which maintains centralised combat control of the armed forces and monitors the global political-military situation, serving as the main forecasting and analytical centre; and, a centre overseeing everyday activities, integrating leadership and coordinating the activities of all defence and security structures (all ministries, agencies, departments, along with actors at federal, regional, and local levels, both military and civilian) (McDermott, 2014; IISS, 2019).

[44]. Charles Heller and William Stofft, America's First Battles, 1776–1965 (Lawrence: University Press of Kansas, 1986), xii.

[45]. Colin S. Gray, "The 21st Century Security Environment and the Future of War," Parameters (Winter 2008/2009), 14–24.

[46]. Ibid. 16.

Minimizing regrets is not achieved with better computer-aided powers of prediction or by maximizing investments in a narrow or specific war fighting area. We cannot predict the future with consistent accuracy, and we should not be tempted to believe there is some wonderful methodology that enables American planners to gaze deep into the 21st century with precision. Professor Gray asserted 'Expect to be surprised. To win as a defense planner is not to avoid surprise. To win is to have planned in such a manner that the effects of surprise do not inflict lethal damage'.[46] Trade-offs and resource constraints are crucial to the exercise of strategy, but so is the recognition of risks and uncertainty. Hybrid Warfare presents a mode of conflict that severely challenges conventional military thinking.[47] Arquilla asserted that "While history provides some useful examples to stimulate strategic thought about such problems, coping with networks that can fight in so many different ways sparking myriad, hybrid forms of conflict is going to require some innovative thinking."[48] The future portends an even more lethal strain of perturbation. Bruce Hoffman asserted that Iraq's insurgents and jihadist foreign fighters will benefit from their education in Iraq and Afghanistan, and will soon return home or to alternative battle spaces with greater motivation, lethal skills and credibility.[49]

The 21st century warfare will be driven by hybrid warfare and affirmed by National Military Strategy, warning that "we are more likely to face prolonged campaigns than conflicts that are resolved quickly . . .that control of escalation is becoming more difficult and more important.[50]" The "Army for the Future" report concluded that under the planning assumptions directed by the Pentagon and with the current fiscal year 2017 programmed force, "the Army is, in fact, neither sized nor shaped for conducting any kind of large-scale, long duration mission at acceptable risk.[51]" This confirms other analyses by RAND.[52] Deterring rising competitors will also be harder, and there is more to deterring a major state such as China than buying a lot of robots or fifth-generation.[53] Our potential adversaries know our vulnerabilities, they are adaptive, and they will construct combinations that will outmatch some of our own capabilities.[54]

Emphasize Force Design Versatility

It is difficult for general purpose forces to achieve full-spectrum coverage, but having forces prepared for high-intensity combat is the critical task. Some specialized units that are ready on day one for unique circumstances may also be required. Versatility is dependent on adequate resources, the time to absorb a wide array of scenarios, and investments in education and flexible doctrine so that leaders are both mentally prepared to apply best practices for the scenarios they are expected to be prepared for and have the requisite critical thinking skills to react to new contexts. Agility is a measurement of how easily and how quickly an organization can shift between competencies and execute them equally well.[55]

---

47. Credit for the first use of the term can be given to Robert G. Walker, "Spec Fi: The U.S. Marine Corps and Special Operations," unpublished Master's Thesis, Monterrey, CA; Naval Post Graduate School, December 1998.Walker described the Marine Expeditionary Unit as "a hybrid force for Hybrid Wars."

48. John Arquilla, "The end of war as we knew it: Insurgency, counterinsurgency and lessons from the forgotten history of early terror networks," Third World Quarterly, March 2007, p. 369.

49. Statement of Dr. Bruce Hoffman, testimony presented to the HASC Subcommittee on Terrorism, Unconventional Threats and Capabilities on February 16, 2006. Accessed at www.rand.org/pubs/testimonies/CT255/.

50. The National Military Strategy of the United States of America 2015 (Washington, DC: The Joint Staff, June 2015),.

51. The Army for the Future (Arlington, VA: National Commission on the Future of the Army, 2016),

52. Timothy M. Bonds, Michael Johnson, and Paul S. Steinberg, Limiting Regret: Building the Army We Will Need (Santa Monica, CA: RAND, 2015).

53. Andrew F. Krepinevich, Jr., "How to Deter China," Foreign Affairs (March/April 2015).

54. David E. Johnson, "The Challenges of the 'Now' and Their Implications for the U.S. Army" (Santa Monica, CA: RAND, 2016).

55. Complex War fighting, Future Land Operations Concept (Canberra: Australian Army, 2004).

|Given that, we cannot predict the place or nature of future military engagements, as former Secretary of Defense Robert Gates asserted, "Policy experts on defence must place a premium on acquiring equipment and providing training that give our forces the most versatile possible capabilities across the broadest possible spectrum of conflict."[56]

Ensure Force Balance

One of the principal elements of a sound joint force design is a balanced force capable of generating options for decision makers in many contexts, and at the operational level, generating dilemmas for our opponents.[57] The US may no longer have the overall size of the force we need to execute our national strategy at low risk, but we should be able to preserve a high-quality and balanced force as our hedge against uncertainty.[58] Technology cannot significantly offset the need for a balanced joint force, nor can it guarantee short wars.[59] The US's prowess in precision strike operations has been materially improved. But rarely have we applied the same level of investment toward enhancing its land power forces. For example, the U.S. Army's modernization and research accounts are dramatically lower.[60] A premium should be placed on forces that can 'do more than one thing'. Therefore, providing flexibility across all domains should be foremost among the decision criteria we apply to our future military.[61] Airpower, by itself, will again prove effective but not decisive in isolation. The U.S. force planning should hedge by providing general capabilities and organizational agility that allow both strategic and operational adaptations to unanticipated developments.[62] The United States should seek to invest to ensure that the joint force is as dominant on the ground as our sea and air services currently are in their respective domains.[63]

FINDINGS

|Russia's Proxy Foreign Fighting Forces

According to several analysts, Russian Private Military Companies (PMCs) have proven to be an effective tool in Ukraine, Syria, and across Africa, helping Russia to achieve its strategic objectives with plausible deniability (Dick, 2019 ; IISS, 2020).The Wagner Group is the most visible Russia's semi-state private military companies. The group operates in Ukraine, Libya, Syria, Sudan, the Central African Republic and Venezuela (Kyzy, 2020) Although there have been other Russian PMCs operating in conflict zones such as the Tigr Top-Rent Security, E.N.O.T. Corp, Cossacks, and Feraks, it has been argued the Wagner Group acts as a mercenary arm of the Russian Ministry of Defence (Kyzy, 2020). Although the Wagner Group is technically a private military contractor, it is heavily integrated into the Russian command structure (Rabin, 2019). Spetsnaz (Special Forces) unit which took part in the invasion and annexation of Crimea, as well as the subsequent interference in Donetsk and Luhansk (Zakharov, 2016). Recruited fighters under the name of "Slav Corps" to be deployed as part of Russia's official 2015 military operation in Syria. The Wagner Group has been carrying out military-related tasks, intelligence gathering, reconnaissance, protecting critical infrastructure alongside training the local personnel (Sukhankin, 2019).

---

56. Robert M. Gates, statement before the Senate Armed Services Committee, October 21, 2015, 7.
57. Nathan Freier, Defining and Operationalizing Balance in Defense Strategy (Washington, DC: Centre for Strategic and International Studies, 2009).
58. Mackubin T. Owens, "A Balanced Force Structure to Achieve a Liberal World Order," Orbis 50, no. 2 (Spring 2006), 307–325.
59. Frank G. Hoffman, "What the QDR Should Say about Land power," Parameters 43, no. 4 (Winter 2013/2014), 7–14.
60. Shawn Brimley, While We Can: Arresting the Erosion of America's Military Edge (Washington, DC: Centre for a New American Security, December 2015).
61. David Deptula, "Revisiting the Roles and Missions of the Armed Forces," testimony before the Senate Armed Services Committee, November 5, 2015, 2.
62. Paul K. Davis, Lessons from RAND's Work on Planning Under Uncertainty for National Security (Santa Monica, CA: RAND, 2012).
63.For ideas, see Robert H. Scales, The Past and Present as Prologue: Future Warfare Through the Lens of Contemporary Conflicts (Washington, DC: Centre for a New American Security, 2009); Paul Scharre, Uncertain Ground: Emerging Challenges in Land.

In the Central African Republic (CAR) became a focus for Russian arms sales on the African continent following UN exemption for Russia on the arms embargo to that country in December 2017 (World Politics Review, 2018). The Wagner Group also has a documented presence in the country; the group is reportedly serving as President Faustin -Archange Touadera's personal security detail (Hauer, 2018). The rich resources of the CAR - diamonds, oil, gold, and uranium among them also serve as a clear pull factor for the group.[64] The Wagner Group's forces help secure the Libyan oil fields within the LNA's control and even fight alongside Haftar's forces, when necessary (Borshchevskaya, 2019). Syrian and Ukrainian testing lab for Russian military reforms has been very fruitful for Moscow's assessment of its military modernisation efforts.

Russia's power to disrupt the existing global order is growing, and it is clear from Gerasimov's statements that Russia will continue to use 'its newfound power to reshape the international system' to suit Russian interests (Johnson, 2019). Russia has battle-tested a large amount of its more elite soldiers that may be part of any rapid reaction force in the future. Russia's determination to expand its influence in post-Soviet states by using to that end a variety of integrative multi-lateral and bilateral projects. However, to the detriment of Russia, not all post-Soviet states are willing to choose the way of greater integration insistently pushed forward by the Kremlin. The Baltic States have demonstrated their determination to distance themselves from the post-Soviet space by becoming members of NATO and the European Union (EU), while "colour revolutions" in Georgia ("Roses", 2003), Ukraine ("Orange", 2004), Kirghizstan ("Tulips", 2005), Belarus ("Jeans", 2006) and Moldova ("Twitter", 2009) testify to the fact that other post-Soviet states are also inclined to choose the pro-Western direction. Russia is seeking to maintain its influence in the region and unwilling to see the recurrence of the Baltic States' scenario (the accession to NATO and the EU) can, in case of necessity, employ not only diplomatic means but also military power. Prime Minister of Russia Vladimir Putin, seeking to better to establish the "Eurasian Union" joining the former soviet states.[65]

The United States

The "modern" in this construct highlights the need, per the Force of the Future initiative, to build a force for the 21st century that would include accelerated efforts to develop competitive capabilities that offset our lost materiel edge in critical domains. In recognition of coalition contributions and fiscal constraints, the Pentagon should frame its conventional force capacity within a framework that incorporates the roles of allies in Asia and Europe, or what might be called a "win one unilaterally, win one in coalition" yardstick. The US should think in terms of our coalition partners, yet be honest about what our allies can actually deliver in terms of hard power.[66] This construct matches our strategic interests but recognizes the limits of our resources and capacity. It also precludes weak coalition partners from presuming that they do not have to invest in their own security capacity by relying upon U.S. taxpayers for their defense like today NATO. The joint force would be balanced for combined arms warfare, including 10 carriers and a slightly larger Navy of 290 ships. The Department of the Navy has plans for a larger fleet but underfunds its own shipbuilding accounts.[67]

---

[64]. Analysts agree it is unconstitutional (articles 13.5 and 71) and, therefore, illegal for the Russian government to use private military companies (Borshchevskaya, 2019).

[65]. De Haas M., 2011. Russia's Military Reforms. Victory of Twenty Years of Failure? Netherlands Institute of International Relations, 2011, pp. 16

[66]. On allied contributions, see Gary Schmitt, ed., *A Hard Look at Hard Power: Assessing the Defense Capabilities of Key U.S. Allies and Security Partners* (Carlisle Barracks, PA: U.S. Army War College, July 2015).

[67].Eric Labs, An Analysis of the Navy's Fiscal Year 2016 Shipbuilding Plan (Washington, DC: Congressional Budget Office, October 29, 2015); Eric Labs, "A Fiscal Pearl Harbor," Proceedings 142, no. 2 (February 2016). See also Ronald O'Rourke, Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress, RL32665 (Washington, DC: Congressional Research Service, May 23, 2016), as well as his research on the submarine production challenge: O'Rourke, Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress, RL32418 (Washington, DC: Congressional.

The United States defence foresight should shore up funding, exploiting long-term con- tracts to drive increased efficiency into the shipbuilding plans. Consideration should also be given to expanding naval forward presence without having to invest in so many vessels for rotational deployments.[68]

Reinvigorate Mobilization Planning

Defence policy today should not plan for short wars, a frequent optimistic flaw in American planning.[69] Several notable scholars and military experts have recently noted the need to once again think in terms of national mobilization for manpower, unique civilian skills in cyber security, or industrial surge.[70] Upgrades to the U.S. strategic deterrent will be nearly $USD 200 billion over the next decade and could approach $USD 700 billion over the next 25 years.[71] The United States cannot afford to simply rebuild and modernize its nuclear enterprise on a platform-for-platform basis. Although affordable in a relative sense, the funding is not available to buy new bombers, modernize human capital, update testing and warheads, and completely replace the ballistic missile submarine fleet.[72] Some efficiencies are going to have to be gained, and some risk absorbed. Human capital and warhead reliability are not the places to take that risk. The redundancy built into the nuclear triad delivery mix is the more feasible place, probably with land-based missiles.[73] Senior former DOD officials have offered up these as a possible reduction.[74] Increased use of hybrid units (comprised of higher levels of full-time personnel), greater access to advanced training facilities and simulators, and additional paid drill time now a necessity today. Policymakers should carefully evaluate the readiness levels and risks associated with reliance upon the National Guard. It may be more realistic to assign the Guard as the Nation's strategic reserve, with designated units provided to specifically defined mission sets and adequate equipment/training resources, to meet obtainable and objective readiness standards. It has never accurately predicted the character of future conflicts with opponents have a say in the character, frequency, and intensity of tomorrow's wars.[75] Future policymakers should not be simplifying potential opponents' strategic calculus and allow them to dedicate their preparations for fighting the U.S. Armed Forces with only a singular approach. This is why strategic balance is so valuable.[76] The design of tomorrow's military should reflect that reality and rely on strong balanced forces that can fight and prevail in all war fighting domains in prolonged conflict. Even more than victory in war, such a force will make conflict less likely in the first place-an effect well worth the cost.

---

[68] .Eric Labs, Preserving the Navy's Forward Presence with a Smaller Fleet (Washington, DC: Congressional Budget Office, March 2015

[69]. Heginbotham, 347–348.Cancian, 22. Donald Chisholm, "The Risk of Optimism in the Conduct of War," Parameters 33, No. 4 (Winter 2003–2004), 114–131.

[70]. Eliot Cohen, testimony before the Senate Armed Services Committee, October22, 2015; David Barno and Nora Bensahel, "Preparing for the Next Big War," War on the Rocks, January 26, 2016.

[71]. Aaron Mehta, "Is the Pentagon's Budget About to Be Nuked?" Defense News, February 8, 2016, 12–17.

[72]. Todd Harrison and Evan B. Montgomery, The Cost of U.S. Nuclear Forces: From BCA to Bow Wave and Beyond (Washington, DC: Centre for Strategic and Budgetary Assessments, August 4, 2015); Ronald O'Rourke, Navy Ohio Replacement (SSBN[X]) Ballistic Missile Submarine Program: Background and Issues for Congress, R41129 (Washington, DC: Congressional Research Service, May 20, 2016).

[73].As suggested by former Secretary of Defense Chuck Hagel and former Vice Chief of the Joint Staff General James Cartwright in Global Zero U.S. Nuclear Policy Commission Report, Modernizing U.S. Nuclear Strategy, Force Structure and Posture (Washington, DC: Global Zero, May 2012), 7.

[74].Aaron Mehta, "Former Sec Def Perry, U.S. on the 'Brink' of New Nuclear Arms Race," Defense News, December 3, 2015, available at <www.defensenews.com/story/defense/policy-budget/2015/12/03/former-secdef-perry-us-brink-new-nuclear-arms- race/76721640/>.

[75].H.R. McMaster, "Continuity and Change: The Army Operating Concept and Clear Thinking about Future War," Military Review (March–April 2015), 6–14.

[76].Mackubin T. Owens on strategic pluralism in Derek S. Reveron, Nikolas K. Gvosdev, and Mackubin T. Owens, eds., U.S. Foreign Policy and Defense Strategy: The Evolution of an Incidental Superpower (Washington, DC: Georgetown University Press, 2016), 55.

Impacts of Defence Policy on Global Security

The new Global Insurgency fourth-generation warfare (4GW) , defined by growing numbers of non-state actors/terror groups challenging nation-states in an increasingly fractured world have the following characteristics. A 4GW framework was proposed by Otaiku, 2018 with the following assertions:

i. The focus within policy and media circles on fourth-generation warfare runs the risk of neglecting the larger picture;
ii. While there can be no question that insurgencies/non-state actors currently have the advantage (4GW), key trends are already underway that will shift advantage back to nation-states (4GW);
iii. The weaponization of space and cyberspace, along with total surveillance; although each of these has been explored in isolation, the implications of their integrated impact are only hazily understood by military science; and
iv. The primary challenge for the U.S. military is to balance short term investments in 4GW with the need to prepare for the coming 5G world -
space robotic warfare.

The resilience of 4G insurgencies lies in their ability to combine bottom-up leadership structures to increasingly lethal technologies while taking advantage of the very globalization they hate like:

i. This combination leads to a harrowing cost-benefit dynamic: 9 -11 is estimated to have cost Al-Qaeda half a million dollars $USD, with economic damage to the U.S. in excess of $USD80 billion; this represents a sixteen thousand-fold return on investment;
ii. Disconcertingly, most of the trends driving 4G warfare are only just beginning to gather momentum; as they accelerate, they are likely to redefine not just warfare, but the societal fabric that underlies it and the merging of defence strategy with defence doctrine as warfare ecosystem in 21st century operational arts of warfare.
iii. Space and cyberspace as war fighting domains. The Department will prioritize investments in resilience, reconstitution, and operations to assure our space capabilities. We will also invest in cyber defense, resilience, and the continued integration of cyber capabilities into the full spectrum of military operations.[77]

The Military Cyber Basis

Military cyber capabilities are currently directed toward defence of military and government networks and specially- designated critical infrastructure - an approach that appear misaligned with the increasing economic importance of the Internet of Things (IoT). As response to IoT vulnerability becomes more urgent, it is possible that military authorities could be extended to improve detection, blocking and response to IoT- based attacks on critical national infrastructure (Otaiku, 2018). Aside from the legislative and policymaking challenges, using military resources for detection or attribution of IoT attacks would raise serious concerns about privacy and liability. But future circumstances may warrant that the national defence apparatus needs to be adapted to new threats against national economic assets .The redefining of the internet (Williams, 2010) with reference to critical national infrastructure include with the following:

i. Ensuring the integrity of surveillance systems will ultimately depend upon dramatic enhancement of the government's powers online;

[77]. Jim Matte's. National Defense Strategy of The United States of America, 2018.

ii. Such a step will also be necessary to forestall 4G incursions against internet chokepoints (e.g., power-grids);
iii. Anticipate that across the twenty-first century, governments will militarize/nationalize cyberspace, at least insofar as hardening of all key assets; this nationalization will be the next stage beyond the current "wild west" phase of the internet (i.e., China's "Great Firewall" is thus likely to be more the rule than the exception); and
iv. At its most extreme, such nationalization would include the outright "cauterization" of the preponderance of national/regional cyberspace; though this would almost certainly occur in tandem with a near breakdown of globalization, current trends in 4GW warfare would possibly execute the analytic above.

Future military strategy and technologies postulation from the above analytics:

i. The future is thus likely to be divided between societies that have collapsed into 4G anarchy and those nation-states that have gone into "lockdown" mode like COVID-19, moving to control/protect their populations via a total control of information.
ii. 21st century will be the biological century with the scenario of COVID-19 pandemic.
iii. Space-based weaponry: indeed, the linkage of space-based reconnaissance to hyper-precise firepower originally seemed to usher in the start of a "revolution in military affairs" (RMA), particularly with the rapid toppling of the Afghan and Iraqi governments; however, the current reality of 4G insurgencies underscores just how premature that vision was. But Chain and Russia are emerging space war theatre candidate.
iv. Nonetheless, as many have recognized, the value of orbital control will only increase across the 21st century, particularly as the speed of munitions deployment increases; ultimately, guerrillas will be largely confined to operations that are (a) underground or (b) in cities in which all order has collapsed; though this still will leave insurgencies with plenty of room for manoeuvre, they will no longer pose a threat to the basic integrity of the world's most powerful nation-states.
v. That said, the world's most powerful nation-states will continue to pose a threat to each other, particularly as they jockey for control of the high ground that space represents emerge with converge technology.

In the twenty-first century, information operations probably will become more relevant and commonplace, with some the US operations consisting solely of information campaigns directed by a dedicated Information Operations (IO) command called distributed weapon coordination (DWC), Figure 3 weaponization powered by internet of things (IoTs).

In the 21st century warfare, vital intelligence preparation of the battlefield will involve the labour of "digital natives" trained as "social media scouts" to reconnoiter the battle space and the hostile force, Figure 3. The influence of new media does not merely alter the power equation among states - after all, the terrorist attacks of 11 September 2001 offered no return address; rather, it constitutes "a wholly new sort of global nervous system," enabling new virtual social communities to thrive and expedite unfiltered communication internationally (Bollier, 2004) given birth the era of Facebook etcs. This new dimension of global social power continually undergoes refinement and expansion; events from the opening of the new era can only partially illuminate the contours of the new terrain and the utility of information operations (IO) in modern conflict and the politic of the 5G network. The resultant impacts are: that modern military strategy will result to development of military science of hybrid warfare. The defence policies of nations have change as a results of modern conflict scenarios like hybrid warfare, framework will demand distributed weapons coordination as asserted by Shafer *et al*., 2002, Figure 3 and what I termed warfare ecosystem construct (Otaiku, 2018, page 5).

The Role of Drones in Postmodern Warfare

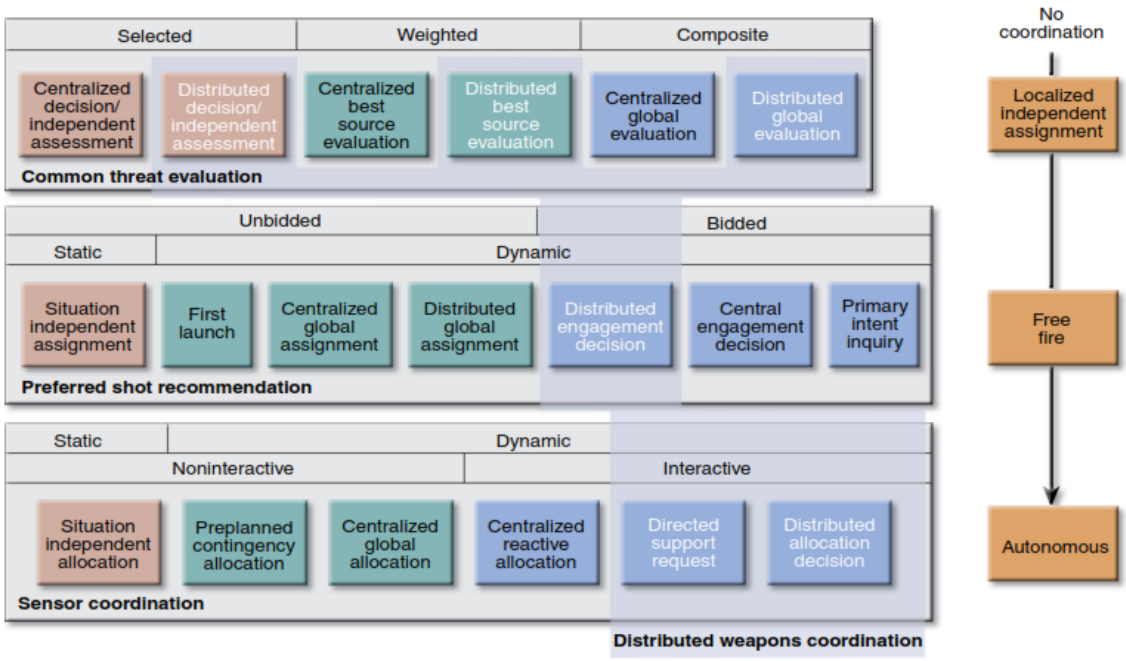
The rule of warfare has evolved ever since it was invented. Sticks and stones became swords and spears and the introduction of the longbow, the rifle, the machinegun and the airplane onto the battlefield changed the process even further into space, where the infrastructure of space is the new centre of gravity in defence planning for a modern military with technological revolutions. To drones are becoming the weapon of choice in the Western style of waging war, as well as the symbol for the postmodern and asymmetric warfare that has been the norm for the last two decades (Osinga, 2013). With their capabilities of developing "real-time depictions of social networks that can potentially make up for any gaps in knowledge that might stem from the difficulties of foot patrolling or limitations in the numbers of appropriately skilled analysts" (Ford, 2012). Drones have proven to be the ultimate contemporary intermediary weapons, as they are suited for the manhunt tactics required in the War on Terror. Technologies have been changing the nature of the battlefield for ages, but the influence that drones have on this process is of another level. It is argued that, in response to the alteration of the battlefield through the increased role of international terrorist organizations, drones moved violence from the battlefield to somewhere else. Drone warfare has been labelled as "not-battlefield-at-all type violence" (Mégret, 2012).

Change in the Character of Warfare – What is Modern War Strategy?

In the twenty-first century, the blurring of the lines between the states of war and peace now affirmed from the Russia annexation of Crimea. Wars are no longer declared and, having begun, proceed according to an unfamiliar template. The experience of military conflicts - including those connected with the so-called colour revolutions in North Africa and the Middle East-confirms that a perfectly thriving state can, in a matter of months and even days, be transformed into an arena of fierce armed conflict, become a victim of foreign intervention, and sink into a web of chaos, humanitarian catastrophe, and civil war. Defence doctrine powered by methodology, thrives in chaos because warfare strategy is a wicked problem? It is essential to have a clear understanding of the forms and methods of the application of force. Today, together with traditional devices, non-standard ones are being developed. The role of mobile, mixed-type groups of forces, acting in a single intelligence-information space because of the use of the new possibilities of command- and-control systems, has been strengthened by drone. Military actions are becoming more dynamic, active, and fruitful. Tactical and operational pauses that the enemy could exploit are disappearing and information technologies have enabled significant reductions in geography. Frontal engagements of large formations of forces at the strategic and operational level are gradually becoming a thing of the past with the era robotized military. How shall we fight under such conditions? What forms and means should be used against a robotized enemy? What sort of robots do we need and how can they be developed and what is the role of space infrastructure to war theatre?

The United States of America

Since 1991, during Operation Desert Storm in Iraq, the U.S. military realized the concept of "global sweep [global reach], global power" and "air-ground operations." In 2003, during Operation Iraqi Freedom, military operations were conducted in accordance with the so-called 'Single Perspective 2020' [Joint Vision 2020]. Now, the concepts of "global strike" and "global missile defense" have been worked out, which foresee the defeat of enemy objects [objectives] and forces in a matter of hours from almost any point on the globe, while at the same time ensuring the prevention of unacceptable harm from an enemy counterstrike. The United States is also enacting the principles of the doctrine of global integration of operations aimed at creating - in a very short time highly mobile, mixed-type groups of forces anchored with space warfare infrastructure.



Source: Shafer *et al*., (2002) adapted.

Figure 3. Categories for weapons coordination methods. The DWC - specific categories are highlighted as a subset of this trade space for grand strategy of war adapted (Williams, 2010)

Russian Armed Forces Test Multi-Domain Operations

Despite the global COVID-19 pandemic, the Russian Armed Forces have vigorously pursued the summer combat training schedule throughout the country's five military districts (MDs). [78] International attention was sparked by Russia's recent air-defense and naval exercises-especially the large maritime war games in the Baltic Sea, which prompted the Baltic States to go on alert. The rehearsal of tactical and operational approaches to combat operations conducted in the Central MD, on August 10 -14, 2020 appears to signal the implementation of a Russian variant of the United States military's concept of "multi-domain operations," which has important implications for Russia's evolving conventional military capabilities (Aviaport.ru, August 12, 2020). The exercise included more than 400 tactical episodes, drawing on the experience of the Russian military deployment and operations in Syria. These tactical elements tested new forms and means of using deployed forces in combat operations. The focus was control and command (C2 system) the central gravity of war theatre, the innovation gave the commanders the opportunity to continuously control the troops, protection and versatility, which is important when performing tasks on the front line" (reported by Rossisykaya Gazeta, August 14; Aviaport.ru, August 12, 2020).

Warfare Ecosystem

Nation-states seek to balance their power relative to other states, both internally, by accumulating resources or military-economic capabilities, and externally, by forming alliances with other nation-states with compatible interests for objective development military strategy what I called 'warfare ecosystem' because of the altercasting with different adaptive theatre of war construct by participants/communities with responsibility and value drivers (Otaiku, 2018 page 5) where major power tends to engage in stronger altercasting than a weaker power.

[78]. Roger McDermott (2020). Russian Armed Forces Test Multi-Domain Operations. Publication: Eurasia Daily Monitor Volume: 17 Issue: 123 https://jamestown.org/program/russian-armed-forces-test-multi-domain-operations/

Weinstein (1963) asserted that, 'a major power is relatively more prepared to undertake grand strategy designs because of its high capacity to act unilaterally like the Russia annexation of Crimea and Private Military Companies (PMCs) have proven to be an effective tool in Ukraine, Syria, and across Africa to achieve its strategic objectives with plausible deniability (Dick, 2019 ; IISS, 2020). The Wagner Group, Russia's semi-state private military companies. The group operates in Ukraine, Libya, Syria, Sudan, the Central African Republic and Venezuela (Kyzy, 2020). China Belt Road Initiative (BRI) conceptualised, in pre-Covid-19 era is an audaciously, ambitious project designed to stamp China's centrality in reordered global economic ecosystem. It seeks to cover 65 countries, touching lives of 62% of global population. It's bevy of projects, entail expenditure of 30% of world GDP, transporting 75% of energy products.[79]

Table 1. Warfare ecosystem schema (leveraging all elements of national power on the multi-domain battlefield)

N/S	Warfare ecosystem participants/communities	Responsibility and value drivers
1	Institutions	World class education and human capital development
2	University research and development	Prototype, proof of concept and spinoff companies
3	Military infrastructure	Space-based assets and GPS guided munitions
4	The innovators	Inventors, application development and futurist
5	Empire builders	Venture capital
6	Bankrollers	Capitalist/Finance
7	Architects/Intelligent cities	Clusters/knowledge parks
8	Knowledgepreneur/ Technocrats	Disruptive technologies and indigenous knowledge
9	Energy	Renewable/Non-renewable
10	Non-government agencies/media	Improving the state of the world
11	WIPO (Intellectual Property)	Idea, patents, finance, clusters, market and
		innovation-ecosystems link
12	Diaspora brain drain globally	Distributed networks, data repositories and mining
12	Governance	Policies
14	Communities of practice	Business schools, job creation and standards
15	Industrialist	Manufacturing
16	Environment sustainability	Access to necessities. Vulnerability to shocks. Social cohesion
17	Social sustainability	Environmental policy. Use of renewable resources,
		Degradation of the environment

Source: Otaiku, 2018 adapted.

The United States is also enacting the principles of the doctrine of global integration of operations aimed at creating- in a very short time highly mobile, mixed-type groups of forces. Defence foresight for military policy formulation encapsulate the Table 1 narratives which captures the perspective of the Russian military proxy's doctrine execution and United States global missile defense doctrine.

Warfare Ecosystem Construct Validity

Moscow's national security policy is driven by several key concerns. Foremost among these is the notion that Russia has a right to a seat at the table on all major international decisions. From the Kremlin's perspective, excluding Russia from these discussions' disrespects one of the world's great powers asserted by scholar Angela Stent.[80]

[79].Taking stock of China-Pak economic corridor Lt General K J Singh.
https://timesofindia.indiatimes.com/blogs/generals-jottings/taking-stock-of-china-pak-economic-corridor/
[80]. Angela Stent. What Drives Russian Foreign Policy? Strategic Studies Institute at the U.S. Army War College. Current Russian Military Affairs Conference Executive Summaries Edited by John R. Deni July 2018.

The U.S. The Quadrennial Defense Review Report asserted that Joint Forces to coordinate with interagency partners now a requirement for "America's foreign policy to employ an adaptive blend of diplomacy, development and defense." [81,82] Military strategist asserted that strategy operates forward with alliances and partners to leverage cooperative and preventive actions to preclude conflicts before they occur [83] sustain freedom of action [84] and planned in such a manner that the effects of surprise do not inflict lethal damage." In Asia, Economic corridor development gained additional push after China's initiative to establish "China–Pakistan Economic Corridor (CPEC)" that is expected to hook up "Western China to the Arabian Sea" through Pakistan as a flagship project of its "One Belt, One Road initiative" (Athukorala and Narayanan, 2018). China is targeting at inspiring financial growth in extensive territories in "Asia, Europe, and Africa", that is, 'equal to 64 percent of the global populace and 30 percent of the global Grass Domestic Product (GDP) encapsulates Table 1 warfare ecosystem narrative. Xudong (2015) asserted that China's strategic drive to set up the "Silk Road Economic Belt" and the "21st Century Maritime Silk Road" will place potential national as well as international growth on fast-track and China centre of gravity to become a "two-ocean power".

Instruments of Power = Warfare ecosystem

A nation's power to impose its will and to achieve its national objectives emanates from its instruments of national power and managing each element of national power synergistically in order to achieve its desired results. During the Cold War, the United States and its armed forces expanded those categories and developed a four-element schema known as DIME.[85] The U.S. military tends to view the instruments of power (IOPs) strictly through the lens of the diplomatic, informational, military, and economic (DIME) framework, using the doctrine and planning emphasize the DIME model. [86] DIME elements are derived from a nation's resources. Resources can be considered as natural (i.e. resources and population) or social (i.e. culture, industry, politics, military) [87] migrated to DIME-FIL (finance, intelligence and legal) IOPs [88] and finally "integrate all instruments of the U.S. and partner national power.[89] The Joint Force 2020 concept of globally integrated operations argues for a trans regional, all-domain, and multifunctional approach and urges the joint force to prepare for the future competitive security environment by leveraging Service capabilities [90] and rectify into 2018 National Defense Strategy of the United States of America.[91]

---

[81] Michael G. Mullen, The National Military Strategy of the United States of America, 2011, Redefining America's Military Leadership (Washington, DC: Chairman of the Joint Chiefs of Staff, February 2011), 1.

[82]. U.S. Joint Chiefs of Staff, Interorganizational Coordination During Joint Operations, Joint Publication 3-08 (Washington, DC: U.S. Joint Chiefs of Staff, June 2011), II-2. The Chairman of the Joint Chiefs provides the following guidance "CCDRs, in conjunction with their counterparts in DoS, USAID, and other USG agencies, and other non-USG organizations and sectors, will determine how to coordinate planning and operations, actions, and activities and resources at the theater strategic and operational level to achieve strategic objectives."

[83].Frank G. Hoffman, "Forward Partnership: A Sustainable American Strategy," *Orbis* 57, no. 4 (Winter 2013), 19–37.

[84].Abraham Denmark and James Mulvenon, eds., *Contested Commons: The Future of American Power in a Multipolar World* (Washington, DC: Center for a New American Security, 2010); Patrick Cronin et al., *Cooperation from Strength: The United States, China, and the South China Sea* (Washington, DC: Center for a New American Security, 2012).

[85]. D.R. Worley, Orchestrating the Instruments of Power: A Critical Examination of the U.S. National Security System (Potomac Books, 2015)

[86]. Joint Doctrine Note 1-18, Strategy (Washington, DC: The Joint Staff, 2018), available at <https://fas.org/irp/doddir/dod/jdn1_18.pdf>;

[87]. D. Jablonsky, 'National Power' in J.Boone Bartholomes, Jr. (ed.), U.S. Army War College Guide to National Security Policy and Strategy (Carlisle, PA: US Army War College, 2004).

[88]. National Strategy for Combatting Terrorism (Washington, DC: The White House, 2003), 15, available at <https://fas.org/irp/threat/ctstrategy.pdf>.

[89]. Military Strategic Plan for the Global War on Terrorism (Washington, DC: The Joint Staff, February 1, 2006), 6, available at <https://archive.defense.gov/pubs/pdfs/2006-01-25-Strategic-Plan.pdf>.

[90]. Capstone Concept for Joint Operations: Joint Force 2020 (Washington, DC: The Joint Staff, September 10, 2012), 4, available at <www.jcs.mil/Portals/36/Documents/Doctrine/concepts/ccjo_jointforce2020.pdf?ver=2017-12-28-162037-167>.

[91]. Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Edge (Washington, DC: Department of Defense, 2018), 4, available at <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

DIME addresses core elements of national power, but this schema does not encompass all of the contemporary assets of a modern nation. Compare with Table 1 warfare ecosystem schema and DIMA-FIL with the discourse about the 'U.S Single Perspective 2020'; Russia Private Military Companies (PMCs) and Armed Forces Test Multi-Domain Operations and The East Asia China foreign policy in development of Economic Corridor in East Asia. The military doctrines posture of the United States, Russia and China exhibits the characteristics of Table 1 warfare ecosystem as Instruments of power in broad perspective- iterated exploration of alternatives paths for results that optimize risk and uncertainty, with the principles of minimum regrets, considerable flexibility and adaptability in warfare.

CONCLUSION

The design of tomorrow's military should reflect that reality and rely on strong balanced forces that can fight and prevail in all war fighting domains in prolonged conflict and place a premium on acquiring equipment and providing training that give our forces the most versatile possible capabilities across the broadest possible spectrum of conflict. The rule of warfare has evolved ever since it was invented. In the twenty-first century, the blurring of the lines between the states of war and peace now affirmed from the Russia annexation of Crimea and other 'Red Spot of conflict globally. 'While information technologies have enabled significant reductions in geography and introduction of era robotized military and artificial intelligence (AI) in warfare. How shall we fight under such conditions? What forms and means should be used against a robotized enemy? What sort of robots do we need and how can they be developed and what is the role of space infrastructure to war theatre? Given that we cannot predict the place or nature of future military engagements, as former Secretary of Defense Robert Gates has noted, "Policy experts on defence must place a premium on acquiring equipment and providing training that give our forces the most versatile possible capabilities across the broadest possible spectrum of conflict.[56]" This means that defence policy foresight can be termed 'warfare ecosystem' as an integral military science that encapsulate potential adversaries vulnerabilities and formulation of strategic posture for modern army with the principles of minimum regrets, considerable flexibility and adaptability. The way we use and distribute knowledge casts very long shadows on human societies (Chichlnisky,1997). "China's rise will bring structural challenge to American hegemony in the Asia-Pacific region."[92] Turkey's president Recep Tayyip Erdogan has deployed the warfare ecosystem already in Libya and Syria using Sadat Group elite mercenary force to rival Russia's Wagner Group anchored by Adnan Tanriverdi. Generals at the Pentagon's Africa Command beg to differ reported by Colin Freeman [93] September 12, 2020.

[92]. Wang Jisi, Foreign Affairs Review], no. 84 (Oct. 2005): 13-16.
[93]. Colin Freeman 12 September 2020 reports. Erdogan n https://www.telegraph.co.uk/news/2020/09/12/erdogans-private-islamic-army-turkish-pm-nurtures-elite-mercenary/urtures elite mercenary force to rival Russia's Wagner Group.

REFERNCES

Athukorala, P.C., and Narayanan, S. (2018). Economic corridors and regional development: The Malaysian experience. *World Development,* (**106**), 1-14.

Andriopoulos, C. and Gotsi, M. (2006). "Probing the futures: Mobilizing Foresight in multiple-product innovation firms," *Futures,* vol. **38**, pp. 50-66.

Barrie, Douglas (2018). "Russian Aerospace Forces reform and its Syrian role: the view from Moscow" IISS Military Balance Blog, 06 December. https://www.iiss.org/blogs/military-balance/2018/12/russian-aerospace-reform-syria.

Baev, Pavel, (2019). "Russian Nuclear Modernization and Putin's Wonder-Missiles: Real Issues and False Posturing", Institut Fraçais des Relations Internationales (IFRI), August, https://

Beznosiuk, Maksym, (2016). "Russia's Military Reform: Adapting to the Realities of Modern Warfare," New Eastern Europe, 13 October. https://neweasterneurope.eu/2016/10/13russia-s-military-reform-adapting-to-the-realities-of-modern-warfare/

Betz, F. (2011). Managing Technological Innovation, Competitive Advantage from Change, John Wiley & Sons.

Bollier, David (2004). Communications Technologies and the New International Politics: A Report of the 12th Annual Aspen Institute Roundtable on Information Technology (Washington, DC: Aspen Institute.

Chung, (2011). Strategic Technology Management, 3rd Ed., Park Yong SA, pp. 397- 443. Chichilnisky, Graciela (1997), "The Knowledge Revolution: It's Impact on Consumption Patterns and Resource Use". Human Development Report 1998: UNDP Development Program. Draft for discussion only.

Collaborative Economics (2013). Index of Silicon Valley. San Jose, CA: Joint Venture Silicon Valley, Print.

Connolly, Richard, and Boulègue, Mathieu (2018). "Russia's New State Armament Programme: Implications for the Russian Armed Forces and Military Capabilities to 2027", Chatham House, 10 May 2018. https://www.chathamhouse.org/publication/russia-s-new-state-armament -programme-implications-russian-armed- forces-and-military

Connolly, Richard (2019). "Russian Military Expenditure in Comparative Perspective: A Purchasing Power Parity Estimate," Centre for Naval Analysis, CAN Occasional Paper series.

Connolly, Richard and Michael Kofman, (2019). "Russian Defense Expenditure and Military Modernization", CSIS, December 4,. Available at https://www.csis.org/events/russian-defense-expenditure-and-military-modernization.

Cooper, Julian, (2018). "The Russian State Armament Programme 2018-2027", NATO Defence College: Russian Studies, May, http://www.ndc.nato.int/news/news.php? icode=1167.

DeGhett, Torie Rose (2016). "Russia's Military Modernization Is Working, But the Money's Running Out", Vice News, 23 March. https://www.vice.com/en_us/artic le/vb8xqm/russias-military-modernization-is-working-but-the-moneys-running-out.

Dick, Charles (2019)."Russian Ground Forces Posture Towards the West," Chatham House. The Royal Institute of International Affairs, Russia and Eurasia Programme, Research Paper, April. https://www.chathamhouse.org/sites/default/files/publications/research/2019-04-

Facon, Isabell (2017). "Russia's National Security Strategy and Military Doctrine and their Implications for the EU"Directorate-General for External Policies, Policy Department (paper requested by the European Parliament's Sub-Committee on Security and Defence (SEDE)), 1 https://www.europarl.europa.eu/RegDaa/etudes/IDAN/2017/578016/EXPO_IDA%282017%2 9578016_EN.pdf

Faulconbridge, Guy, (2018). "What is Russia's GRU military intelligence agency?" Reuters, October 5, https://www.reuters.com/article/us-britain-russia-gru-factbox/what-is-russias-gru- military-intelligence-agency-idUSKCN1MF1VK.

Franklin, Lawrence A., (2020). "Russia's 'Wagner Group' Doing Its Dirty Work?", Gatestone

Institute, February 12, 2020. https://www.gatestoneinstitute.org/15557/russia-wagner-group

Gawlikowski, Krzysztof; Loewe, Michael (1993). "Sun tzu ping fa 孫子兵法". In Loewe, Michael. Early Chinese Texts: A Bibliographical Guide. Berkeley: Society for the Study of Early China; Institute of East Asian Studies, University of California, Berkeley. pp. 446–55. ISBN 1-55729-043.

Ford, M. C. (2012). Finding the Target, Fixing the Method: Methodological Tensions in Insurgent Identification. *Studies in Conflict & Terrorism. V*ol. **35** (2).

HKSF, (2002). Handbook of Knowledge Society Foresight (2002), PREST & FFRC for European Foundation for the Improvement of Living and Working Conditions.

International Institute for Strategic Studies (IISS): The Military Balance years: 2015, 2018, 2019, 2020.

Hauer, Neil, (2018). "Russia's Favorite Mercenaries. The Atlantic, August 27. https://www.theatlantic.com/international/archive/2018/08/russian-mercenaries-wagner-africa/568435/

Johnson, Dave (2019). Review of Speech by General Gerasimov at the Russian Academy of Military Science". NATO Defence College, 30 March. http://www.ndc.nato.int/research/researc h.php? icode =585.

Johnston, J. S. (2009). Deweyan Inquiry: From Education Theory to Practice Albany: State University of New York Press.

Kyzy, Aruuke Uran, (2020). "The Wagner Group: a private military company that's not exactly 'private'", TRT World, January10,2020.https://www.trtworld.com/opinion/the-wagner-group-a-private- military -company-that-s-not-exactly-private-32840.

Khong, Yuen Foong (2013).'The American Tributary System', *Chinese Journal of International Politics,* Vol. **6,** No. 1, pp. 27–28.

Lewis, Mark Edward (1999). "Warring States Political History". In: Loewe, Michael; Shaughnessy, Edward. The Cambridge History of Ancient China. Cambridge: Cambridge University Press. pp. 587–650. ISBN 0-521-47030-7.

Magruk, A. (2011). Technology foresight vs. Technology management", *Maintenance Problems,* vol. **3**, pp. 47-60, (in Polish).

Mair, Victor H. (2007). The Art of War: Sun Zi's Military Methods. New York: Columbia University Press. ISBN 978-0-231-13382-1.

Mégret, F. (2012). War and the vanishing battlefield. Loyola University Chicago *International Law Review*. Vol. **9** (1).

Major, E, Asch, D and Cordey-Hayes, M (2001). "Foresight as a core competence," *Futures,* vol. **33,** pp. 91-107.

Martin, B. R. and Johnston, R. (1999). "Technology foresight for wiring up the national innovation system," *Technology Forecasting and Social Change,* vol. **60,** pp. 37-54.

Massicot, Dara, (2019). "Anticipating a New Russian Military Doctrine in 2020: What It Might Contain and Why It Matters", War on the Rocks, 09 September. https://warontherocks.com/2019/09/anticipating-a-new-russian-military-doctrine-in-2020-what-it-might- contain-and-why-it-matters/

McDermott, Roger, (2014). "Russia Activates New Defense Management Centre", Jamestown Foundation, 4 November, https://jamestown.org/program/russia-activates-new-defense-management-centre/

McDermott, Roger (2019). "Russian Military Introduces New Automated Command-and-Control Systems", Jamestown Foundation, 11 June , https://jamestown.org/program/russian-military-introduces-new-automated-command-and-control-systems/

Mclees, Alexandra, and Eugene Rumer, (2014). "Saving Ukraine's Defense Industry," Carnegie Endowment for International Peace, 30 July. https://carnegieendowment.org/2014/07/30/saving-ukraine-s-defense-industry-pub-56282.

Mead, H., George (2004). Mind, Self and Society: From the Standpoint of a Social Behaviourist (Chicago: Chicago University Press, 1934); Joel M. Charon, Symbolic Interactionism: An Introduction, An Interpretation, An Integration (Boston: Pearson).Mégret, F. (2012). War and the vanishing battlefield. Loyola University Chicago *International Law Review.* Vol. **9** (1).

Mineiro, Sarah (2020). Next Generation Defense Strategy: Space Centre for a New American Security. August 10. https://www.cnas.org/publications/commentary/next-generation-defense-strategy-space.

Rabin, Alexander, (2019). *"Diplomacy and Dividends: Who Really Controls the Wagner Group?",* Foreign Policy Research Institute, October 4, 2019. Available at https://www.fpri.org/article/2019/10/diplomacy-and-dividends-who-really-controls-the-wagner-group/

Russia's Military Doctrine, (2014). https://rusemb.org.uk/press/2029.

Oliker, Olga, (2016). "Unpacking Russia's New National Security Strategy," Center for Strategic and International Studies (CSIS), Commentary, 7 January. https://www.csis.org/analysis/unpacking-russias-new-national-security-strategy.

Osinga, F. (2013). Bounding the debate on drones: the paradox of postmodern warfare. Moral responsibility and military effectiveness [Amersfoort, H. *et al*. (eds.)]. pp. 243 - 275.

Otaiku, A.A, (2018). A Framework for Hybrid Warfare: Threats, Challenges and Solutions *J. Def Manag* **8**: 3 DOI: 10.4178/2167-0374.1000178 4-6 pp.

Phaal, R . Farrukh, C. J. P and Probert, D. R. (2011). Technology Road mapping: Linking Technology Resources to Business Objectives, Cambridge, U.K.: University of Cambridge.

Phaal, R, Farrukh, C. J. P. and Probert, D. R. (2004). "Technology road mapping-a planning framework for evolution and revolution," *Technological Forecasting & Social Change*, vol. **71**, pp. 5-26.

Russia's National Security Strategy, December (2015). http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf.

Schiling, M. A. (2010). Strategic Management of Technological Innovation, 3rd ed., McGraw-Hill

Shuster, S. (2016). Putin's Man in Crimea is Ukraine's Worst Nightmare. *TIME*, accessed 20 May 2016, http://time.com/19097/putin-crimea-russia-ukraine-aksyonov/.

Smith, Kidder (1999). "The Military Texts: The Sunzi". In : de Bary, Wm. Theodore. Sources of Chinese Tradition: From Earliest Times to 1600, Volume 1 (2nd ed.). New York: Columbia University Press. pp. 213–24. ISBN 978-0-231-10938-3.

Shafer, Kenneth, E. Russell A. Phillippi, Simon Moskowitz, and Stefan R. Allen (2002). Weapons Coordination Conceptual Framework. Johns Hopkins *Apl Technical Digest*, Volume **23**, Numbers 2 & 3.

Snegovaya, Maria (2016). "Russia's Newest Weapon is Blind Patriotism", The National Interest, 07 July 2016, https://nationalinterest.org/feature/russias-newest-weapon-blind-patriotism-16881

Sukhankin, Sergey (2019) ."Russian PMCs in the Syrian Civil War: From Slavonic Corps to Wagner Group and Beyond". The Jamestown Foundation, December 18. Availableat# https://jamestown.org/program/russian-pmcs-in-the-syrian-civil-war-from-slavonic-corps-to-wagner-group-and-beyond/.

TFG, (2004). Technology Futures Analysis Methods Working Group, "Technology futures analysis: Toward integration of the field and new methods," *Technological Forecasting and Social Change,* vol. **71**, pp. 287-303.

Van Ness, Peter (1970). Revolution and Chinese Foreign Policy: Peking's Support for Wars of National Liberation (Berkeley): University of California Press, p. 189.vol. 33, pp. 91-107.

Weinstein, E. A. and Deutschberger Paul (1963). 'Some Dimensions of Altercasting', *Sociometry,* Vol. **26**, No. 4, pp. 454–66.

Williams, David J. (2010) is a professional author/futurist, with over ten years in management

consulting to F2000 companies.

World Politics Review, (2018). “Russia Looks to the Central African Republic to Beef Up Its Arms Sales to Africa”, January 10, 2018. https://www.worldpoliticsreview.com/tr end-lines/23958/russia- looks-to-the-central-african-republic-to-beef-up-its-arms-sales-to-Africa.

Xudong, Z. (2015). *China Today.* 41- 43pp.

Zakvasin, Alexey, “What is Russia’s National Defense Control Centre and How Does It Work?” South Front, 10 December 2015, https://southfront.org/russias-national-defense-control-center- works/ ; https://rusplt.ru/sdelano-russkimi/informatsionnyiy-sprut-rossii-20014.html.

Zakharov, Artut, (2016). “"Wagner Group:" Russian secret mercenaries in Syria”, 112 Ukraine, December 16, 2016.https://112.international/ukraine-top-news/wagner-group-russian-secret-mercenaries-in-syria-12123.html