Adoption Of Tactics, Techniques, Procedures and Technology From Russia Ukraine War

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"The country needs to understand, update and adapt to the fast-changing tactics and challenges of modern warfare, with the advent of new technology".

-Prime Minister Narendra Modi

Abstract

The Russia Ukraine War has unambiguously reiterated the coexistence of competition and conflict. It also reignited the debate of short conflicts versus prolonged wars. Various facets of international relations, collective security and deterrence have come to the fore. More importantly, this conflict has intrigued the militaries world over. While demonstration of disruptive military technology has made the world take note of the new facets of warfare, the assumption of diminishing utility of conventional platforms stands challenged as well. The conflict merits a detailed scrutiny by the Indian Armed Forces. It is prudent to carry out a thorough audit of own operational doctrines and war fighting tactics, techniques and procedures alongside technology infusion and equipment performance. The lessons have primarily emerged in the domains of jointness, combined arms warfighting, multi domain operations, massed and precision firepower, survivability of mechanised platforms.

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employment of long range vectors and unmanned systems vis-à-vis airpower, logistics sustenance and warfighting stamina, information warfare and disruptive technologies. The most important lesson for the Indian Armed Forces, however, has been the need for indigenisation of the defence industry/ eco-system. Indian wars need to be fought with Indian solutions. Technology needs to be embraced through a pragmatic equipment philosophy accompanied with organisational structuring sans biases, dynamic evolution of force employment and realistic training and validation.

Introduction: Contours of the Russia Ukraine Conflict

Lessons from military campaigns have always led to evolution of Tactics, Techniques and Practices (TTPs). The Russia-Ukraine War has been an inflection point in the trajectory of warfare and a watershed moment in the domain of international relations, geopolitics and national security. Certain key facets are enumerated in the succeeding paragraphs.

General Rupert Smith, remarked in his book, The Utility of Force, "War as a battle in a field between man and machinery as a massive deciding event in a dispute in international affairs, such war no longer exists".¹ Such a flawed assertion, has been conclusively put to rest. Full-fledged conflicts will continue to coexist with the ever expanding spectrum of grey zone warfare. Duration of conflicts cannot be accurately predicted. The war has shown that nations with significant war waging stamina, supported by a large domestic military industrial complex, and a strong central government may resort to prolonged conflict, even at the cost of dire economic consequences.

At the same time, Ukraine's absence of nuclear deterrence has in all probability emboldened Russia in executing such a large scale military campaign. On the other hand, Russia's nuclear signaling has prevented the North Atlantic Treaty Organisation/the West from direct military intervention and prevented escalation. Economic sanctions and diplomatic isolation have also not been able to deter continued kinetic actions by Russia.²

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The conflict has also seen Diplomatic, Information, Military and Economic interplay. The fallacy of economic interdependence as a safeguard has been proven beyond doubt. Economic interdependence and trade relationships do not necessarily guarantee safeguards against conflict and confrontation. Moreover, the calibrated and graduated military assistance by the West, not commensurate to the actual combat requirement has shown the limited efficacy of partnerships short of formal military alliances. Furthermore, the drawbacks of countries relying on a single source for military hardware have become abundantly evident.

Russia's military operations in Ukraine have illustrated that armed forces are inadequately trained and resourced for combined arms war fighting. A lack of cohesion and unity in command will render the forces unable to achieve the desired military end state. The war has also witnessed the manifestation of multi-domain operations with use of drones, loiter munitions and hypersonic weapons in concert with cyber sabotage, economic sanctions and diplomatic coercion. Drones, electronic surveillance and spacebased observation make concealment extremely difficult. Space based Intelligence, Surveillance and Reconnaissance (ISR) provided by United States satellites helped Ukraine in detecting the Russian build up towards Kyiv and aided them in posturing their forces accordingly. Effective ISR also assisted in target acquisition for engagement in depth by High Mobility Artillery Rocket System (HIMARS) and the sinking of the Russian guided missile cruiser Moskva.

Russia has also lost hundreds of tanks, armoured fighting vehicles, multiple rocket launchers and self-propelled artillery systems in the ongoing conflict mostly to Unmanned Combat Aerial Vehicles (UCAVs).³ Low cost anti-tank weapons also pose an existential risk to tanks in contemporary and future battlefields. However, in spite of significant tank losses, both the Russians and Ukrainians acknowledge that tanks are still essential for manoeuvre and offensive operations, provided the employment is part of a combined arms team.⁴

Whereas, on the artillery front, the Russians have caused significant casualties, enabling Russian advances (albeit slow), and slowing down Ukrainian attacks. Ukraine in turn has demonstrated the effective use of guided artillery and rockets

such as HIMARS. Precision artillery fires against high value targets like Antonivskyi Bridge in Kherson, Russian ammunition dumps and headquarters have greatly assisted Ukraine's military resistance.⁵

In Ukraine, neither side has been able to achieve air superiority under the presumption of a contested airspace. A layered and tiered Air Defence (AD) grid obviates establishment of air control. Russian Air Force failed to conduct effective suppression of Ukrainian AD. In fact, Russia and Ukraine have primarily relied on use of massed and precision strikes by rockets and missiles.⁶ Predictable patrol patterns and deployment of naval platforms like Moskova was against established TTPs. Non availability of anti-missile defence resulted in inadequate countermeasures against the incoming anti-shipping Neptune missiles. Operating, naval assets at close proximity to shores also led to inadequate response times.⁷

While, Russian equipment has exhibited considerable weaknesses against qualitatively superior western equipment. Russian tanks were destroyed with apparent ease by Javelin and new generation light anti tank weapon system, drones and top attack loiter munitions. However, insurmountable quantities of Russian Cold War era weapons and force levels have enabled relative Russian military success in a war characterised by attrition. Modern combat systems provided to Ukraine by its allies, even though qualitatively superior, have achieved limited success in the face of Russian quantitative overmatch. In addition, Russian war waging stamina achieved through vast stockpiles of ammunition and weapons have sustained such a prolonged campaign.⁸

Another important aspect of this was has been the 'Narrative' of war. A convincing and acceptable narrative is essential to shape public opinion, provide legitimacy to the actions taken, and enhance the morale of its forces. Another, contestation in the information domain is to take necessary actions to dominate the narrative battle by preventing the views from the opposing side to influence the global and regional populace at large. Videos from the battlefield, leaked drone surveillance and other forms of digital communications have made Russia's invasion of Ukraine the most internet-accessible war in history.⁹

A key aspect here is of survivability and resilience. When posed with a formidable adversary with long range vectors and preponderance of artillery, dispersal is the key to survivability. Ukraine successfully evaded Russia's initial wave of strikes by dispersing its arsenals, aircraft and logistic echelons.¹⁰ Moreover, the commitment to defend their country has enabled Ukraine and denied Russian forces their objectives despite being outgunned and outnumbered.

Adoption of TTPs and Technology

Theaterised joint forces should be evolved based on existing threats and availability of resources besides other considerations. The restructuring should also be able to cater for changing ways and new domains of warfare in future.

A networked ISR is essential. Space and air-based assets alongwith multi-domain surveillance and reconnaissance capabilities with agile ISR structures would be required to gain situational awareness. Artificial Intelligence (AI) enabled systems would be essential for processing voluminous data alongwith a networked environment for speedy dissemination.

For communication and inter-operability an effective Command and Control setup, a seamless ISR grid and a responsive AD architecture can only be achieved by putting in place a resilient communication network. Legacy systems that preclude interoperability need to be upgraded/replaced. Concurrently, transition to digital combat must be expedited by creating military cloud and data enterprise systems.

Disruptive technologies like quantum computing, communication and surveillance, AI enabled ground, naval and aerial assets, revolution in logistics through additive manufacturing, advancement in bio mechanics and synthetic biology need to be viewed as opportunities and resources need to be dedicated for advancements in these domains.

For enduring survivability of mechanised platforms it is crucial to counter the threat of lethal anti-tank systems, drones and loiter munitions, it is imperative to upgrade own mechanised platforms with fused sensors, drone integration and active protection systems as well as Electronic Warfare (EW) jammers and counter-drone systems.

At the same time, missiles and rockets remain the primary vectors to cause destruction and large scale attrition of adversary's combat potential. These can be effectively employed in an intense AD environment. While precision fires would be the need of the ground forces, target profile and the lead time to re-coup the short supply precision weapons need to be factored. Massed fire at times can substitute the need for precision.

The potency of own airpower to penetrate adversary AD umbrella merits a realistic examination. Option of employing UCAVs, swarm drones and manned/unmanned teaming drones need to be explored. Accordingly, induction of drones and allied technologies into the armed forces, needs to be expedited as part of a well-defined roadmap.¹¹ Achieving favourable air situation in future wars may become difficult to achieve in a hostile AD environment. Hence, land operations, may have to be conducted without assured air support calling for greater integral fire support and AD measures. Airborne operations have become unviable with the proliferation of shoulder-fired missiles. Hence, there is an urgent need to equip all slow-moving platforms with state of the art EW suites.

Operational readiness of sub systems on naval platforms like missile fire control radars, EW systems, close in weapon system, hull integrity and maintenance issues are critical.

At the same time, survivability of high-value assets is essential especially, during the opening phases of the war. Hardened aircraft shelters, tunnels etc. are required to withstand enemy strikes. Dispersal of assets is imperative. The recent conflicts have also amply demonstrated the importance of mass and force regeneration.

Another imperative of war demonstrated by the conflict in Ukraine is logistics sustenance. Current war wastage reserve rates for weapons, ammunition and equipment require review. Similar exercise is also warranted for other critical war-fighting stocks. This in turn implies realistic analysis of the current operational logistics policy and architecture along both fronts.

A sine-qua non of war effort going forward is indigenisation of defence industrial complex. Indigenous defence industries need to scale up their capacities and capabilities as well as absorb niche technologies to meet the requirement of the Indian Armed Forces.

Recommended Changes in the Way Indian Armed Forces are Organised, Trained, Equipped and Employed

Based on lessons drawn from recent conflicts, few pertinent recommendations, that merit consideration are tabulated in relevant heads as under:

	Lessons	Recommendations	Remarks/Specific Actions
•	Organisational Restructuring		
	Unity of Command Within a Single Theatre	Integrated theatre commands.	Integration of ISR, special operations, AD, information warfare, cyber, space, logistics.
	Agile and Modular Structures	Combined arms tactical groups.	Integrated Battle Groups.Combined Arms Battalions.
	Formalise Joint/ Integrated Structures	Standardisation of existing adhoc structures.	 Staffing, equipping and Command, Control, Communication arrangements. Review of existing war equipment.
	Enhanced Firepower	Rocket artillery, loiter munitions and armed helicopters at division level.	Acquisition of extended range Pinaka, loiter munitions and advanced light helicopter (Weapon System Integration).
	Sensor-Shooter Integration	Responsive sensor- shooter architecture.	 Reversion of unmanned aerial vehicle to serial advanced technology attachment. AI infused integration of aviation, EW/electronic intelligence, ground and space based ISR assets.
	Joint Communication Infrastructure	Resolution of tri- services inter- operability issues.	 Proliferation of Defence Communication Network to division level. Integration of network for spectrum and compatible software defined radio.
	Force Creation and Regeneration	 Empowerment of Central Armed Police Forces (CAPFs) to undertake defensive operations. Creation of pool of Reservists. 	 Doctrinal clarity and systems inter-operability with CAPFs. Leverage exiting 'Agniveers'.
•	Equipment Philosop	hy	
	War Stamina	 Defence indigenisation. Reduce production lag to optimise war wastage rates. Reduction of import dependencies and diversification of import base. 	 Incentivise private defence industries. Agreement with foreign partners for expeditious supply of critical war like stores.

Adoption Of	Tactics,	Technique	s, Proce	dures	and
Technology From Russia Ukraine War					

Lessons	Recommendations	Remarks/Specific Actions		
Disruptive Technologies	Research and development of disruptive technologies.	Incentives to indigenous. industry and academic institutions.		
Terrain and Theatre Specific Platforms	Induction of light weight platforms for Northern Borders.	 Light tanks. Self-Propelled AD gun missile system. Light weight self propelled artillery. 		
Layered AD	Cross spectrum aerial threat mitigation with integrated Control and Reporting.	Very short rang AD system, long range surface to air missile, new generation man portable AD system, counter drone systems.		
Long Range Precision Fires	 Range extension of multiple launch rocket systems Development of guided rockets. 	 Induction of extended range Pinaka. Development of tactical missiles to bridge missile and rocket range gap. 		
Enhanced Capabilities for Infantry	Multi Domain Operations capable force.	 Enhanced mobility and firepower Manportable surveillance. All terrain logistic re-supply. 		
Future Ready Mechanised Forces	Operations in emerging operation scenarios.	Future ready combat vehicle and future infantry combat vehicle programmes.		
Modernising Combat Engineers	Modern military solutions.	 Modular short span bridging systems, new generation mines Geographic information system based minefield recording. Wireless improvised explosive device detonation, Reconnaissance and chemical, biological, radiological, nuclear vehicles, 3-D structures. 		
Communication Integrity and Latency	Small Satellite Constellations in Low Earth Orbits and Launch on Demand capability.	 Empowerment of Defence Space Agency. Joint development by Indian Space Research Organisation and space start ups. 		
Operational Data-link (ODL)	Development of tactics based on ODL across platforms.	Shrinking Observe, Orient, Decide, Act Loop.		
Hypersonic and Stealth Missiles	Focus on indigenous development.	Combat overmatch.		
Logistics	Timely, Resilient, Optimal and Tailor-made model of Logistics.	 Government owned contractor operated and VISA model. Tunnelling. Block chain based logistics systems, additive manufacturing, palletisation of loads. Drones, mechanical handling devices and all terrain vehicles. 		

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Lessons	Recommendations	Remarks/Specific Actions
Force Employment		
Multi Domain Operations	Joint operation doctrine and structures and interfaces with civil agencies.	Flexible and modular command and control structures.
Airpower in Responses Short of War (RSOW)	Parameters, concessions and tolerances for equipment readiness and serviceability to be modified for RSOW.	Tactics, and operation support philosophy need to cater for a graduated response ladder.
Role Specific Flights	Review existing structure of squadrons (helicopters and transport units) to include integral specialist flights.	Critical roles must be identified, and specialist flights created who train and develop niche capabilities and skills.
Massed Artillery	Saturation of targets.	Missile and air campaign as part of own concept of operations.
Mechanised Tactics	Review of combat groupings.	Grouping of ISR assets, self-propelled artillery, aviation, AD Platforms, drones and UCAVs with mechanised formations.
Combined Arms Training	Combined arms exercises in multi-domain operations environment.	Test bedding of Joint Theatre Commands and independent brigade groups needs to be incorporated in the same.
Junior Leadership	Future operations warrant high standard of junior leadership.	Professional military education to be tailored accordingly.
Morale, Motivation and Will to Fight	<i>'Agniveer'</i> concept needs to overcome apprehensions in their combat performance.	Prospects to be made more lucrative to include enhanced insurance and death benefits.
Joint Planning Process	Joint planning adopted from the West are alien and non-contextual.	Need to develop a common and indigenous planning process.

Conclusion

Military conflicts offer diverse lessons. Armed forces need to correctly contextualise the lessons prior to adopting the same. Each conflict also brings to fore certain contrarian military thoughts. In this context, the Russia-Ukraine conflict merits closer scrutiny and analysis. However, what has been well established is that Indian wars need to be fought with Indian solutions. Since budgets

will always be limited, the threat landscape has to be addressed with necessary prioritisation. Technology needs to be embraced through a pragmatic equipment philosophy accompanied with organisational structuring sans biases, dynamic evolution of force employment and realistic training and validation.

Endnotes

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