Changing Spectrum of Warfare Seen in The Lens of Time and Space

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Abstract

This article starts with an assertion that TIME and SPACE are constant factors of war and goes on to say that these factors take on variable values of impact at different timelines in history. Currently Time has drastically shortened, and Space has widened. It goes on to examine why kinetic weapons were weapons of choice and why 'soft weapons' are increasingly becoming important. The article asserts that War is a continuum with intensity ranging from non-contact across full spectrum anonymity strikes to visible effect limited spectrum kinetic strikes interspersed. Importantly, the article brings out that no longer are the Information age weapons in support or force multipliers to kinetic warfare. They are a potent arsenal of warfare, especially when war is not officially declared. Both kinetic, semi kinetic (Proxy) and non-contact warfare are blending into one whole war fighting machine spanning the Time and Space arena. The coming era will increasingly see nation level coordinated efforts between contact and non-contact warfare. Even in the contact warfare, emphasis will increasingly shift to long range highly lethal platforms which have least cost in terms of resources including human capital. Indicative scenarios are painted as illustrations. The article concludes by asserting the need to change for effective adaptation of the emerging format of war.

Introduction

If we look back and analyse the causative reasons for any war over the ages, we can easily classify these reasons into any one or both of the following two buckets – firstly, to meet a felt need which may be a physical resource or a mental ideology but is mainly economic and secondly, to overcome a perceived crisis of identity or survival. The methodology used to wage wars to achieve these aims depends on the prevailing environment realities. We have seen weaponry like stones, bows and arrows, horses, elephants ranging from earlier stone and agriculture ages transcending to iron age weapons like swords etc. to industrial age weapons like tanks, guns, aircraft and ships. Primarily kinetic weapons. And now with the advent of information age, newer weapons derived from entities like data, cyber and information have come into vogue. A shift to non-kinetic weapons. A closer look will show that at any time weapons from three generational ages are always current. Of course, the maximum share would be with the current generation with depleting inventory of the last generation and increasing inventory of the incoming age. However, the policy formulations and concepts of employment of all three categories will remain to be the current compilation. This will draw out the best effects from the current inventory but may be sub optimal for the previous and future generation weapons. Concepts for that will take time to evolve along with shift in inventory holdings.

Pre-information Age Period

A closer look at history would show that the two important parameters of warfare warp are TIME and SPACE. However, the weightage values assigned to these parameters, for the purposes of conduct of warfare, keep changing with the environment realities. It is prudent to say, in this context, that over the decades Time has compressed and Space has widened, and this is most pronounced in the current information age. The main cause for this quantum shift in assigned weightage values for Time and Space is the advent of multi-use information technologies and derivatives derived thereof.

In pre-information ages, the time for deployment and the reach of weaponry decided the values assigned to the TIME and SPACE parameters. Since the entire inventory of weapons was kinetic during this period, the constraints to the optimum values that could be assigned to these parameters was in a sense logically limited. Of course, it would be wrong to say that there was no change in the assigned weightage values because the time of deployment and reach of weaponry improved dramatically during this period, especially during industrial age. This was hugely augmented by introduction of air and naval warfare as also by long range ground warfare weaponry. But the restrictive factor has been, and is, that the weaponry and concepts are based on kinetic warfare and hence contact warfare. Seen in this context, the ultimate and final frontier dimension for a nation to exert its might would naturally be the armed forces. This is one of the major reasons we saw nations investing heavily in developing newer technologies for the military. These technologies later got adopted in the commercial stream too (e.g. internet) for bettering the national economies. Still there always was a clear distinction between the military use and non-military use of the same technology. However, with commercial dominance becoming more aspirational for nations than ground holding, new technologies started emanating from the civil industry, as against military laboratories earlier, and the military started increasingly adopting these dual use technologies.

Information Age

With the advent of Information Age and its related technologies, the already technology dependent warfighting machine saw an exponential increase in their reach (SPACE) and an exponential decrease in time taken for effect (TIME). This was unprecedented as the uniformed fraternity was used to a gradual change, maybe steep at times, in these two parameters. They were used to gradually emerging enhanced concepts in synchronisation with evolving modern kinetic technology and entities. There was adequate time to prove these hypotheses physically and brand them as current concepts of warfare. Yes, growing commercial interests have increasingly shifted the mantle of 'Technology Developer and Introducer' from the military to industrial houses.

But due to this shift, dual use technologies increasingly came to the fore and the military arsenals adopted quite well. Really speaking, these developments did not affect the military concepts too much, but rather enhanced the procurement cycles to an extent, and hence the desired effects took / take less time comparatively to achieve. Military focus now started encompassing non-contact warfare as a discussion item for future concepts but Armed Forces, being classified as the last bastion for the nation, continued / continues with major weaponry to be kinetic.

With the advent of Information Technology (IT), as a sequel to desire of nations to be commercially efficient; leaders saw the world becoming a global village commercially and paradoxically continuing to consist of geographically (sometimes based on ethnicity) defined nation states. Commercial TIME shrunk and SPACE expanded even beyond national borders. Development and deployment cycles reduced. Market strategies increasingly shifted to becoming Data Centric. Corporate wars, became common place employing IT and data as weapons. Well established sovereign laws became difficult or impossible to enforce at times. Union or groupings and breakup of nations now were more and more based on economic considerations. In short, commercial interests started eroding artificial boundaries set up in the previous environment of industrial age. However, those structures too continued simultaneously as an administrative necessity. Nations increasingly started realising that the currency of weaponry for them to meet their aspirational needs was no longer restricted to land holdings or industrial bases but had increasingly shifted to data, information and communication technologies. However, the two buckets for the causatives for war remained the same as earlier.

National policy makers started realising that with emerging environmental realities, in many cases which are long drawn out and do not necessarily require to be brought into public gaze, IT, if used as a weapon by itself, could help nations achieve their aims without use of kinetic weapons or comparatively long drawn out contact warfare. The implication is that civilian experts, mostly youngsters, can become non-contact warfare frontline 'soldiers'

who may be anonymous or identifiable, as dictated by the situation. Another sub set of warfare started emerging in the defence forces itself. They started adopting IT in their concepts to improve and enhance their kinetic warfighting capability using newer concepts like net centric warfare, precision guided munitions, use of drones and Unmanned Aerial Vehicles (UAVs). Defence forces also started looking at Information Warfare (IW) with all its components including cyber warfare and Electronic Warfare (EW) as force multipliers and adjuncts to kinetic warfare but not as a form of warfare itself. Hence, the contact warfare concepts started employing non-contact warfare components albeit as force multipliers. Importantly, a segment of uniformed soldiers also started doing similar tasks that the civilian 'soldiers' were doing as mentioned above. Information highways and networks in most cases became intertwined but with different outcomes.

In this arena, distinguishing civil use and military use for the stated purpose are increasingly becoming blurred. Hence, IT and defensive cyber security literacy is becoming an organic need for every soldier. Offensive capabilities are increasingly shifting to the strategic national level and is top down driven with coordinated implementation by both, the uniformed and non-uniformed fraternity in a well-coordinated manner. Because of these developments, some thinkers started propagating that non-contact warfare will replace kinetic warfare in totality while their protagonists stuck to asserting that kinetic is the only way of warfare and that these new concepts are just a passing fad which will soon pass. The debate continues but obviously the answer lies somewhere in between.

Modern Warfighting

The previous paragraphs lead us to an important conclusion – the warfighting machine is no longer going to be restricted to the military domain but will encompass all aspects and segments of the nation. Decidedly military action will be dominant in the visible and tangible portion of war and will at times be supported by other national segments and at times be in a supporting role. The hegemony of military in a war is set to be blurred if not lost. Once

a nation has decided to wage war (declared or otherwise) with another nation or entity (external, internal or hybrid) the most important variable values to be assigned to the permutations and combinations of the parameters TIME and SPACE will be decided to lay out the real and virtual battlefield dimensions. This will decide how long the conflict will last, how widespread it will be, what outcomes do we desire and how much of the desired effects can be or should be in public domain or linked / linkable to us while achieving the desired outcomes.   With these decisions tentatively in place, the next set of decisions would be to decide the best set of tools or components to employ in the most cost and effect efficient manner. This will have to be within the constraints imposed by selection of the TIME-SPACE-EFFECT combination selected by the national policy level decision makers. Also, it would be incorrect to lose flexibility by allocating percentages of effort or finances to various components as this allocation would be a dynamic process which will be complex and will take into account, amongst other factors, the reactions of the adversary.

For effects over a large space and over a longer time which does not require visible military effects, the component of choice may be the civil 'soldiers' in non-contact warfare, especially when the TIME and SPACE combination is large. If effects are to be visible and SPACE is large, but TIME is short, the Air Force and Navy may be the Services of choice. For a smaller SPACE, short TIME and requirement of visibility, Army will be the dominant deployment. All such combinations will of course factor in the procurement timelines and cost and thereafter decide on which combination will be able to deliver the desired outcomes with the best return on investment of resources, including human resources. As such, the multiple use technologies like cyber and other non-contact warfare implements which necessarily will have lower costs in terms of money and development / procurement time but will require greater long-term training and preparation across segments will be increasingly factored into the war fighting machinery in all forms mentioned earlier. Military will no longer be the only and / or the last bastion of the nation. The goalposts are changing rapidly as we can observe daily. Outcomes desired are changing, aspirations are changing, and hence, new paradigms are emerging with complex permutations and combinations.

War fighting is now decisively changing from the way we have viewed its conduct till now. It is now increasingly going to be a continuum of undeclared non-contact warfare in the information domain conducted by anonymous coordinated faces outside of the military entity. The outcomes of this phase will be substantial and will focus on the virtual domains of perception, economics, commerce and politics. The effects may not be physically discernible but will be substantial and will result in tangible gains but will mostly be outside public view. This continuum will at times be overlaid with a focussed proxy war in segmented geographies and interspersed with bouts of contact warfare of short durations, which will figure as blips on the national warfighting radar but will draw much more public gaze than the earlier mentioned non-contact and proxy war combination.

It can be said that contact warfare will be the acute stage while non-contact and proxy war combination will be the chronic state of war. The situation for a declaration of war will be rare and far in between. Even if it happens, this war will be very intense but of short duration and all organs mentioned above will come into full coordinated play. Kinetic portion of war will peter out comparatively faster but the non-kinetic will continue in the background, unhindered and anonymous. During the kinetic warfare dominated period, employment of Air and Naval assets will see an increase because of the increased SPACE that can be strategically and decisively EFFECTED in a shorter TIME frame with a better military return on investment (including human capital) so to say. Since capturing territory may no longer be the priority national or military aim, the role of army will increasingly be confined to a restricted TIME-SPACE combination. Their doctrines and concepts will increasingly incorporate the visible portion of non-contact warfare in addition to aiding the national effort in this direction.

Conclusion

Whichever way we see it, the warfighting machinery of a country will no longer be confined to the military wing but will increasingly bring in more and more multi tasked elements and technologies into the fray. As such warfighting will be a continuum through war

and peace and will have to be co-ordinated and conducted at the highest level with the military being part of this process. This is a process which can be delayed or botched up if not handled consciously and professionally but cannot be halted. We, in the defence forces, should start taking cognisance of these realities and take actions to prepare and train for the new environment. And we must do this fast, much faster than what the military machine has been used to in the industrial age, simply because in the Information age the Time has shrunk, Space has expanded. Multiuse personnel and technologies will increasingly achieve many of the objectives at a much lower cost and disruption. At no stage am I saying that the role of military has reduced – the bandwidth of war has increased, and we are but a part, albeit an important part, of this bandwidth. We need to change to the changing realities.

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