
The Future of Land Warfare

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“When it comes to predicting the character and location of our next conflict; since Vietnam our record has been perfect, we have never once gotten it right.”

—Robert Gates, US Secretary of Defence, (2006-2011)¹

Abstract

Predicting ‘Futures’ is a hazardous business, especially where it concerns the “Future of Land Warfare”. Militaries have mostly not been able to predict the future correctly. Yet, despite this dismal record, most militaries are seriously in the business of outlining the future as it would unfold a couple of decades hence. This is necessary because there is a lead time that is required to build what will be needed one to two decades later. This is certainly true of developing next-generation weapons and equipment, but equally applies to the development of doctrine, strategies and organisations that will be relevant in the future. The future we see is not “Black & White”, but many shades of Grey, as this article will explore.

Introduction

The first step to preparing for future war and conflict is to have a clear understanding of how warfare has evolved in modern times. We normally

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use the words ‘nature and character of warfare’ in a rather casual manner, mixing one for the other. Hence, as this article starts delving into the subject, it is important to understand these two words in their correct context.

Nature of War. The nature of War describes its unchanging essence, that is, those things that differentiate war (as a type of phenomenon) from other things. War’s nature is violent, interactive and fundamentally political. War has an enduring nature that demonstrates four continuities: A political dimension, a human dimension, the existence of uncertainties and that it is a contest of wills. Finally, War is always a matter of policy, as the political objective will always determine, both the military objective and the amount of effort it requires.

Character of War. Conversely, warfare has a constantly changing character: every war exists within a social, political and historical context, giving each war much of its unique character i.e., levels of intensity, objectives, interaction with the enemy etc. In simple words, the means by which war has to be fought i.e., the context is again paramount. Technology has a significant influence on warfare, but other influences like doctrine and organisation are also important. Changes in the character of war may occur slowly over generations or take place rapidly.

Evolution of Land Warfare—Defining Events of the 20th Century

Before moving to the future, a brief overview of how land warfare evolved in the 20th century is essential because the past does show a mirror to the future, even if not very accurately. While opinions may vary, but broadly there were four defining events in the 20th century, relating to war and conflict. These are given in brief in the succeeding paragraphs.

The 1st World War (1914-1918). In many respects, this war was the first truly global and modern war, where technology was put to great destructive ends. The war was characterised by trench warfare where horrendous casualties were caused for gains of a few yards. This war not only saw the demise of massed cavalry charges but was also a war of many firsts; aeroplanes, tanks and submarines made their appearance. But what also had a profound effect on the conduct of future warfare was the very large number of casualties, millions died in the trenches, reflecting the total bankruptcy of doctrine, strategy and innovative ideas on either side. This in fact set the stage for the evolution of war as it was waged in the next world war.

The 2nd World War. For any serious student of the art of war, a deep study of the 2nd World War is a must. So far, the world has not seen a war at that scale. The advent of nuclear weapons led to the finale of the 2nd World War. The interim period between the two world wars had been a crucible of new strategies and new technologies. Prominent was the coming of age of ‘Manoeuvre Warfare and the Combined Arms Concept’—resulting in the German Blitzkrieg of 1940—followed by the wide sweeps and encircling manoeuvres of Operation Barbarossa and later the great counter-offensives by the Soviets post Stalingrad and the Allies post Normandy. These operational manoeuvres were greatly facilitated by the non-linear leaps of technology in all three domains i.e., land, sea and air. The tank and the aircraft came to symbolise the new currency of power, whilst aircraft carriers and submarines ruled faraway shores. This war proved to be the deadliest of all conflicts causing 25-30 million military casualties and another 50 million civilian casualties. At Leningrad and Stalingrad, there were around 1.5-2 million casualties each, a figure unimaginable today. The Russian capacity to suffer and accept casualties during this war has no parallel.

Advent of Nuclear Weapons. In the race to be the first to develop a nuclear weapon the USA beat Germany, otherwise, world history

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may have been different. At its peak, the Manhattan Project (the code name for America's development of atomic bombs) employed 1,30,000 Americans at 37 facilities across the USA.² The use of two of these weapons at Hiroshima and Nagasaki brought down the curtain on the 2nd World War. Today there are 7 declared

nuclear states and two covert ones i.e., Israel and North Korea. On 9th September 2022 North Korea passed a law to declare itself a nuclear state and rejected any possibility of de-nuclearisation.³ Nuclear weapons brought in nuclear deterrence which has seen three distinct phases. These were:

- **Deterrence 1.0.** Which governed the US-USSR nuclear and space rivalry, and was characterised by 'Arms control agreements' and efforts to curb global proliferation, though the world almost came to the brink in the 1962 Cuban crisis.
- **Deterrence 2.0.** This was characterised by the post-Cold War era of unipolarity, when the USA largely defined the global nuclear agenda.
- **Deterrence 3.0.** With the resurgence of Russia and China's arrival on the world stage, in Deterrence 3.0, the world has entered a more dangerous era, where multi-polarity is challenging US dominance and today Russia is the holder of the largest nuclear stockpile.

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The Cold War and its Aftermath. The Cold War and the Western policy of containment is well known. Whilst the policy ensured peace between the great powers, it resulted in many proxy and peripheral wars

across the globe. The collapse of the Soviet Union resulted in American unipolarity and uncontested conventional superiority; with Operation Desert Storm reflecting the pinnacle of third-generation manoeuvre warfare and air-land doctrine.

The stunning success of Operation Desert Storm was to shape world military affairs for decades to come. The air supremacy and efficacy of American precision weaponry convinced most adversarial countries and non-state actors that they could not hope to compete with the United States in conventional warfare, thus turning their focus to ‘Asymmetric warfare’ tools, devising new tactics and weapons that impeded the use of high technology. Thus, the post-Cold War era has been characterised by a new emerging paradigm, combining hybrid warfare and beyond the traditional, new generation warfare and emerging battle domains.

The Indian Experience Post 1947

Unlike other European continental armies like Germany, France, Russia and even the USA, who had recognised the importance of operational art (the intermediate level between strategy and tactics) and manoeuvre warfare, the British Army and the British Indian Army remained wedded to old tactics and attrition warfare.

This is the army we inherited in 1947, more comfortable in defensive operations, with an autocratic detailed orders leadership ethos. And this affair continued right till the 1962 debacle, which exposed the hollowness of our military thinking, as well as the inept senior military leadership. 1962 was a wake-up call that led to a renewed focus on defence. Even the 1965 Indo-Pak war was at best a stalemate, which jolted us further.

The 1971 war was a redemption of both civil and military leadership, of a whole of Government approach and tri-Service cooperation, which resulted in a spectacular victory. But unfortunately, it did not result in institutional changes in military thought or leadership style.

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The 13th COAS Gen K Sundarji (Feb 1986-May 1988) brought in sweeping changes in the eighties, with the induction of T-72 tanks and BMP AFVs along with a focus on combined arms concept and manoeuvre warfare. While the mechanised forces did imbibe this change with large-scale exercises, the rest of the army remained occupied with proxy war and CI operations, which has frozen mindsets further.

Unfortunately, in a recent reorganisation of the Integrated HQ of the MoD (Army) after seamless integration, armour and mechanised infantry have chosen to bifurcate and go their separate ways by having separate directorates. This is most unfortunate as it goes against the very concept of integration.

New Paradigms in Military Affairs

Emergence of Non-State Actors. The perceived traditional characteristics of modern warfare received a jolt with the emerging presence of non-state actors. This was best exemplified by the proliferation of terrorism and suicide bombings. A return to the forms of war, which nationalisation of warfare had brought to an end in the 16th and 17th centuries, and replaced them by a disciplined military organisation, can already be observed. Civilian targets are now, more and more taking the place of military objectives, starting with towns and villages overrun and despoiled by militias and war lords and extending to the symbols of political and economic might, that were targeted in the US by terrorists on November 9, 2001. Suicide bombers compensate for their military inferiority by giving up any chance of survival. A

new perverse form of heroism has developed, which “post-heroic” societies are ill-prepared to deal with from a military or psychological point of view. Non-state actors and terrorists are unlikely to achieve the power to destroy developed nations but will continue to cause anxiety, selective harm and sometimes, immense psychological collateral damage.

Hybrid Warfare. This is a military strategy that blends conventional, irregular and cyber warfare. This approach to conflicts is a potent and complex variation of warfare. It can also be used to describe the flexible and complex dynamics of the battle space requiring a highly adaptable and resilient response. The hybrid threat concept represents the evolution of operational art and a potential paradigm shift, as a doctrinal and organisational Revolution in Military Affairs (RMA). As an unrestricted collective methodology, the hybrid concept bypasses the cognitive boundaries of traditional threat characterisation and the application of organised collective violence. As such, the hybrid construct presents numerous implications for visualising the future operational environment and how militaries should formulate strategies and resource investment priorities in the future.

Emerging Battle Domains and Battle Spaces. War and conflict have been and will remain intrinsic to the human DNA; only the form and instruments will continue to change with an ever-increasing rapidity. Post the Cold War, there has been a paradigm shift in the very character of conflict. Modern-day conflicts are not merely confined to States but have expanded to include sub-nationalities, non-state actors, terrorists, religious fanatics and ethnic interests. The battle space has expanded to include space, cyber and cognitive domains in addition to the traditional three-dimensional air, land and sea domains. The manifestations would encompass, non-kinetic confrontations as seen in Ladakh recently, non-contact warfare, contract warfare and traditional armed conflict in its hybrid avatar, under an informational gaze.

Technology. This is influencing the multi-domain battle space like never before. The 4th industrial revolution is characterised more by the fusion of technologies, that is blurring the line between the physical, digital and cognitive spheres. Applications involving Artificial Intelligence (AI), quantum computing, machine learning, nano technology and genetic engineering riding on communication highways have very distinctly impacted the character of 21st-century warfare.

AI and Robotics. Humans are being rapidly replaced by AI due to sight and processing-related limitations and a lack of pure logic in decision-making. There are myriad ways in which robotics is making inroads, with drones and swarm bots becoming increasingly popular. It is also becoming rather simple to weaponise the existing autonomous drones and as such, one has to be prepared for lethal autonomous weapons systems (LAWS), especially since attempts to regulate such systems have yielded no progress. The serious legal and ethical issues that arise consequent to the remotely controlled drone strike on Iranian Maj Gen Suleimani have also contributed to the lowering of the threshold of war. It's about the Robotics Revolution unfolding before our eyes, and we are late starters!!

Long Range Vectors and Precision. Some trends in technology that are going to reshape how fires are delivered are extended ranges, automated fusion, multi-sensor active seekers, precision weapons along with the development of hypersonic weapon systems. Corresponding defensive systems and measures are also keeping pace.

A Reality Check for the Future

Just as every military expert thought that he had a measure of the future of land warfare i.e., a combination of Hybrid and New Generation Warfare with a very remote possibility of state vs state conventional war, came the reality check of the Russia-Ukraine conflict, which has turned most recent hypotheses on its head and has alarm bells ringing all across the globe,

especially in developed countries. But the picture of the future of land warfare that emerges is not black and white, but many shades of grey. Some examples below illustrate this trend.

Killing of Iranian General Suleimani. On 3 January 2020, a US Drone strike near Baghdad airport provided a glimpse into the future of unmanned aerial systems, both unarmed and armed. This killing, some call it an “assassination”, has also raised questions of legality and morality. There is as yet little unanimity on how to codify the use of such remote systems.

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Drones to the Fore in Syria and Armenia-Azerbaijan conflict. This conflict of 44 days from September 27 to November 10, 2020 resulted in a victory for Azerbaijan. The Azeris did not command the air but the ability of their drones to exploit specific gaps in Armenian air defence enabled them to cause havoc on the battlefield. While Armenia only fought with tanks and artillery, Azerbaijan relied heavily on drones, mainly the Turkish Bayraktar TB2 and the Israeli Kamikaze drones. The expanding array of relatively low-cost drones can offer countries air power at a fraction of the cost of maintaining a traditional air force. But drones also have severe limitations and great vulnerabilities, as has been proven in the later phases of the Ukraine conflict, where Russia has almost neutralised the drone threat, which appeared so potent in the initial phase, with a combination of surveillance, prophylactic fires, air defence and electronic warfare capabilities.

American Withdrawal from Afghanistan. After 20 years of military presence in Afghanistan the sole superpower US, along with its allies quit Afghanistan in a humiliating manner, virtually handing over the country back to the Taliban. This also reflected the limitations of modern military

power against primitive foes, who refused to fight the Americans on their chess board.

India-China clash in Ladakh in 2020. Despite existing Peace and tranquillity Agreements, Indian & Chinese troops clashed along the LAC at several points in Ladakh. Not a shot was fired, but it was primitive clashes, aggressive melee, face-offs and skirmishes, which resulted in a number of casualties on both sides. Two nuclear-armed neighbours with modern armed forces clashed with primitive means.

The Russia-Ukraine conflict in 2022-23. This war has confounded most military experts, who had predicted the demise of conventional state vs state wars in the 21st century. And what an amalgam of the character of war it has turned out to be; combining 2nd, 3rd, 4th & 5th generation warfare, high and low technology; new generation warfare, political, economic and energy wars, prosecuted by modern armed forces and militias, by contract mercenaries and proxies. You name it and it is there. The NATO Supreme Allied Military Commander has said that the war in Ukraine is very different which requires different levels of readiness, it requires different force models, it requires different tactics and Operational Art and different equipment. He virtually admitted that NATO is not organised, equipped or trained presently for this type of warfighting.⁴

Gaza. The unthinkable happened on October 7, 2023, when the almost invincible Israeli Defence Forces, with an elaborate high technology barrier and intelligence were totally surprised by Hamas, pushing the whole region into turmoil. It appears that warfare has taken a shape where high technology has finally met its match.

Future of Land Warfare

Against such a backdrop, it's difficult to predict specific future scenarios for 'Land Warfare'. Historically also armed conflicts have become too complex to allow the luxury of prediction. Yet 'Status Quo' is not the

answer. Hence, this article will attempt to look at distinct pointers for the future of land warfare based on firm analytical foundations. These can form the basis for armed forces to prepare for the future, keeping in view the context and the environment.

Notion of Victory. Though victory can be very costly in modern conflicts, it invariably accomplishes far less than it is intended to achieve and is no longer related to the means employed. Victory in the 21st century may be seen in the context of achieving or denying an adversary politico-military objectives/end states at least cost, and thus indicative of a better outcome than what existed before the war. The notion of victory is no longer a product of ‘Decisive Battles’ but may be linked to a notion of having the will and the means to retain the status quo, or at best a more favourable bargaining position. Iraq, Afghanistan, Syria and Ladakh are clear examples. While the above may be true for most theatres in India, in India’s Southern theatre there is still scope for decisive outcomes, through the capture of territory and/or destruction of war-waging potential. Our overall military strategy should optimise this, South of the Satluj river. More important, the military aims and strategies should be in harmony with the Politico-Strategic aims.

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The primacy of Land Warfare. Speaking recently the Indian Army Chief stated that, “land will remain a decisive domain in warfare, especially in our case where we have contested land borders. Therefore, the notion of victory will also remain land-centric”.⁵ Speaking at the RUSI land warfare conference in June 2022, Lt Gen Sir Patrick Saunders, Chief of the UK General Staff opined: “The war in Ukraine also reminds us of the utility of land power. It takes an Army to hold

and regain territory, as also defend the people who live there and it takes an Army to deter”. This has been borne out in various recent conflicts including India-China clashes in the high Himalayas. So most armed forces which downsized their armies in favour of other battle domains are now having to reconsider. India has to be cognizant of this basic fact and ensure that the priorities of the Indian Army have primacy over other competing claims.

Limitations of Deterrence. The Ukraine and the Israel-Hamas conflicts have also highlighted the limitations of deterrence by punishment, and have reinforced the importance of deterrence through denial. It is important to be in control of territory to deny it physically rather than a notion of denying it through punishment, as was the case hitherto. We have to find an answer to this challenge, for it would be inadvisable to have a large portion of the army committed to border guarding duties.

Legacy Systems. These will co-exist with niche technologies and will be optimised for greater effect, though a combination of the two. Whilst new weapon systems will continue to be inducted, upgradation and modernisation will still be the most cost-effective way to the future. We have an excellent tank in the T-90 which was inducted in 2001-2002. Two major add-ons for this tank have been lingering for the past two decades—an uprated engine and an active protection system like Shtora or Arena. Similarly, many upgrades are pending for the mechanised infantry, artillery, air defence, engineers and others.

Firepower vs Manoeuvre. The inter se relationship between firepower and manoeuvre is dynamic, with the scales weighing towards manoeuvre thus far. But the lessons of recent conflicts, especially the Russia-Ukraine war has reinforced a greater thrust on fire-power, more so where the adversaries are almost matched in capability and scale. This is so because of the transparency of the battlefield and the increasing vulnerability of large-scale manoeuvre. The thrust is more towards long-

range Precision Guided Munitions (PGMs), whilst massed artillery still retains its salience. However, in open terrain, the relationship will be more evenly matched, with manoeuvre still retaining an edge in the breakout phase, albeit under an overarching Air Defence (AD) cover, with firepower taking precedence in the break-in phase and towards the terminal objectives.

Future of the Tank and the Combined Arms Concept. Despite periodic obituaries, the tank will continue to be the centerpiece of future battles albeit as part of a combined arms team. In fact, we may see the development of more advanced tanks incorporating niche technologies, with a greater focus towards protection at the cost of mobility. The combined arms team, with subtle changes, will still be the guiding operational philosophy for offensive employment of conventional capabilities. One change would certainly be the creation of anti-drone capabilities based on a combination of surveillance, AD, EW and long-range PGMs. In fact, the time has come to go beyond the combined arms to a multi-domain Integrated Force, combining multiple sensors and shooters, thus executing destruction in depth.

Urban Warfare to the Fore. The wars of the 21st century have brought the focus back on conflict amidst urban terrain. The battle of ‘Bakhmut’ in Donbas has turned out to be a meat grinder, a mini-Stalingrad. The developed terrain of Punjab on either side of the Indo-Pak border would involve similar urban warfighting. In addition to the problems posed to traditional land forces, the urban battlefield decreases the advantages of joint force integration, especially traditional air power. Instead, UAVs, PGMs and other niche technologies are better suited to fill the gap. Lastly, in urban warfare, there is no substitute for the Infantry, without whom you cannot fight urban warfare. However, the Indian Army’s methodology for operating in this dense environment has not changed significantly. It will have to, and the sooner it is done the better it will be.

The era of Intelligence is slowly being replaced by ‘Predictability and Precognition’, leading to pre-emption using the power of AI and quantum computing.

Niche Technologies. Such technologies especially in cyber and space are coming to the fore. Wars of the 21st century have shown that “small, smart and many” could dominate the “few and large”. The transparency of the battle space has

acquired a new dimension. The era of Intelligence is slowly being replaced by ‘Predictability and Precognition’, leading to pre-emption using the power of AI and quantum computing. The American prediction of Russian operations in Ukraine in February 2022 is a good example. India would have been better placed had we been able to predict the Chinese foray into Ladakh.

Grey Zone Challenges. Though not specific to land forces, Grey Zone challenges have become the order of the day and their frequency is bound to increase in the future. Grey Zone conflict is best understood as an activity that occupies the conceptual space between peace and war and may involve political and economic warfare, sabotage, armed proxies and even creeping military expansionism, China style. Durable disorder is the fundamental objective of Grey Zone conflict. It also challenges moral and ethical thresholds and undermines laws of armed conflicts and ethics of warfighting. In future conflicts, there will be a greater focus on morality issues, human rights violations, humanitarian corridors and war crime accusations, some of which will be motivated, as seen in the Russia-Ukraine conflict. In the Indo-Pak context, Jehadis will continue to be used by Pakistan, both in peace and war.

The Integrated Battle Group (IBG) Concept

For a layman, the Indian Army’s proposed Integrated Battle Groups (IBGs) are supposed to be lighter than a divisional organisation. The IBG is a concept of warfighting, not just the breakdown of the division into

a smaller organisational construct. The key is to tailor-make the IBGs to suit various operational requirements and not make them a standard fit for all. The IBGs should be empowered with niche technologies, including for cyber, space, and 3rd dimension capability including drones and anti-drone capability (combining recce/surveillance, Air Defence and electronic Warfare). The IBG concept is to be applied selectively and not across the board. Select divisions have great utility and need to be retained, their operational usefulness having been re-established in recent wars.

Conclusion

Today and in the foreseeable future, India is faced with a combination of threats. These are the legacy land threats on both flanks, from China and Pakistan who are also in strategic cahoots, posing a classical two-front dilemma. In addition, India also faces Grey Zone and Hybrid Warfare, especially on the China front. In developing and justifying capabilities against such unpredictable challenges, each Service in the Indian context is assuming its own matrix of threats, whereas the threat is now Multi-Domain. So far, our response, in most cases appears to be reactive. We must now prepare a multi-domain anticipatory strategy and focus on capability development towards that end. In addition, we need to enhance our sustenance capability, for future conflicts may not be as short as planned for thus far.

Whatever the scenario, if we have a war with Pakistan, it must be fought on Pakistan soil. In the case of China, we have to be prepared for a high-technology war in depth, combined with traditional armed conflict on the LAC. We need to be prepared both physically and psychologically. Whilst conventional operations will remain relevant, military leaders must re-conceptualise war to keep pace with its changing character. Human-machine interface is the way forward, where drone warfare and other niche technologies will reinforce legacy systems on an

attrition and firepower-dominated battlefield. We need military leaders who have a good understanding of technology and who can ensure the delicate balance between ‘Reflection and Action’. For the Indian Army to remain ‘Future Ready’ the pace of change within must outpace the change outside.

Notes

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