

The Algorithm Goes to War

Why the next great power conflict may be won by whoever writes the better code, not just who fields the bigger army



BY NEERAJ TICKOO

There is an old joke among soldiers that wars are planned by generals who studied the last one. It used to be a joke about tanks and trenches. Today it is fast becoming a joke about satellites and software. Because somewhere over the last four years, the character of warfare has quietly begun to change. Command still rests where it always has — with trained officers and soldiers making difficult decisions under pressure. But increasingly, the tools in their hands are being built by engineers and coders working almost as fast as the war itself moves, and that is reshaping what those decisions look like on the ground.

That is not hyperbole. It is the plainest lesson of recent conflicts, from Eastern Europe to the Middle East to the tense waters of the Indo-Pacific. And it should interest every strategist, every defence planner, and frankly every citizen who still imagines war as something fought only at a distance, with clean lines between the front and everywhere else.

Consider the arc of change. For most of modern history, the story of warfare was the story of mass and metal — more soldiers, bigger guns, thicker

armour. Even in the large-scale conventional wars of the late twentieth century, the underlying grammar of combat was industrial: armoured columns, air superiority, artillery duels. Precision existed, but it was expensive, rare, and reserved for the most consequential targets, and it still depended entirely on the skill of the crews operating that equipment.

Compare that to a battlefield today where a low-cost quadcopter, flown by a trained operator using a live video feed, can disable an armoured vehicle worth many times its price. The economics alone are striking. It takes real skill to fly one of these systems accurately under fire, and militaries around the world are now investing heavily in training soldiers for exactly this new, highly technical role — it is a new soldiering skill, not an absence of one.

The deeper shift, though, is not the drone itself. It is the layer of software increasingly built into it. Navigation systems that can find a target even when satellite signals are jammed. Tools that help operators spot and classify threats faster than the human eye alone could manage. Groups of unmanned aircraft that can coordinate with each other and adjust course around interference, under the direction of the humans still commanding the

mission. The fog of war has not vanished — but it is being thinned out, unevenly, by better information reaching the people making decisions.

Here is the part worth sitting with. Every major military power watching recent conflicts has drawn a similar conclusion: large numbers of relatively low-cost, expendable unmanned systems now matter alongside a handful of very advanced, very expensive platforms. A single top-end fighter jet can be extraordinarily capable, but it is also a single point of failure if it can be located and targeted quickly. A large, well-coordinated fleet of cheaper drones is harder to fully counter and far less costly to lose. This is why defence planning across major powers — including in our own neighbourhood — is quietly reorganising itself around a new industrial question: not just who can build the single best weapon, but who can produce autonomous systems at scale, season after season, while adapting faster than the other side can counter them.

That, geopolitically, is the real story, and it should unsettle policymakers more than it currently seems to. Capabilities that once required the full industrial base of a nation-state are increasingly within reach of smaller states and even well-resourced non-state groups, using commercially available parts and widely accessible software. The

threshold for causing serious harm has fallen, and it continues to fall.

None of this is one-sided. For every new unmanned strike system, there is an equally urgent effort to jam it, spoof it, or shoot it down — and that contest is arguably where the sharpest military thinking is happening right now. Electronic warfare, once a specialised corner of defence planning, has become as central to modern conflict as artillery once was. Forces that can protect their own drones from being blinded, while blinding an adversary's, hold an advantage that raw firepower alone cannot easily replace. Drones have not replaced the older tools of war so much as added an entirely new, largely invisible contest of signals and sensors on top of them.

It would be comforting to treat all this as a distant, technical story — something for defence contractors and think tanks to debate. It is not. The growing role of autonomous and semi-autonomous systems raises questions that democracies have barely begun to answer properly. How much of a targeting decision should be assisted by a machine, and how much must always remain with a human in the loop? What happens to deterrence when the cost of launching a strike falls low enough that restraint becomes harder to justify on

purely economic grounds? And what does security mean for nations that cannot yet compete in this new contest of drones and code, but will still live in a region shaped by those who can?

For India, positioned in a neighbourhood where more than one country is investing seriously in exactly this kind of capability, these are not academic questions. They are strategic ones, and they are arriving faster than most policy conversations are currently built to handle.

War, as the old saying goes, is politics by other means. What is changing is not that principle, but the tools through which it plays out — from the rifle, to the tank, to the missile, and now to something quieter and harder to see coming: systems that help human commanders act with a speed and precision that was simply not possible a generation ago. That much is not speculation. It is already happening, in conflicts unfolding right now. The open question is who sets the rules for how far this goes — and whether the world still has time to do that thoughtfully.

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Seven Years After Article 370: A Citizen's View of a Changing Jammu and Kashmir

BY SINDHIYA GUPTA

On August 5, 2026, seven years will have passed since the constitutional changes relating to Article 370 were introduced. For people outside Jammu and Kashmir, the anniversary may be viewed mainly through the language of law, politics and constitutional history. For those of us who live here, however, its meaning is also found in everyday experiences: a new road becoming operational, a train reaching closer to home, a hospital expanding its services, tourists exploring previously overlooked destinations, and young people imagining opportunities within the region rather than always looking outside it.

I write neither as a politician nor as an expert attempting to defend a political position. I write as an ordinary citizen who has lived through these years and has watched Jammu and Kashmir gradually acquire a new sense of movement.

The transformation has not occurred through one dramatic event. It has unfolded through hundreds of visible and less visible changes in connectivity, public infrastructure, tourism, healthcare, education, digital governance and economic activity.

Perhaps the most powerful symbol of this change is the completion of the Udhampur-Srinagar-Baramulla Rail Link. For generations, the idea of connecting the Kashmir Valley with the rest of the country through an all-weather railway appeared distant. Today, the Chenab Rail Bridge, the world's highest railway arch bridge, and the Anji Khad Bridge, India's first cable-stayed railway bridge, stand as evidence that geographical difficulty need not remain a permanent barrier.

The railway connection is not merely an engineering achievement. It has practical meaning for students, patients, traders, tourists, pilgrims and families. The introduction of Vande Bharat services has considerably shortened the journey between Katra and Srinagar, while the extension of serv-

ices towards Jammu has made rail travel more convenient for residents across the region.

For an ordinary citizen, such connectivity changes one's sense of distance. Kashmir no longer feels as isolated during difficult weather. Farmers and traders can hope for more reliable movement of goods. Tourism operators gain greater confidence in planning longer seasons. Families receive another safe and comfortable travel option.

Road and tunnel infrastructure has also altered the experience of travelling within Jammu and Kashmir. Journeys that were once uncertain, exhausting or dependent heavily upon weather conditions are becoming more predictable. Better highways and tunnels are gradually bringing districts, villages and tourist areas closer to major urban centres.

These projects may be recorded in official documents as infrastructure expenditure, but their true importance is better understood through time saved, easier access to hospitals, improved movement of agricultural produce and greater mobility for young people seeking education or employment.

Tourism has witnessed another visible expansion. Kashmir has long been internationally recognised for its natural beauty, while Jammu has traditionally attracted large numbers of pilgrims. In recent years, however, tourism has begun to acquire a broader character. Visitors are exploring border areas, rural destinations, heritage sites, trekking routes and lesser-known locations.

Homestays, local taxis, small restaurants, guides, handicraft sellers and rural entrepreneurs are becoming part of the tourism economy. This is important because tourism creates opportunities without requiring every young person to leave his or her hometown.

Official assessments place tourism's contribution at around seven per cent of Jammu and Kashmir's economy, with approximately 1.7 crore

visitors being received annually in recent years. Improved aviation and surface connectivity are expected to support further growth.

What matters to a citizen is not merely the number of tourists. It is the confidence created when hotels remain occupied, new destinations appear on travel itineraries and local families find livelihoods connected with hospitality, transport, food, crafts and adventure tourism.

Healthcare infrastructure has also expanded significantly. The establishment of AIIMS Vijaypur in Jammu, the development of AIIMS Awantipora and the functioning of newer government medical colleges have widened the region's medical and educational capacity. MBBS teaching at AIIMS Jammu began before its permanent campus became fully operational, while new medical colleges in districts such as Anantnag, Baramulla, Rajouri, Doda and Kathua have helped take medical education beyond the traditional centres of Jammu and Srinagar.

For families in Jammu and Kashmir, access to specialised healthcare has always been a major concern. Many patients previously had to travel to Chandigarh, Delhi or other cities for consultation and treatment. Every new medical institution, diagnostic facility or specialised department reduces that dependence and brings confidence closer to home.

The spread of medical colleges also has a long-term social impact. It creates opportunities for students, generates employment for doctors and supporting staff, strengthens district hospitals and gradually improves the availability of healthcare in areas that were historically underserved.

Digital governance is another area where residents can feel a difference. Many public services that once required repeated visits to government offices, physical files and long waiting periods are increasingly available online. Certificates, applications, payments, grievance systems and municipal services are gradually moving towards digital plat-

forms.

These changes may appear routine when viewed individually, but collectively they change the relationship between the citizen and the administration. Technology can reduce travel, paperwork and dependence on intermediaries. It can also bring greater transparency by allowing applications and payments to be tracked.

As someone associated with technology and public infrastructure, I have seen how digital systems can make governance more accessible. Their real success is not measured by the number of portals launched, but by whether an elderly person, a student, a shopkeeper or a resident of a distant village can obtain a service without unnecessary difficulty.

Economic activity is also becoming more diverse. Jammu and Kashmir's economy continues to depend heavily upon government employment, agriculture, horticulture, tourism and small businesses. Yet there is now greater discussion about entrepreneurship, food processing, logistics, renewable energy, information technology, startups, film production and value addition to local products.

The Jammu and Kashmir Economic Survey 2025-26 estimates real Gross State Domestic Product growth at 5.82 per cent. Such figures do not mean that every household experiences prosperity equally, but they indicate continuing economic expansion and provide a foundation upon which employment and enterprise can grow.

The most encouraging change is perhaps psychological. For many years, Jammu and Kashmir was spoken about mainly in the language of conflict, uncertainty and missed opportunities. Today, conversations increasingly include highways, railways, tourism circuits, universities, sports, investment, start-ups and urban development.

Young people are participating in competitive examinations, sporting events, skill programmes, cultural initiatives and entrepreneurship. Local

products are reaching wider markets. New infrastructure is making remote areas more visible. The region is gradually being discussed not only for its problems, but also for its possibilities.

This does not mean that every challenge has disappeared. Transformation in a mountainous and historically complex region cannot be completed in seven years. Projects must be maintained after inauguration, employment opportunities must continue to expand, environmental concerns must remain central and development must reach villages as meaningfully as it reaches cities.

Yet an anniversary is also an occasion to acknowledge progress honestly.

As a citizen, I see the last seven years not as the conclusion of Jammu and Kashmir's transformation, but as the opening of a larger window of opportunity. The strongest evidence of change is not found in political speeches. It is found in trains crossing mountains once considered impossible to traverse, patients receiving treatment closer to their homes, tourists discovering new destinations, students entering new institutions and public services becoming easier to access.

The constitutional step taken on August 5, 2019, will continue to be examined by historians and legal scholars. Ordinary citizens will judge its legacy through something more immediate: whether their lives become safer, more connected, more dignified and more hopeful.

Seven years later, Jammu and Kashmir appears more connected to the future than at any previous moment in recent memory. The task now is to protect this momentum, ensure that its benefits reach every region and community, and transform today's infrastructure into tomorrow's lasting prosperity.

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