



CENJOWS

FOCUSED C5ISR- A CRITICAL CAPABILITY FOR TURBULENT AND DISPUTED BORDERS

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Military strategic surprise has been haunting the Indian security apparatus due to lack of intellectual, political, military, and technological capital since independence. Historically, strategic surprise is contextual; it is conditioned by the particular problem and its existential nature and the culture, time, weakness, and desperation of the protagonist. Never the less lack of strategic culture and passivity in Indian context, led to raiders repeatedly exploiting the fault lines and off balancing the defender by strategic military surprise.

The Indian security canvas post-independence has repeatedly been a victim of this critical military domain. From the Razakar- Regular mix of 1948, 1962 “Hindi - Chini Bhai Bhai” syndrome, 1965 Operations, Kargil 1999 and now

the latest Eastern Ladakh intrusions/transgressions under Corona guise, are glaring illustrations. The internal security front too has had its own dynamics and challenges. Ironically, the strategic security apparatus inspite of several committees and high power studies has failed to take effective actions to mitigate the same. Further the inadequate defence funding and the frustrating procurement process have added fuel to the fire.

From a military point of view, achieving strategic surprise creates psychological imbalances in time and space, and responses there to prove costlier both in cost and time. However, this does not necessarily mean that the attacker has reaped the fullest possible benefits or will be assured ultimate victory. It is here that the indomitable spirit and raw courage of the brave hearts of Kargil and Galwan proved their mettle. The question however remains, "Had we detected this intent and build up well in time, could the course of events have been different both at Kargil and Galwan"? The reality is, limited wars in the Indian context are here to stay and it would be wise to learn our lessons and generate future capabilities to ensure combat readiness at all times.

While the gamut of strategic intelligence failure, though an important facet, is not being discussed here, the key challenge remains the plugging existing voids in mitigating military surprise by developing an integrated joint C5ISR (*Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance*) architecture. It must be clear to all decision makers that diplomacy without a strong military and vibrant economy is of little consequence. Similarly within the military well warned is well prepared and well armed. In this context, till the time we have turbulent and disputed borders, given the terrain dynamics and revisionist neighbours, C5ISR capability will assume criticality.

C5ISR a Force Multiplier

C5ISR capability in is as much a weapon or a tool to achieve asymmetry by decision dominance. In the context of our disputed and turbulent borders, this capability would not only preempt and deter an adversary but would also assist to generate favourable combat ratios in time and space, enabled by superior shared situational awareness and coordinated precision engagements. The net desired outcome will be effective credible deterrence, and if drawn into battle, victory at least cost and minimum time by dominating the key factors of time, space, force and information.

The recent joint force structures of Space, Cyber and SF are the steps in the right direction for empowering the C5ISR enabled joint force concept. The raising of the Department of Military Affairs and appointment of Chief of Defence Staff (CDS) if focused, can open vistas for an empowered decision making body for force optimisation in terms of joint structures, doctrines, equipping and generating desired capabilities. These combined with the recent lessons of Kargil, Eastern Ladakh and prevailing fragile situation on our disputed borders, mandates an integrated C5ISR networked decision support system, integrated with state-of-the-art targeting systems, as part of our joint force future capability.

Present Challenges and Inhibitors

C5ISR capability building in a corona inflicted fiscally constrained environment will demand prioritisation based on value and vulnerability analysis, and more importantly cultural change of mindsets. While some progress has been made in systems and data interoperability, the defence forces still lack a common joint C5ISR architecture that allows data to be moved from all domains and across multiple platforms and sensors, rapidly,

efficiently, and effectively. The present system is also more focused on need to know rather than need to share. The existing challenges and inhibitors are multi parentage, lack of integration, accountability and duplicity in the system. Besides there is the challenge of existing platform centric focus versus desired net centric synergy, along with stimulus to processing, exploitation, and dissemination methods. These challenges have resulted in a sub optimal C5ISR grid with limited capability, capacity, coverage, connectivity and ability to overcome constraints of weather and terrain. Thus, the need is for enhanced richness, reach and interaction in our C5ISR architecture both for the LC (Line of Control) and LAC (Line of Actual Control).

Capability Development Focus

The imperatives for an integrated and effective capability manifestation must address the following:-

- **Critical Capability.** Persistent & pervasive, all weather, all terrain layered surveillance and fused intelligence for force multiplication effect at the cutting edge.
- **Capability Thrust.** Achieve seamless and secure information superiority across the battle space dovetailing state of art technology with zero tolerance time.
- **Capability Mix Solutions.**
 - Layered C5ISR and Networks – persistent, flexible, interoperable, affordable and survivable.
 - A Continuous multi - tiered, multi domain, multi intelligence & time sensitive C5ISR grid.
- A Geo fused C5ISR data cloud with standard protocols at apex level and data fusion centers for relevant needs at lower level.

- Multi layered, secure, dynamic & robust communication backbone with terminal connectivity and plug a play concept with a mix of both top down & bottom up approach for Joint Service C5ISR optimization.
- **Human Capital**. The most important aspect of obviating military strategic surprise is the human element. This will continue to be so, mainly because intelligence work, despite its access to electronic monitoring equipment, high-powered computers, and satellites, to name a few, is still based upon the human factor. Network agile, mission oriented & focused C5ISR process mandates matching human resource & training policies and empowered structures. A balance mix of domain experts both uniformed and non-uniformed, with continuity would thus be essential. The mix must balance the technologist and the end user, because the best analyst are those closest to the problem.

Problem Centric Approach and Statements

There is a need for generating theatre specific problem statements and desired capabilities as the drivers for C5ISR procurement. The requirement and desired capabilities along with weather and terrain challenges need to be mentioned by the users facing the hostile threat. These must include surveillance challenges of border management, monitoring of infiltration, transgressions & intrusions, being forewarned of any infrastructure development including depth areas leading to future capabilities, monitoring border training areas for a coherent picture of adversary's tactics, intentions and mobilisation plans, and shaping the battle space for Intelligence Preparation of Battlefield. Each theatre and sector must thus generate operational problem statements to be addressed by a focused and time sensitive C5ISR capability development.

Force Equipping

It is imperative to generate time and outcome centric C5ISR equipment acquisition policies and moving it out of the misery of capital procurement process under existing Defence Procurement Procedure which has more snakes than ladders. Assured dedicated and delegated budgeting for C5ISR with critical requirement on a fast track mode thus merits consideration under an Emergency Empowered Committee under DMA. Pragmatic pricing and fast tracking trials in areas of employment is essential. The focus must be in integrating the indigenous capability manifestation in a spiral approach in conjunction with enhanced investment in R&D as well as S&T projects. This would require partnerships with industry, DRDO, OFB, DPSU, ISRO, intelligence agencies, academia, and national labs to find cost-effective solutions. In case these are not forthcoming in a time critical manner, then Government to Government or JV under Make in India need to be considered. As R&D driven projects, Indian Army may need to focus on areas of persistent HALE UAVs, quantum communication and computing technology, drone swarms, integrated SIGINT and CYBINT capabilities, OSINT advance search engines, long range multi-mode foliage and wall penetrative radars, predictive and identity intelligence capabilities, and secured cloud and big data analytics. The list could include many more and so must be prioritized with focus on a spiral approach. Indigenous R&D is critical even if a notch below, as imported systems can be manipulated or compromised.

Way Ahead

The need is to integrate intra and inter service C5ISR capabilities. This would apply equally to “*Headware*” - doctrines, skills, training, people and

processes; “*Software*” - GIS, data, automation and clouds; and “*Hardware*” - equipment, communication and infrastructure.

A Joint C5ISR Philosophy evolved must lead to shared situational awareness, blurring intra and inter service compartments. It must lead to evolution of a fused integrated layered mix of sensor grid architecture which is pervasive, persistent, survivable, enduring and affordable. The networks must address Volume (Growing Data Size), Velocity (Processing Speed), Variety (Data In Many Forms) & Veracity (Data Accuracy). Further it must address the HR policies and training must be central to core of C4ISR with technology enablement. It must also define a geo-fused C5ISR data cloud with standard protocols & geographically distributed archival facilities & fusion centers on common GIS platform.

Based on the Joint C4ISR Philosophy a time specific plan of capability development plan must be evolved. The ownership must be taken by the newly founded Department of Military Affairs under the CDS for a time sensitive implementation and monitoring. It should include the Joint C5ISR doctrine, as an overarching framework, common data formats and data dictionary, common GIS with geo referenced data, common coordinate digital maps and software’s, standard protocols, policies and procedures, as also joint encryption system moving towards quantum.

Conclusion

Joint force C5ISR plays a critical role, not only in maintaining situational awareness but in conducting operations to prevail in today’s war and fight to win future wars. However, the challenge remains in addressing the cultural, cognitive, doctrinal, fiscal and physical domains, to manifest C5ISR into a time sensitive desired capability. The volatility on our disputed borders and

revisionist intent of our adversaries cannot be neglected nor should it ever surprise us as in the past.

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