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Air Power Musings: Navigating a VUCA World

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"True leadership lies in building systems that outlast uncertainty."

Air Cmde Jasjit Singh (Retd)

Introduction

On October 08, 2025, when the Indian Air Force (IAF) turns 93 years young, it stands at a defining juncture in its institutional evolution and development into a modern, future-ready, and strategic air force with power projection capabilities across continents. The past nine decades have seen the Indian Air Force (IAF) grow from a fledgling force to a force to reckon with, the fourth-largest air force in the world, and a professional outfit capable of taking on the myriad challenges that come its way in the 21st Century. From combat in the North West Frontier Province (NWFP) to the jungles of Burma (World War II), from pioneering feats of courage and valour to save Srinagar to landing at the highest airfield in the world and from targeting bunkers in Kargil to carrying out stand-off precision attacks from own side of the International Boundary (IB) during Op-*Sindoor*, air power has always been the first responder, IAF an instrument of choice and a force capable of delivering decisive firepower when and where it counts.

The contemporary security environment is significantly different from what IAF has seen over the past nine decades and is characterised by increased volatility, uncertainty, complexity and ambiguity (VUCA). The VUCA environment presents its own unique set of challenges and opportunities for IAF and air power. India's strategic environment is volatile, marked by uncertainty in the multi-polar world, complexity in modern warfare and ambiguity created by hybrid threats. While technology, information and doctrines matter, the ability to interpret, analyse, predict outcomes and take timely decisions largely depends on sound leadership; therefore, leadership will remain the decisive variable in this VUCA world. The paper aims to understand the intricacies of a VUCA world from an air power perspective and analyse leadership challenges that must be addressed for success in future wars.

Air Power in a VUCA World

Volatility classically refers to the speed and amount of change. Uncertainty denotes unpredictability of events and outcomes. Complexity implies a non-linear, interwoven geo-political landscape where events seemingly unrelated to one another create direct, indirect, or cascading effects on one another, and ambiguity highlights the decision dilemmas that are likely to arise due to prevailing uncertainty and opacity. As a technologically driven, decision-sensitive force, air power is largely affected by the interplay of the elements in a VUCA world. Technologies like Artificial Intelligence (AI) and Machine Learning (ML) have significantly changed the way air power is being applied.

Unmanned systems, such as drones, quadcopters, and Unmanned Combat Aerial Vehicles (UCAVs), are altering the battlefield landscape, creating unique conditions not previously experienced. Hypersonic weapons and the use of space have exacerbated the quagmire and information has become weaponised to such an extent that narratives are deciding who the victor is and who is vanquished. In such an ambiguous and uncertain environment, it is not easy to arrive at decisions; therefore, there is a direct impact on the Observe, Orient, Decide and Act (OODA) loop, which is the cornerstone of air power application, posing unique challenges for leadership.

For India, the VUCA framework is a strategic reality, primarily due to a revisionist and uncertain China and an unpredictable Pakistan, which creates a significant amount of entropy. This high degree of disorder and randomness has been further compounded by America's newfound love for Pakistan and apparent animosity with India. The Russia-Ukraine war and the Israel-Hamas conflicts have shown the world that in today's multipolar, intensely divided world, no one is willing to take a step back, resulting in highly destructive and long-drawn conflicts. On the other hand, Op-*Sindoor* has shown that conflicts could also be very short and intense, especially if one's military and political objectives are clearly outlined. The conflict termination criteria are well articulated. The bottom line is that there is perpetual disruption. Amidst that disruption, air power must learn to retain its centrality and provide speed, precision and flexibility to mitigate volatility and uncertainty.

Yom Kippur Moments

On October 6, 1973, the Arab alliance of Egyptian and Syrian forces launched a surprise attack on Israel on Yom Kippur, the Jewish holy day of atonement. The attack resulted in heavy casualties and equipment loss in both the Sinai Peninsula and the Golan Heights. The surprise factor was very high as the Israelis did not expect anything to happen, especially on a holy day like Yom Kippur. On October 7, 2023, Hamas launched a coordinated attack on Israel on Shemini Atzeret, a Jewish holiday. Many Israeli Defence Forces (IDF) soldiers were on leave, and Israel was focused primarily on its Northern borders rather than the Gaza Strip. The assault began at around 0630 AM with a barrage of over 2200 rockets launched into Israel in just 20 minutes.[1] The barrage of rockets reportedly overwhelmed the Iron Dome system. As this was happening, at least 1,500 militants of Hamas infiltrated Israel at dozens of points using the land, sea and air mediums (para gliders). They caused a large number of Israeli casualties. About 1,200 people were killed in the assault, which included many civilians. [2] If one were to analyse the two attacks, a conclusion that can be drawn is that both attacks took place on a holiday, surprise was a key element, and it was a failure of intelligence. Most importantly, the Israelis were not prepared for it.

The VUCA world is similar. Amidst all the volatility, uncertainty, complexity and ambiguity, are we as a nation adequately prepared for a '***Yom Kippur Moment'?*** Kargil, Pahalgam, Galwan, and Pulwama are some of India's intelligence failures that have led to India's Yom Kippur moments.

Are we prepared for a multi-domain attack simultaneously targeting not only our military installations but also our critical civilian infrastructure? Are we ready for an unconventional attack using weapons and equipment that we have not thought of, like the use of paragliders by Hamas? Is our intelligence apparatus examining the right markers for such an event to unfold? When analysing intelligence data, are we correlating inputs in different domains, or are we still looking in silos? Do we have the wherewithal to response to surprise attacks on multiple fronts and in multiple domains? If the answer to any of these questions is no, then it is time to start introspecting. As a nation, we need to be prepared for our 'Yom Kippur Moment' without waiting for it to happen and then reacting.

Managing the VUCA World: Paradigm Shifts

Doctrinally, volatility requires a paradigm shift from conventional planning to adaptive and associative planning. Technology must be leveraged to simulate unpredictable scenarios and uncontrolled escalation, testing the agility of our Command and Control (C2) structures and readiness postures. Gone are the days of lethargic large-scale mobilisation of the armed forces and 30-day war packs. Volatility does not only mean disruption and interruption, but it is also a counter-strategy and must therefore become a part of our planning assumptions.

In a volatile world, uncertainty is inevitable; therefore, the way events unfold cannot be second-guessed when they start unfolding. To stay one step ahead, we must harness technology such as Generative AI and big data analysis to explore nuanced possibilities that can then be war-gamed. While using the full potential of Generative AI is still some years away, we must make a start now. Deterrence will suffer when events and outcomes are unpredictable. Yom Kippur Moments can be avoided by harnessing technology to bring credibility and intent to our deterrence capability.

Modern warfare is inherently complex, primarily due to its multi-domain nature. The land, sea, and air domains have now become interlinked with cyber and space domains; information has become a weapon and operations in one domain inevitably affect operations in other domains. We must learn to manage complexity through doctrines, realistic training, education, and integration of systems to create a system of systems that can undertake multi-domain operations.

Ambiguity affects information and perception, and it cannot be removed from modern conflict. Decision dilemmas arising from ambiguity will increasingly determine the outcome of a war. The side that has the fewest decision dilemmas will have the upper hand. A shorter OODA loop may not be the only solution, because in modern conflict, multiple OODA loops will interact with each other. There will be an overload of information, and the ability to sift through volumes of data to arrive at meaningful deductions will eventually become more important than a shorter OODA loop.

The bottom line is that there is a need to re-evaluate our doctrines, operating procedures, response mechanisms, intelligence apparatus and capability development plans, which would cater to warfighting in a VUCA world.

Leadership Challenges

Military leadership, primarily characterised by hierarchy, close control, and strict, enforceable discipline, faces an existential threat when confronted with a VUCA world. Attributes like tradition, centralised control and strict adherence to precedent can impede agility in an environment where change is constant. The essence of leadership in the future will lie in the ability to sense, decide and act faster than changes in the operational environment.

Outdated Standard Operating Procedures (SOPs), tactics and techniques will become serious hurdles. For example, switching off the Radar Warning Receiver (RWR) during rejoin and within airfield control zones due to inadvertent activation of the Counter Measures Dispensing System (CMDS) may prove dangerous during a 'No War, no Peace (NWNP)' scenario, as the enemy may have weapons which can target their own aircraft at launch and during recovery for landing. It is essential to remember that India is constantly in an NWNP scenario. Similarly, just because a particular tactical action worked in an earlier situation does not mean it will work in the future as well. Smart enemies will not do what you expect them to., In a VUCA environment, the most essential task confronting leaders is to figure out what the enemy is likely to do and accordingly update SOPs, tactics, and techniques.

Technological volatility must be addressed by technologically fluent leadership. Leaders who cannot fully comprehend the capabilities of systems placed under their command risk irrelevance. Professional competence, continuous education and cross-domain exposure are essential for effective C2 in modern warfare.

Uncertainty, unlike volatility, stems from the unpredictability of events and outcomes and therefore poses a direct challenge to a leader's confidence in available information and the reliability of established assumptions. Making sound decisions amid imperfect knowledge will hence become essential. The more variables there are, the greater the uncertainty, and given the nature of air operations, this will only increase with increased fog of war. Leaders must therefore learn to interpret evolving patterns rather than expect the normal to take place. Pre-set plans may not work in uncertain situations, and flexibility, adaptability, and the ability to think beyond one's own domain will go a long way. This would require institutional changes, such as training in a VUCA environment, introducing uncertainty into routine activities, and creating entropy in seemingly mundane tasks. Disruptive training, which fosters cognitive flexibility and encourages out-of-the-box solutions, will help develop future leaders. Disruptive training is not training at odd hours; that is just a tiny part of

it. Disruptive training is training by disrupting routine patterns and the usual way of doing things. For example, in combat scenarios, there may be a situation that allows landing only in tail winds. How many times do our trainees practice this? Answers to questions beginning with '**What if**?' are essential to deal with combat planning and execution in a VUCA world. A leader must be able to picture multiple 'What ifs?' to create effective and doable plans. They must also be war-gamed to arrive at tangible and implementable courses of action. Adversaries of the future will try to outthink their opponents at every stage, making it a significant leadership challenge.

When faced with complexity, effective leadership must view modern military operations as interconnected occurrences rather than isolated missions. For example, when Blue Land launches its Offensive Counter Air (OCA) missions, the entire Red Land would undertake Air Defence (AD) missions, and the pattern would reverse when Red Land launches its OCA forces. In reality, OCA and AD will co-occur in multiple domains and spread across the entire front. There is a need to revamp our training regimen to align with operations in a VUCA world. Leaders of tomorrow must change their mindset and reimagine training paradigms to make them more realistic and contemporary. Operations in an environment of denial are far more complicated than those undertaken when all systems are functioning properly. To be able to do that, leaders of tomorrow should have been trained in such environments. Capability development plans must address the challenges inherent to operating in such environments. For example, what if GPS is made unavailable in the next war? How are we going to undertake stand-off precision attacks? Do we have an alternative system? Are our aircraft and weapon systems equipped with alternative technology? Most Western surface-to-air weapon systems rely on a GPS fix to initialise. What happens if that GPS fix is not available? Another major issue facing us is the so-called peace-time attitude. Most personnel in service may not see combat throughout their careers. But, when it actually happens, our peace-time training needs to take over and aid in dealing with the arising uncertainties and complexities. While we would be expected to adopt war-time procedures, peacetime procedures would largely prevail because they would have become a habit and second nature. Our training during peace -time needs to be "train in peace as you fight in war,' or as close to war fighting as possible and feasible, only then will they become second nature. By having two separate sets of procedures, we are adding to the already existing complexity of the situation. Examples of this situation include the carriage of personal arms during peace-time training missions, the use of Identification Friend or Foe (IFF) during take-off and rejoin, night operations with minimal lighting, no radio telephony (R/T) missions, and simultaneous activation of ground defence and air defence measures at a base. These are some institutional challenges that future leaders must address as soon as possible.

Ambiguity cannot be eliminated, but can definitely be out-thought and out-led. Multi-domain warfare, hybrid warfare, and information warfare are three types of warfare adding to the ambiguity

quotient. In ambiguous environments, leaders are likely to face ethical dilemmas, decision paralysis, shifting rules of engagement and large-scale information distortion. The first casualty of ambiguity is effective communication. If a leader is unable to communicate effectively with their subordinates, orders may be misinterpreted, leading to total disarray. Training in an environment of denial, redundancy in communication and clarity of thought are a few tools modern leaders must develop to remain relevant in ambiguous situations.

Conclusion

As IAF approaches its centenary in 2032, leadership will determine whether it remains a reactive force or evolves into a proactive aerospace power. IAF@100 will demand leaders who can effectively navigate a VUCA world. Leadership is an institutional competency and not just a personal trait. The IAF must nurture younger generations in a VUCA environment, because sound and effective leadership will remain the IAF's greatest weapon system, far more enduring than aircraft and way more resilient than technology. Leadership in a VUCA world is not about predicting the future, but rather about preparing for it. We must institutionalise adaptability through doctrine, training, education and culture. The future demands leaders who can handle volatility with alacrity, uncertainty with flexibility, complexity with equanimity and ambiguity with dexterity.

Notes:

[1] Encyclopaedia Britannica, "History and Society, Israel-Hamas War," October 04, 2025, https://www.britannica.com/event/Israel-Hamas-War. Accessed on October 04, 2025.

[2] Ibid. Accessed on October 05, 2025.