

Ukraine War: Military Lessons for India

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“No one in this room can accurately predict the future, least of all me. The nature of war is never going to change. But the character of war is changing before our eyes—with the introduction of a lot of technology, a lot of societal changes with urbanisation and a variety of other factors”.

- General Mark Milley at the Association of the US Army Convention, 2017

Abstract

The ongoing conflict between Russia and Ukraine has its roots in Putin’s concerns over the North Atlantic Treaty Organisation’s (NATO) eastward expansion, leading to Ukraine’s desire to join NATO and the European Union. This essay delves into the military dynamics of the conflict, analysing strategies, operations, and technology usage by both sides. The conflict’s backdrop, including historical and geopolitical factors, is examined to understand its complexities. The military campaign is scrutinised, focusing on the Northern, Eastern, and Southern thrust lines employed by Russian forces. Lessons learned from the conflict are distilled, offering recommendations and a roadmap for the Indian military. These include insights on tank warfare, integration of technology, logistics planning, indigenisation efforts, and the importance of

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narrative warfare and cyber capabilities. The essay concludes by emphasising the need for strategic adaptation and the incorporation of disruptive technologies in future military planning.

Introduction

The ongoing Russia-Ukraine conflict is the offshoot of Putin's sense of insecurity emanating from the eastward expansion of the North Atlantic Treaty Organisation (NATO). In 1991, NATO boundaries stood along the borders of Germany. In decades after that, Poland, Hungary, the Czech Republic, Bulgaria, Romania and the Baltic states of Estonia, Latvia and Lithuania were all co-opted in the alliance.¹ NATO's border touched Russia in its Northern area for the first time in 2004 when Estonia and Latvia joined it.² Had Ukraine joined NATO, NATO would be at Russia's doorstep.

Putin has always been impervious to the historical disintegration of the Union of Soviet Socialist Republics (USSR) into 14 countries and holds a profound desire to bring the clock back to 1990.³ How would he digest Ukraine's fervent desire to join NATO and the European Union (EU)?

The United States' (US) untiring support to Ukraine raised Russia's hackles. Presumably, this conflict is a proxy war being waged by the US against Russia to demagnetise its influence.⁴ The Crimean annexation in Mar 2014 and support to separatists in the Donbas region by Russia aimed to prevent Ukraine from joining NATO because countries are not permitted to join its alliance if they have an unresolved territorial dispute.⁵

Aim of the Essay

This essay aims to undertake a clinical analysis of the ongoing conflict strictly restricting its scope to military aspects. The military lessons will be extracted after a guileless analysis of military operations by both Russia and Ukraine. The rationale behind the following aspects will be ferret out:

- Background and geopolitical causes of conflict.
- Analysis of the nature of the military campaign with emphasis on military strategy, employment philosophy, conduct of operations, use of niche and disruptive technology and battle of narrative.
- Road Map and recommendation for the Indian Military.

Backdrop to Ukraine Conflict

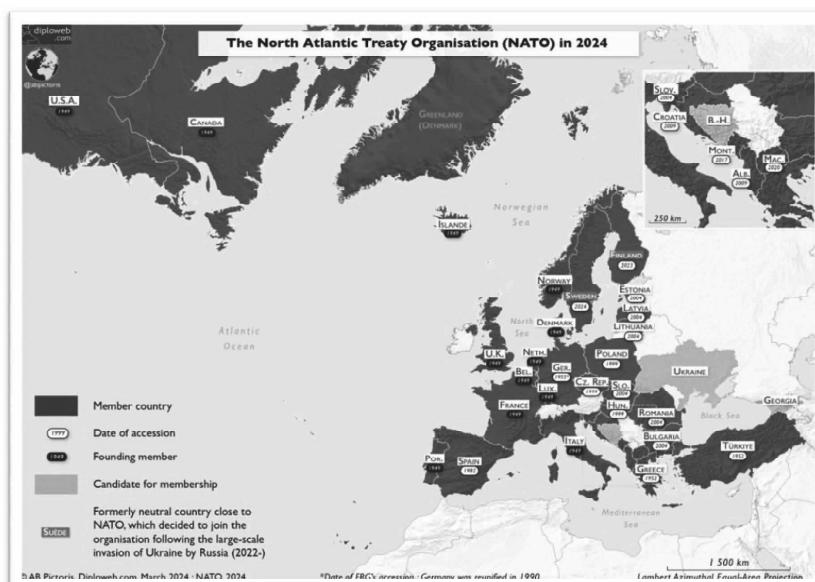
The *Casus Belli* (an act or an event that either provokes or is used to justify a war) of Putin's special military operations against Ukraine is linked to historical and geopolitical reasons. The geography of Ukraine confers to it, an ominous position that acts as a chessboard for Russia and Western Europe. Moreover, its rich fertile soil for the production of wheat and corn guarantees food security to Russia.

- **Historical Aspects.** Russian association with Ukraine is driven by the historical coherence between them which goes back to the 10th Century when Ukraine, Russia and Belarus were all part of a region called 'Kievan Rus'. With the subsequent formal annexation of Ukraine by Russia in 1783, these cultural and historical ties were further strengthened. The Russian Empire traditionally regarded Ukrainians as ethnically Russian and referred to them as 'Little Russians'.⁶ Ukraine continued to enjoy the title of being the bread basket of the Soviet Union after the formation of the USSR in 1922. But haunting memories of the 'Holodomor Famine' of 1932-33 still looms large in Ukrainians' minds which was an offshoot of Stalin's duplicitous policy of privatisation of agricultural land to promote industrialisation.⁷
- **Geopolitical Reasons.** Russia continued to assert its autonomy over Ukraine as 'Big Brother' even after the implosion of the Soviet Union in 1991.⁸ Russia has always been asserting its decisions in Ukraine's internal affairs. However, in the new millennium, the tide began to turn, and Ukraine started to subtly shift towards Europe, with the intention of joining the EU. Such a move would have diminished Russian influence.⁹
 - The fierce protests by Ukrainians against pro-Russian President Viktor Yanukovych for his decision against association agreement towards the EU in 2013 signalled Ukraine's evolving mindset. The fervent nationalist approach by Ukrainians (Ukrainian Revolution) effectuated his removal from power in 2014. This event triggered an intense military invasion by Russian forces using a hybrid warfare model in Crimea. Crimea was concomitantly annexed by Russia through a referendum.¹⁰

- Subsequently, in 2019, things again spiced up when President Volodymyr Zelenskyy announced the will to join NATO and the EU. He went on to approve Ukraine's new National Security Strategy, which included 'A distinctive partnership with NATO, with the aim of membership' on 14 Sep 2020 which stirred up a strong reaction from Russia. Meanwhile, an amendment in the Ukrainian constitution which succinctly enshrined its decision to join the EU and NATO further added fuel to the fire.¹¹
- **Why is Russia against Ukraine Joining NATO and the EU?**

"Not an inch of NATO's present military jurisdiction will spread in an eastern direction. Not one inch"

- US Secretary of State, James Baker to Mikhail Gorbachev, 1990



**Figure 1: NATO Countries in Europe,
Source: Lambert/AB Pictoris**

The US assured Russia back in 1990 that there would not be any eastward expansion of NATO. But that assurance was short-lived as slow eastward incursion began soon after the breakdown of the Soviet Union. The US seized the opportunity to absorb

recently freed nations into NATO to enhance its sphere of influence. This was a worrisome scenario for Russian security. Putin's worry that if Ukraine enters NATO, offensive weaponry will be placed closer to the Russian border, as is already being done in Romania and Poland was heuristically sound.¹² This judgement formed the basis for Putin's continuous efforts to defuse the crisis by demanding the denial of NATO membership to Ukraine.¹³ Talks were held to de-escalate the tension in which delegates from all 30 NATO countries and Russian representatives participated. But lines were clearly drawn by declaring that "Russia does not have a veto on whether Ukraine can become a NATO member. It has to be NATO and Ukraine that decide on membership".¹⁴ Moreover, the mobilisation of troops by NATO to Poland, Germany and Romania stringently signalled NATO's intent to support Ukraine.¹⁵ Putin recognised the breakaway provinces of Donetsk and Luhansk in a clear escalatory move and activated a hybrid warfare regime through separatists.¹⁶ Putin's special military operation finally commenced with an objective to demilitarise and de-Nazify Ukraine.

Analysis of Military Campaign.

Delving deep into the clinical analysis of the military campaign, the figures below indicate the disposition of Russian forces as of 16 Feb 2022.



Figure 2: Russian Military positions as of 16 Feb 2022,

Source: Russian Positions from Rochan Consulting

The New York Times

The Russian offensive was planned along three thrust lines covering a wide frontage of 1400 km long. The thrust lines were:

- **The Northern Front.** Directed towards Kyiv, it was subdivided into two prongs viz., northern and northeastern thrusts to isolate and invest the town.
- **The Eastern Front.** Aimed to capture Kharkiv for subsequent linking up with the northern thrust. This thrust had two components viz., northeastern thrust towards Kharkiv and southeastern thrust from Donbas.
- **The Southern Front.** This was launched from Crimea with the objective of capturing the coastal area and the port towns of Odessa, Mariupol, Melitopol and Kherson.¹⁷



Figure 3: Russian forces' Thrusts,
Source: New York Times reporting; Institute for the Study of War (Russian-occupied areas). Data as of 4 pm Eastern on 27 Feb The New York Times

Analysis of Northern Thrust Line.

"I don't need a ride. I need ammunition"

- President Zelenskyy when offered a helicopter to leave Kyiv

This thrust emanated from Belarus where the troops were poised well in advance and were directed to invest and isolate Kyiv, being capital city. Two thrust lines viz., northern (west of Dnieper) and northeastern (east of Dnieper through Kharkiv) were planned for linking up at Kyiv in a swift and ephemeral move.¹⁸ Ironically, being poorly and parochially planned, this thrust had to be called off under the pretence of Deception Operation and to 'Focus on the original aim of the campaign, Donbas in the East'.¹⁹ The following factors are worth analysing to draw lessons:

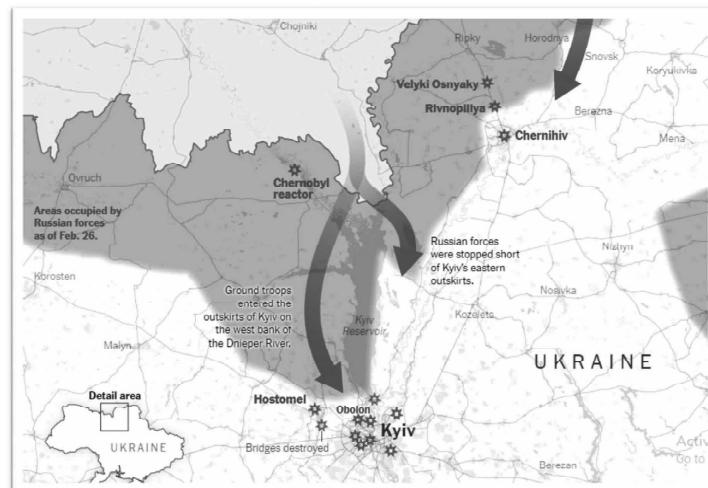


Figure 4: Northern Thrust of Russian forces,
Source: The New York Times

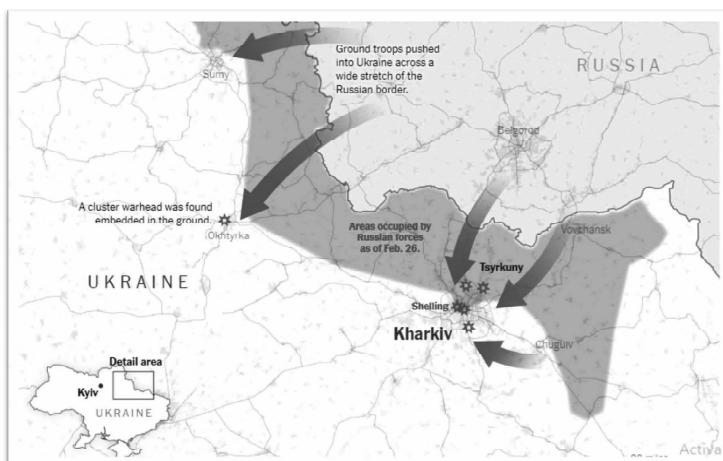


Figure 5: Northeastern Thrust through Kharkiv,
Source: New York Times reporting; Ukrainian officials;
Institute for the Study of War

Scant Regard for Climatic Conditions. The demonstration of a nonchalant approach towards considering the spring thaw effect did not auger well for Russians. 65 km long convoy of tanks was rendered unmanoeuvrable due to mud and slush along the route.²⁰ The entire convoy became dangerously vulnerable to attack. The prevalence of dense forests and marshlands in this sector made attacks using guerrilla tactics easy for Ukrainians.



Figure 6: Photos of a 40-mile-long Russian military convoy taken on Monday, 28 Feb 2022,
Source: Satellite Image ©2022 Maxar Technologies

Lack of Situational Awareness. The lack of credible intelligence and situational awareness about Ukrainian defences in depth surfaced unambiguously. Russians were taken aback by the use of Javelin Anti-Tank Guided Missiles and Stinger Surface to Air Missile upon stuck-up tanks. Russia's visceral expectation about the replication of Georgia (2008) and Crimea (2014) easy fight scenarios boomeranged.²¹

- **Inadequate Use of Air Power.** Suppression of Enemy Air Defences (SEAD) and Destruction of Enemy Air Defences (DEAD) facilitate unobstructed advance of ground forces. Russian forces were successful in taking over control of Hosmotel airport through the use of an attack helicopter and the landing of the Spetsnaz Special Forces.²² However, swift counter from Ukrainians using tanks and infantry to decimate

pathfinders stalled the advance of the main force which was banking on the success of pathfinders. Surprisingly, Russian sortie generation rate was confined to 250-300 per day.²³ The reluctance to use air power by Russians is still a subject of debate and discussion and may be ascribed to too much reliance on the Air Defence (AD) bubble of S-400 missiles positioned in Belarus. Extensive SEAD and DEAD operations prior to the landing of forces would have changed the course and outcome of the entire scenario.

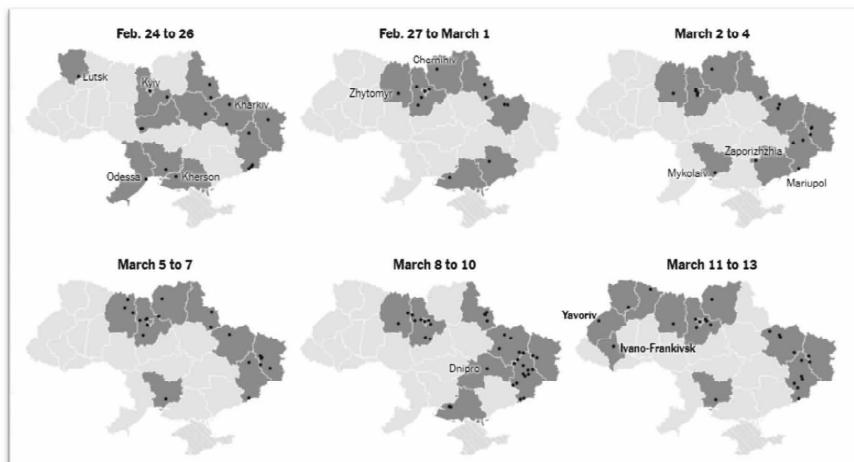


Figure 7: Timelines and location of Aerial Attack by Russians,
Source: The New York Times

- **Lack of Coordination.** The northern and northeastern thrust lines (from Kharkiv) could not link up as planned ostensibly due to a lack of coordination and communication. Both thrusts encountered different operational scenarios. For example, the blowing up of bridges over the Dnieper River and flooding of Nova Kakhovka dams by Ukrainians posed profound resistance to northeastern thrust.²⁴ Concomitantly, the northern advance had been initiated earlier, necessitating a brief delay before its cessation. Effective communication between these two prongs would have ensured timely speed adjustment to reach the point of impact simultaneously, thereby, effectuating the concentration of forces at Kyiv.

Analysis of Eastern Thrust Line

*"The Donbas has been frothing and fermenting since 2014.
But this is unlike anything I have seen before"*

- Unknown Ukrainian Soldier



Figure 8: Eastern Thrust Disposition,
Source: The New York Times

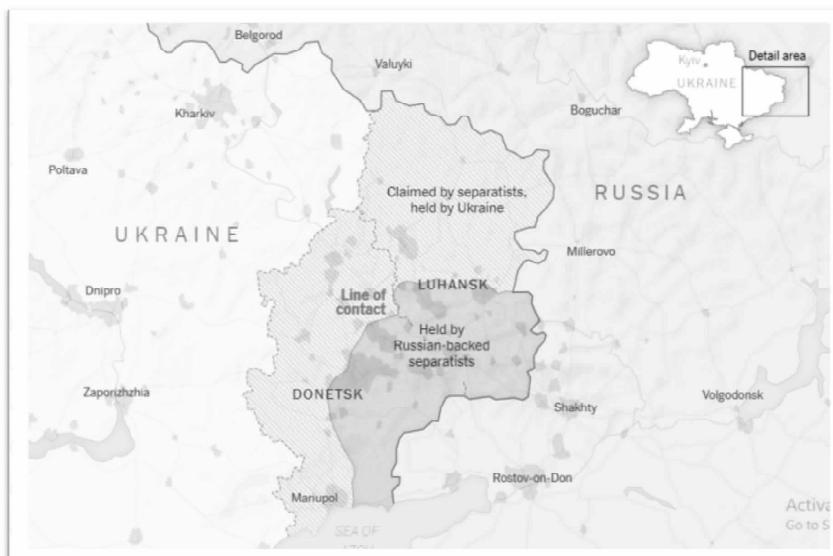


Figure 9: Area of Operation for Eastern Thrust,
Source: The New York Times

This thrust line primarily erupted in Donbas which had earned the moniker 'The Cauldron'. Donbas has been a hot spot of events since 2014.²⁵ A virtual Maginot line of trenches in three tiers had been constructed here and nonstop exchanges of artillery and mortar fire had become the order of the day.²⁶ The coordinated actions by the Russian army and separatist groups (hybrid warfare) had given an enormous punch to Ukrainians. Russia had a strong numerical superiority and could concentrate force at the point of impact. It has a 10:1 superiority in guns and almost 40:1 superiority in ammunition.²⁷ The efficient use of German's 'Cauldron Tactics' followed by Mongol's 'Golden Gate Tactics' paid huge dividends to Russians.²⁸ Firepower played an epochal role wherein polish T-72 and older T-64 and T-80 tanks were used to ablaze Ukrainian defences. Although Ukrainian counter offensive in driblets could regain some territory but the overall stratagem careened in favour of Russia.

- **Artillery as God of War.** It was absolute firepower superiority with Russians that effectuated surprise effect and mopping up of Ukrainian defences. Ukrainians also realised the same and so called upon westerners to provide medium calibre guns.
- **The Gerasimov Doctrine of Hybrid Warfare.** This theory propounds the use of separatist insurgents in Donbas region by Russians.²⁹ The probing attacks by the separatists incited retaliatory firing by Ukrainians which compromised the location of their defensive batteries. Russian artillery, thereafter, could pin pointedly savage Ukrainian defences.
- **Over Stretched Lines of Communication.** Ukrainian defence in depth sucked Russian forces in depth to operate with elongated and stretched lines of communication. The disruption of logistics supply by knocking off rear bridges over the rivers by Ukrainians intensified Russians' combat fatigue manifold.

Analysis of Southern Thrust Line.

“It is not just a battle for the coast; it is a battle for Ukraine’s future”

-Oleksiy Reznikov, Ukrainian Minister of Defence

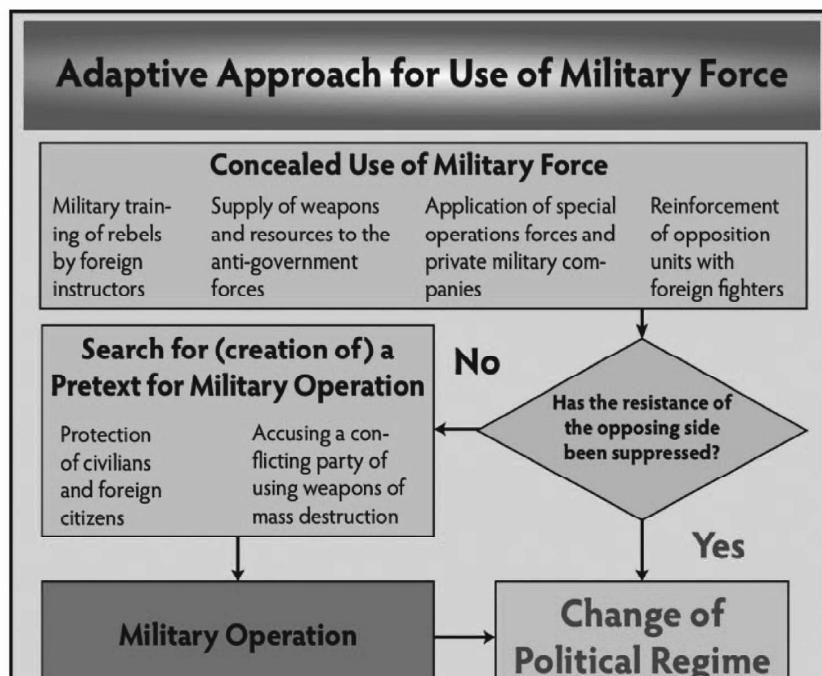


Figure 10: Extract from a briefing given by General Valery Gerasimov during the Russian Ministry of Defence’s Third Moscow Conference on International Security 13,
Source: <https://www.researchgate.net/figure>

This thrust aimed to seize the entire coastline, right from Mariupol in the east to Odesa in the west a swath of over 400 km.³⁰ Accordingly, the southern offensive moved upwards in three prongs. One moved eastward towards Mariupol which was reinforced by the detachment of troops from Donetsk. Another thrust line moved northward towards



Figure 11: Southern Thrust Disposition,
Source: New York Times reporting; Ukrainian officials;
Institute for the Study of War

Melitopol and then to Zaporizhzhia, the site of Ukraine's largest nuclear power plant. The third thrust moved westwards towards the port towns of Kherson and Mykolaiv. Taken together, the southern offensive would have carved a swathe of land over 200 km deep all along the coast and seized the entire coastline along the Sea of Azov and the Black Sea along with its vital ports.³¹ Russian marines and the army made grandiose gains here and almost cut off Ukraine from the sea, thereby, making it a virtual landlocked state. The relevant facts bringing out analysis of the southern offensive are as follows:

- **Russian Style Offensive.** The operation in the southern sector demonstrated a characteristic Russian-style offensive with heavy artillery bombardments and scant concern for civilian casualties and collateral damage. Russians made the most impressive gains here. Unrestricted employment of firepower over the numerically disadvantageous enemy is Russia's hallmark.
- **Ukrainian Counter Offensive.** The Ukrainians used a High Mobility Artillery Rocket System which allowed them to strike deep on the rear of Russian positions like Saky airbase, in the city of Nevodivka, around 100 km deep inside

Crimea. Moreover, the sinking of the flagship of Russia's fleet, the MOSKVA by two Neptune anti-ship missiles proved to be a major breakthrough for Ukrainians.³²

Total Battlefield Transparency. The unprecedented access to US intelligence gathering systems and spy satellites erased surprise from the Russian operational lexicon. The operation of high/medium altitude long endurance Unmanned Aerial Vehicle, Airborne Warning and Control Systems and Joint Surveillance Tracking and Reconnaissance Systems over Poland, Romania and other neighbouring countries made the battlefield an absolute fishbowl for Ukraine.³³ The radio and mobile networks of the Russians were being monitored. The leveraging of Starlink Terminals provided by Elon Musk helped Ukrainians to adroitly undertake drone strikes against the Russian inventory and also facilitated the connection of thermal vision devices atop the drones for target designation with artillery.³⁴

Battle of Narratives. The alacrity with which the battle of narratives has been used in this war is marvellous. This soft power profoundly impacted battle on the ground. US-controlled media channelised the world's opinion in favour of Ukraine with gentility. Russia's display of scant regard towards humanitarian aspects and effecting colossal civilian damage and casualty was advertised vociferously. The counter-offensive by Ukraine was telecasted as full of bravado which attracted ovation across the world. The strategic communication, therefore, immensely contributed to Ukraine's success in the domain of Information Warfare and Psychological Operations.



Figure 12: The Washington Post Newspaper,
Source: aljazeera.com

Use of Drones. The use of drones by Ukrainians has been spectacular with telling effects on the ground. The drones operated with impunity undetected by the S-300 AD system. Ukrainians used a combination of cheap, locally made Spectre and Punisher drones which could bring down attacks with pinpointed precision. The Spectre drones acted as observers by loitering over the battlefield, observing and relaying the images and coordinates whereas the Punisher drone would then be launched armed with bombs or missiles which fire from long ranges. Moreover, the use of Turkish-made Bayraktar drones which have four anti-tank missiles also proved to be promising.³⁵



Figure 13: A Ukrainian military on 18 Apr 2023,
Source: Open Online Source

Recommendations and Roadmap for India; Military Lessons

The Russia-Ukraine conflict posits that future wars will not simply be conventional but will follow a multi-domain template. The amalgamation of hybrid warfare and conventional warfare to gain ascendancy over the adversary seems to be a widely accepted strategy. The die is cast to remodel military strategy, doctrines, employment philosophy and organisational structure to effectively resonate with evolving scenarios. The fusion of technologies like machine learning, Artificial Intelligence (AI), robotics, automation and space-based surveillance substantiates military superiority. This war has numerous lessons to offer which should be drawn heuristically. Following lessons have been drawn and responses from mid-seniority level officers (15 to 20 years of service) from all three services and the Coast Guard have been recorded against a questionnaire meant to validate these observations. The questionnaire is attached herewith.

- **Tanks are here to stay.** This war has conclusively proven that tanks are the primary instrument to attack in plains, deserts and to an extent, the mountainous terrain.

- Procurement of tanks fitted with Armour Protection Systems and Remote Weapon Systems as a guard against drone attacks (as has been seen in the ongoing war) should be the prime focus of the Indian military. A larger number of lightweight Main Battle Tanks (MBT) should be procured to generate firepower with high mobility.
- Fixed tank batteries should be positioned in mountainous regions after clinically ascertaining critical points. Terrain restrictions should not pose any limitation in the generation of firepower in the northern theatre.
- Linking of Battle Management System (BMS) with tanks would provide digital mapping of the area of operation. This would enhance the situational awareness of an operator to make decisions leading to the shortening of the Orient-Observe-Decide-Act loop.
- Effective amalgamation of AI with BMS would prune the human intervention down. Big Data analysis and machine learning should form the basis of discriminating targets as friends or foes. 'Conflict Continuum' and degree of threat should decide the extent to which freedom of action may be given to these systems. Autonomous 'Authority to Kill' should be given during extreme situations and escalated conflict scenarios only.
- Additionally, amalgamation of drones with tanks would further strengthen the capability. 'Over the Horizon' surveillance capability and early warning of approaching threats would be possible. It is, therefore, recommended that one drone squadron should be clubbed with an armoured regiment.

Dovetailing Logistics with Operations. The logistics aspect should be exquisitely dovetailed with operational planning to enhance the reach and sustenance of fighting forces. It is recommended that joint logistics planning should find special mention in the Joint operational planning template as an independent step.

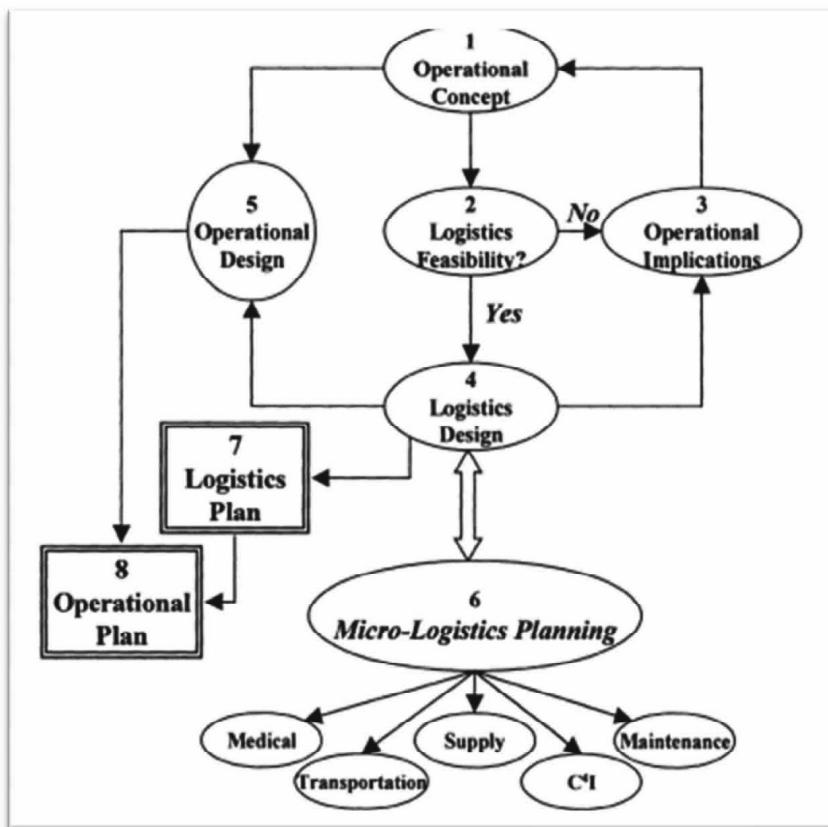


Figure 14: Sample flow chart of Logistics Planning,
Source: Page 94 of the book 'Operational Logistics-The Art and
Science of Sustaining Military Operations' by Moshe Kress

- **Indigenisation- No Scope for Delay.** 60 per cent of India's tank fleet are the Russian T-72 tanks.³⁶ The dependency for arms on foreign companies is a tricky and unhealthy proposition. Swift repairs and replacement of defective equipment becomes a challenge for want of spares. India should strive vehemently towards achieving complete indigenisation. The government's flagship scheme of *Atmanirbhar Bharat* (Self-reliant India) is encouraging Indian companies and start-ups to come forward with innovative ideas. Schemes like Innovations for Defence Excellence (iDEX) and Supporting Pole-Vaulting in Research and Development (R&D) through iDEX, Naval Innovation and Indigenisation

Organisation and Technology Development Acceleration Cell should reach every corner of India. Extensive R&D efforts by the Defence Research and Development Organisation with strict adherence to timelines would help in going the extra mile in tremendously enhancing the military potential.

● **Drones and AI.** Air Force doctrine mentions Air Superiority and Supremacy. However, what prevailed in this conflict was the concept of 'Air Denial'. The Russians had grounded the Ukrainian Air Force and Ukrainian ground-based AD systems S-300 and Man Portable AD Systems denied airspace to Russians.³⁷ What could be operated with impunity were Drones.

- Drones are game changers of future wars. A potent platform for Intelligence, Surveillance and Reconnaissance, attack and air mobility due to their less cost and effective utilisation, drones may be additionally used for logistics support in mountainous regions. Drones can be utilised in attack configuration to generate firepower to make good for gaps due to employment restrictions of tanks in mountainous terrain.
- The clubbing of AI with drone's employment philosophy may generate stupendous and unimaginable results.
- **Proposed Mechanism.** The drones on surveillance missions (unarmed configuration) would identify threats using big data analysis and AI. Upon identification of a threat, a signal would pop up at the operator's console in the control room. The drone detaches itself to continue its mission. Further decisions will be taken by the operator based on the prevailing security state and threat scenario. In case, it is decided to neutralise the threat, the 'Order to Kill' signal would, then, be generated from the control room and is transmitted with all relevant data to robotic soldiers for the 'Shoot and Scoot' task.

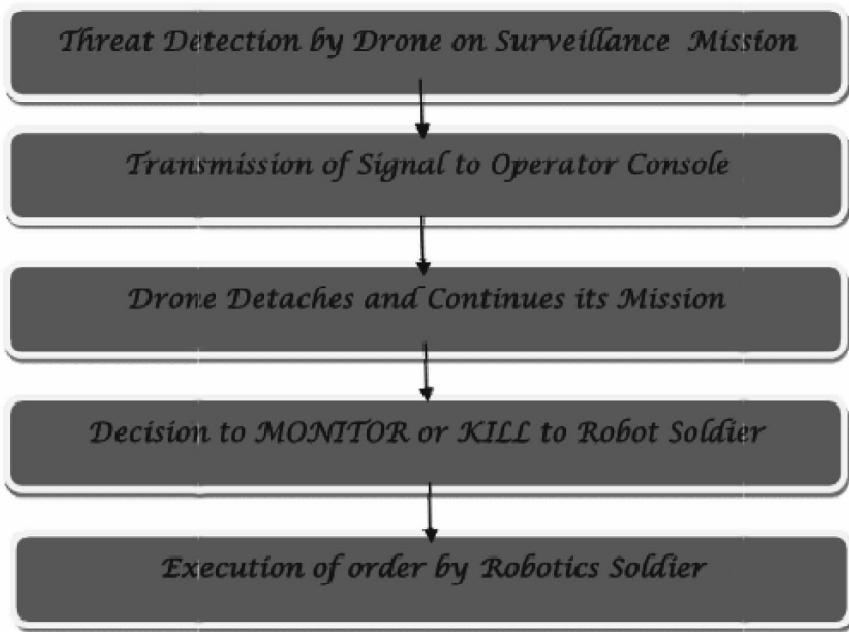


Figure 15: Flow diagram,
Source: Created by the author based on understanding

- **Electronic Warfare (EW).** The future wars will have a non-contact component in which weapons of standoff ranges coupled with precision-guided munitions will be used. The transaction of guiding signals would undoubtedly be part of the system circuitry. A robust EW umbrella to disorient and jam incoming threats will position India in an advantageous operational paradigm. Extensive research should be undertaken in this field and Joint Services EW Warfare Doctrine should be evolved for joint operations in this domain.
- **Battle of Narratives.** The importance of the battle of narrative has been amply surfaced in this conflict. It would be germane to create an organisation at the theatre command level for coordinated and planned psychological operations. It is recommended that officers of the rank of Major and below (equivalent in other services) should be provided special training in media management. A six-month duration curriculum should be designed, and

contracts may be concluded with the best colleges of journalism. The internship attachment with journalists/news channels of good repute may be made part of the curriculum to acquire a knack for generating impactful narratives.

● **Mastering Disruptive Technologies-Cyber Warfare.** The 'Denial of Internet Surveillance' to the military disorients soldiers. India needs to evolve a watertight strategy and tactics of cyber warfare in both offensive and defensive roles. Cyber warfare precedes and thereafter continues in sync with conventional waves of attack to create chaos, confusion and disorientation. The solution lies in achieving an absolute technological edge in cyber warfare. China has championed technological know-how and the use of disruptive technology. With China providing satellite surveillance access to Pakistan, India should aggressively aggrandise the setting up of a dedicated and independent Joint Cyber Warfare Command. Tech-savvy officers should be posted there to undertake extensive research and development along with students from the Indian Institute of Technology (IIT). A curriculum of six-month duration should be designed in consultation with IITs for selected officers to acquire advanced technological acumen.

● **Retention Policy of Agniveers.** Russia could not amass troops due to manpower shortage and demographic weakness. So, it kept on recycling the same troops by mobilising them from one sector to another.³⁸ Military common sense dictates that one must generate a 3:1 superiority in manpower to attack.³⁹ So, there is a need to reconsider the decision to whittle down manpower and switch from a regular full-colour service army to short-term inductees (*Agniveers*). The clue can be taken from the fact that Russian conscripts have performed very poorly in the Ukraine war. Given the fact that future wars will not just be high-tech but high-tech and mass, the idea of thinning down the forces may not be a feasible option. It is not a grandiose idea to let go 75 per cent of trained manpower after four years. By doing so, India is creating a potpourri of trained and unemployed

youngsters who are conversant with the sensitivities of military operations. Released *Agniveers* are sources of confidential information which they have gained during their engagement period. The fact that they are unemployed can be leveraged by terrorist organisations by luring them using honey traps or by offering them hefty monetary dividends. It is, therefore, recommended to change the clause of retention of Agniveers from 25 per cent to 50 per cent. Provision should be made for guaranteed employment to the remaining 50 per cent in reputed private companies and horizontal reservation in government jobs with age relaxation after completion of the engagement period.

Conclusion

The ongoing Russia-Ukraine has quintessentially touched upon almost all aspects related to nation-building. Although the scope of this essay is restricted to military aspects of conflict, it will be apposite to mention that economic, social and technological aspects have a profound bearing on military operations. With the commencement of a great game of multi-polarity among superior nations, the world again stands at the brinkmanship of World War. Future war will span across multiple domains with nuclear hangover proving to be a potent deterrence factor. The time is ripe to take lessons from this war and validate existing doctrines and strategies through war gaming. The use of disruptive and niche technology is yet another factor to be brooded upon seriously. Existing inventory needs to be realigned with evolving scenarios and employment requirements.

Endnotes

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³² ibid, pp. 46 and 59.

³³ Maj Gen (Dr) GD Bakshi, "The Russia Ukraine War-Lessons Learnt", (New Delhi: KW publishers Pvt Ltd, 2023), pp. 61.

³⁴ Lt Gen Raj Shukla (Retd), "The military Lesson from the Ukraine Conflict", ORF, 01 Jun 2022, Accessed on 01 Sep 2023. www.orfonline.org/expert-speak/the-military-lessons-from-the-ukraine-conflict/.

³⁵ Ajay Singh, "Russia Ukraine War-The Conflict and its Global Impact", (New Delhi: Pentagon Press LLP, 2023), pp. 125.

³⁶ Maj Gen (Dr) GD Bakshi, "The Russia Ukraine War-Lessons Learnt", (New Delhi: KW publishers Pvt Ltd, 2023), Prologue pp. xxv.

³⁷ Ajay Singh, "Russia Ukraine War-The Conflict and its Global Impact", (New Delhi: Pentagon Press LLP, 2023), pp. 121.

³⁸ Maj Gen (Dr) GD Bakshi, "The Russia Ukraine War-Lessons Learnt", (New Delhi: KW publishers Pvt Ltd, 2023), pp. 232-233.

³⁹ ibid, Prologue pp. xxiii.