A Royal Norweign Air Force F-16 over the Balkans

Leadership in Air Operations –
In Search of Air Power Leadership

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Introduction[1]

'Stereotypes of air power leadership abound: air forces are undisciplined; they do not fight real battles; they are populated by a glamorous elite rather than real warriors; the higher echelons are remote technocrats who raze cities and kill civilians without compunction; and so on.'[2]
(Alan Stephens)

Some years ago, the Royal Norwegian Air Force Academy (RNoAFA) began talking about *Air Power Leadership*. Leadership itself was to be coupled with the characteristics of air power. The Academy was not only to be a centre for leadership within the Air Force, but a centre for *Air Power Leadership*. The term spread quickly and it has given rise to the names of modules at the Academy, as well as conference titles. Air Power Leadership is, together with air power, one of the Academy's professional competence areas.[3]

There have, however, been few attempts to define or discuss its contents. This article, which is far from defining the term definitely, should be read as a contribution to the search for a meaning of *Air Power Leadership*.The hypothesis put forward is that the characteristics of the leadership of air operations, comes from the nature of air operations themselves. In other words; the theory launched is that the environment in which air operations are conducted and the characteristics of air power influence the leadership of air operations to a great extent. This article is an attempt to test this hypothesis.

The article will only discuss leadership in air operations per se, and not how leadership is conducted in the daily business of administrating an Air Force. It will focus on how air operations are led. This does not mean that the points that will be made are not at all valid for the daily business of an air force not operating (e.g. training). As military organisations spend most of their time preparing for operations, they operate by training. If there is any validity in the expression 'train as you fight', many of the arguments will also be valid in training circumstances.

This operational approach to *Air Power Leadership* could mean that it is only meaningful to a few people within an air force. This is due to the fact that most people within an air force are employed in support functions, and therefore it could assumed that the arguments put forward here do not apply to them. Within an air force there are lots of categories of jobs. Most people are employed within the technical branch.[4] In the support structure, there are, amongst others, specialisations in positions such as administration, logistics and medical assistance, but people in these functions rarely have any direct part in air operations. The reason for the focus on air operations is that I have not been able to find anything within air force support functions that separates them from support functions elsewhere, demanding a separate term for such leadership. The reason could be that I have limited insight into support functions. It can, however, be argued that all branches within an air force will be formed by the specifics of air operations, at least to such a degree as an air force's leader is able to influence the organisation. This is, of course, due to the fact that almost all of the leading members of any given air force, at any given time in history, come from the operational parts of that air force – air force leadership is dominated by pilots.

The term *Air Power Leadership* indicates that there is something special about this kind of leadership - if not, the term would have no meaning at all. Something has to separate Air Power Leadership from, for instance, Sea Power Leadership. It is a possibility that it is the author's belief, rather than knowledge about the other services, that forms the arguments. I am quite familiar with air operations, but not with its counterparts on land and sea. It could therefore be stereotypes of the other services that are compared with air operations.

It is not the aim of this article to try to define all the characteristics of *Air Power Leadership*, or everything that possibly makes it a special form of leadership. The aim is rather to discuss some central aspects which can make the term a helpful one. Therefore as many points as possible are discussed, and depth is neglected in favour of breadth of perspectives.

What is (Military) Leadership?
The command of military operations, hence also air operations, can be split into two separate, but connected parts, based on Martin van Creveld's analysis of the term 'Command':[5]

- *Generalship*, which is about how to employ military power in operations, mostly to influence an opponent or win a battle of a war. *Generalship* is all about choosing courses of actions to employ the forces at the commander's disposal to reach the goals stated for the operation. *Generalship* is theorized through military theory. A basic theory on how to conduct good *Generalship* is, for example, the manoeuvrist approach.
- *Leadership*, which is about how to make sure that the commander's subordinates (both units and personnel), behave in the best manner to reach the goals of the operation. In military language this is termed Command and Control, or C2. A basic theory on how best to conduct *Leadership* is, for example, mission based orders.

This division is often visible in the curricula of Military Academies, and also in their organisation. At the Royal Norwegian Air Force Academy we have two branches; one for Air Power and Technology (mostly *Generalship*), and one for Leadership and International Studies (mostly *Leadership*).

Although this division of the function of a military commander shows that it is possible for analytical purposes to divide it into two main parts, the terms *Generalship* and *Leadership* are interconnected. Good *Generalship* without good *Leadership* would for instance be almost meaningless; it does not help if the commander knows where to go – if nobody wants to follow him there.

Literature
Many books and articles exist on military command and leadership. Most of these are land centric. As is in most fields of military theory, the Army and its perspectives are in focus. Most of the texts that try to couple air forces and leadership are general theories of command or leadership written by or for air force officers. Such texts are not very relevant for this article.

There is, however, some literature that focuses on the specifics of air operations and leadership, but almost exclusively on the experience of pilots or aircrew. As the

Canadian Colonel Randall Wakelam has written:

'If we are to understand the 'leadership perspectives of aerospace power' then we must first understand the human condition in aerospace combat: we must understand the aviators' experience.'[6]

Such a perspective is too narrow. *Air Power Leadership* is not about the pilot's experience alone, it is about how to develop good leadership when one's forces are operating in the medium of the air; when they are using air power and *Air Power Leadership* is conducted. This article, therefore, seeks to embrace all parts of air operations, not just the aviators' view.

A search for literature on this topic also reveals that little has been written on leadership within the larger air forces, at least compared to their counterparts in the Army. Neither the Royal Air Force (RAF) nor US Air Force (USAF) has their own doctrine on leadership. This is, however, present in both the British and US Army. In Norway the situation is almost the opposite. That does not mean, however, that the Royal Norwegian Air Force has thought more about *Air Power Leadership* than the RAF or the USAF.

The Leadership 'bible' in the Norwegian Air Force is a good textbook, but it is a book on general principles for leadership and is valid for all the services, if not almost for all kinds of organisations.[7] Consequently, the book is also used by civilians.[8] This does not mean that it is a bad book on leadership within an air force. It only means that it does not go far enough in developing the specifics of air power leadership.

AIR POWER'S BATTLE ENVIRONMENT

Air power can be defined as follows: *'Air Power is the military use of systems operating in or passing through the air space.'*[9]

Air Power's battle environment is, of course, air space.[10] Air space is characterized by free movement in three dimensions, which gives air power access to all locations on the surface of the earth. Since man can't fly, air power is dependent upon technology and platforms. This means that the design of those platforms is essential for the exploitation of air power. As man learned to build platforms which could fly, a lot of the limitations on movement on either land or on or below the sea disappeared. This is symbolized through air space's status as almost everyman's land. Of course, nationally controlled air spaces exist, but their borders are usually not as rigidly controlled as similar boundaries on land or at sea. Air Power's flank in this perspective is the earth's surface. Air power's environment gives very low friction on objects moving through the medium of air. This gives these objects the potential of reaching very high speed. Speed is crucial to understanding air power's characteristics.[11]

The Characteristics of Air Power
What can be termed the characteristics of air power are functions of the environment in which it operates. The following three basic characteristics are usually mentioned:

Height is almost exclusively seen as beneficial to any given military operation. Height gives overview of the surface, and therefore observation was air power's first mission. From an elevated position, one has the ability to observe and dominate the happenings on the surface of the earth.

USAF KC-135 tanker refuels an F-16 Fighting Falcon over Iraq

At the same time, height has its limitations. The resolution of the area observed diminishes the higher the observer is situated, and some of man's senses becomes almost meaningless as tools for interpreting a situation. When a man or his camera are positioned 20,000 feet above the ground, one can neither smell nor feel the things observed.

Air space allows extreme speed because of the near lack of friction and other physical obstacles. Air power therefore has the inherent capability of quick power projection, humanitarian relief or reconnaissance, to name but a few potential capabilities. Because of high speed, several different missions can be conducted in a relatively short period.

Reach: About seventy per cent of the surface of the earth is covered with water and thereby about thirty per cent by land. One hundred per cent is covered by air. This gives air power unique access to the entire surface, as well as the air space surrounding it. This access is almost indifferent to terrain. The dependency upon platforms, however, means that time is a limiting factor, since all platforms use some kind of fuel, which, sooner or later, runs out. This limitation can of course be compensated for by technology, where air-to-air refuelling is the most obvious example. When air power's speed and range are coupled, the USAF's vision of 'Global Vigilance, Reach and Power' is attainable.[12]

AIR POWER LEADERSHIP – AN OPERATIONAL PERSPECTIVE

This main part of the article will discuss how air power's characteristics form the leadership of air operations. The discussion will be separated into the following seven perspectives:

- Large area of operations
- Few in battle
- Flexibility
- Tempo
- The two command chains of air Operations
- Technologically dependent
- Competence versus rank

Large Area of Operations

Air power operates within potentially very large areas at any given time. This does not mean that air power is everywhere always, but it has a potential to cover a large area within a very short time space. This wide area creates both a physical and a mental distance which again can create a kind of alienation on many different levels. It is that alienation that will be discussed here.

Distance between the leader and the led. This proposition is obvious. At its most extreme is a fighter aircraft with a single pilot. He or she is almost always flying in a formation, and that formation is led by one of the pilots in that formation. Additionally, the formation can be led by an airborne Mission Commander in another fighter aircraft, from an AWACS,[13] and/or from

a controlling agency on the ground or in the air. No matter which of these command arrangements are used for a particular mission, the leader and the led will under no circumstances during a mission have any chance of face-to-face contact. This means that Air Power Leadership is extremely dependent upon technology. Communication is normally conducted by voice through radio or digitally through different link formats (text, maps, other display information etc.). A first conclusion is therefore that leadership of air operations is performed by people who do not see their comrades, and mainly through formatted communications, either by voice or digitally.[14]

In addition, the language used within NATO is code words in English, and there are limitations with regards to communication beyond this operational language. The air operations language saves time, but is very rigid. In this perspective, *Air Power Leadership* is leadership through formatted messages in a hybrid English language through the aid of communications equipment and computers.

These tools for leadership also enable the person at the very top of a system to speak directly to a certain party at the executing level. There is nothing that hinders any given general from leading a formation of fighters himself, or from directly guiding the operations of a single Ground Based Air Defence (GBAD) Fire Unit. Such leadership, which can be seen as centralised control and execution, and is actually disconnecting or bypassing several levels of command, has also been the case from time to time. During the Kosovo War of 1999, it was not unusual for single aircraft on important missions to be directly led by a General or a Colonel within a Joint Air Operations Centre (JAOC), a disconnection of at least two levels of command.[15]

Procedures and changing command arrangements. Those who are leading air operations at different levels are continuously rotating positions with other people. The reason is, of course, the need for air operations to be led 24/7. This means that the individuals within any given command chain, especially at the lower levels, do not know exactly who is going to lead the upcoming mission before they 'meet' this person through voice or link communications. A combat pilot, for instance, will normally know only the unit which will lead his next mission, not who in that unit that is actually going to execute it. On an offensive sortie to support ground operations, they will seldom know the Forward Air Controller (FAC) they will have to trust when they are release their weapons under the FAC's guidance. Personnel, who work together in teams during air operations, airborne or on the ground, may never have met physically, and there is quite a good chance that they will never meet.

Let me give an example from my own operational background, GBAD operations. On several occasions during my service at Bardufoss Air Base[16] we tested command chains different from the normal one for our GBAD Battery. We simulated that our 'boss', Control and Reporting Centre (CRC) Sørreisa, had become non-operational. Foreign units with the capacity to command GBAD units took over its role. Most of the time these were American, either US Army or USMC. Thinking back, the most astonishing fact was how

well the change of 'boss' actually went. Suddenly, as a Tactical Control Officer of the HAWK system, I was being led by an American whom I had never met. And we performed quite well.

The E-8C Joint Surveillance Target Attack Radar System (Joint STARS) is the only airborne platform in operation that can maintain real time surveillance over a corps-sized area of the battlefield. A joint Air Force - Army program, the Joint STARS, uses a multi-mode side looking radar to detect, track, and classify moving ground vehicles in all conditions deep behind enemy lines

The main reason for this was the existence of NATO common procedures. These were not created for the purposes of interoperability; the reason for having them is tempo (a factor which soon will be discussed). We are therefore most probably discussing a side-effect of the procedures, because they enable quick changes in command arrangements. From my position I worked closely with different Americans from time to time, but I never met a single one of them face to face. The trust which has to be created between the leader and his subordinates had to be made through other arrangements than traditional leadership teambuilding events. My feeling of trust was gradually built up, as I realised through experience that these unknown Americans actually knew what they were doing. Professional confidence through professional execution of procedures and the issuing of relevant orders created the bond between me, as a subordinate, and an unknown American soldier. Knowledge of and the right use of the language and procedures of GBAD operations created the trust, because that was our mutual reference point.

The point is, again, that the leadership of air operations is not personal leadership; it is leadership through procedures, and the human environment surrounding any given unit or pilot, will change continually. You will not know for certain who your leader will be on any given day.

Distance between the violator and the victim. This argument seems to have been amplified through the development of more precise weapons that can be delivered further away from the target than before. This is, however, not the case. Some types of air operations have always used height as a central security measure, and therefore the perpetrator has not witnessed the devastation and havoc created. Think of German or Allied Bomber pilots during the Second World War, on missions over Britain, Germany and Japan, who in great formations devastated whole cities, and the argument is obvious.[17]

The visualisation of targets for the pilot or operator enhances this distance. A person who kills from an aircraft rarely sees anything but a crosshair on top of an object, or a sign on a mapped computer screen. The objects, or targets, are dehumanized through these visual presentations. The so-called 'Highway

of Death', where Coalition forces destroyed Iraqi Forces fleeing Kuwait in 1991, looked quite different within the JSTARS[18] than it did on the ground.

This dehumanization is somewhat modified by the increasing use of optical and heat-seeking sensors and weapons, where the operator in some instances can see his or her target. But an air operator mainly sees the targets through some sort of technology while the eyes are the prime sense in action. In addition, air power seldom attacks personnel directly. Mainly, it is used to attack infrastructure and equipment, where people may be present, but rarely visible on the operator's screen.

The main change since the Second World War is the relationship between the operator and the responsibility for his actions. During the Second World War it was unusual to hit anything with precision; so misses were tolerated. Today, however, the technology to ensure precision is available. Episodes of collateral damage cannot be explained through the lack of precision anymore. If you do not hit what you are aiming at in modern air operations, the perception is that there must have been a mistake, or technology has failed. The responsibility for one's actions has, therefore, increased as a result of better precision, although this still does not mean that suffering inflicted has to be confronted.[19]

Together, this physical and mental distance can create alienation and a form of cynicism regarding the killing of other human beings, mainly because of the lack of sense of the havoc one is creating.

Linguistic objectification. Another aspect of air operations is that the language used creates even further distance from what actually happens. As Berit von der Lippe has commented, this makes people almost invisible in the language, which, according to von der Lippe, 'can […] be seen as a symptom of letting the weapons speak on the behalf of humans.'[20] Von der Lippe takes her examples from the Norwegian media's coverage of Norwegian pilots operating over Afghanistan, in which it is stated that it was 'routine for the F-16 in Afghanistan'[21] or that the 'aircraft has not been fired at.'[22] Human beings rarely play an active part in air force language; objects or equipment are at the core. We say or write that 'The F-16 dropped bombs', as if that were the responsibility of the aircraft. 'Now the aircraft can communicate with each other', it was said when JTIDS (LINK 16) was introduced. This is, according to von der Lippe, a dangerous objectification of our business. In addition, the language gives human life and responsibility to our equipment. The earlier mentioned code words enhance this effect. The language of air power enhances distance and contributes to the creation of an almost virtual world.

Michael Ignatieff has termed the Kosovo war in 1999 a Virtual War, because that war increasingly seemed to turn war's violence into something virtual, at least for western forces and people.[23] Air power is an especially and increasingly virtual form of warfare. Air Power Leadership is therefore a somewhat virtual form of leadership. The distance between the commander and his subordinates and the psychological distance created by the fact that they seldom see each other, create an imaginary distance even greater than the real distance, as Stuart R. Boyd states in a splendid article: 'High tech can be impersonal.'[24]

One may ask how such leadership can work at all, given that many authorities on the subject of military command explain that one has to be present in person to exercise the necessary authority to send men into battle. To be present means to signal you are also willing to die. John Keegan's conclusion in his widely acclaimed The Mask of Command is that authority is a function of the willingness to accept the same risk as others:

'The first and foremost imperative of command is to be present in person.'[25]

The lack of the commander's presence is probably not particular to air operations; this is more an expression of a wider change in the nature of military command, from leadership in person, via Napoleon's command position on a nearby height, to to the command centres of today, which may be positioned in another part of the world.[26] However, in air operations this 'rule' is not broken because of hierarchy, where the rule is that the higher the position, the farther away from battle you are located, but because in air operations, the distance from the battle is mainly a function of your job within the system, not necessarily of your hierarchal position.

Few in battle

In air operations few of those who participate are brought into battle on purpose. If you only count those who take risk as part of your own plan and not those who happen to find themselves in dangerous situations due to enemy action, the number becomes even lower.[27]

This point is based on a small folder issued by the RAF on 'Leadership' during the Second World War.[28] It states that: 'In air warfare, only a very small proportion of the force ever fights.'[29] This can, of course, be valid in other services; a saying is that war consists of ninety nine per cent waiting. What is a special feature of air operations is, however, is that only a very small percentage of the participants engage in combat as a planned activity, the rest only use their weapons if the enemy does something to trigger them.[30] It is possible, of course, to argue that rear areas (air bases, for instance) can be attacked. But the argument remains. Few are brought into harm's way on purpose – the rest will only participate in battle if the enemy enforces battle upon them. This argument is well illustrated by the relationship between GBAD and an aircraft on a Suppression of Enemy Air Defence (SEAD) mission.[31] The SEAD-pilot and the GBAD Tactical Control Officer (TCO) have opposite challenges. The pilot chooses the time, to a certain degree the place, but is in the battle zone only for a very short period of time.[32] The TCO chooses the place, is in principle in a battle zone all the time, but does not know when that zone will turn into a dangerous place because of the entry of the aircraft on a SEAD mission.[33]

The argument is also illustrated by the Norwegian F-16 detachment to the Kosovo War in 1999. There were about 180 personnel stationed in Italy to operate four operational aircraft, while it was mostly only two aircraft, with a pilot in each, that flew in the battle zone. Accordingly, only two of a total of 180 men and woman at any given time took risk as part of any NATO plan, the rest were only to fight if the Serbs attacked them, which was highly unlikely.
The RAF folder also claims that this aspect of air operations is one of the

A USAF F-117 Nighthawk and F-15 Strike Eagle formate on a KC-135R Stratotanker during Operation IRAQI FREEDOM, April 2003

greatest challenges for an air force commander:

'With a part of his command filling one of the safest war jobs, and another part one of the most dangerous, the Air Force commander has to blend the two into a single smooth running machine, with that soundness of purpose which can come only from mutual confidence and trust.'[34]

Air power assets usually operate from safe bases, its command facilities are usually very safe, and only the pilots and crewmembers take any risk, as they enter the battle zone. In addition, only a few of those take a high risk, as most aircraft in modern air operations support the combat aircraft from a distance, and hence do not have to move into any risky areas.[35] This point is emphasized by the fact that most aircraft moving into such high risk zones only stay there for a very short period of time. In air operations one normally flies from a safe base into a battle area and then back again when the mission is over. Those who take risk are in a constant and almost daily movement from peace to war to peace on a continuous rotation. William Lind, in a lecture given at the Norwegian War Academy a few years ago, stated that the Kosovo War was a perfect pilot-war. They could get out of bed a bit early, get their mission briefings, do their planning, fly their sortie with relative little risk, and be on the ground early enough to make the bar opening at the beach hotel in Italy at night. This description is exaggerated, but it illustrates the argument; in air operations few are brought into battle on purpose, and even they do not stay in the battle zone for very long.

From this point several interesting questions arise. What does this fact mean for the organisation as a whole; that only a few of its personnel take risk on purpose? What does it mean for those who 'travel' back and forth in these operations, between peace, war and peace again in a few hours? What does it mean for the leaders of such operations, who seldom risk anything, even at quite low levels within the hierarchy? Does this situation create the elitism which is such a profound part of air forces? The elitism that states that elevates pilots to primacy in status? Is this why most air forces are led by pilots? Most air forces emphasise this as one of their central leadership features: the pilots are the leaders. In Alan Stephens's words:

'The mystique of the pilot has loomed large in shaping the nature of air forces and therefore, their leadership style.'[36]

It is also possible that the elitism stems from the sheer human fascination for flight, a fascination pointed out by many writers.[37] We admire these brave men – and a few women – in their fast jets and other scary-looking aircraft, such as attack helicopters. There still is a mystique surrounding pilots, some writers characterising them as superhuman.[38] Even internally within

the pilot milieu – and especially within fighter squadrons – an elite factor is established, what can be termed as the 'hot-rod factor.' The splendid portrait of a pilot during the First World War in Rowan Atkinson's TV series *Blackadder*, named Lord Flasheart, and portrayed as a complete stereotype, is worth mentioning, since he has become a hero for young pilots![39]

If this elitism comes from the fact that some take risk while others don't, it could be considered fair. If this is the case, the elitism is a kind of code of honour, where those of us who take less risks or no risk at all, accept that those who take risks represent the elite. Based on this view, it is not strange that combat pilots are the elite, and thereby also the leaders of their air forces.

War for a western combat pilot seems, however, to have changed rapidly since the end of the Cold War, especially when it comes to risk. In the Kosovo war in 1999, not a single NATO-pilot lost his life due to enemy action. In today's wars, air operations seem less risky than ever before. Is it still then reasonable that this elitism exists, or is it a historical anachronism?

The development of Unmanned Aerial Vehicles (UAV)[40] also challenges elitism. If nobody flies in the future, who should then be the elite? The development of UAVs poses several questions. Firstly, who is to pilot them? Different air forces have sought different solutions to this question. While in the USAF, the operator has to be a regular pilot first and then qualify as a UAV pilot, in the US Army no prior pilot training is required. Another question, although not imminent at present, is who will be the commanders of the pilotless air force of the future? If the combat pilots disappear, who will be the new elite of air forces? The UAV controllers? If the theory about the elitism of air forces coming from the willingness to take risk is correct, elitism may even disappear, since UAV controllers do not take risk at all. To quote Alan Stephens once more:

'In short, being a pilot will not necessarily be a prerequisite for aerospace command; nor, indeed, might it even provide the most suitable apprenticeship.'[41]

Flexibility

Air power's flexibility is seen mostly through its multiple areas of use. Probably one of the most flexible of air power platforms is the modern fighter jet. The name of the Swedish modern fighter, JAS Gripen, where the Swedish acronym JAS means Hunt (fighter), Attack, Reconnaissance,[42] illustrates this. In addition, the reach of an aircraft means that its possible use within each of the categories is plentiful. The flexibility of air power is therefore created through its reach, although this must be coupled to speed. If each of the three categories mentioned above has a hundred potential 'targets' in one sortie, then you have three hundred possibilities for the use of that aircraft alone. Reality is, of course, usually more complex than this suggests.

Phillip Meilinger has claimed that 'Airpower Is an Inherently Strategic Force.'[43] If that is the case, do air power leaders need to be strategic analysts? The targeting process is of course central to this issue.[44] Since air power has such flexibility, and since its force can reach any conceiveable point on the earth's surface, some claim that air power should be used to target the enemy's centres of gravity directly, without

going the indirect way via their armed forces. If this view is correct, Air Power Leadership does not only demand the ability to analyze the enemies military capacities, and how he can be compelled to give into our demands by attacking that capacity, but also the ability to analyze his society, to try to conduct what are usually termed as strategic air operations. Air power has the potential to hit almost everything within a given society. If air power is a strategic tool, is it then correct that a combat pilot is the right one to lead the analysis of an enemy's society? It is still a mantra within most air forces that this is the case. To quote the Canadian (then colonel) Brett Cairns:

'*History has shown, on many occasions, that leaders from independent air force organizations who have had airborne leadership experience and specialized training in a wide range of aerospace operations at the tactical, operational, and strategic levels were generally best able to exploit the flexibility and capabilities of aerospace power.'*[45]

Cairns does not present any empirical data to support his point, and such data probably does not exist. He can, however, be right in asserting that one has to have the same experience if one is to lead operations (Leadership). In Norwegian fighter squadrons, it is axiomatic that the squadron leader has to fly himself, if not he or she is not deemed fit for the job. Maybe this is because the leader has got to show willingness to risk something? Or is it because the leader has to know every detail about the operations by means of updated personal experience?

In spite of this mantra, it is by no means clear that the choice of pilots as the leaders of air operations is perfect when it comes to the targeting part of that operation (Generalship). Air power has often been used to attack societies and structures within societies, often to deter an enemy from pursuing their goal. This requires in-depth analysis of an enemy's society. Is a fighter pilot best at doing such an analysis? It is hard to believe such a proposition. It could be that different analysts of societies, such as political scientists, social anthropologists, sociologists or even psychologists at least ought to be consulted in such an analysis. Maybe a political scientist is better educated and trained to perform this task?

Tempo and Speed

Air power is almost synonymous with high speed. The sheer speed of the platforms creates a focus on fast decisions. This demand for quick decisions is best shown in defensive air operations. The personnel operating the means for air defence seldom choose the time when they have to defend their airspace from hostile intrusion. The timing for an active defence is decided by the enemy and not by the defender. It is the attacker that chooses the time (and place), and for that very reason, he is able to plan in more detail than the defender. In defensive air operations, there exists a demand for second to second leadership, shown through the extensive NADGE-system[46] built throughout Western Europe during the Cold War.

Consider, for instance, the situation boards within a joint headquarters. In the centre of such a headquarters, one usually finds at least four operations centres, one for each service, and one joint centre. While the people leading air operations are hardly satisfied with an air picture that updates itself every

ten seconds, those in the maritime cell are happy with a four hour update. Although this difference is partly due to the relatively tight control of air resources from a high level, the difference also says something about the operational speed of air operations versus maritime and land operations, and therefore also about the demand for quick decisions.

Thus it is the speed of air operations that creates the need for quick decisions. A tactical director of an air defence system may do almost nothing for several days, and then have to make several decisions within a twenty to thirty second period. He is going to base his situational awareness on several sources of information, and be the final arbiter on whether or not a target is to be shot at. Air defence operations, because of the demand for quick decisions, are extremely focused upon procedures and drill. In addition, the language mostly consists of specialised code words and acronyms, so that the personnel operating together who are connected via voice communications systems are able to understand each other quickly. Decisions are taken almost simultaneously with the action itself. This demand for rapid decisions may be valid for all services operating in different mediums on a tactical level, but the updating time on the air operations situation in the joint headquarters shows that this pressure also exists in the higher levels of command in air operations.

A lot of the technology within communications and information equipment is developed to let the operator decide on options more easily and quickly than before. This technological development tries

US Air Force MH-60G Pave Hawk helicopter takes off from Tallil Air Base, Iraq

to create near-perfect situational awareness. My personal experience, though, is that automation, although creating speedy decisions, and especially in such a fractionated environment as military operations, has certain limitations, and that one therefore needs to think carefully before leaving too many substantial decisions to the machines.[47]

The need for quick decisions in air operations has not been so acute for western air power during recent years. Because of the technological and numerical superiority of western air forces, especially the USAF, over any enemy since the end of the Cold War, the demand for quick decisions in air defence operations has been somewhat reduced. During the Kosovo War, and the wars in Afghanistan and Iraq, western air forces have been so superior that they have quite easily established air superiority, at least at higher altitudes. Thereafter the aircraft have been operating relatively unhindered. Since air power is often used to target non-mobile targets, this superiority in the air means that a lot of operations can

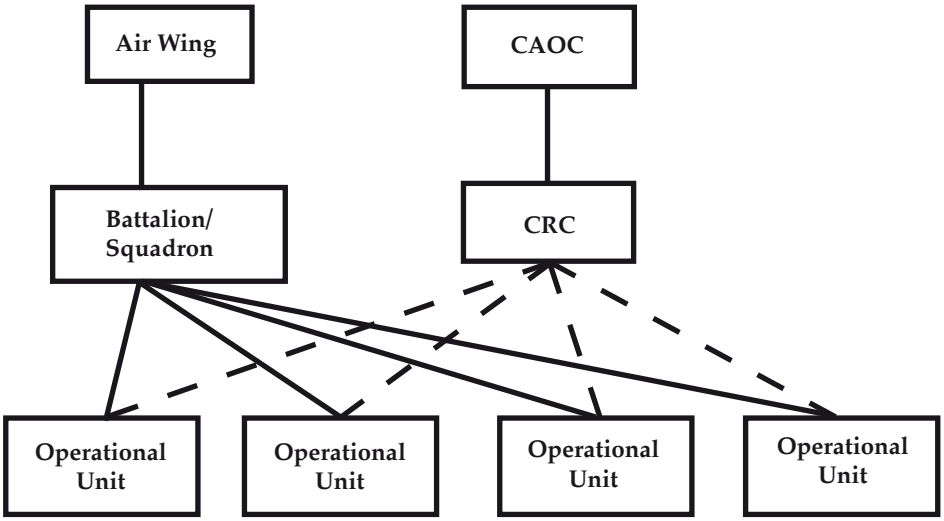

Figure 1: The two command chains of air operational units

be planned to a very detailed level and conducted as planned.

At the same time, the focus upon Time Sensitive- or Dynamic Targeting points in another direction. The sole purpose of this development is to shorten the time span between when target detection and attack. Quick decisions in a dynamic environment are therefore a feature of leadership in air operations, although some are carefully planned and even conducted accordingly.

The two Command Chains of Air Operations

Personnel, who have responsibilities in the midst of an air operations command chain,[48] are for the most part only responsible for producing combat-ready units and placing them in a position in which they can fight. The operational commander at this intermediate level is rarely the one who leads his or her unit into battle. When the aircraft or the air defence system he or she commands on a daily basis actually operates, they are not under his or her command. Instead, they are led through a second command chain. This second command chain could be termed operational command,[49] and is usually represented by some sort of minute to minute detailed command function.[50] When the battle systems of air power operate, they are being commanded through this operational command chain. In Norway this is normally done through one of the two Control and Reporting Centres (CRC), which again are commanded from a Combined Air Operations Centre (CAOC).

The point is that the regular commander is not part of the command chain when the unit is operating. The operational units are not led by their 'normal' commanders in the most critical of tasks. Combat aircraft are, for instance, controlled directly from a CRC or an AWACS.[51] The same is true for GBAD-systems. This means that operational air

units have two command chains. One of them could be termed regular or daily command, and the other, as already mentioned, operational command. This is illustrated in figure 1. The solid lines represent the regular command chain, while the broken lines represent th operational command chain:

This divided command chain can, of course, create tensions within the larger organisation. From my own personal experience with GBAD organisations, this is a familiar problem. The Battalion Commander and his staff have often been criticised for being too occupied with logistical and personnel problems (their responsibility), and not concerned enough with the real function of the GBAD-systems; to defend a certain air space.[52]

Technologically Dependent

Air power is power projected through technology. Air operations are not possible without technology. Neither is flying, for that matter. Some thinkers claim that this fact has had a marked influence on air force culture.[53] Phillip Meilinger uses the museums of the various military branches as an example. In an air force museum, the primary focus lies on technology, while in an army museum, the focus is placed on people, through the soldier's clothing, equipment and so on. He claims, without further specification, that this shows that air forces have a fixation on technology.[54] Machines rather than people are at their core.

Technological dependency certainly contributes to creating a large and specialised logistic apparatus. As Martin van Creveld has pointed out, the technological level creates a greater need for specialists with regard to the purchase, utilisation and maintenance of new technology.[55] One might argue that the opposite effect is possible – the launcher in the new weapons systems NASAMS is, for instance, a lot easier to use than the older and less sophisticated launcher in the HAWK-system, simply because one needs to understand less about the new system to get the job done. It seems that some specialist functions are becoming easier while others are becoming far more complex. In this respect, it might be useful to differentiate between those who are developing high-tech machinery (engineers) and those who are actually utilising it (operators).

An organisation is less flexible if it employs only specialists who are extremely good in their own fields, but know little or nothing about other fields, thereby becoming dependant upon others to get their job done. Staff rotation is no longer possible during an operation. A technician has never been able to step in for a pilot on short notice (or vice versa), but the increased number of specialist functions creates a far more complex image. The interesting fact in this respect is that *Air Power Leadership*, even at a relatively low level in the organisation, is the leadership of specialists, and the leader is usually not the first among his peers in all situations. The question is how does a leader make a large number of specialists all pull in the same direction when the leader is not even familiar with the competence of his subordinates? This leads to the question of what kind of leader air force organisations need – the generalist or the specialist? Depending on the answer one might give, the leading position of pilots and especially fighter pilots in most air forces could be questioned.

The potential paradox between science and the art of war is another interesting aspect of the technological dependency of air power. Any air force organisation is highly dependant upon the use of technology, and is therefore likely to develop what one might call a technological culture, where the term technology must be interpreted to refer to Maths and Physics. The distinguishing feature of such a culture is that any given input always leads to the same output. Military theory, however, often claims that the central way to victory in war is the creative leader. The leader must be in possession of creative *generalship*, to use the terminology introduced earlier in this essay. Such creative *generalship* is often referred to as the art of war.

Dennis Drew has pointed to the existence of a tension between science and the art of war, as the training of officers in an air force organisation mostly consists of repeating various drills and making sure that these are carried out flawlessly.[56] Drew claims that for most officers the main focus is on drills and checklists during the early years of their career. This becomes apparent during active operations, as all air power operations are conducted with a high degree of control. Even though it is the pilot or tactical fire control officer who is in charge of running the operations at their level, there is generally little room for individual action in the low levels of a command chain. This is also shown through the way that air force troops get their orders. Not only are the orders given in a particular format, which in itself is a sign of strict control, but the content is also usually fairly detailed, even though this may vary from order to order. The standard format saves time, but creates rigidity. At some point in any officer's career, however, this checklist-dominated approach to operations must be replaced by the flexible and creative powers that constitute good generalship. It must be noted, however, that from the point of view of the superior west, air power operations have lately been more about good organisation or officialdom – military bureaucracy - than the art of war. To end this argument, a quote from the original source states:

'How can airmen develop the Clausewitzian mindset required to fully exploit airpower's unlimited employment options when so much of their checklist-dominated professional training has conditioned them to think otherwise?'[57]

It might be claimed, however, that the safety created by the drills and procedures underpins creativity. Arent Arntzen claims that confidence in routines makes it possible to be flexible and that confidence in the basics is among those things that make creativity possible.[58]

Competence Versus Rank[59]

On the lower levels of the command chain, primacy in air operations is usually not decided on the basis of rank, but rather by the officer's competence and the position he or she is currently holds. In aircraft where there is more than one pilot, this might, in extreme cases, mean that a second-lieutenant is commanding a major. The same situation arises every day in GBAD-operations and in fighter plane formations. Air forces are characterised by a distinct checkout-culture, where all operators have to go through several checkouts in order to prove their ability to fill a certain function or position. In air operations competence outranks rank.

The two command chains of air operations enhance this point, since the one issuing commands and orders to aircraft and GBAD-units can have a substantially lower rank than the ones he or she is ordering. One might surmise that this focus on competence and position instead of rank leads to a situation where rank does not mean much. At least, that is what we in the Air Force like to believe. This point is also underlined by the findings in Are Syversen's Masters thesis' on the cultural differences between the three services of the Norwegian Armed Forces, where he finds solid evidence that rank means less to air force officers than their Army equivalents.[60]

Operator and Leader

It is an interesting feature of air operations that pilots keep on flying, although they rise in both rank and age. It is quite common that Lieutenant Colonels and Majors not only are leaders, but also operational pilots. In a fighter squadron this is not only seen as a given, but is viewed as a necessity, since that is the only way a leader can understand the challenges facing the operators. As Alan Stephens writes:

'The contrast with armies and navies is conspicuous: in surface forces, combat arms officers (other than pilots) are occupied primarily with directing the activities of others from the time they graduate.'[61]

This perspective creates a twofold demand of competence among air force leaders. They need both the technical skills and the leadership skills. A battalion commander within the infantry, normally also a Lieutenant Colonel, does not need to be the best infantryman (any longer), since he is, first and foremost the leader of other infantrymen. In air operations, it is expected that you can fill both positions when you are commanding a squadron.

SUMMARY

The article illustrates some aspects of *Air Power Leadership*, through an examination of how air operations are actually conducted. The hypothesis was that the battle environment and basic features of air power shape the distinctive leadership characteristics of air operations to a substantial degree.

The term *Air Power Leadership*, if it is to have meaning, demands special features - if not, we do not need the term. The article discusses some special features, but it should be stressed that the arguments given are far from comprehensive. The factors which have been discussed do, however, enhance the possible truth of the hypothesis that it is the characteristics of air power itself that demand a particular brand of leadership for air operations.

These characteristics are a product of the factors of height, speed and range, which form the basic analytical tool when explaining the difference between air operations and land or maritime operations. Because of the great range and speed of air operations, they must be led, commanded and controlled in a different way than land or maritime operations. Amongst other things, this leads to a technologically dependent and almost virtual form of leadership, where the commander at different levels and the subordinates do not even have to know the names of each other.

In addition, the flexibility of air power creates almost innumerable possibilities for the use of each platform. At the same time, the number of platforms is

not unlimited. This leads to centralised leadership where the possibility of creativity and maneuvrism in the lower command positions is quite low. The range of air operations creates the possibility of attacking an enemy almost anywhere. Air power has the ability to attack targets that may have major strategic or political effect, at least in theory. Such targeting demands political and social insight, an insight which may not be automatically incorporated into the leader of air operations, who normally is a (fighter) pilot.

Last, but not least, the command chains of air operations create a certain mental flexibility within air forces which may be greater than one might expect in a military organisation. From personal experience, it should be added that the hierarchy within the civilian enterprises where I have been employed has been far more rigid than within the RNoAF. This could be a function of the flexibility with which air forces practice leadership, a flexibility we seldom reflect upon. For example, it is extremely difficult to explain to an Army officer that combat aircraft are not led by the squadron commander on operations - such flexible command arrangements are simply not a part of his or her normal way of conducting business.

On the basis of this analyisis then, the term *Air Power Leadership* is a necessary description for a distinct and unique approach to command, driven by the peculiar characteristics of the air environment.

Notes

1 A Norwegian version of this article is printed in C. Moldjord, A. Gravråkmo and H. Nordvik (Ed.), Militær ledelse og de menneskelige faktorene (Trondheim, Norway, Tapir Akademisk Forlag, 2005) ('Military Leadership and Human Dimensions')

2 A. Stephens, 'Command in the Air', in P. W. Gray and S. Cox (Ed.), Air Power Leadership, Theory and Practice (London: The Stationery Office, 2003), 3

3 Luftkrigsskolen, Luftkrigsskolens strategi (Trondheim: Luftkrigsskolen, 2002) ('The Strategy of the Royal Norwegian Air Force Academy')

4 Within the RNoAF most technicians are not organised within the Air Force, but as a part of the Defence Logistics Organisation. They are still, though, the main personnel body of any air operation.

5 M. van Creveld, Command in War (Cambridge, Mass.: Harvard University Press, 1985), 6. Creveld does not use the same terms as I do here, although the parts of Command are equal. Creveld uses the term "output-related" for what I have termed Generalship, and the term "function-related" for what I have termed Leadership.

6 R. Wakelam, 'Aerospace Power and Leadership Perspectives: The Human Dimension' Canadian Military Journal (Autumn 2003), 17-24, quote from 17

7 Luftforsvarsstaben, HFL 400-1, Håndbok i Lederskap for Luftforsvaret (Oslo: Luftforsvarsstaben, 1995), written by J. Skjevdal and R. E. Henriksen ('Leadership Handbook for the Air Force')

8 The "head hunter" Elin Ørjasæter has defined it as one of the three best books on Leadership ever written, see interview with her in Magasinet, the newspaper Dagbladet's magazine on Saturdays, 23.10.2004

9 Forsvarets Stabsskole, Forsvarets Doktrine for Luftoperasjoner (Oslo, Forsvarets Overkommando, 2002) ('The Norwegian Air Power Doctrine'), 13. Author's translation ('Luftmakt er militær bruk av systemer som operer i eller passerer gjennom luftrommet.')

10 If space itself is to be included in the term air power, as in aerospace power, has been an ongoing debate since the late 1950s. What seems to be the trend nowadays, is to separate the two, as in Air and Space Power. In this article the two are seen as separate battle environments, and this article focuses upon air power.

11 U.S. Air Force, Air Force Manual I-1, Basic Aerospace Doctrine of the United States Air Force (Washington D.C., US Air Force, 1991)

12 The vision is available as of 12.12.2007 from

http://www.af.mil/shared/media/document/AFD-060228-054.pdf
13 Airborne Warning and Control System
14 The exception is of course leadership within an airborne crew, where there exist command arrangements within the crew.
15 A. H. Cordesman, The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo (London, Praeger, 2001) 278-onwards
16 I served there from 1995 to 2001.
17 H. Høiback, 'Den anvendte umoral' Internasjonal Politikk (1999), 451-471
18 Joint Surveillance Target and Attack Radar System
19 Thank you to Nils Naastad for this argument
20 B. von der Lippe, 'Rikt språk – blodfattig språkbruk' Forsvarsforum, nr. 5. (May 2004), 59. Author's translation ('kan […] sees som et symptom på at man lar våpnene/teknologien snakke på egne vegne'). It is possible to argue that this is not unique for air power. We say and write that the "Frigate fired a missile" or that the "Tank drove into a building". My argument about the language can therefore be as valid for all services, yes indeed for every business where machines or any other equipment has a central position. But, I have a hunch that this is especially important within an air force, since machinery and equipment plays such a central part in what we do.
21 von der Lippe, 'Rikt språk', author's translation ("Rutine for F-16 i Aghanistan")
22 von der Lippe, 'Rikt språk', author's translation ("flyene heller ikke er blitt beskutt")
23 M. Ignatieff, Virtual War. Kosovo and Beyond (New York, Henry Holt, 2000)
24 S. R. Boyd, 'Leadership and High Technology' in Air University (Ed.), Concepts for Air Force Leadership, AU-24 (Maxwell AFB, Alabama, Air University Press, 1996), 227-229, quote from 228
25 J. Keegan, The Mask of Command (London, Jonathan Cape, 1987), 329
26 H. Høiback, Kommando- og kontrollfilosofi (Kongsvinger: Luftforsvarets Kontroll- og Varslingsskole, 2000) ('A Philosophy of Command and Control')
27 The word risk can have different meanings. We often say that a leader takes risk when he chooses a course of action or any other decision which he makes. In this context, however, risk is defined narrowly as the risk of being hurt or killed by enemy action.
28 This folder was kindly brought to the Air Force Academy's and my attention by Lieutenant General (R) Wilhelm Mohr of the RNoAF, himself a veteran of the Second World War
29 Royal Air Force, Leadership – Some Notes for the guidance of Royal Air Force Officers. PAM (AIR) 202, Reprinted June 1965, (Manchester, Blacklock & co, 1965), 2
30 B. Cairns, 'Aerospace Power and Leadership Perspectives' Canadian Military Journal (Spring 2002), 40
31 An aircraft flying a defensive mission has the same challenges as the GBAD operator.
32 Often it can be counted in seconds, normally not more than a couple of minutes.
33 Thanks to Lars Arne Reigstad, who had the first idea for this argument
34 Royal Air Force, Leadership, 2
35 Transport aircraft from time to time move into high risk areas, for instance in the air bridge operation into Sarajevo during the war in Bosnia
36 Stephens, 'Command in the Air', 5
37 A. Gat, Fascist and Liberal Visions of War. Fuller, Liddel Hart, Douhet and Other Modernists (Oxford, Claredon, 1998); R. Wohl, A Passion for Wings. Aviation and the Western Imagination 1908-1918 (New Haven, Conn., Yale University Press, 1994)
38 P. Fritzsche, A Nation of Fliers. German Aviation and the Popular Imagination (Cambridge, Massachusetts, Harvard University Press, 1992)
39 BBC, Blackadder Goes Forth, (1992). My fighter pilot friend, Hans Ole Sandnes, has pointed to the fact that this elitism also creates expectations, since everybody expects that a fighter pilot is good at almost everything.
40 Including Unmanned Combat Aerial Vehicles (UCAV)
41 Stephens, 'The Command in the Air', 8
42 JAS is a Swedish abbreviation for Jakt, Attak, Spaning
43 P. Meilinger, 'Ten Propositions Regarding Air Power' Airpower Journal (Spring, 1996), 3
44 Meilinger, 'Ten Propositions', 6

45 Cairns, 'Aerospace Power and Leadership Perspectives', 38
46 NATO Air Defence Ground Environment
47 O. J. Maaø, 'Militærmakt og teknologi' in Norsk Militært Tidsskrift, vol 171, Nr. 5 (1995), 22-32 ('Military Power and Technology')
48 Typically a Battalion Commander within the Air Defence, a Squadron Leader in aerial operations.
49 This is not the same as the NATO-term Operational Command which defines a certain authority given to a commander over defined forces.
50 For air operations within the European part of NATO normally a part of the NADGE-system. The Combined Air Operations Centre (CAOC) and the Control and Reporting Centre (CRC) are the NADGE-systems foremost command components.
51 Airborne Warning and Control System
52 According to Hans Ole Sandnes' experience, fighter squadrons have no such tensions.
53 C. H. Builder, The Masks of War: American Military Styles in Strategy and Analyses (Baltimore, Johns Hopkins, 1989); Meilinger, 'Ten Propositions', 12
54 Meilinger, 'Ten Propositions', 17, see especially endnote 48.
55 M. van Creveld, Technology and War from 2000 B.C. to the Present (New York, Free Press, 1989)
56 D. Drew, 'The Three Pillars of Professional Competence: Imperatives for Airpower Leaders', in Gray and Cox, Air Power Leadership, 66
57 Drew, 'The Three Pillars', 66
58 Discussion at the Royal Norwegian Air Force Academy, May 2004
5 Thank you to Ståle Mikalsen for this argument
60 A. Syversen, Et forsvar i endring: en ny tid og nye utfordringer for militære ledere (Master's Thesis in Social Antrophology, NTNU, Trondheim, 2001)
61 Stephens, 'Command in the Air', 6