Managing the Imminent Obsolescence of Legacy Platforms

Bimal Monga

"We are seeing the very nature of combat change; tanks alongwith fighter jets and warships are being pushed into obsolescence …"

—Rob Lee, collating the views of military analysts[1]

Abstract

Large weapon platforms have been targeted with increasing ease, so much so, that it raises the alarming spectre of them being Left Out of Battle (LOB), in contemporary wars. They are being challenged by nimbler, easy-to-use, cheaper weapon systems. Not surprisingly fighter jets, warships, tanks and even guns are being pushed towards obsolescence. We therefore require to critically review the future of legacy platforms, especially when similar or much more lethal impact is possible with smaller and smarter systems. Military analysts are unanimous in their view—modern militaries must transition to new tools of warfighting; this will not only obviate being saddled with obsolete or near obsolete weapon platforms but importantly circumvent the pitfalls of preparing for a war of yesterday. A roadmap to effect this transition, however, requires astute planning and intricate stage manage.

Maj General **Bimal Monga** is currently Commanding an Artillery Division of the Indian Army.

Background

The larger the platform, the easier it is to acquire and target; no wonder large ships, aircraft, tanks and guns are being repeatedly targeted with increasing ease, so much so, that it raises the alarming spectre of them being Left Out of Battle (LOB), in contemporary wars! This development has been rapidly precipitated by the intense exploitation of the erstwhile under-utilised third (vertical) dimension and the electromagnetic spectrum—to not only enhance battlefield transparency but also improve targeting, using multifarious platforms (and domains), lethal and non-lethal, manned and unmanned- all significantly smaller, cheaper and agile.

In the backdrop of such developments, where do large, bulky, legacy platforms fit in? Philips O'Brien analyses, *"Russian invasion of Ukraine (and other recent conflicts) have illustrated the diminishing power of the heavy and expensive units of military power; their role has been challenged by nimbler, easier to use—and crucially, cheaper systems. Tanks, fighter jets and warships are being pushed into obsolescence, giving way to new tools of conflict".*[2] A quick overview of some of the legacy weapon platforms, in recent conflicts around the globe, corroborates O'Brien's View.

Legacy Platforms

Combat Aircraft. The dense air defence (AD) environment combined with the constraints of weather, terrain and payloads, and most importantly the high risk to pilots and aircraft, has increasingly placed, the role of combat aircraft under the scanner. The proliferation and success of cheap, man-pack anti-aircraft weapon systems have starkly stood out in recent conflicts, as has the inability of combat aircraft to operate with erstwhile impunity, due to these very threats. In contrast, the success of drones and loitering munitions, in the very same environment, to supress and destroy ground based assets has been stunning. Admiral James Stavrides (Retired), US Navy has correctly analysed the changing scenario, "the concept of close air support is increasingly at risk … the capability to

use swarm drones to attack relatively less manoeuvrable platforms augurs badly for expensive manned aircraft …"[3]

Ships. The slow-moving, large aircraft carriers and warships are now being viewed as lucrative high-value targets which can be acquired, trailed and destroyed without much ado by comparatively cheaper missiles. The example of Moskva, the flagship of the Russian Black Sea Fleet, being sunk by two Ukrainian homemade anti-ship missiles, is a reflection of the challenges which await large sea-borne platforms. China, in fact, to offset the overwhelming advantages of the USA, in the sphere of large warships, had much earlier inducted missiles, often referred to as the 'Carrier Killers'. However, with her growing ambitions to be counted amongst the premier seafaring nations, the shoe is firmly on the other foot now; smaller littoral nations have prepared their own arsenal of 'Carrier Missiles'—to do to China, what it always aimed to do to the US Navy! The perceived primacy of huge aircraft carriers over unmanned sea drones, torpedoes and other disruptive weapon systems—all cheaper, smaller both in size and signature, and capable of swamping and sinking the enemy ships with much lesser effort and resources—is being challenged, and rightly so.

Tanks. The vulnerability of tanks has been ruthlessly exploited by drones and loitering munitions, one conflict after another, leaving behind an ugly trail of metallic carcasses; this has prompted military thinkers to raise a number of questions. Has the easy accessibility of cheap and lethal drones, and the proliferation of anti-tank missiles, hastened the obituary of tanks on the battlefield? Will they turn out to be battleships of the 21st century, rendered obsolete by new technologies and tactics? Is it time to consider reducing tank inventories (as the US Marine Corps is already doing) and use the resources to move towards new systems, notably much smaller, nimbler and unmanned?[4] Can new weapon systems like Loitering Munitions and Unmanned Ground Vehicles (UGVs) be worthy successors of tanks? Is it prudent to pursue time and cost-intensive programmes to develop and induct a new generation of tanks?

Jacob Parakilas, Rand Military Researcher sums it up, "The tank was key at one point; now drones may be the most decisive weapon system".[5] There are no easy answers; smaller, lighter and more agile tanks backed up with revised tactics and contemporary employment philosophies, will not only have to overcome the challenges posed by niche platforms but more importantly, embrace them into their own fold.

Guns. Long-range firepower, earlier the exclusive domain of artillery, has been extensively supplemented with the use of drones and missiles, in recent conflicts—importantly, with telling effect; this has led to certain pertinent questions—are loitering munitions and missiles the future of artillery? Or will, cheaper salvos fired over longer distances by tubular artillery, continue to hold sway on the battlefield, as they have, since WW-I? The idea to replace guns with other systems like drones/ loiter munitions, etc. might seem preposterous at present, especially due to their existing constraints of the prohibitive cost, limited TNT, susceptibility to EW jamming and inability to achieve preponderance of firepower. However, with higher volumes and better technology, the cost will eventually go down and the capability to inflict damage is bound to be scaled up, and the swarm drones may, in future, be the answer to a preponderance of firepower. The trends worldwide, suggest that major global powers are investing a lot of resources in developing modern howitzers and ammunition systems, which can fire deeper, with greater precision and lethality. The attendant advantages of overwhelming firepower—at a reasonable cost, and most significantly, with lesser danger to own troops and equipment, continues to make the 'idea of artillery', enduring. However, this is not to discount the fact—that slow-moving and vulnerable towed artillery will have to be replaced with new systems, sooner rather than later. Franz-Stefan Gady, Research Fellow, IISS sums up, "A debate should certainly happen about the future of towed tube artillery; although I would caution to hasten against reaching conclusions about its obsoleteness".[6]

EW Platforms. Similarly, the wide range of EW platforms and different kinds of radars and jammers backed up with massive generators, large vehicles and easy-to-pick-up antennas and canopies have been the first ones to be targeted in almost all conflicts—rendering the adversary blind, with the first hard or soft strike. Do we, therefore, require to look for some alternatives—which may be smaller, have a less prominent signature and are seemingly innocuous? Various nations are already in the advanced stages of developing powerful, composite and compact, mobile systems, which can perform all the spectrum-related functions from a single platform. These developments are not only transformational but revolutionary.

Some Fundamental Questions

In the backdrop of such developments, the diminishing relevance of legacy platforms and the increasing significance of smaller, niche weapon systems are stark. This leads us to three fundamental questions:

- Do we require to persist with old legacy platforms or would a transition to new weapon systems which are better suited to the wars of the future be more prudent? In the overall context, *is the platform important or the effect?*
- The inventories of large militaries are so densely populated with traditional weapon platforms, that any change is bound to be resisted. *Therefore, what is the roadmap for initiating a change in the weapon profile and mindsight of the decision makers?*
- The overwhelming advantages of legacy platforms have been to a great extent countered and negated by cheaper, smaller weapon systems. Technology has ensured that the cheaper and easy-to-proliferate 'antidote' of any new weapon system, comes up in near-same-timeframe as the new weapon system itself. *So are we staring at a battlefield where the defender holds all the aces?*

Let us analyse each of these aspects separately.

New weapon systems and technologies have exposed the constraints of large platforms, notably with respect to their survivability, mobility, obsolescence, cost and manning.

Are Platforms Important or the Effect?

Nations, over the last two centuries, have built their capacities around expensive and large platforms; therefore—larger ships, aircraft, tanks and guns, overwhelm the inventory of powerful militaries. While such large platforms have served well, in various conflicts, including the World Wars, the conviction that—'bigger the weapon platform, the better it is', so deeply entrenched in our mindsets and engraved into military philosophies—is being challenged, with each military campaign. New weapon systems and technologies have exposed the constraints of large platforms, notably with respect to their survivability, mobility, obsolescence, cost and manning. Militaries today are at loss to comprehend and absorb Rapid Revolution in Weapon Technology (RRWT), triggered by niche hi-tech systems, which not only target the vulnerabilities of such massive platforms, but are poised to become viable and effective replacements for these very platforms. The concept of 'large *and few*' has been replaced with '*small and many*'.

Philips O'Brien[7] states, "*… Russia's botched invasion of Ukraine has illustrated the diminishing power of heavy and expensive military power … there is an urgent requirement of pivoting away from the platform-centric view of warfare." Seth Moulton, an Iraq War Veterans, points out "… look at weapons which are on top of the Ukrainian's wish list; it is not towed howitzers (or tanks or fighter aircraft) … on top of their list are armed drones, anti-tank missiles and anti-ship missiles"*. The question, therefore—are whether the platforms are important or the effect? The writing on the wall is clear and so is the answer—platforms are merely the means to deliver the effect; if a task can be performed by a nimbler,

smaller and more survivable weapon system, then why persist with bulky legacy platforms, weighed down by their inherent constraints?

Initiating A Changeover in the Weapon Profile and Thought Process

New warfighting technologies call for new and niche systems … all this costs money and resources. The only way to invest in new capabilities is by divesting oneself of legacy capabilities. The US Marine Corps has in fact made 'divest to invest' the cornerstone of its modernization effort. It is reducing infantry battalions, aircraft, artillery and tanks, to free up resources to facilitate the induction of new technology weapon systems. General David Berger, US Marine Commandant is emphatic, *"… We will have to operate under the assumption that we will not receive additional resources; we must therefore divest certain existing capabilities to free resources for essential new capabilities"*.[8]

However, to put things into perspective, the legacy platforms which served us well over the last century, cannot be wished away overnight—their replacement requires time, and resources—which are scarce; importantly, doctrines and philosophies of their employment require to be formulated. A roadmap for their induction, nonetheless, needs to be devised:

- At first, instance, upgrade and modernize a proportion of existing legacy platforms to enhance their survivability and lethality—to ensure their continued relevance and efficacy.
- Plan induction of new systems in a phased manner, carefully synchronising their induction with the de-induction of old platforms.
- Stage-manage the transition carefully to ensure minimum turbulence and disruption; allow new systems to supplement existing platforms for a period of time—before completely replacing them.
- Concurrently revise employment philosophies of legacy platforms and devise new doctrines for new systems.

The massacre of Russian legacy platforms like tanks, aircraft and helicopters, in Ukraine is therefore going to be the norm and not an exception.

This exercise is however not going to be easily accepted, as some of the military leaders continue to question the efficacy and longevity of the 'so-called new capacities, to be built at the cost of the 'tried and tested' platforms. "… *political and military leaders will have to, in fact, start conceiving an entirely different battlefield, full of lighter, smaller, more mobile, and in many cases autonomous or remotely operated weapons*".[9] They will have to *come to terms with the concept of having an aircraft without a pilot, a tank without crew, a ship without a captain (or a gun without a gunner) … Seth Moulton, bluntly states "today's dissenting Generals are failing to comprehend how much technology is changing the battlefield and how quickly the services must adapt …*"

Moulton's thoughts, on this aspect, are profound—*we can afford to be over-invested in a new type of warfare that never comes to pass, rather than be under-invested in this new type of warfare that does come to pass.*

Does the Defender Hold All Aces on the Battlefield Now?

It is assessed by military analysts that anti-tank and anti-aircraft weapons will not only achieve longer ranges, but their lethality and accuracy will also improve manifold; similarly, drones, other unmanned platforms and missiles will have improved ranges and endurance, smaller signatures and enhanced lethality. Such capabilities along with other disruptive technologies will form the cornerstone of a defender's inventory and enable him to keep at bay, if not defeat much stronger adversaries. The massacre of Russian legacy platforms like tanks, aircraft and helicopters, in Ukraine is therefore going to be the norm and not an exception. *Similarly, "… Navies which want to risk having their ships near the shore will have to contend with huge salvos of anti-ship missiles and drones … investing in*

large World War-II era material such as heavy tanks, enormous aircraft carriers and super expensive fixed-wing aircraft has never been riskier … as less expensive but lethal systems continue to improve, the investments required to protect larger, more expensive weapons systems will be financially crippling …".[10] The dice, in today's battlefield, is heavily loaded in favour of the defender—who is heavily armed with weapons to target the very same legacy platforms, which not so far back, would have assured certain victory. T.X. Hammes summarises, "… *with an improvement in defensive firepower—the forward movement by the attacker has been made very difficult; the balance of modern warfare has inexorably titled against the attacker*".[11]

The defender, however, cannot afford to sit smugly. A focused attacker will always find ways to overcome the advantages of the defender, by innovative use of weapons or tactics. For instance along the Northern Borders, where the Indian Army as a defender holds a disproportionate advantage, Lt Gen Panag (Retd) feels the PLA can neutralise the 'predominance of the defence' in high altitude terrain by not getting involved in "close infantry combat" over unfavourable terrain. If at all it chooses to use force, its pattern of attack will be driven by high-end technology with overwhelming use of PGMs, cyber and electronic warfare. The much romanticised 'blood and guts' close combat is a relic of the last century.[12]

Conclusion

> 'In 20 years, when we look back, I believe that it will be difficult for us to imagine how we fought without these (niche) systems.'
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> —Dr Glenn Lamartin, US Defence Systems (AT&L)

Rapid Revolution in Weapon Technology (PRWT) has spurred development in a class of smaller, cheaper, smarter and more agile platforms which are threatening to nudge old legacy platforms out of the battlefield.

Military analysts are unanimous in their view—modern militaries must transition to new forms and tools of warfighting; this will not only obviate being saddled with obsolete or near obsolete weapon platforms but also circumvent the pitfalls of preparing for a war of yesterday. The task is challenging as it requires resources and more importantly a willingness to accept the stark reality and move forward. As we go along, many more transformational and niche systems and technologies will emerge, at a pace faster than we have been accustomed to; our planning, will therefore have to be flexible, dynamic and nimble-footed to not only absorb new technologies and nudge out old systems, but most importantly embrace new ideas.

Notes

1. Rob Lee, "The Tank Is Not Obsolete, And Other Observations About The Future Of Combat". September 6, 2022, warontherocks.com
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5. Jacob Parakilas, "Tanks vs Drones Isn't Rock, Paper, Scissors", *The Diplomat*, October 7, 2020, https://thediplomat.com/ 2020/10/tans-vs-drones-isnt-rock-paper-scissors/
6. Harry Lye, "Why modern militaries still need artillery", issue 119, January 14, 2021, https://defence.nridigital.com/global_defence-technologhy-jan21/why-modern_militaries_still-need-artillery
7 . Philips Payson O'Brien, "War Will Never Be This Bulky Again", Atlantic.com
8. Ackerman Elliot, "A whole Age of Warfare Sank with the Moskva", *The Atlantic*, https://www.the atlantic.com/ideas/archive/2022/OS.
9. Philips Payson O'Brien, "War Will Never Be This Bulky Again", Atlantic.com.
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11. Ackerman Elliot, "A Whole Age of Warfare Sank with the Moskva", *The Atlantic*, https://www.the atlantic.com/ideas/archive/2022/OS.
12. Lt Gen HS Panag (Retd), "Close Combat Is So Last Century. China Will Use Drones, PGMs, High-End Tech Against India", 13 August 2020.