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AWACS: ENABLER TO ORCHESTRATOR OF AIR OPERATIONS

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Next to the atomic bomb, radar was the most decisive weapon of the war.
—Grand Admiral Karl Do Enitz

INTRODUCTION

The history of warfare since time immemorial emphasises the ability to see more and, thus, know more than the enemy. From ancient times, success in warfare has depended to a large extent upon this capability. Lord Wellington, who defeated Napoleon, once said, "I always dream of how I can see what is over the hill to deploy my forces"[1] and that is exactly what the Airborne Warning and Control System (AWACS) is all about: the ability to look far and over the hill. The ongoing struggle is to seize the higher ground and command the best view of the terrain on which the battle will be fought. In 21st century warfare, the Airborne Early Warning (AEW) has become an inescapable tool for any modern war-fighting force. "The West calls these changes in warfare technology[2] a

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1. Shashank Sinha, "AEW and its Genesis in India", IDC Analysis, June 29, 2006.
2. Ibid., p. 1.

AWACS is a multiple capability aircraft designed for strategic as well as tactical surveillance, carrying out command and control of its own interceptors, Surface-to-Air-Missiles (SAMs), and Air Defence (AD) guns, either fully autonomously or through a ground link, under several different operational conditions.

Revolution in Military Affairs while others refer to it as Transformation in Warfare."

Airborne radar systems are normally referred to as AEW systems. These systems can be mounted on tethered balloons, airships, and aircraft of different types and sizes. These aircraft range from helicopters to transport aircraft. Data from the AEW is invariably down-linked to the air defence network to enable command and control functions to be performed efficiently. The degree of command and control capability on-board the AEW platform differentiates the AEW from an Airborne Early Warning and Control (AEW&C) aircraft to a full-fledged Airborne Warning and Control System (AWACS). The AWACS is meant to coordinate complex, diverse, and simultaneous air operations in both time and space. [3]. In other words, unlike the AEW, the AWACS is a multiple capability aircraft designed for strategic as well as tactical surveillance, carrying out command and control of its own interceptors, Surface-to-Air-Missiles (SAMs), and Air Defence (AD) guns, either fully autonomously or through a ground link, under several different operational conditions.[4]

DEEPER ELECTRONIC VISIBILITY

When the AWACS technology was first introduced on the battlefield, it boosted the detection and control capabilities of the side that used it. Strike aircraft no longer had the option of using low level approaches to avoid being picked up on radar. Because of the extreme asymmetry that the AWACS provides in combat, no side that has employed it has ever lost an

3. Harold F. O'Neil, Jr. and Dee H. Andrews, *Aircrew Training and Assessment* (New Jersey, 2009), p. 317.
4. Chethan Kumar "Indian Air Force to Get Made-In-India AWACS Planes to Look Deep into Pakistan and China", *The Times of India*, January 5, 2017.

air battle. In the race for aerial supremacy, the AWACS is the weapon of choice. It can also be used for a wide range of other tasks. However, due to mountain shadows and terrain masking used by the opposing aircraft, it has constraints on its employability while operating in the mountains.

The AWACS/AEW comprise a dynamic asset in the air that can be mobilised in a short time to counter an emerging threat and tilt the balance in one's favour. It provides defence-in-depth and enables the friendly forces to neutralise the adversary before it can pose a serious danger. With the induction of the AWACS/AEW in the region, the electronic visibility inside the adversary's air space has increased manifold. It has also led to the revision of both offensive and defensive tactics. Our adversaries having acquired such a capability, the air battle on both sides has turned more offensive as both sides are capable of conducting air operations under the detection umbrella of the AWACS/AEW.

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AWACS: FROM ENABLER TO ORCHESTRATOR OF AIR OPERATIONS

Insufficient Early Warning (EW) for initiating a prompt Air Defence (AD) response was a major limitation of AD. With the induction of modern radars, mountain radars, aerostats, and AWACS/AEW&C aircraft, the problem of early warning has been overcome. The information available through these platforms now needs to be processed in real-time to initiate prompt and correct AD responses. Modern aircraft have on-board avionics capable of receiving this information in near real-time. The AWACS is such a platform that not only enhances airborne early warning but can be used in a variety of roles ranging from enabling air operations to electronic intelligence. With its induction into various air forces across the world, the entire concept of air operations has undergone a sea-change. The employment of AEW systems

in modern warfare indicates the very rapid development of technology and the resultant wide spectrum of air operations.

After World War II, the AEW systems were used only by naval forces to keep an eye out for enemy ships. During the Korean War, the AEW systems were used for strike support, early warning, and intercept control.[5] Also, as an integrated Electronic Support Measure (ESM), EW and the airborne intercept control roles were used during the Bekaa Valley operations in 1982.[6] The E3A Sentry was the first version of the AWACS introduced to the US Air Force (USAF) in 1977, and since then, the experience gained while employing the AWACS in various military conflicts and the technological revolution have enabled it to evolve into a battlefield and air space management platform.[7] Since then, the AWACS has not only enabled, but has been the key orchestrator of numerous operations, such as the Gulf War, the Libya crisis, and the most talked-about Operation Neptune Spear, in which Osama bin Laden was killed. The modern AWACS is a strategic platform in the overall planning and execution of national defence. Thus, it has gained immense significance as the actual orchestrator of the battlespace. As a consequence, the AWACS' role as an 'enabler' has grown in significance to take on the mantle of 'orchestrator of the battle space'.

PARTICIPATION IN MILITARY OPERATIONS

The AWACS' primary mission is air battle management. As the name implies, it controls the air space in times of conflict and, hence, the air fight. It is most successful in this duty when it detects invading aircraft and targets them with its interceptors. This capability of 'seeing' the air conflict in real-time is critical in the struggle for necessary control of the air. The AWACS is most effective when used in situations of asymmetry. The Israeli

5. Michael V. Ciminera, "Lineage of Airborne Early Warning Systems", *The Aircraft Designers: A Grumman Historical Perspective*, pp. 85-102.
6. B.N. Gokhale, "Electronic Warfare: War Without Weapons", *SPs Aviation Magazine*, October 2011.
7. ABS Chaudhary, *Combat Support Operations* (New Delhi: KW Publishers, 2012), p. 75.

example in the Bekaa Valley is frequently cited by students of air power as a textbook example of how such a strategy exploits the medium. Even in other offensive air operations, the AWACS can lead strike aircraft to their targets while avoiding opposing air defences successfully.

Its efficacy was further validated in the Gulf War and Operation Enduring Freedom, which saw the effectiveness of the AWACS increase manifold by its integration into the command and control network. Two successful operations of recent times, *Operation Neptune Spear* and *Operation Bandar* witnessed the entire conduct of nocturnal operations under the AWACS without any interference from the adversary.

A HYPOTHETICAL CASE STUDY

The history of India is manifest in military conflicts with neighbouring countries. The threat to India primarily comes from Pakistan and China.[8] The possibility of a military conflict with Pakistan, either localised or on a full scale, remains high owing to the territorial dispute and Pakistan's continued support to proxy war in Jammu and Kashmir (J&K). The current strategy of Pakistan to bleed India through proxy war and avoid conventional war by nuclear blackmail has the ingredients of a possible military conflict. China, on the other hand, has silently developed its economy, infrastructure and industries, and modernised its forces. It has been steadily building up its position as a regional power, which it may be trying to achieve by 2025.[9]

To counter such threats from belligerent enemies, the Indian armed forces have gone ahead of initiate various integrated doctrines, procurements, automated scenarios, and operations. The Indian Air Force is the most technologically-driven force that has acquired AWACS, Operational Data Links (ODLs), fifth generation fighter aircraft such as the Rafale, long range vector S-400 and commissioned the Integrated Air Command and

8. Asif Karim, "Threats to India in the Coming Years", *Indian Defence Studies and Analysis*, March 7, 2015.
9. Gaurav Kampani, "The Escalating War in Kashmir", rediff.com, 1999.

The Indian Air Force is the most technologically-driven force that has acquired AWACS, Operational Data Links (ODLs), fifth generation fighter aircraft such as the Rafale, long range vector S-400 and commissioned the Integrated Air Command and Control System (IACCS).

Control System (IACCS).[10] These platforms will not only improve airborne early warning but also have the potential to be used in a variety of roles, ranging from air defence operations to electronic intelligence. With their induction, the entire concept of air operations is likely to undergo a sea-change. The induction of the C-130 Hercules and C-17 Globemaster transport aircraft has given a new dimension to our strategic and tactical airlift capabilities.[11] Such air assets would play an important and game-changing role in future conflicts with these two states. This case study aims to analyse the pro-active strategy and discuss the efficacy of the AWACS in the conduct of air operations under such strategies.

CASE STUDY

Having discussed the importance of the AWACS, let us now understand how the operations, in particular, would be shaped with the help of such air assets. Consider the first case where all air power assets such as the AWACS, Air Superiority Fighters (ASFs), and ODLs are in place for integrated operations. The Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) elements of the Services are in coordination with each other and the command and control structure is validated.

Scenario I: ***Execution of Joint Operations with the AWACS***

(a) **The Trigger Event:** The enemy may want to repeat the instances of the Parliament attack or an incident similar to 26/11. The top leadership

10. FH Major, "Indian Air Force in the 21st Century: Challenges and Opportunities", *Indian Defence Studies and Analysis*, 2009.
11. "India Buys C-130J-30 Hercules for Special Forces", *Defence Industry Daily*, April 2014.

may be targeted or an attack on important installations such as Kaluchak, Awantipur, Firozpur, or the recent misadventures at Pathankot, Uri and Pulwama may be attempted. Such an occurrence would test our threshold. In the event that the political leadership considers such an attempt a violation of the acceptable threshold and decides to handle the situation militarily, the armed forces would have to be ready with the execution of proactive operations.

Due to the air force's characteristics of lethality, flexibility, and dynamism, the targeting would be precise and it would be able to circumvent the other layers of opposition by the enemy.

(b) **The Prime Minister calls a CCS Meeting:** The Prime Minister (PM) calls for a meeting of the Cabinet Committee on Security (CCS). The three Services chiefs are in attendance and discuss threadbare the evolving situation. Apart from diplomatic measures, the CCS decides to handle the crisis militarily. The chiefs of the three Services are given a "go ahead" signal for an offensive launch with total wherewithal.

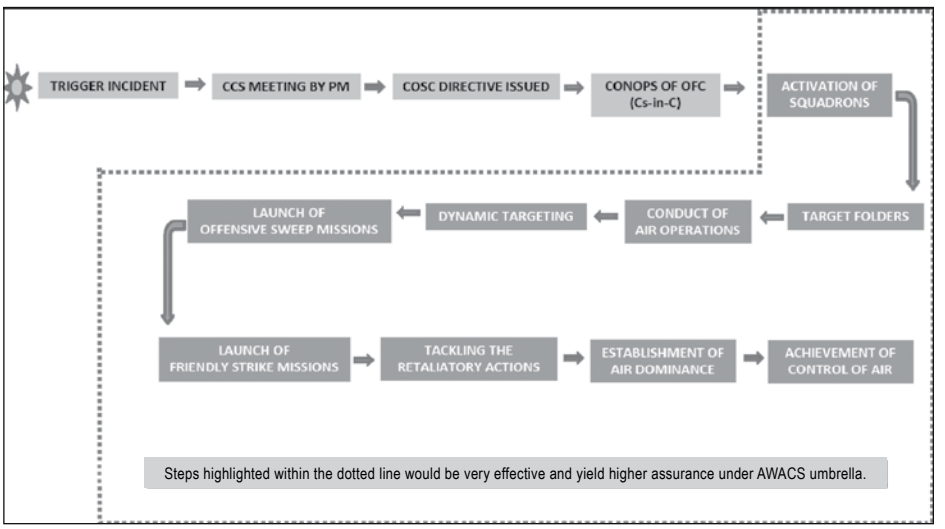
(c) **COSC Directive Issued:** The military commanders carry out situation analysis and derive the integrated objective for the end state to be achieved. The detailed joint operations are framed out and the Chiefs of the Staff Committee (COSC) directive is issued.

(d) **CONOPS of OFC (Cs-in-C):** The Overall Force Commander (OFC) in a specified area is made responsible for orchestrating the military battle in our favour and bringing the enemy to the battlefield of our choosing. The OFC lays out his Concept of Operations (CONOPS) to the combatants of armed forces who are ready to shape the battlefield/ battlespace.

(e) **Activation of Squadrons:** The earmarked squadrons and units would be activated within the specified timeframe of single-digit hours for the conduct of the initial punch from their peace-time locations. The fighting elements would be deployed at the location of their operations and would continue the subsequent operations from those bases. All

these executions would be carried out with total surprise to the enemy. Meanwhile, other squadrons and the entire air force would be brought to operational readiness, as planned.

Fig 1: Scenario I: Conduct of Joint Operations with the AWACS



Source: Author's own creation.

(f) **Target Folders:** The air force, the orchestrator of air power, would be tasked with striking hard at the enemy's pre-determined Centre of Gravity (CoG). Due to the air force's characteristics of lethality, flexibility, and dynamism, the targeting would be precise and it would be able to circumvent the other layers of opposition by the enemy. The target folders prepared in peace-time would be the basis of mission planning, tactical routing, etc. The entire operation would be conducted under the umbrella of the AWACS, networked with the IACCS.

(g) **Conduct of Air Operations:** A Command and Control (C2) centre capable of smoothly conducting air operations and monitoring enemy activity would be required prior to the launch of any mission across, or maintaining in, own territory. The AWACS would be the platform best suited to maintain a tactical position in the area of operations. The AWACS would be in a

position to provide in-depth electronic visibility into enemy territory, and would not only assist in the offensive mission but also be ready to tackle any retaliatory action by the enemy. Thus, it needs to be *"on station"* before any other aircraft. The concept of *"first to enter and last to leave"* would, thus, be associated with the operations of the AWACS.

(h) **Dynamic Targeting:** Apart from extending visibility in enemy territory, the AWACS also has the added advantage of gathering Signals Intelligence (SIGINT) information and command and control. These capabilities provide a perfect opportunity for the execution of Dynamic Targeting (DT) and Time Sensitive Targeting (TST). Such operations would not be feasible without AWACS coverage. The AWACS can provide real-time target coordinates to the fighter aircraft and guide them for the accomplishment of the task, while keeping them safe from opposition threats.

(j) **Launch of Offensive Sweep Missions:** As soon as the AWACS is on station, it will commence the sanitisation of the area and build up the enemy's tactical Electronic Order of Battle (E-ORBAT)/SIGINT ORBAT. The air dominance fighters would need to be in a position to perform the role of Offensive Sweeps (OS). These OS, coupled with the AWACS input, would build up Situational Awareness (SA). The constant updates by the AWACS crew would help the OS in setting up dynamic air dominance in a defined area. The AWACS would be able to control and build up situational awareness for multiple sets of OS within the same area operation or inter-area of operations. Thus, it would act as a real force multiplier. With the availability of ODLs with all the air assets, it would be able to conduct operations more freely and secretly without getting the enemy's SIGINT measures activated.

(k) **Launch of Friendly Strike Missions:** As time passes, the strike squadrons would have been ready to launch a major offensive. The pilots would have studied and analysed the enemy's threat en route. The AWACS and OS together would have set up a safe corridor for the launch of strike missions by then. This kind of scenario cannot be

thought of without the AWACS cover in today's technological driven and dependent warfare world. The strike can reach the designated Desired Mean Point of Impact (DMPI) with more freedom and in a relatively safer environment.

(l) **Tackling the Retaliatory Actions:** The air force, having executed the first proactive wave, would inflict heavy damage on the enemy's CoG and forces. However, retaliatory action by the enemy cannot be ruled out, and we must be ready to face heavy opposition. Considering that the enemy would also have a similar strategy in place, by this time, its core squadrons would also have been activated and ready for the launch of a major offensive. Keeping this factor in mind, we would require a fresh set of crew in the AWACS for another prolonged operation. The Operational Readiness Platform (ORP) aircraft, Surface-to-Air Missile (SAM), Surface-to-Air Guided Weapon (SAGW), and Passive Air Defence (PAD) measures would have to be in the desired readiness state by this time. War-time crystallisation would need to be activated and strict Electronic Warfare (EW) policies would have to be adhered to. The AWACS would be constantly required for the next 24 to 72 hours, especially at the least expected time. This would demand the adequacy of such a force multiplier. The enemy Combat Air Patrol (CAP) aircraft and any aircraft getting airborne would have to be neutralised instantly. This would enable us to expect the least retaliatory action from the enemy.

(m) **Establishment of Air Dominance:** By having the complete network in place, the IACCS would be the hub for the orchestration of the war and shaping of the battlespace, as desired by the commander. The commander's intent can be easily executed within the AWACS umbrella. The cohesive and highest standard of operations by the AWACS, air dominance fighters, strike aircraft, ODL, and all other IACCS-managed elements would pay off in the early establishment of air dominance over enemy territory.

The efficacy of all the steps mentioned in the preceding paragraphs is mainly due to the availability of the AWACS for the conduct of air operations. The AWACS provides in-depth electronic visibility into the enemy's battlespace, which allows the crews to carry out the orchestration of the launching of their offensive package as per their own choice of time and space. The AWACS will be in a position to pick up every aircraft and flying object of the enemy when it is airborne and even when on the ground, if radiating. Also, the vital SIGINT inputs being monitored in real-time will enable the shaping of the battlespace with an added advantage.

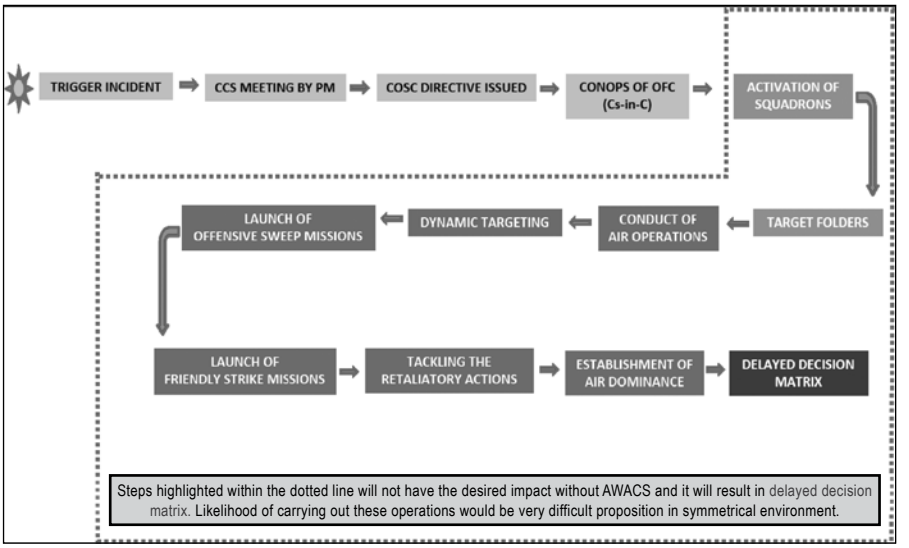
Scenario II: ***Conduct of Joint Operations without the AWACS***

The picture painted in **Scenario I** gives encouraging feelings to the military commander. However, if a similar scenario were played without the AWACS, there would be various lacunae in the mission accomplishment. The sequential steps can be analysed as reproduced below.

(a) The steps from the **trigger incident** to the **CONOPS of the OFC** as described in Scenario I would not see any change. These would go as planned, and instructions would have reached the combatants in a similar timeframe.

(b) The steps from **squadron activation to retaliatory action** would not be feasible with the same impact as they were in Scenario I. Even if it is considered that the IACCS is operational, it would not be able to conduct operations deep inside the enemy's battlespace. It would be mainly because of a lack of in-depth electronic visibility inside enemy territory. Conducting air operations, dynamic targeting, time-sensitive targeting, launching offensive sweeps, strike missions, and, finally, dealing with enemy air power retaliation would be difficult. Though the C2 structure may be sound and reliable, the situational awareness would be low and the attrition factor high.

Fig 2: Scenario II: Representative Conduct of Joint Operations without the AWACS



Source: Author's own creation.

(c) **Establishment of Air Dominance:** The establishment of air dominance in any form would be remote without the AWACS. Fighting in such a scenario would lead to heavy attrition, loss of manpower, and probably ill-designed war-fighting in the present context. The situation becomes more worrisome when the adversary is also in possession of the AWACS and AEW&C and has less frontage to defend.

(d) **Delayed Decision Matrix:** The battlefield transparency would not be available to the desired extent. This would lead to a delay in the taking of decisions by the commanders at the strategic and operational levels. The tactical level decision would be largely unaffected because it would be made by the individual formation leader. However, tactical level decisions would be of greater significance when the AWACS is available. The mission commander on board the AWACS would be able to make more accurate and quick decisions.

The efficacy of all the steps mentioned in the preceding paragraphs of Scenario II may be diminished without the AWACS, mainly because of the lack of in-depth electronic visibility into the enemy battlespace, which allows the crew to carry out the orchestration of the launch of their own offensive package as per their own choice of time and space. The chain of ground sensors has an inbuilt limitation of looking marginally into the enemy air space. This results in delayed detection of enemy aircraft and flying objects, hence, delayed initiation of tactical action. Thus, it may allow the enemy to enter its own Observe, Orient, Decide, Act (OODA) loop and shape the battlespace as per its design.

ORCHESTRATION OF AIR OPERATIONS

In an environment of gap-free radar coverage with the help of ground-based surveillance radars, offensive missions can still penetrate the enemy's air space and attack its targets by neutralising selected radars, thus, creating corridors for ingress and egress[12] but with much greater risk of attrition. Moreover, all radars, especially those which are optimised for low-level target detection, have limited ranges of detection, necessitating larger numbers of radars to be deployed to provide gap-free coverage with redundancy. Therefore, it is a question of tactics, counter-measures (soft kill through electronic warfare or hard kill through physical destruction or a combination of both), and suitable weapon systems to defeat the enemy's radar coverage. The introduction of the AWACS will change all of these, with one single system being able to provide gap-free coverage well into the enemy's territory while staying safely inside own territory.

The AWACS and AEW systems need to be looked at from the perspective of ensuring the success of friendly strike missions also, as these systems can warn friendly missions of any developing threats and simultaneously vector their interceptors to counter the threat. The success of mandatory

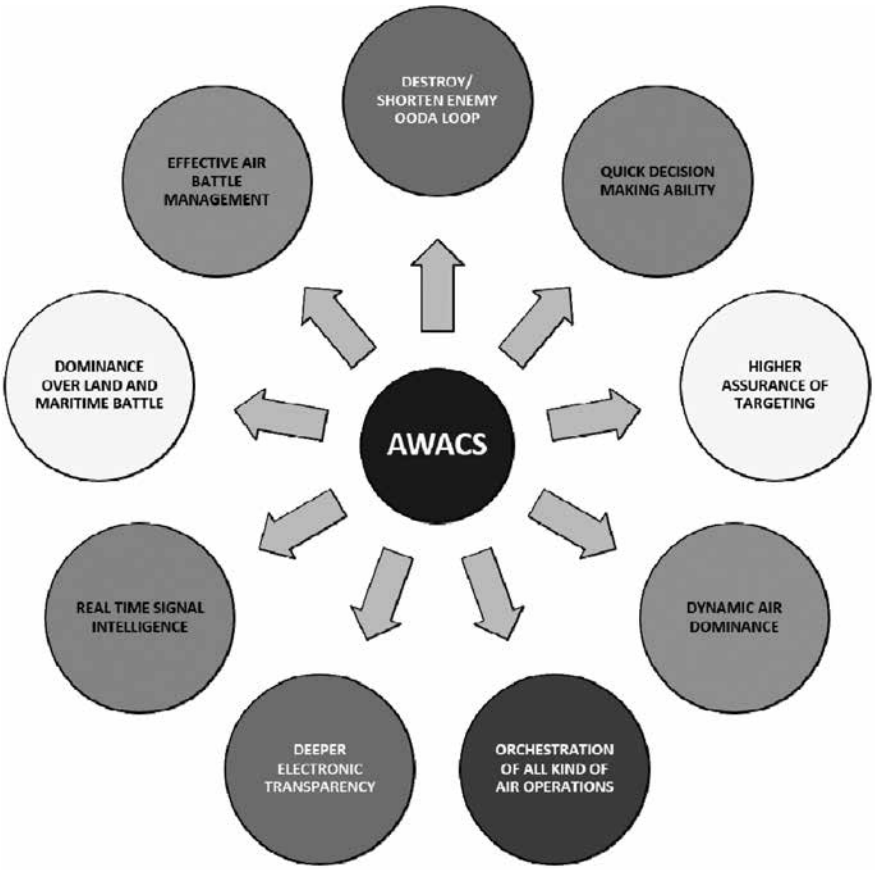
12. "Defensive Operations", Chapter 2 procedures FM 100-103, at globalsecurity.org/military/library/policy/army/fm/100-103/f101_3.html

strike missions can be ensured by saturating the enemy's air defence systems to thwart any attempt to interfere with such missions, even at the cost of substantial aircraft losses of own aircraft.[13] This becomes crucial, especially in a strike mission with nuclear weapons when considered in isolation of other means of delivery like surface-to-surface missiles. Considering that Pakistan follows a first use principle in a nuclear exchange, it may be very tempting for it to use such an option.[14]

In the bigger picture, it is important to think about how the machine works best when it is being used by men. The goal, knowledge, skills, and training of one side would help them gain a win over the other. There are a lot of powerful force multipliers in modern air warfare, and the AWACS is one of them. It could easily give an AWACS operator the upper hand in the aerial fight. AWACS provides a decisive advantage to any air operation, both strategically and operationally. It provides the quantum jump in detection and command and control capability which are the prime requirements today. Thus, the efficacy of execution of numerous air operations, decision-making ability, electronic transparency, etc. increases manifold, leading to the net result of orchestration of air operations.[15] The same has been pictorially represented for easy assimilation in Fig. 3.

13. US Doctrine on "Irregular Warfare (IW) Joint Operating Concept (JOC)", Version 1.0, September 11, 2007, at http://www.doctrine.af.mil
14. Franz-Stefan Gady, "Pakistan Tests New Ballistic Missile Capable of Carrying Multiple Nuclear Warheads", *The Diplomat*, January 25, 2017.
15. TD Joseph, *Winning India's Next War: The Role of Aerospace Power* (New Delhi: KW Publishers, 2008), p. 113.

Fig 3: Efficacy and Few Deliverables of Orchestration of Air Operations by the AWACS



Source: Author's own creation.

The AWACS in Symmetrical Warfare: The AWACS has historically been available to only one side in a conflict, resulting in an asymmetric situation, with little or no opportunity for the have-nots to seize air space control. With capability on both sides, while the system's utility would not diminish, its ability to shape the air battle on its own would likely be reduced when confronted with another AWACS across the border. In such a scenario, the

methodology for fighting an air war may change, with air-to-air warfare serving as the primary means of achieving air superiority. With both sides equipped with the AWACS, the air battle would be extremely intense and critical to the eventual outcome of the challenge for air space control.[16] In this context, we must understand that in order to maximise the utility of the AWACS, we should aim to create an asymmetric situation as soon as possible by neutralising or destroying the enemy's AWACS. The side that achieves air superiority first will be in a better position to influence the battle in other dimensions as well.

In today's technologically driven air warfare, neutralising the adversary's AWACS may not be an easy proposition, but one can attempt to achieve it with the exceptional training standards of the AWACS crew in orchestrating timely tactical manoeuvres exploiting the radar blind zone, elevation, and speed, coupled with silent enmeshed decoys, to force disparity right at the beginning of the confrontation in the air. The AWACS has demonstrated a huge leap in the ability to detect and control aircraft. The most important things about this platform are its reach and flexibility.[17] As a platform for air surveillance, command, and control, it may be used anywhere in the area of interest. Training, tactics, and operational drills are the best ways to learn how to use the AWACS in different situations. As time goes on, the fight for air space control and air power will become the most important part of our wars in the future. Air battles have been shown to be the most important part of the war, so taking the lead and being aggressive in the air will be the most important thing to do. General Ronald R. Foglem explains the achievement of asymmetry thus:

> "An asymmetric force strategy is to subdue an adversary with the fewest possible casualties and resources. This strategy is successful due to its meticulous planning and the use of superior military force. The shock and surprise experienced by an adversary state upon learning that its power

16. Ajay Singh, "The Air War with AWACS Symmetry", *The Indian Defence Review*, 1995, p. 71.
17. Srikanth Kondapalli, "China's Space Power", *Air Power Journal,* vol. 4, no 1, Spring 2009, p. 79.

foundations are about to be destroyed shows the futility of persisting in a conflict".[18]

Threats and Challenges to the AWACS: Air forces worldwide employ the AWACS to establish air dominance. The huge benefits and abilities of such assets, however, can be lost if they aren't used with a plan that leaves no room for error and a strict commitment to avoiding mistakes while staying on the offensive. A few of the threats and challenges to the AWACS in the battlespace could be the proximity of international boundaries and susceptibility to enemy firepower both from ground Surface-to-Air Missiles (SAMs) and airborne missiles, including anti-AWACS weapons such as the PL-15, Novator KS-172 and FT 2000. Also, the anchoring points and anchoring pattern, while retaining the optimum electronic transparency in the enemy's air space, is a challenge in itself. The wide-bodied nature of the AWACS aircraft presents a comfortable radar signature to the adversary's sensor chains, both on the ground and airborne radars. Thus, the element of surprise may not hold ground at all times. The availability of a protection force for such an asset at all times remains a grey area for most air forces due to the lack of aircraft resources. But all of these threats and challenges to the AWACS can be mitigated to a large extent with proper planning, timely handling of tactical and operational contingencies while orchestrating the air operations, and the professional skill of the AWACS crew in battle.

The wide-bodied nature of the AWACS aircraft presents a comfortable radar signature to the adversary's sensor chains, both on the ground and airborne radars. Thus, the element of surprise may not hold ground at all times.

18. General Ronald R. Foglem."ADVANTAGE USA: Air Power and Asymmetric Force Strategy", *Air Power History* , vol. 43, no. 2, Summer 1996, p. 7.

CONCLUSION

The aim of the application of aerospace power should be to obtain control over the battlefield and then be able to conduct strategic and tactical missions to achieve the paralysis that we discussed earlier i.e., through the neutralisation of the enemy's centres of gravity. For this, air power has to achieve dominance over the battlespace through the entire spectrum of the conflict. An ideal situation would be total dominance over the battlespace as obtained by the USA before and during the Iran War. However, this may not be possible even for such a powerful air force if it were to face off against an air force with more modern systems and doctrines. This is not a possibility in a limited war scenario between two comparable armed forces. Instead, it would have to be the endeavour to achieve battlespace dominance through control of the space for a limited time and space spanning the entire spectrum of operations in theatres of critical importance. And this dominance should be maintained through the persistent presence of air power in adequate strength permitted by the resources available. Achieving this would involve careful and calculated employment of Intelligence, Surveillance, Reconnaissance (ISR) and air defence resources, to deter the adversary, with the offensive strategic and tactical elements in a position to respond quickly to inflict punishment on it.

In armed conflicts and peace-keeping operations, in both offensive and defensive missions, the AWACS is often the first to enter and the last to leave, with the ability to perform three related missions of surveillance, weapons control, and battle management. In a much broader sense, however, the AWACS is a highly adaptable asset that the military can use to demonstrate a nation's commitment, support essential air operations during a war, or operate anywhere in between the full spectrum of such extremes. The AEW&C capability that the AWACS provides has become an indispensable element of modern air operations. The USAF and North Atlantic Treaty Organisation (NATO) have employed the AWACS in various roles and for different purposes, ranging from purely defensive operations to coercive diplomacy

and the implementation of international sanctions. A large portion of the history of the E-3 aircraft involves overseas deployment to areas of political and military tension. Operational deployments to Europe, Saudi Arabia, Egypt, Korea, and Sudan have characterised the E-3 capability to provide a rapid response during times of crisis.