Trends in New Generation Warfare: Lessons for India*

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> "We are facing a future where security challenges will be less predictable; situations will evolve and change swiftly; and, technological changes will make responses more difficult to keep pace with […]. Full scale wars may become rare, but force will remain an instrument of deterrence and influencing behaviour, and the duration of conflicts will be shorter."
>
> - Prime Minister Narendra Modi,
> Combined Commanders Conference 2014

Abstract

In the twenty-first century we have seen a shift toward blurring of the lines between the states of war and peace. As we move ahead, we will witness more conflicts and not total all-out wars. The emphasis on achieving outcome of conflicts through non-military means is the new normal. This article examines if we are prepared for that and how should we go about it.

The Emergent Face of War

Warfare is increasingly becoming a complex phenomenon. The historical context of the term 'War' has left an enduring imprint on the trinity of trinities and this imprint limits one's ability to view warfare as anything other than armed conflict between nations. Over the years the nature of war remains same however character of war has changed. However, the tenets of New Generation Warfare (NGW) are about to alter the nature of war,

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wherein without firing a bullet a nation state may be forced to adversary's will. For both military planners and political leaders who provide the political purpose for which a war is waged, it is not only necessary to understand the changing nature of war and conflicts but also evolve strategy to meet the future challenges for security of a nation state. This paper attempts to amplify NGW, as is finding resonance in military and political circle amongst operational and strategic planners. Moreover, the contents of the paper are based on assumption and the belief that there is a change in the nature of war which has necessitated an analysis of NGW in terms of theory, practice and lessons for Indian strategists.

NGW. When we speak about NGW it is important to discuss the Russian perspective on NGW wherein Gen Valery Gerasimov, Chief of the Russian General Staff says, "The very 'Rules of War' have changed. The role of non-military means of achieving political strategic goals has grown, and in many cases, they have exceeded the power of force of weapons in their effectiveness"[1]. Since the illegal Russian annexation of Crimea and the following conflict in the Donbass Region of eastern Ukraine, security analysts across the western world quickly began attempting to characterise the seemingly novel Russian methodology, which had allowed for the illegal annexation of an entire region of a neighbouring country, using "little green men" and without unleashing major military conflict. Therefore, the main difference which came to fore was the change in methodology to approach a crisis wherein usage of non-military, non-lethal (Info-Warfare) and non-conventional means were resorted to tire the adversary effectively. The changing nature of adversaries and objectives has thus necessitated a new approach to the way the war is fought. Therefore, NGW can be defined as the trends in warfare wherein a nation state seeks to bring about political or military outcomes without resorting to overt conventional military means, or a warfare which combines asymmetric, nonlinear, unconventional tactics with modern forms of traditional warfare.

Conceptual Framework of NGW. NGW seeks to bring about political or military outcomes without resorting to overt conventional military means, although the latter is not excluded. The arena has

also widened from the battlefield to the battlespace comprising land, sea, air, space and cyber as the strategic space. Therefore, now the target in the battlespace is the mind and hence in modern conflicts the emphasis is on information warfare. NGW thus encompasses different components of warfare; however, any one such domain like asymmetric or hybrid should not define it. Hence, what we see in NGW today is a strategy as a sum total of 4GW, 5GW and 6GW wherein the application is aimed to blur lines between war and peace and attain victory through non-military means. The demonstration of NGW capabilities in the Crimean, Syrian, Azerbaijan and the latest US withdrawal from Afghanistan has put forth different facets of NGW and its application. To sum briefly, the components of NGW may include:

- Network Centric Warfare.
- Non-Contact Operations (Warfare).
- Low Intensity Conflict.
- Asymmetric Warfare.
- Sixth Generation Warfare. As a penultimate blow, cripple the enemy by the use of precision weapons.

NGW, Hybrid and Grey Zone Warfare

NGW encompasses all aspects of aggressive competition between nations wherein operations in grey zone is one of the component. While hybrid warfare can be a tactical subset of grey-zone conflict deployed under certain conditions and in varying degrees, in the continuum of conflict, irregular warfare/ asymmetric warfare/ terrorism incidents appear before hybrid war which is eventually followed by a conventional war. NGW comprises of well-known methods of warfare executed in innovative ways with the help of new technologies, therefore NGW is sum total of Gerasimov Doctrine, hybrid warfare and hybrid threat, non-contact warfare, fourth-generation warfare, and most recently the 'grey zone' conflict.

NGW vs Multi Domain Operations (MDO)

MDO is a relatively new operational concept which encapsulates the employment of niche technologies in influencing kinetic and non-kinetic operations. The recent fictional sci-fi novel 'Third World War 2034'[2] amply depicts the MDO. What comes to fore is the

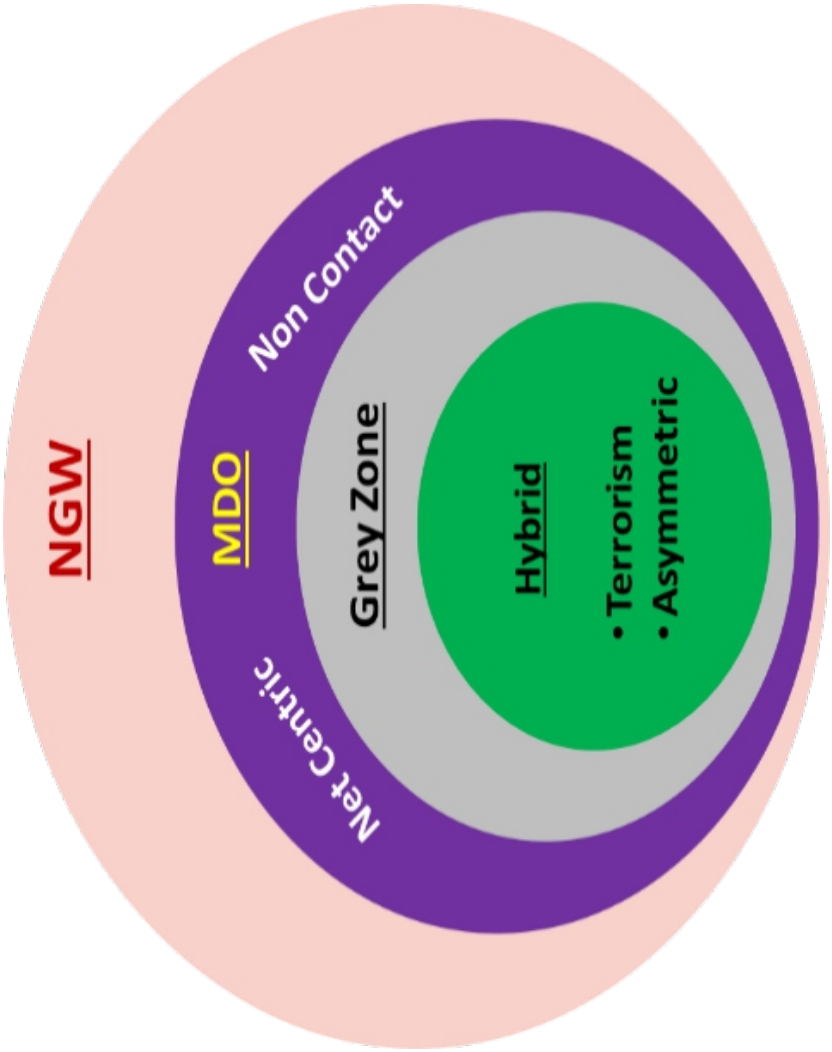

Figure 1: NGW Linkages

'Cross Domain Manoeuvre' and 'Cross Domain Integration' which leads to 'Disruption of Enemy Cohesion'. The employment of niche technologies to initiate a war or influence the outcome of war is hence well understood. Therefore, in today's digital age, there is a pressing need to find a way to avoid sleepwalking into war, when war is being initiated in all the domains, be it land, sea, air, cyber and space. The MDO is a relatively new concept and would require mobilising all elements and instruments of war. NGW is a tested concept and will culminate into MDO.

Situational Awareness and NGW

The enabler for NGW at the top remains situational awareness. While speaking about situational awareness the enablers remain the Net Centric Warfare (NCW) and Information Operations (IO). While IO is a form of warfare and involves a struggle in the information/ cognitive domains to achieve information dominance (attack/defend functions), NCW leverages the information domain to achieve increased combat effectiveness primarily in the physical domain, thereby enhancing situational awareness. IO complements the NCW operations as the application of the NCW hinges on a robust and reliable interconnectedness of sensors, decision makers and weapons systems through a reliable network, the continuous availability of which needs to be ensured by strong IO capabilities both in offensive and defensive domain. Militaries across the world have invested in technologies to enhance situational awareness with an aim to alter the OODA loop, placing oneself ahead in the decision cycle and also creating dilemmas in adversaries mind over his course of action.

Technology and NGW

Technology shapes *warfare* not war.[3] As much technology may change warfare, it never determines warfare. Therefore, it may preside in warfare, but it does not rule. As military men the understanding of "Principles of War" of intelligence, surprise, manoeuvre, command and control, concentration of force, unity of command, terrain, etc. are well known, however, with changing times it is technology and its application which needs to be understood at every stage. What changes the definition of war today is its non-contact aspect which has been enabled by technology such as Hybrid Warfare, Subversion, Assassinations, Cyberattacks, Hacking, Social Media, Psychological Warfare &

Propaganda and Perception Management. Using these, one exhausts the adversary rather than engaging in kinetic operations aiming for total destruction. This is the new normal. Since the Iraq War of 2003 the conditions of war were changed from a conventional force on force to a high technology war. This was also realized by China after the Belgrade bombing, from where the journey to fight wars under high technological conditions was initiated. What we see today as embedding of technology has also born out of the incessant need to reduce human involvement and replace it with technology. This has allowed nuclear-armed states to continue fighting in the blur between war and peace using both military and non-military means and we have seen evidence of this in Ukraine and Syria.

NGW and Intelligentised Warfare

"War is evolving in form towards informationised warfare, and intelligent warfare is on the horizon"[4].This change in strategic thought from informationised warfare to intelligentised warfare is due to the significant jump in areas of Artificial Intelligence (AI), Cloud Computing, Big Data Analytics and Quantum Computing. Chinese military authors point to a quote from Russian President Vladimir Putin, that whoever leads in AI will "rule the world".[5]

Unmanned Autonomous Vehicles in NGW — David vs Goliath

One can relate to the efficacy of Unmanned Autonomous Vehicles with the Armenia-Azerbaijan War. What is evident in the conflict is that even a nation with a smaller economy can successfully conduct combined arms warfare provided it understands the novel application of technology. With inexpensive, combat-ready drones proliferating on battlefields, the exposure and survivability of men and the advanced battlefield equipment will be challenged. Looking at the figures what Armenia lost in conflict; 250 tanks, 50 infantry fighting vehicles, four Russian-made S-300 missile defence systems, as well as 198 trucks and 17 self-propelled artillery units, one can understand what an unmanned aerial vehicle with a weapon payload can do on the battlefield. What was eventually achieved was an astounding victory at a much lesser cost by resorting to application of technology through use of a drone arsenal and debilitating a force by having a devastating effect on the morale of soldiers.

Modus Operandi

It is almost impossible to lay down a sequence of operations as to what will be executed first and what will come later. However, the aim remains to win without fighting, cripple the enemies command and control system and when he is weak, induce surrender or strike hard to annihilate with substantial damage to his war fighting potential. Therefore, it aims at 'Induced Compellence'; the modus operandi may involve six phases as follows:

- **Phase I.** Info Operations. Use of spies and espionage, develop moles within adversaries. Violent/non- violent agitations.
- **Phase II.** Moral Ascendancy - Political Subversion.
  - ✔ Use of Special Forces for subversion and assassination.
  - ✔ A whole of government approach to mislead political and military leaders by coordinated measures carried out through diplomatic channels, media and top government and military agencies.
- **Phase III.** Dark Territory. Cycle of cyber-attacks and hacking of top officials and emergent services. Cripple the economy and essential services.
- **Phase IV.** Coercive Deterrence. Massing Hybrid forces with regulars, establishing no fly zones, sea control, blockades. Commencement of offensive IW ops.
- **Phase V.** Intervention in Battlespace.
  - ✔ Kinetic Operations.
  - ✔ If surrender or favourable outcome not received then commencement of military operations across battlespace (land, sea, air, cyber and space).
- **Phase VI.** Degrade war fighting potential through use of precision weapons delivered through triad of land, sea and air.

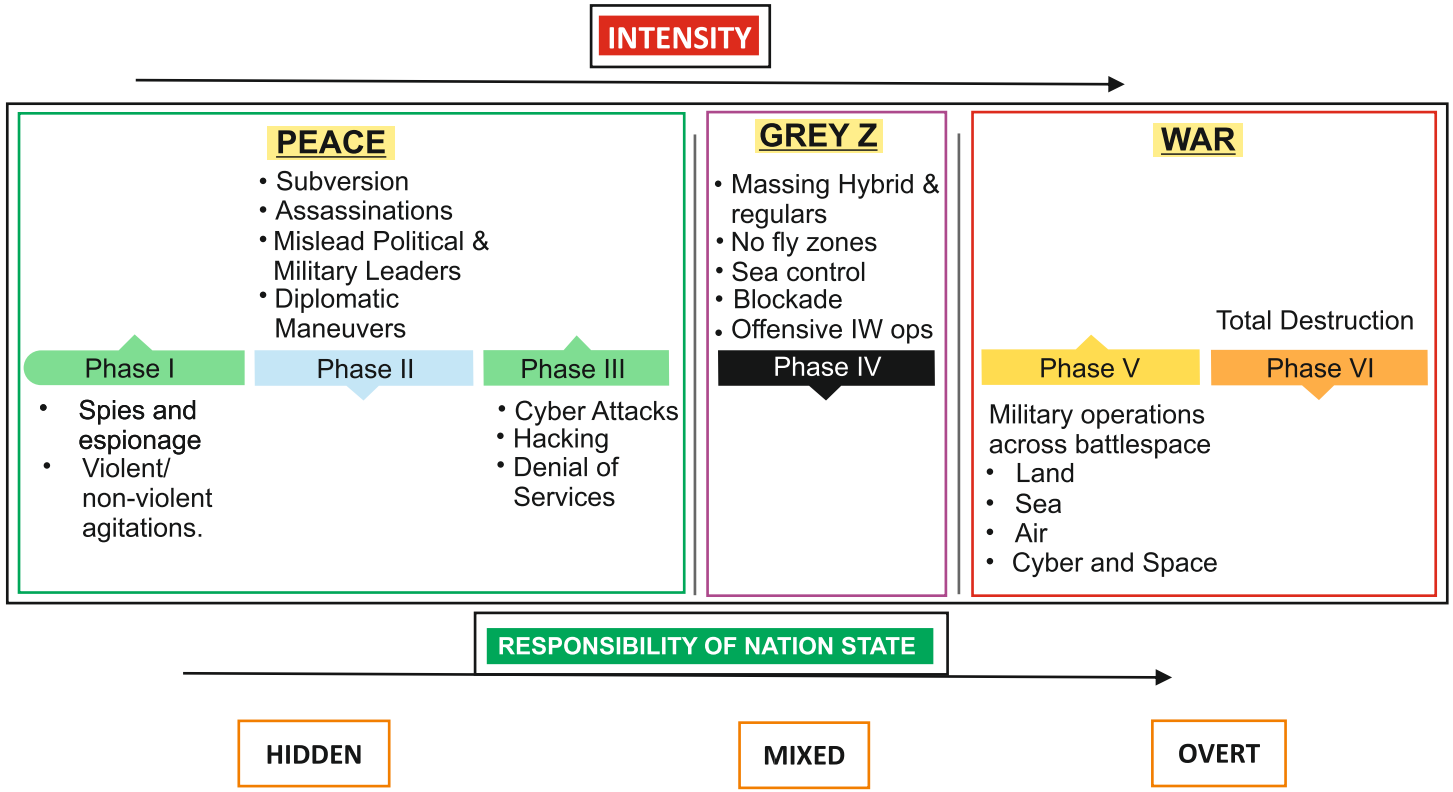

Figure 2 : Modus Operandi- Execution of NGW

Whole of Government Approach

The very nature of NGW mandates a whole of government approach. The tenets of warfare cover a total span from peace to Grey Z and finally transcend into total war. Therefore, all stakeholders in the Government are responsible for successful execution of NGW. With this as a primary concern China has moved from 'Civil Military Integration' to 'Military Civil Fusion'. The military has been placed a notch above than its civil counterparts setting the primacy of the role of the military in future wars. With a requirement of diplomats, the best of minds from academic world, technocrats, heads of business houses and fusion of intelligence agencies the list is endless. However, it should be understood that to activate the war effort all agencies/ departments/ ministries need to come together. In this case, all instruments of national power (diplomatic, information, military, and economic) and tools of national security policy (finance, intelligence, and law enforcement) must be mobilised; the appropriate Cabinet Minister/ Principal Secretary responsible for each instrument of national power or tool of national security should be designated the lead of that *line of effort*, with a Deputy Secretary from an appropriate fellow department or agency available to assist.

Lessons for India

The question arises that are we militarily prepared? With enough conventional means, a standing Army and a capable Air force and a modernized Navy do we need to be prepared for NGW. The answer lies in identification of the changing landscape of war. The Indian establishment believes that it will fight the next war from lessons drawn from past wars. However, with the technological onslaught there might be no need to use conventional means and still achieve victory or suffer defeat even when conventional means are not committed. Therefore, the lessons for Indian defence establishment can be covered as follows:

- **Strategic.** In the absence of a formal national defence policy, our response to threats or other sudden developments in the military arena will be largely ad-hoc in nature; a formal national security strategy will help in prioritising war. The Integrated actions planned and coordinated at Service HQ level/ DMA need to be strategically predictable, but operationally unpredictable.[6] There is also a need to

incorporate Think Tanks & Civil Intelligentsia for cross pollination with best minds for involvement and evolvement. The *Niti Aayog*, National Security Council and DMA need to align to contribute to national security. We need to follow the laid down Long Term Integrated Perspective Plan (LTIPP) to its conclusion and also incorporate the Private sector and DPSUs in the modernisation drive.

- **Civil Military Integration.** Need for political, bureaucratic and military hierarchy to understand each other and have overlapping strategic and activity areas, to optimise, integrate and synergise responses both in non-conventional and conventional domain. In order to incorporate military in foreign policy fields, the institutional-bureaucratic impulse of MEA officials to preserve turf need to be done away with. We need to secure foreign military bases with astute military diplomatic efforts; this can be done by incorporating military officers in national policy and decision-making roles.

- **Operational.** Immediate need for revamping the military structure and its orientation. Partly this is being done by theaterisation and integration of forces. The forces need to be trained for execution of integrated military operations. The intra intelligence agency coordination will help in cultivation of actionable intelligence and further the strategy of thousand grains of sand[7]. i.e., collecting bits and pieces and finally putting them together. There is a need to facilitate structuring of special commands (Integrated AD Command, Hybrid Division, SOF Command, Cyber Command and Space Command) and put doctrines and a training roadmap in order. Last but not least is to revamp the Professional Military Education (PME) i.e. the way we train our Officers which needs to align with the changing landscape of war to enable us to fight grey zone conflicts, cyber wars and digitised wars.

- **Technological Innovation and Inclusion.** There is a need to tap the potential especially in field of 5G, AI, Quantum Computing, Big Data and its Analytics and Cloud Computing. This would help in enhancing speed for processing info as required for NCW. Information Technical Operations (ITO) targeting machines and people need to be incorporated as part of Influence Operations (IO). The EW Cells need to be

trained for shutting down communication and signals across a broad spectrum and at the same time execute own operations in times of spectrum void. We need to enhance the Battlefield to Battlespace, no more will the war be limited to land, sea and air; we need to exploit the dimension of Cyber and Space. Drones and Swarm Technology as low-cost option, with huge dividends, need to be exercised. Cyber warfare and hackers can alter OODA loop by imposing restraints in the decision cycle, therefore we need to train to immediately embrace these technologies.

Deus Ex Machina – Future Road Map

Vision. The forces in 2030 will be ready to deploy, fight and win decisively against any adversary, anytime and anywhere, in a joint, multi domain, high intensity conflict, while simultaneously deterring others and maintaining its ability to conduct irregular warfare. The emerging geo-political situation in our neighbourhood urges for adherence to call of NGW. All of it may not be applicable for practice in respect of our own military but certainly some areas need complete focus and an energised effort to fight a conflict in a technological battlespace. The future road map can be enumerated as below:

Strategic Road Map

Goal	Remarks	Time Period
National Security Strategy (NSS)	Formalisation of Strategy	2022
Military Structure	Theaterisation & Integration · **Phase 1**. Western Integrated Theatre Command. · **Phase 2**. Northern Integrated Theatre Command and Maritime Theatre Command to follow two stages behind Phase 1 process. · **Concurrent with Phases 1 & 2.** Structuring of Theatre Independent Forces (including Theatre Independent Strategic Forces, Theatre Independent Strategic Reserves and Special Forces Commands). · **Phase 3.** Other Theatre Commands.	2025

Military Orientation	· Joint Integrated Operations across Multiple Domains[8] · Review of Doctrines, War Gaming, Validation Exercises.	2025
Aligning Structures & Institutions	· Structure should follow the NSS · Integration of DMA, NITI Aayog and NSA with due impetus to military and incorporation in decision making.	2025
Force Modernisation	· Focus on LTIPP Incorporation of Public Sectors and accountability of DPSUs	·Five yearly Services Capital Acquisition Plans (SCAPs) ·Achieve modernisation by 2035
Net Assessment Cells	Net Assessment Office	2022

Technological Road Map

Goal	**Remarks**	**Time Period**
Cyber Command	· Training of Operational Cyber Units · Lay down policies · Technical Expertise · Incorporation of Civil Experts (Infosys, Tata Consultancy, Wipro, HCL Tech Mahindra)	2023
Special Operating Forces Command	Collecting information · Adversary's capability and capacity · Social structure · Government functioning at the social level · Human Terrain Mapping (Phase I & Phase II)	2023
Integrated AD Command	Air assets of the three Services under one command, including the S-400 'SA-21 Growler' air defence systems	2023
Cyber Units(Part of IW Command)	Cyber Units on lines of Unit 8200 (Israel) · Securitisation of Cyber- Space · Produce Intel · Leverage SIGINT, VISINT and GEOINT · Utilize sophisticated Big Data · Social Media	2025

Defence Technological University (DTU)	Leveraging of technological mind-set across the country in fields of · Artificial Intelligence · Drones and UAVs · Cyber Warfare · Hacktivism · Disruptive Technologies (5G/6G, IoT, Big Data, Blockchain)	2025
Space Command in collaboration with ISRO, NTRO.	· Satellites · Launch vehicles · Space situational awareness · Ballistic Missiles Warning Radars	2025
Officers Professional Military education (OPME)	Revision of training curriculum. Experts in following: · Area/ Terrain Studies. · Military Theory and Military History. · International Relations · Operation Research and System Analysis · Military Technologies · Human Behaviour and Negotiations	2025

Operational Road map

Goal	Remarks	Time Period
Enhancing Battle space	Inclusion of Cyber and Space	2025
Battle Field Management Systems	· Situational Awareness · Net Centric Warfare · Common Operational Picture	2024
Integration of Fire Support Assets & Drones	Inclusion of UAVs and Drone Battery at Regiment Level · Recce and Destruction	2025
Hybrid Warfare Division	Cyber Warriors, Hacktivists and Social Media Monitors (Incorporation of graduates from DTU).	2030
Anti-Access & Area Denial	· Step up the Integrated Guided Missile Development Program (IGMDP) · Leverage assets of QUAD · Ballistic Missile Defence Capability · Re-organising of AAD (Training and Equipment)	2030
Speed in Processing Info	· Inclusion of 5G · Big Data Processing · AI Cloud (Network for Spectrum)	2025
RMA	· Wargaming · Joint Exercises/ IW Exercises · Exercise in Technological Void · Exercise with Technology as FMs · Red & Yellow Teams	2025

Joint Integrated Operations	· Joint Training (Mid-level & Senior-Level) · Training followed by Cross Service billeting · Joint Wargaming (Theatre specific)	2022 onwards(HC/ HDMC/ NHCC/ HACC)

Tactical Road Map. The tactical road map would come forth once the strategic and operational road map starts maturing. The operational commanders will need to ensure that the adoption of tactics, techniques and procedures (TTP) is done concurrently with mid-course correction incorporated at regular intervals. This would involve exercise with troops on ground and maturing the soldier into a smart soldier who is capable to fight in a high technological environment.

Whole of Government Approach and Military Civil Fusion. The issue does not need any deliberation. The successful culmination of war effort lies in prosecution of operations though designated lines of efforts. Therefore, as a primary requirement, there exists a need to mobilise the war efforts along the following lines of effort [9] which will necessitate the whole of government machinery and its stakeholders work in unison:

- Diplomatic options.
- Information opportunities.
- Intelligence opportunities. (Public Opinion Warfare and Psychological Warfare).[10]
- Military opportunities.
- Economic and financial opportunities.
- Law enforcement opportunities (Legal W).[11]

Conclusion

India and its military cannot ignore the prospect of a major war due to clash of geo-strategic spaces[12], or indeed of a simultaneous collusive threat on both fronts. It must therefore retain the capacity for major conventional operations. However, to embark on a steep journey of force modernisation and technological innovation, there exists a requirement of funds. During first three years of the 13th plan (2017-2022), the shortfall has been reported as INR 7,37,357 crores which is leading to capability gaps. As per recommendations

in Chapter 11, submitted by the Fifteenth Finance Commission, there exists a need to create a "dedicated, non-lapsable, Modernisation Fund for Defence and Internal Security (MFDIS), under the Public Accounts of India"[13], with standard reporting and audit requirements. Secondly, organisational acceptability at every level and avoidance of Service specific parochial interests keeping the singular picture in mind will be required. We should welcome cross billeting with sister Services and also civil academia as solution to many of our problems in breaking barriers of communication. IITs, IIMs, MCTE and MCEME can serve as torchbearers in the technological race. There is need to set accountability of Defence Public Sector Undertakings and also focus on self-reliance especially in niche technologies. Military-Civil fusion is the need of the hour and to be prepared for a future conflict we need to work in unison as a nation state.

Finally, in the changing rules of conduct of war, the victory of any country would be on defeating the opponent's armed forces in his own territory, destroying of the enemy's economic potential and subverting the adversary's political system", for that the "country needs to technologically upgrade their command, control, communications, computer, intelligence, surveillance, and reconnaissance mechanism"[14] and we have to begin now….

Endnotes

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