A2/AD in combined joint multi-domain operations

by Jon Wikingsson

SECTION III, AIR Warfare Studies and Section II, Naval Warfare Studies, of the Royal Swedish Academy of War Sciences have conducted, in close cooperation, a study with the scope:

- To enhance the understanding of the concept Anti-Access and Area Denial in multi-domain operations
- To enhance the knowledge of how the Swedish Armed Forces are able to contribute with capabilities within NATO and how to use A2/AD as a concept within national warfighting

Preconditions

Sweden has a long tradition of being neutral and defending the nation's borders and interests alone. The defence was built up by dividing the Swedish territory into military regions and equip each region with military capabilities needed to defend the specific region. The basic strategy was to have a linear defence throughout the operational depth with a strong core from the borderline and inwards in each region. The military forces trained accordingly and thereby specialized, or limited, in the specific region.

Longer weapon ranges, high velocity weapons, sensors with longer range and more accurate measurement, increased information flow and faster communication are a few examples of the evolution of warfare that have changed the battlefield. The consequence is that throughout the operational depth there are constant activities. War is no longer a linear movement and the core is something else than forces along a geographical line or point.

Sweden's former regions do not fit within the multi-domain thinking and with the Swedish membership in NATO the theatre of war changes geographically. A multi-domain operation in NATO means that the enemy will be attacked in all domains and in the whole theatre of war at all times – as will NATO by its enemy.

Conclusion

The technologic evolution relocates the conduct of war towards multi-domain operations where the core is coordinated attacks in time and space in all domains throughout the whole theatre of war.

The term A2/AD

A2/AD means to deny the enemy the access to the theatre and to deny the enemy the freedom of action within the theatre. Some argue that the definition only is applicable in the air domain and the air battle has always strived for air superiority. However, if we use the definition together with multi-domain

operations, we argue that the mind-set or the will of A2/AD is needed in all domains. Therefore, in order to reach A2/AD, joint operations are necessary. As an example, you have not reached A2/AD fully by denying all the opponent aircrafts in the theatre, if the opponent can use all other forces and capabilities in the air domain. This demands a clear understanding through all command levels in order to fulfil the strategic objective in each domain, supported by the objectives and actions decided by the operational and tactical level.

The strategic level needs to promulgate distinct strategic objectives to deny the enemy his freedom of actions. The operational level needs to orchestrate all forces and capabilities to maximize the effects on the battlefield in order to reach the strategic objectives. Finally, the forces of the tactical level are to conduct coordinated actions in time and space in order to achieve the effects asked for which demands integration and full connectivity between the branches.

To allocate A2/AD to the air domain limits the benefits of multi-domain approach. Instead, the mind-set should be to use A2/AD as a method within all domains. An integrated tactical force, orchestrated by the operational level will have the preconditions needed to conduct coordinated attacks in time and space to support the distinct strategic objectives in each respective domain.

By breaking down the definition of A2/AD to interdiction zones, all domains are able to contribute. We compose a number of interdiction zones where each interdiction zone can relate to a domain and together it will render in a model where A2/AD is the umbrella for all interdiction zones. This method makes it possible to relate a strategic objective to the orchestration of the capabilities of the forces in a joint operation. Thereby 1+1 becomes 3. Establishment of military restricted areas on the ground and a blockade of the enemy's harbours could be the correct measures to support air superiority. Breaking down the definition also gives the preconditions to detail and balance the objective for A2/AD. Have you reached A2/AD in the air if the enemy still has the capability to launch ballistic missiles? Yes, to some extent, if you from the beginning e g include civilian bomb shelters to minimize the effects of the missiles and military restricted areas and checkpoints on the ground to hamper intelligence gathering that support the attacks. The ambition of the A2/AD can vary pending on the strategic objectives for the multi-domain operation.

Conclusion

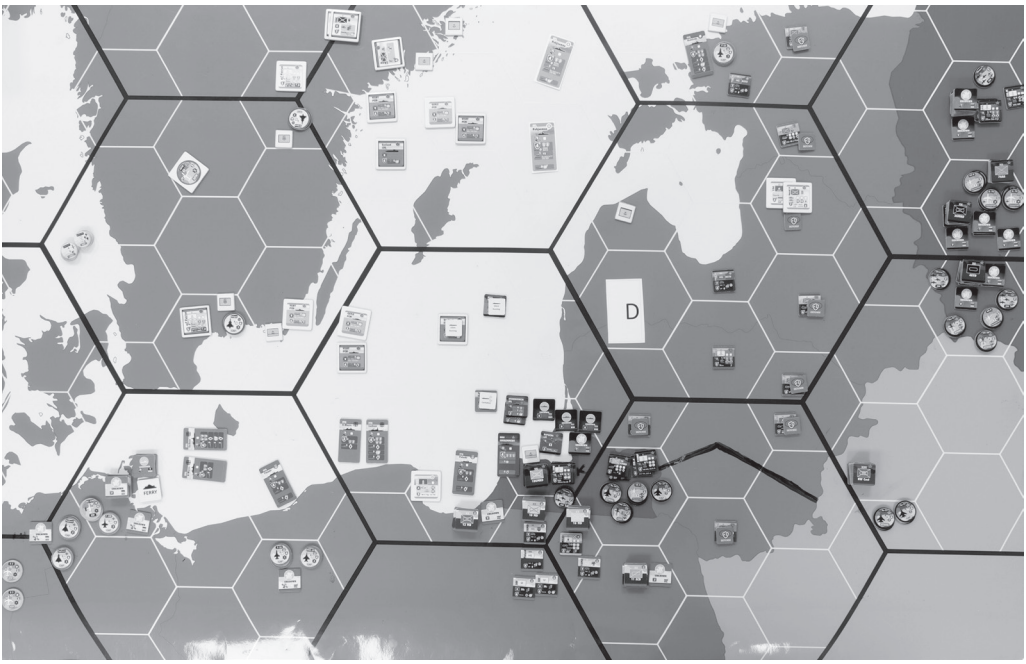
Breaking down the definition of A2/AD to interdiction zones supports the process to define why, where and towards what threat the A2/AD zone is established. It will set the ambition of the strategic objectives. Likewise, it supports the orchestration of the forces by the operational level and clarifies the integration needed at the tactical level.

Wargaming

With the support of the Swedish Defence Research Agency, we have conducted a war game using the Operational Warfare System (OWS), developed by USMC.

The intent of the game was to visualize a multi-domain operation with the objective to regain control over the Baltic Sea and the Baltic states, and if possible, falsify or verify our hypothesises.

In this scenario, Russia builds-up forces in Kaliningrad and in its Western military district. Belarus supports the Russian initiative with one armoured division in order to have



Picture 1: At startex – an escalated situation in the northern part of Europe (Graphics: Swedish Defence Research Agency).

a strong combined joint force. Russian Air Defence assets are very powerful, especially in Kaliningrad oblast. Russia has the initiative and the objective is to take control of the Baltic States and northern part of Poland.

NATO, with Sweden as a member, counter the Russian escalation by mobilizing all military forces in the Baltic states, Poland and Finland. Sweden contributes with approx. 30 percent of its air capabilities, including ground based air defence, 30 percent of naval capabilities and 1 mechanized brigade in Lithuania. Germany contributes with approx. 30 percent of its air capabilities, including ground based air defence, 30 percent of naval capabilities and 1 light armoured division in high readiness. The objective in this phase is to gain situational awareness in all domains and withhold the readiness needed to encounter further escalation.

Using all capabilities within assigned NATO forces will be sufficient to uphold the situational awareness in the theatre, but the precondition to succeed is integrated forces – combined and joint.

Russia attacks the Baltic States, with the intent of connecting Kaliningrad oblast with the Western Military District. NATO responds with an attack on the air defence systems in Kaliningrad. This strike is supposed to degrade the Russian air superiority. Initially sensors and C2-nodes are targets for NATO Cyber operations, EW-jamming and Special Forces.

The Russian forces are blinded and the neutralization of air defence units with Tomahawks and various land attack missiles cracks the Russian air superiority. All attacks are coordinated in time and space using capabilities from air, sea and land

forces in ground attacks – a combined joint operation.

The next step was to attack the Russian navy operating in the Baltic Sea using air, naval and land forces – again a combined joint operation. Actions taken force the Russian air force to retreat eastward. NATO ships and air forces can operate along the coastline in the eastern Baltic Sea, establish an own A2/AD-zone to support and protect the ongoing land battle with sensor data, naval gunfire support with artillery and missiles, combat air patrol and close air support to the land forces.

The air space over Kaliningrad Oblast is in practice under blockade and Russian naval forces are under blockade in Baltijsk. NATO has established an A2/AD zone in the Baltic Sea and in the air space over the Baltic Sea and in the western part of the Baltic states. The zone prevents Russian naval assets, manned and unmanned fixed and rotary wings but not ballistic missiles and not to some extent cruise missiles. Although, NATO's capability of situational awareness towards attacks of Russian ballistic missiles and cruise missiles has increased. NATO has an early warning towards the threat but cannot take actions to prevent the attacks of ballistic missiles and cruise missiles, including Russian Cyber and EW attacks.

Conclusion

Early actions to reduce the Russian capabilities on the ground to support their air superiority followed by advancing own forces air domain capabilities forced the Russian

Picture 2: Members of the Academy at D+2 – NATO A2/AD established (Graphics: Swedish Defence Research Agency).

forces to retreat. This gave the preconditions to establish an A2/AD zone, but not to the extent that it prevents all actions from the Russian forces. The Russian retreat reduces their capability to act with ballistic missiles and cruise missiles since the missiles now are launched 300-500 km further to the east.

Summary by bullets

The study of A2/AD in combined joint multi-domain operations gives the following conclusions:

- Multi-domain operations front modern warfighting and encounter a non-linear and unpredictable theatre.
- Combined Joint operations are key to fulfil the objective to control respective domain.
- Integration of forces and connectivity of information is key in combined joint operations.
- Define the ambition of the A2/AD zone – the perfect untouchable zone is just a theory.
- The enemy's capabilities need to be reduced prior establishing own A2/AD zone.
- Cyber, Electronic Warfare, PSYOPS etc enhance and complete all traditional effects on the battlefield.
- Sweden has capabilities and will have an increased palette the next coming years to contribute to A2/AD, but better coordination between the branches is a precondition for success.
- Allocate time for qualified exercises and increased training in all branches of methods and procedures of combined joint multi-domain operations, coordinate objectives, branches and functions by command through all command levels and increase readiness in all branches in order to have the preconditions needed for a swift encounter of all threats.
- The important field of endurance and sustainment remains to be analysed.

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