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A Critique of the Norwegian Air Power Doctrine

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Abstract		
<p>This paper suggests that there is a considerable gap between the air power roles defined in the Norwegian Air Power doctrine and the current capabilities of the RNoAF. While such a gap can be explained in terms of limited budgets, this paper argues that there are conceptual flaws that are just as important. The celebrated manoeuvrist approach does not provide for a comprehensive air power theory, which is required in order to optimise the application of air power, and herein there seems to be a misconception of the term “command and control”. Moreover, the doctrine does not seem to account for historical and personal experiences, which are essential in keeping up the momentum on doctrinal issues. The consequence of an inadequate conceptual framework is lack of focus, which in turn results in the doctrine not being sufficiently authoritative. Thus, the discussions on international- and joint operations do not provide officers with the guidance and advice needed to improve operational acumen. The paper argues that these issues have to be dealt with in the next edition, and in that process there should be a stronger interaction between air power theory and air power history when presenting the significance of the different air roles needed to meet declared political objectives.</p>		

Om skriftserien og noen redaksjonelle bemerkninger

Luftkrigsskolens skriftserie så dagens lys høsten 1999, og har til hensikt å publisere stoff som kan bidra til å stimulere den akademiske debatten i Forsvaret og samfunnet for øvrig. Det foreligger ingen utgivelsesplan for skriftserien, men vi tar sikte på å komme med tre til fire utgaver hvert år – det avhenger av tilgangen på interessant stoff.

Den foreliggende utgivelsen er basert på semesteroppgaver fra avgangskullet ved KS-2. Oppgaven var en kritikk av vår doktrine, og de beste ble sammenfattet til et essay.

Det er verdt å merke seg at den kritikken som fremkommer ikke er fundert i et sikkerhetspolitisk grunnsyn, noe som igjen fører til at kritikken kan leses som om vi burde nærme oss amerikansk luftmaktsforståelse i større grad enn vi allerede har gjort i dag. Dette står for kadettene egen regning, og kritikken er ikke nødvendigvis representativt for skolens syn. Det er ellers første gang vi gir ut kadettarbeider i denne skriftserien, og som et lite eksperiment ønsker vi med dette å vise utvalgte kadetters forståelse av hva luftmakt er og bør være.

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Alle synspunktene i dette arbeidet står for forfatterens regning, og kan således ikke tillegges Luftkrigsskolen eller Forsvaret.

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Introduction

*At the very heart of war lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilization of men, equipment and tactics. It is fundamental to sound judgement.*¹

Gen Curtis E. Lemay, USAF, 1968

In the broadest sense doctrine is “what we believe is the best way to do something, having considered our experiences and those of others”.² In terms of air power, doctrine is “what we believe to be true about air power, and the best way to operate an air force”.³ In other words, an air power doctrine should represent the foundation of all aspects of air power activities. It should serve as a basis from which planners can determine the best way to develop and execute air power in the future. Additionally, activities in the armed forces are controlled by political circumstances that need to be accounted for, and consequently the practicalities of policy and the interpretation of doctrine must be balanced.⁴

Consequently, a doctrine should fulfil three criteria: it must be understood by those concerned, it must always be updated and it must be implemented.⁵ A doctrine should therefore be authoritative to offer guidance to those who perform air power and it must be educational to make it possible for the doctrine to be implemented in the organisation.⁶ The Norwegian Air Power Doctrine aims to “give basic guidelines for development and use of air power to support our national objectives”.⁷ The objectives it refers to consist mainly of the assertion of sovereignty and international operations.⁸ With this as a basis, the doctrine also says that it is authoritative regarding education, training, procurements of materiel and equipment and the use of air power in a national context.⁷

The White Paper no 22 (Stortingsmelding 22) issued by the Norwegian Government emphasises air supremacy as important and area air defence as the task with highest priority for the Norwegian Air Defence.⁹ In addition flexibility, mobility and more independent task forces are considered vital due to the implementation of a new operational concept (manoeuvrist approach) and the military technological

¹ Robert D. Newberry, *Space Doctrine for the Twenty-first Century*, (Maxwell AFB, Ala.: Air University Press, 1998), p. 3.

² Stuart Mackenzie, *Strategic Air Power Doctrine for Small Air Forces*, (Canberra: Air Power Studies Centre, RAAF, 1994), p. 5.

³ Ibid, p. 5.

⁴ Ibid, pp. 8-10.

⁵ Anders Silwer, *Svensk luftkrigsdoktrin och doktrinprocess*, (Stockholm: Försvarshögskolan, 1997), p. 118.

⁶ Ibid, p. 103.

⁷ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, høringsutkast 28. juni 2001, (Oslo: FSTS, 2001) p. 5, (author’s translation).

⁸ The Norwegian Air Power Doctrine lists 8 tasks which are named as the tasks for Norwegian air power. 7 of those tasks are tasks that affect our national responsibilities; the last one is international operations.

⁹ Stortingsmelding nr 22 (1997-98), *Hovedretningslinjer for Forsvarets virksomhet og utvikling i tiden 1999-2002*, (Oslo: FD, 26 februar 1998).

development. The main reason for choosing a new operational concept lies much in the fact that the end of the Cold War has brought about a whole new series of possible threats. The Norwegian Armed Forces must be able to meet these threats, and the changes have to be founded in the doctrine.

This paper suggests that there is a considerable gap between the air power roles defined in the doctrine and the current capabilities of the RNoAF. While such a gap can be explained in terms of limited budgets, this paper argues that there are conceptual flaws that are just as important. The celebrated manoeuvrist approach does not provide for a comprehensive air power theory, which is required in order to optimise the application of air power, and herein there seems to be a misconception of the term “command and control”. Moreover, the doctrine does not seem to account for historical and personal experiences, which are essential in keeping up the momentum on doctrinal issues. The consequence of an inadequate conceptual framework is lack of focus, which in turn results in the doctrine not being sufficiently authoritative. Thus, the discussions on international- and joint operations do not provide officers with the guidance and advice needed to improve operational acumen. The paper argues that these issues have to be dealt with in the next edition, and in that process there should be a stronger interaction between air power theory and air power history when presenting the significance of the different air roles needed to meet declared political objectives.

Unfulfilled Promises

The doctrine's declared purpose is to "present air power theory and to define Norwegian Air Power" in Chapter 2¹⁰. This part is thereby meant to be both descriptive and authoritative. To do this, the doctrine uses the "Air Power Wheel" which describes a range of different air power roles. This wheel is a good tool, and works well as long as the aim is to be descriptive since it gives a broad understanding of the air power roles, but what about the authoritative role? Chapter 2 does not contain one single choice on which operations the RNoAF should prioritise. Is it then implicit that the doctrine expects the RNoAF to carry out all operations which the

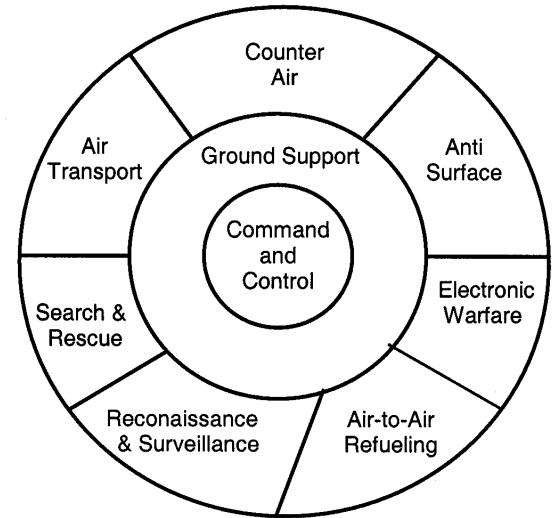


Figure 1: The Air Power Wheel

"Air Power Wheel" describes? The readers in the Armed Forces will hopefully say no to this, because they are more or less familiar with the capabilities of the RNoAF. But the target groups for the doctrine also include politicians and the general reader.¹¹ How will they interpret this presentation? They might very well be led to believe that the roles described in Chapter 2 are the actual capabilities of the RNoAF.

There is a mismatch between the intention of Chapter 2, and what Chapter 2 achieves. This mismatch may have several causes. First, the error may be in the introduction of the doctrine which says that the aim of the chapter is to define Norwegian air power. Secondly, the error might be as well that Chapter 2 does not do what it intends to do. Finally, maybe the chapter which is meant to make choices is just missing? One thing is certain, Chapter 2 as it appears in the current version of the doctrine must not be considered as anything but descriptive, and this has to be stated in the doctrine. Regardless of this, one can not ignore the fact that the current version of the Norwegian Air Power Doctrine does not make the choices required for it to be authoritative. The result of this is an unrealistic gap between the doctrine and the realities experienced in the RNoAF, as illustrated in the following examples.

Counter air operations (CA) are the foundation of most air campaigns, since the goal is to achieve and maintain a desired degree of control in the air. CA are further divided into offensive- and defensive counter air operations (OCA and DCA), which are essential parts of the Norwegian Air Power Doctrine. The purpose of OCA operations is to destroy, disrupt or limit enemy air power as close to its source as possible. To achieve this goal, four different roles are described: airfield attack, fighter sweep, air escort and suppression of enemy air defence (SEAD). This requires capabilities such as electronic warfare (EW) and anti-radar missiles. The RNoAF has

¹⁰ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, "The purpose of chapter 2 is to define Norwegian Air Power", p. 5.

¹¹ *Ibid*, p. 6.

three highly sophisticated aircraft dedicated to EW, and the ones operating them are indeed very professional. But whether they alone fulfil the needs that an OCA-operation requires is questionable. This, combined with the fact that the RNoAF lacks anti-radar missiles, indicates that the RNoAF does not possess the capabilities required to perform airfield attack and SEAD operations when operating alone. (The Norwegian Battle Lab Experiment, NOBLE, is experimenting with the use of Penguin MKIII missiles in the SEAD role, so it is likely that the RNoAF will possess this capability sometime in the near future). From this one can conclude that the RNoAF is not capable of performing all of the OCA-roles described in the doctrine, and therein lies the need for taking a decision on what should be prioritised.

DCA operations, consisting of the roles of air policing, combat air patrol (CAP), air escort and ground based air defence (GBAD), are meant to comprise all measures designed to nullify or reduce the effectiveness of hostile air action.¹² DCA operations have been the RNoAF's focus, both with regard to training and investments in aircraft since the 1970's. (The F-16 was bought based on its capabilities in DCA-roles). When considering DCA operations today, the fact that the RNoAF only has 57 fighter aircraft and one GBAD system has to be kept in mind. Thus, some choices have to be made on which operations the RNoAF is supposed to carry out in order to utilise its resources. To illustrate the necessity of such a choice, one could consider that the RNoAF were to defend Norway's three main airport stations (Bodø, Ørland and Rygge) simultaneously. Then the number of aircraft at each base would be approximately twenty, depending on how they are dispersed. In addition the low numbers of pilots and support personnel required to keep the aircraft airborne have to be considered. Furthermore, even though NASAMS is a modern and effective system by most standards, it has very limited performance when operating by itself, partly because of its limited height coverage. Also, NASAMS has no capability to counter ballistic missiles, and limited capabilities to counter cruise missiles. This implies limitations for how long the RNoAF can operate efficiently. Consequently, the RNoAF is dependent on Allied reinforcement to be able to conduct sustained operations for a long period of time. This is a well-known fact. Still, it can be argued that sustained operations for even a limited period of time until reinforcements are in place, would not be considered realistic. In other words, the RNoAF has to concentrate its limited forces, which emphasises the need to prioritise.

If one then considers anti-surface operations, the doctrine mentions strategic air operations, which are dependent on air superiority to be carried out effectively. The RNoAF's fleet of aircraft consists of a limited number of helicopters, a few transport aircraft and 57 fighters. This fact combined with the lack of strategic aircraft and suitable weapons, underlines the fact that the RNoAF does not hold the capabilities either to achieve air superiority or to carry out strategic air operations in a way that

¹² NATO, *Allied Joint Air & Space Operations Doctrine / Third Study Draft* [ATP; 33(C)], (Brussel: NATO, 1998), p. 4-3.

matters.¹³ Further, the doctrine describes “the ability to meet an air threat from tactical ballistic missiles, cruise missiles and every thinkable air threat that threatens Norwegian or allied territory”.¹⁴ This is a very good ambition indeed, but is it realistic for the RNoAF?

The above examples show that an unrealistic gap exists between the realities in the RNoAF, and its doctrine; and more could be added. This implies that the doctrine has severe weaknesses since it is not able to give the RNoAF guidelines which are proportional to the present capabilities. The doctrine as it appears is not a usable guideline for the RNoAF and consequently can not be authoritative. When this is said, one should keep in mind that the roles the RNoAF is not capable of fulfilling, are supposed to be supported by other nations according to the situation. Consequently, the doctrine should discuss and make clear the roles the RNoAF are supposed to carry out alone, and which are supposed to be supported by other Air Forces. In this context the doctrine also has to make a choice as to whether the RNoAF is supposed to do everything that the air power wheel describes with the consequences regarding quality that will follow, or whether it should specialise. This is also an important factor when considering both the RNoAF’s role in an alliance and in a joint scenario. Therefore it is necessary for the Norwegian Air Power Doctrine to discuss the air power roles in the framework of national defence as well as international operations.

The present doctrine describes the roles of air power adequately. It does not however, describe the roles of the *Norwegian* Air Power adequately. Due to its limited size, the RNoAF will have to concentrate on a limited number of roles. Hard and painful choices will have to be made. The Norwegian Air Power Doctrine has (unfortunately) not succeeded in making them. Before the consequences of this are considered, the theoretical platform upon which the doctrine is based deserves scrutiny.

¹³ “Strategic aircraft” is an equivocal expression since it is not necessarily the platform itself, but more likely the targets which decide if it is a strategic operation. As an example, Israel bombed Saddam Hussein’s nuclear reactors with F-16 equipped with “dumb” bombs. This was a strategic operation, but most readers will not consider F-16’s equipped with “dumb” bombs as strategic aircraft. Therefore it may be more correct to say that there is nothing in the RNoAF way of training which indicates that they are preparing for strategic air operations.

¹⁴ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, p. 25, (author’s translation).

Conceptual Weaknesses

The Manoeuvre Philosophy

The Joint Forces Operational Doctrine (FFOD), as decided by the Norwegian Chief of Defence, is founded on the manoeuvrist approach. This is a philosophy that contains many conceptual ideas supporting principles such as speed, surprise, flexibility, centre of gravity (CoG), mass, direct and indirect operations and simplicity.¹⁵ It might be appropriate to ask, however, whether this philosophy really is suited for a nation like Norway today? Is the doctrinal focus in this context perhaps wrong? Maybe Norway in fact adopted this philosophy too late and that it is not applicable for the typical low-intensity conflicts that have arisen after the end of the Cold War? Today's conflicts basically see the use of coercion, an approach that do not exclusively utilise the manoeuvrist principle. Today *predictability*, which can be said to be the opposite of the manoeuvrist principle of *surprise*, is one way of coercing an opponent and thus telling him that resistance has its price.¹⁶

The distinctive characteristics of a manoeuvrist approach are presented in the doctrine, including the importance of centralised command and decentralised execution. In order to achieve the essential manoeuvrist factors of, for instance, surprise and tempo, decentralised execution is vital. The Norwegian Air Power doctrine emphasises centralised command and decentralised execution as a fundamental principle. The ambition is undoubtedly good, but is hardly as easy to accomplish as it sounds. For example, during Operation Deliberate Force and Operation Allied Force, the air commander placed himself at the tactical level, taking direct control over the Air Tasking process, rather than focusing on keeping the strategic overview.¹⁷ In this respect these operations were not in accordance with the principles of manoeuvre warfare. Due to the political constraints, cultural differences within the alliance and the zero-tolerance towards own casualties, targeting had to be cleared at the political level. This does not combine very well with the ability to exploit emerging operational and tactical opportunities. Also in this context, if the doctrine is to be followed strictly, it implies that the pilots in certain situations are expected to seize the initiative and thereby the “windows of opportunity”, which might lead to an unwanted and even unfortunate political outcome.

Because of the above-mentioned facts, would it be better if the manoeuvrist elements of surprise and risk-taking were de-emphasised, and the element of being predictable was emphasised instead. In this way air power would be more suitable when it comes to obtaining the political goals, as the risk of hitting the wrong targets is greatly reduced.

¹⁵ Erik Gulseth, Barthold Hals and Inge Tjøstheim, “Manøverkrigføring – grunnlaget for forsvarrets nye doktrine og utvikling”, in *Norsk Militært Tidsskrift* Nr. 6/7-1998, pp. 42-46.

¹⁶ In Kosovo President Milosevic, before the effectuation of the air campaign, was given a choice to comply with NATO demands instead of being exposed to heavy bombardment.

¹⁷ Stuart Peach, “The Airmens Dilemma: To Command or to Control”, in Peter W. Gray (ed.), *Air Power 21, Challenges for the New Century*, (London: the Stationery Office, 2000), p. 124.

Furthermore, when considering the principle of centralised command and decentralised execution, is it really the commander's responsibility to control the forces once they are commanded to execute a particular mission? Of course the commander needs some sort of feedback to make minor corrections, but all in all, control in manoeuvre warfare should be synonymous with "self-control". Once the decision is made it has to be adhered to, but not under any circumstance. Control should be close enough to secure reliable execution, but not so close that it undermines the initiative of subordinate commanders. Instead of demanding that subordinate units report to the top as a matter of routine, the commander may save work and time by looking for the information he needs when it is needed, thus limiting the information processing required. However, by letting go of some control, the commander also has to accept greater uncertainty, in other words greater certainty at lower levels of the command chain is only bought at the expense of less certainty at the top.¹⁸ The question however is whether the way the air war is organised in practice, enables the theory of centralised command and decentralised execution. For instance, the rigid and detailed Air Tasking Order (ATO) gives little room for initiative and flexibility; in fact centralised command and centralised execution is clearly a more accurate description of the way air operations are planned and conducted.¹⁹

Nevertheless, command and control has been given too little attention in the current doctrine, considering the complexity of the topic. A broader discussion of command and control, specifically related to air power theory and air power functions, should be implemented to increase operational acumen in this complicated topic, hopefully with greater knowledge and understanding as a result. Maybe it would also be useful to say something more about the psychological effects of information processing, specifically the effects of information overload, lack of information and time pressure, and the impact these factors have on the decision making process. This is especially important, bearing in mind the huge amount of available information brought to us through an ever-increasing number of sensors and computer equipment. Also important to bear in mind in this context is the fact that effective command and control is not a question of superior technology but of, among other factors, understanding the nature of human beings. Or as Colonel John R. Boyd put it: "Machines don't fight wars. Terrain doesn't fight wars. Humans fight wars. You must get into the mind of humans. That's where the battles are won".²⁰ Of course, technology assists commanders in their exercise of command, but does not offer a substitute for it.

All these mentioned factors should be commented upon much more clearly in the current doctrine as it greatly reduces the possibility of using the manoeuvrist

¹⁸Martin L. Van Creveld, *Command in War*, (Cambridge: Harvard, 1985), pp. 270-274.

¹⁹Stuart Peach, "The Airmens Dilemma: To Command or to Control", in Peter W. Gray (ed.), *Air Power 21, Challenges for the New Century*, p. 128.

²⁰Grant Tedrick Hammond, *The Mind of War: John Boyd and American Security*, (Washington: Smithsonian, 2001), p. 163.

approach as intended. There can be a danger otherwise that the reader is so locked on performing a manoeuvrist approach that he becomes paralysed when he finds out that it is somehow not possible in certain situations. If the doctrine instead focuses on the manoeuvrist approach as a *mental* way of approaching the war as optimal for Norway, and simultaneously introduces the known limitations, the reader might be more aware of the dangers mentioned. An appropriate solution therefore might be that the doctrine instead focuses on the manoeuvrist approach as a *manoeuvrist philosophy*, a way of thinking, and that this *philosophy* is a basis for the use of adequate air power theories and models.

Experience and History

*Adherence to dogma has destroyed more armies and cost more battles than anything in war.*²¹

J. F. C. Fuller

It is all-important to understand past events in order to plan how to approach the future.²² The study of historical conflicts combined with current strategic thinking and technological advances is vital and will lead to the formulation of the best way to deal with future conflicts. Therefore, this knowledge encompasses the way in which air power works and may be used to optimise the resources in the future.²³

Wars are fought with technology, but people win and lose them. Technology changes and is also a condition for possibilities in warfare. One elementary point that can be neglected in the enthusiasm for advanced technology is the gap between technical feasibility and operational utility.²⁴ During the Vietnam War the United States had radar-guided missiles and radar to exploit such missiles. Despite that, only a few kills were reported during the air operations against North Vietnam. The constraint was not the technology, but the human aspect. Technology is an important factor and contributory in wars, but it is the human element that is the decisive factor in a battle. Having success in the military field is largely a matter of judgement, which is further based on knowledge.²⁵ On the other hand, one could say that the next war is never the same as the previous one and that there is no point in examining experiences made by others in previous wars.²⁶ Still, there are certain regularities in wars and it is therefore meaningful to study historical events.²⁷ If there had been no meaningful regularities

²¹ J.F.C. Fuller, *The Second World War 1939-1945: A Strategic and Tactical History*, (London: Eyre & Spottiswoode, 1948).

²² Steven R. Drago and James M. Smith (eds.), *Air and Space Power Theory and Doctrine: Military Art and Science*, (New York: American Heritage Custom Publishing/United States Air Force Academy, 1997), p. 587

²³ Anders Silwer, *Svensk luftkrigsdoktrin och doktrinprocess*, p. 36, 42.

²⁴ Barry D. Watts, "Doctrine, Technology and Air Warfare", in Richard P. Hallion (ed.), *Air Power Confronts an Unstable World*, (London: Brassey's, 1997), pp. 13-49.

²⁵ Ibid.

²⁶ Barry D. Watts, *The Foundations of U.S. Air Doctrine: the Problem of Friction in War*, (Maxwell AFB, Ala.: Air University Press, 1984), p. 60.

²⁷ Robert A. Pape, "The Air Force Strikes Back: A reply to Barry Watts and John Warden", in Benjamin Frankel (ed.), *Theory and Evidence in Security Studies* [Security Studies vol. 7, no. 2, 1998], (London: Frank Cass, 1998), p. 195.

in social events, then no intelligent choices could have been made in any realm of social behaviour. Consequently, the Norwegian Air Power Doctrine should take into consideration historical experiences, be it human endeavour, strategy issues or weapon performance. Such a systematic and holistic approach would provide the doctrine with a foundation for evaluation and it would give directions about what the RNoAF should concentrate on.

Manoeuvre philosophy has a huge impact on the human aspect because it is, as mentioned, based on centralised leadership and decentralised execution.²⁸ These principles demand high qualities of today's officers. The officer should know the intention and purpose of a mission and should be creative, take the initiative and make quick decisions among other things. This new leadership philosophy puts a great demand both on the human assets as well as on the organisation. Accordingly, analysing historical experiences could prove vital in order to educate the officers in manoeuvre warfare.

When reading through the doctrine, only a few historical examples are highlighted. For instance: "As an example we can examine the air operations over Baghdad during the Gulf War in 1991. Due to the advantage of the stealth technology, the American F 117's were able to operate unimpeded over Baghdad."²⁹ This example is connected to the theory of air superiority and the relationship with denial and control. The low number of historical examples in the doctrine is a weakness, but even more importantly, the apparent lack of studying history in depth, in order to provide the doctrine with a proper empirical basis for its conclusions, is a serious flaw. The main impression in this context therefore is that the doctrine does not, either in terms of quantity or quality, document historical experiences in a manner that builds upon its conclusions properly and thus appear more readable for its readers. It might, in this context, be wise also to include some historical facts that focus on *synergistic* effects. That is, operations wherein air, sea and land operated together and where the combined effect determined the outcome. In this way the reader will not be tempted to focus merely on what the air power can do *alone*, but rather on what *can* be achieved in co-operation with the other services in battle. An additional effect in this context could be that some of the *cultural barriers* between the army, navy and air force are broken down and thus replaced by a greater focus on the advantages and disadvantages of *joint* operations. Studying military history systematically over time would perhaps provide input to describing how to co-operate and co-ordinate with the other services.

The fact that Norway has contributed to several international operations over the last few decades is often underestimated. Norway was involved in the war against Milosevic and the Former Yugoslavia, participating with four F-16 aircraft (+ two reserve aircraft) as well as manning a key position in the CAOC (Combat Air

²⁸ Ibid, p. 12.

²⁹ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, p. 28, author's translation.

Operation Center).³⁰ Norway, not to forget the exclusive experiences from WWII, has in fact never been more involved with the use of *its own* air power in a real combat situation, and experiences from such operations should be emphasised in an air power doctrine. Furthermore, Kosovo was probably not the last conflict of its kind since the end of the Cold War. It is therefore crucial to consider an implementation of all the lessons from this conflict in today's doctrine.

Furthermore, if we consider operations other than war, Norway has provided both helicopters and transport aircraft outside its borders. The latest mission in this context was the six-month deployment of several Bell 412 helicopters to the headquarters of KFOR in Kosovo.³¹ In addition Norwegian DA-20 electronic warfare (EW) aircraft and C-130 Hercules transport aircraft were given important assignments in the same period and area. What were the true lessons learned from these missions, and why are they not more emphasised and visible in the current doctrine?

The most unfortunate effect in this context, however, could be that Norway might have to start from scratch whenever the need again arises for Norway to contribute internationally. This is then not only a waste of valuable resources, but also very time-consuming. An improvement could be that the doctrine underlines the importance of all personnel who have gained valuable international experience being instructed to share this in a proper manner. It is also necessary to study the enemy's use of air power in different conflicts. This could, for instance, be achieved through a relevant data base system. As an example the RNoAF had an Air Defence Unit in Congo in 1957 and this is not documented at all. A data base system could be used in planning and recommending future improvements and procurements adapted to the challenges of future conflicts.

It is argued in the Norwegian Doctrine that "Experience from previous wars emphasises the importance of surprise and the ability to inflict shock upon the enemy." An example or two of situations where surprise and the ability to inflict shock upon the enemy were important should be inserted. A strength of the Norwegian Doctrine in this context appears in Chapter 4, where *air power and developmental outlines* are discussed. This chapter deals with several historical examples, which describe effects and consequences in the wake of air power. This is definitely relevant and gives the reader a reasonable understanding of the subjects that are being presented.

Another strength of the current doctrine should be mentioned, although it is also a weakness in the sense that it is not sufficiently emphasised. In Chapter 3, where the doctrine presents the development and application of air power, the following is stated: "A condition for good intelligence is to understand the enemy way of

³⁰ Colonel Tom Johansen manned the CAOC during the entire air campaign of Operation Allied Force.

³¹ KFOR V – Led by the Norwegian Lieutenant General Thorstein Skiaker. As an example, the Bell 412 helicopters were assigned close protection missions ("*body guard*") for Lt.Gen. Skiaker and his closest staff when they were travelling the Kosovo area.

thinking, the culture and society. We must not imagine that the enemy is like us.”³² This is not only a matter for the intelligence, but also for all others that are involved in the application of military power, in this context air power. If one is able to understand the enemy more correctly one might be able to identify his *true* centres of gravity and achieve the wanted End State without being obliged to use military force. The problem of really understanding the enemy was clearly a prominent and difficult factor both in the Gulf and in Kosovo, hence the unexpected duration of these campaigns.

The doctrine provides a general description of the roles that air power can perform, but it would be easier to grasp if the doctrine related air power theory to the historical experiences of own forces and of the enemy. Studying historical experiences would lay a foundation for a better understanding of the military theory in the doctrine and thereby how to conduct air power in future conflicts. Further, this will make the doctrine more clearly understandable and recognisable for those who are supposed to use it. This is important when operations are to be conducted by an alliance or a coalition. Further, it will make the RNoAF more capable of making decisions on the strategic level and provide guidelines on how air power is intended to be used. It is important to mention though that the introduction of historical facts in the doctrine can be considered both as a weakness and a strength. The advantage is that the doctrine will be more pedagogical as already argued. The caveat is that different people interpret the historical facts differently, thereby reducing the credibility of the doctrine.

Air Power Theories and Models

Throughout history different air power advocates have prophesised their beliefs with regard to the most efficient application of air power. Names like William Mitchell, Giulio Douhet and Robert Pape easily come to mind in this context. A common denominator for them though, is that they have all argued that their beliefs on the application of air power are universal, that is, possible to use in any situation. It is however crucial that one keeps in mind that several of these “prophets” are considered very controversial and rather categorical. The way they have interpreted history may not be optimal, and likewise, the solutions they offer may not be the right ones. On the other hand, if one is capable of using these theories and interpretations for what they are, preferably combining them with other theories, the result might be enhanced and appropriate for a doctrine.

Furthermore, it is crucial to note that even though it can be argued that these theories and models are not directly applicable for the national defence of Norway in times of crisis and war, they do offer a way of putting air power applicants into the mindset of a potential enemy. In that way they will be able to make more adequate moves and thus use the available and limited air power resources more optimally. It must be

³² Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, p. 46, author’s translation.

underlined though, that the enemy might think otherwise than oneself in certain situations, and thus there is a great danger of being trapped in the classic phenomenon of “*mirror-imaging*”.³³

In an international context, a broader understanding of air power application could also result in Norwegian participants being considered more professional contributors even in important operational centres, like for instance CAOCs. The doctrine unfortunately does not deal sufficiently with air power theory as a supplement and enhancement to the manoeuvrist approach.

The most profiled advocate of air power through the 1990s is without doubt John Warden III. In the follow-up to his book *The Air Campaign*, he came into the spotlight after the successful Gulf War. As a result of his contributions to this war, his famous 5-ring system model appeared on the scene. (Figure 2).

This model comprises five concentric circles depicting a hierarchy of systems within a national system.³⁴ Warden has had a great influence on the air power doctrine in the United States.³⁵ The

Swedish Air Power Doctrine has also used his book in finding historical experiences and as a basis for presentation of the doctrine.³⁶ In addition Denmark also uses this theory in their doctrine.³⁷ Although his model has been greatly debated and criticised for being presented as another universal model in a long row, one must bear in mind that it has in fact been used in a combat situation with a noticeable level of success.

Attacking CoG’s is as previously mentioned one of the core principles in the manoeuvre philosophy and strategic attack can therefore be seen as a way to attain manoeuvre.³⁸ On the other hand, achieving *strategic paralysis* is impossible for a small nation like Norway, and it is not necessarily relevant to focus on it.³⁹ Both John Warden III and John Boyd focus on the enemy’s leadership. Boyd however, focuses

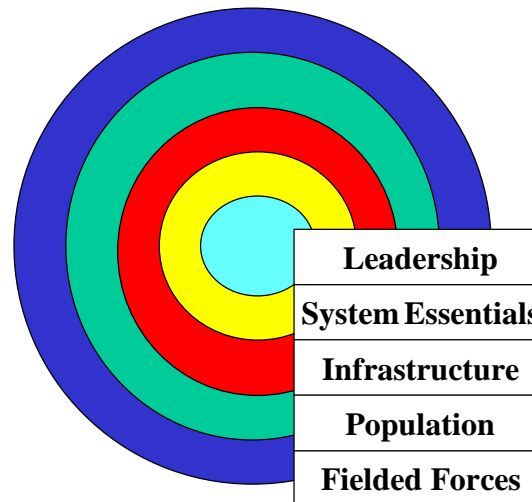


Figure 2: Warden's Five Rings

³³ *Mirror-imaging* suggests that you look upon the enemy based on your own preferences and values with regard to culture, religion, governmental rule etc. Thus, his moves are assumed to be predictable in most situations.

³⁴ Shaun Clarke, *Strategy, Air Strike and Small Nations*, (Fairbairn: Air Power Studies Centre, RAAF, 1999), p. 76.

³⁵ Robert A. Pape, “The Air Force Strikes Back”, p. 214.

³⁶ Anders Silwer, *Svensk luftkrigsdoktrin och doktrinprocess*, del I, p. 9.

³⁷ Royal Danish Air Force, *Royal Danish Air Force Air Operations Doctrine*, (Denmark: RDAF, 1998).

³⁸ CoG (Center of Gravity), in military terms, was introduced firstly by Carl von Clausewitz as *Schwerpunkt* in his famous book: *On War*. This concept is derived from mechanical physics though, and some argue that it is not transferable to, in this instance, an air power context. The mindset about this concept however, as a way of thinking in other terms than mechanical physics, is in many ways appropriate for air power, because it creates a mental picture of an enemy that might be very valuable for one applying air power.

³⁹ Shaun Clarke, *Strategy, Air Strike and Small Nations*, p. 77.

on the physiological factor and the will of the enemy by disrupting the decision process of the enemy's leadership.

This process is known as the decision/action cycle, highlighted during the Korean War by Boyd, performing as a USAF pilot. Following his experience in air-to-air combat he devised the concept of *observe*, *orient*, *decide* and *act* as a generic model for military decision known as the OODA loop."⁴⁰ (Figure 3).

The core of this model is to observe the enemy's movement, orientate friendly forces to this movement, and make a decision on what is to be done and act before the enemy acts.⁴¹ Warden on the other hand, focuses on the physical capability and seeks to disrupt its form.⁴² He also deals with finding the true

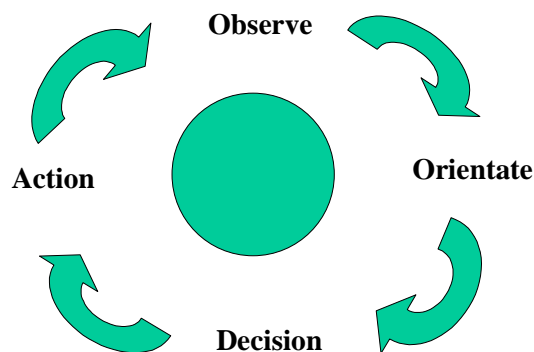


Figure 3: OODA loop

centres of gravity, although he focuses very strongly on the leadership of a nation as a top priority target. He is therefore considered to be quite controversial, as today's politicians seldom allow air power to be applied directly to the leadership of a country, with the high risk of civilian casualties and collateral damage that follows.

⁴⁰ Directorate of Air Staff, *British Air Power Doctrine: AP 3000*, Third Edition, (London: Directorate of Air Staff, Ministry of Defence, 1999), p. 2.4.1.

⁴¹ *Ibid*, p. 2.4.2.

⁴² Philip S. Meilinger, "Air Strategy - Targeting for Effect", in Richard P. Hallion (ed.), *Air Power Confronts an Unstable World*, (London: Brassey's, 1997), pp. 51-80.

Another air power theorist, also focusing on the concept of centres of gravity, is Philip S. Meilinger who provides another useful model in this context.⁴³ (Figure 4).

His model includes elements also used by Warden, but Meilinger does not prioritize the tangible enemy targets the way Warden does. According to Meilinger, the national will *cannot* be attacked directly, but rather by attacks on tangibles that *indirectly* affect this will. These tangibles, or targets, can be military, civilian or a combination of the two. For instance the industry or the armed forces may be the manifestation of the nation's will under certain circumstances.

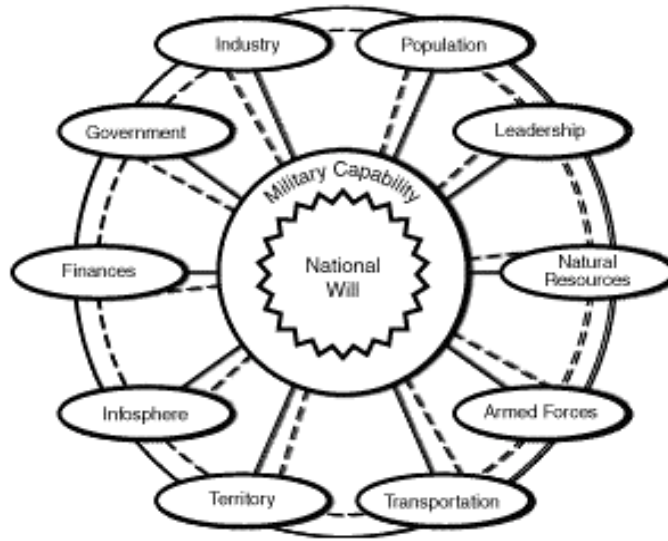


Figure 4: The Notional Nation-State Model

Air power theorists have differed over which specific targets should be struck to achieve the desired results. Therefore it would be reasonable to combine strategic attack with focus on supplementary CoG's and the decision making process. Robert Pape categorically states that strategic bombing does not work. Coercion and theatre air power, where air and land forces are working together, is the key to success.⁴⁴ Coercive air power is an effort to convince the enemy to concede,⁴⁵ or in other words, make him do *our* will. In this context it can be argued that there has been a tradition to think of coercion almost entirely on a military basis. That is, what *military success* can be achieved through this operational approach? There should, no doubt, even be connections elsewhere and specifically to the diplomatic efforts that go parallel with the military efforts during a conflict. In this way the coercive air power can provide the politicians with a better leverage for negotiations. As is known, modern conflicts like the Gulf War and the Kosovo Crisis also involved the bombing of other tangibles than purely military targets. Furthermore, this could lead to a reduced spending of valuable military resources as well as unnecessary casualties and prolonged wars. Finally, it must be remembered that military assets are in fact political tools and should therefore serve such needs in the best possible way.

⁴³ Philip S. Meilinger, "Air Strategy - Targeting for Effect", pp. 51-80.

⁴⁴ Robert A. Pape, "The Limits of Precision-Guided Air Power", in Benjamin Frankel (ed.), *Theory and Evidence in Security Studies* [Security Studies vol. 7, no. 2, 1998], (London: Frank Cass, 1998), pp. 93-114.

⁴⁵ Karl Mueller, "Strategies of Coercion: Denial, Punishment, and the Future of Air Power", in Benjamin Frankel (ed.), *Debating Robert A. Pape's Bombing to Win* [Security Studies vol. 7, no. 3, 1998], (London: Frank Cass, 1998), pp. 182-228.

Consequently, if the RNoAF can discuss coercion in parallel with theories based on the philosophy of a manoeuvrist approach, this can add value to the Norwegian Air Power Doctrine. Comparing coercion, the OODA-loop and strategic attack as well is another approach. The system analysis of Warden's Five Rings or Meilinger's Notional State Model could be used to simplify the planning and find an optimal focus of coercive measures.

In order to achieve a more balanced and useful theoretical basis in the doctrine, even issues in the prolongation of CoG should be addressed. In this case lessons learned from recent conflicts show that the ability to properly measure the effects of an air power sortie is crucial. In this way the commanders become aware of which targets are successfully hit and which targets need to be re-engaged. This evaluation can be rather easy when the target is a building or a vehicle, but certainly more complex when it comes to measuring the effect on the will of a leader. Furthermore, it is also important that a theory somehow reflects what is politically as well as technologically possible. Brigadier General David A. Deptula presents a possible approach in his essay "Effects-Based Operations – Change in the Nature of Warfare." He bases this essay on experiences mainly from the Gulf War where this "concept" was first tested. In short, this approach was developed as a result of an analysis of the question "...how to impose force against enemy systems to achieve specific effects that would contribute directly to the military and political objectives of the coalition".⁴⁶ His main answer is that this approach takes care of a better linking of military, economic and political elements to conduct national strategy in depth.

A doctrine founded on modern as well as ancient theories would add value to different aspects regarding use of air power. Understanding different concepts leads to a more balanced and flexible grasp of air strategy and the factors that go into its determination.⁴⁷ Furthermore, the reader is given a certain framework to work from in a situation where things can seem very chaotic and time is a critical factor. He will then have an improved basis for dealing with these situations.

With the limited resources of the RNoAF it is impossible to adopt *one* air power theory because the theories are mostly written for large nations,⁴⁸ but just as important, one theory simply does not fit all cases. It would be far better to combine several theories: extract, exploit and adapt parts of them to suit the RNoAF in the best way. A danger in this context however could be that the doctrine merely focuses on theories and models that have been put forward by American air power advocates. These theories and models arguably have their basis in a large country with nearly *unlimited* resources. Perhaps Norway should consider theories and models, if available, from European countries that do not possess unlimited defence resources? Consequently, a broader theoretical foundation of the doctrine could provide the

⁴⁶ David A. Deptula, "Effects-Based Operations: Change in the Nature of Warfare", in John Andreas Olsen (ed.), *A Second Aerospace Century* [Militærteoretisk skriftserie, volum 3], (Trondheim: Luftkrigsskolen, 2001), pp. 135-173.

⁴⁷ Philip S. Meilinger, "Air Strategy - Targeting for Effect", pp. 51-80.

⁴⁸ Shaun Clarke, *Strategy, Air Strike and Small Nations*, p. 76.

ability to analyse historical experiences. Experiences will in return provide inputs to the development of air power theories in the doctrine. When all is said and done, the best possible understanding of the enemy is what could make the difference between winning or losing in the deadly endeavour called war, where it does not count to be second best.

In sum the current doctrine is based on a vague manoeuverist approach that treats the complex matter of command and control too narrowly, it does not adequately account for historical experiences and it lacks a conceptual framework for air power theory. Such limitations naturally have severe consequences.

Consequences of the Doctrine's Weaknesses

The use of Norwegian air power will evidently be part of a joint or combined operation framework. However, the doctrine focuses more on separate air operations and could still have linked the air power roles more together. If one does not see the roles as integrated operations, the focus on joint and combined operations is weakened and the doctrine could lose relevance and become inadequate. It is therefore important to give clear guidelines for joint and combined operations in the doctrine.

Joint Operations

Joint operations are defined as “those operations conducted by the three services – Navy, Army and Air Force of a single nation”.⁴⁹ It is stated early in the doctrine that “it gives a basis for development of our air assets within a joint operations framework”.⁵⁰ Even the title of the doctrine reflects this ambition: *The Armed Forces doctrine for air operations*. Hence, the doctrine does not just “belong” to the Air Force. Since joint operations are such an important basis for the way the RNoAF should use air power, it might be meaningful to take a closer look at this premise. Is it just an empty statement or is it in fact reflected in the doctrine itself?

It could be argued that air power as an integrated part of the joint operations context is to a large extent reflected in the doctrine, or at least the ambition and will to see the “necessity” of the other services is present. This sounds maybe self-evident, but it is easy to believe, especially after the Gulf War and to some extent Kosovo, that air power can do the job alone. The Air Force has always tried to justify its own existence, and in the process Air Power has too often promised more than it can deliver. Air theorists have argued that air power should be controlled by an independent air force capable of focusing air attacks against strategic targets as the most effective way of employing air power. The traditional focus has been on what the Air Force can do independently, but now this focus seems to have changed. The doctrine recognises that joint operations produce synergistic effects giving the Armed Forces more options when using military force. This view is quite clearly reflected when the doctrine discusses air power as a means to deliver firepower: “air power will be most effective when used in co-operation with land- or sea power”.⁵¹ Offensive Counter Air and Anti-Surface Air operations have to be co-ordinated with contributions from the other services, which puts pressure on the enemy to have maximum effect. In that way the enemy is unable to move or may be forced to move making them vulnerable to air attack.⁵²

This coincides well with the Chief of Air Force Staff's view expressed at the Air Power Seminar in 2001, where he underlined the Air Force's particular importance as

⁴⁹ Ian MacFarling, *Air Power Terminology*, (Fairbairn: Aerospace Centre, 2000), p. 69.

⁵⁰ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, p. 5, author's translation.

⁵¹ Ibid, p. 40.

⁵² Ibid.

binding material for the Armed Forces. The Air Force must strive to make the Army and the Navy better and secure their freedom of movement through joint operations.⁵³

In this context joint exercises in peacetime are a necessity if joint operations are to be a credible concept in times of war and crises. The doctrine even suggests that the terms known today as Air Power, Land Power and Sea Power will lose their relevance and that the future only holds Joint Operations, which once again substantiates the fact that “jointness” has been given the priority it ought to have. However, the doctrine also says that this is something that lies far into the future, which seems somewhat passive, but it feels reassuring that the thoughts and ambitions are present.

As mentioned previously, the doctrine quite clearly sees the need for an appropriate balance between air and surface assets, and the synergistic effects connected to this. The acknowledgement of these facts is, however, only on a normative basis. In this respect the doctrine is only a summary of what is already mentioned about joint operations in the JFOD. This is a very general description and gives few details on the subject. Hence, the doctrine lacks authoritative guidelines on how to make joint operations more than an empty phrase. For instance, will a stronger joint focus at the expense of the traditional independent focus, have implications for what kind of air power roles and functions the RNoAF should prioritise? There is no easy answer to this, but the question is certainly an important one and has to be recognised when discussing the challenges of jointness. However, more detailed guidelines on how to organise and train joint operations have to be balanced by the level and intentions of the doctrine.

A doctrine is a document that should only give us the strategic foundation for our profession, not a rules of thumb list that should be followed in every possible circumstance. Still, maybe it would have been beneficial not to just state that co-operation and co-ordination with the other services is important, but also **how** we should get there. Today everyone talks about joint operations, and exercises are planned as joint, but is this really “jointness”? Are not the so-called joint exercises only tri-service exercises where all services are present in the same operational theatre but not really acting together? The mindset has to change radically if we are going to be truly joint, and make joint operations an inherent part of our Armed Forces. We must all step above the paradigms of our own structures and look for ways to combine efforts.

International Operations

The Balkan conflicts demonstrated the “new” type of war emerging from the end of the Cold War. Any large-scale invasion of Norway in the foreseeable future does not seem probable, while participation in international operations is likely to become the

⁵³ Thomas C. Archer, “Luftforsvaret: Et nisjeverktøy for Nato eller multiverktøy for Norge?”, in Olsen, John A. (ed.), *Luftforsvaret i fremtiden: Nisjeverktøy for NATO, eller multiverktøy for Norge?* [Luftkrigsskolens skriftserie, volum 5], (Trondheim: Luftkrigsskolen, 2001), p. 41.

Air Force's prime concern in the years to come. By defending democratic values outside our own nation, we will contribute to preserving the peace in our own part of the world.

Consequently, several important questions arise. Does the doctrine prepare us for the nature and threats of future conflicts, and do we have an Air Force capable of meeting these challenges? Does the Air Force have the capacities to be a credible contributor to the Alliance when we are called upon next time?

The White Paper states that Norway must be prepared to participate in operations abroad and that the RNoAF is going to participate in the whole spectre of international operations.⁵⁴ However, the territorial defence is still guiding for the force structure.⁵⁵ As a result this will restrict which operations the RNoAF can take part in abroad.⁵⁶ It is important to optimise the resources for a small nation and therefore the doctrine should have given guidelines on which type of operations the RNoAF should prioritise. The policy guidelines given in different White Papers only take this dilemma into consideration to a certain degree. As a consequence, the RNoAF could be training and preparing for operations at the wrong level, or they could be preparing for operations at all levels with no result.

The main role for the Air Force is Air Defence. Hence, the main contribution to NATO operations as we witnessed in Kosovo was fighter aircraft in an Air Defence role, manning Combat Air Patrols at a relatively safe distance from the frontline. A job done very well indeed⁵⁷. Still, the nature of our contribution was more a part of "blamesharing" with little real military effect on the campaign as a whole. The air commander, Lieutenant General Michael C. Short, considered Norway, among several other nations, as part of the "B-team", while the real contributors were those flexible enough to do both air-to-air missions and air-to-ground missions, able to fight around the clock, in bad weather and at night.⁵⁸ In addition, the capability to deal with increasingly lethal surface-to-air threats will become more and more important.⁵⁹

These qualities are likely to become the capabilities sought after by NATO in the future. Consequently, if the Norwegian Air Force does not acquire these capabilities, we might not even be "invited" next time. International operations are one of the

⁵⁴ Stortingsmelding nr 38 (1998-99), *Tilpasning av Forsvaret til deltagelse i internasjonale operasjoner*, (Oslo: FD, 4 juni 1999), pkt 2.2.

⁵⁵ Stortingsmelding nr 22 (1997-98), *Hovedretningslinjer for Forsvarets virksomhet og utvikling i tiden 1999-2002*, pkt 5.3.1 and 5.3.7.

⁵⁶ According to the Norwegian Air Power Doctrine, air power is a part of solving the Norwegian armed forces' tasks that focus on three levels; (1) peacekeeping activity and national crisis management, (2) international operations and (3) defence against armed attack.

⁵⁷ Arent Arntzen, "Erfaringer fra Kosovo - konseptuelle og doktrinære utfordringer", in Lars Fredrik Moe Øksendal (ed.), *Nytt NATO - nytt Luftforsvar? GILs Luftmaktseminar 2000* [Luftkrigsskolens skriftserie, volum 3], (Trondheim: Luftkrigsskolen, 2000), p. 84.

⁵⁸ *Ibid*, p. 83.

⁵⁹ Michael C. Short, "An Airmans Lesson from Kosovo", in John Andreas Olsen (ed.), *From Manoeuvre Warfare to Kosovo* [Militærteoretisk skriftserie, volum 2], (Trondheim: Luftkrigsskolen, 2001), p. 273.

Armed Forces' main missions and a stated political objective. For this reason we must have the capacities useful for NATO.⁶⁰ This is not just a question about an *opportunity* to increase our credibility as a NATO ally, but rather an essential *demand* that has to be met if the RNoAF is to have sufficient credibility in the Alliance. Furthermore, since one of the doctrine's stated objectives is that it should be a steering document for procurement of material, does it take these demands into consideration when recommending future improvements?

To a certain degree it does. The doctrine states that "procurement of precision guided munitions delivered from fighter aircraft will give the Armed Forces a highly necessary and very effective capacity, useful in both national and international operations".⁶¹

However, the doctrine does not seem to comprehend the implications of its own statement. The obvious question that arises is whether an increased emphasis on offensive operations has to be bought at the expense of de-emphasising other roles. The doctrine should therefore have pointed out more clearly what consequences this implies for the RNoAF, concerning organisation and prioritising of roles.

Operation Allied Force indicated what the new war can be like, and in most respects this was a strategic campaign demonstrating the will to react to Serbia's atrocities in Kosovo. The important point with such a campaign as stated in the Aerospace Doctrine of the United States Air Force (AFM 1-1) "is to demonstrate the capability to accomplish the desired objective with impunity".⁶² This describes very well the type of air campaign experienced in Kosovo and has to be taken into consideration when planning for future conflicts. Even though we should not plan for the last war, the likelihood of NATO fighting in a low-intensity conflict as was the case in Kosovo is far greater than the probability of an existential total war.

The strategic effects of air power are barely discussed in the doctrine, even though the strategic impact of air power is perhaps greater today than ever. Aircraft can routinely conduct operations that achieve strategic level effects.⁶³ Not just because of better technology and precision guided munitions, but also because of the fact that war is looked upon as an increasingly extreme and inhumane measure in the democratic parts of the World. Dropping bombs on a nation today, whether it is on a military unit or industrial complexes, sends a powerful strategic and diplomatic signal of determination to the enemy's political leadership.

One of the paradoxes with the type of air power used in conflicts in the 1990s, was that the strategic campaign witnessed in Kosovo, was perhaps the role we have considered least important to the Norwegian Air Force.⁶⁴ The trends in modern

⁶⁰ Forsvarets Stabsskole, *Forsvarets doktrine for luftoperasjoner*, p. 36.

⁶¹ Ibid, p. 62.

⁶² United States Air Force, *Functions and basic doctrine of the United States Air Force, AFM 1-1*, (Washington: USAF, 1984), p. 148.

⁶³ Philip S. Meilinger, *10 Propositions Regarding Air Power*, (Maxwell AFB, Ala.: USAF, 1995), p. 10.

warfare suggest that air power is an increasingly powerful and flexible instrument for the pursuit of political objectives. When our fighter aircraft get offensive capacities the RNoAF will, whether we like it or not, have direct impact at the strategic level of war. Strategic Air Operations aimed at destroying an enemy's CoG's, therefore, concern us more than ever, something the doctrine should put more emphasis on than it does. In this respect, it would be particularly useful to include the psychological effects and mechanics of coercive air power in the doctrine. Furthermore, knowledge and understanding of the strategic effects of air power are of particular importance, considering that it is the political and strategic consequences that are important for our political leadership, when they wish to send Norwegian aircraft to participate in crises and war outside the borders of Norway.

Another aspect of international operations worth taking into consideration is the fundamental difference between an alliance and a coalition and the consequences it has for air power. The strategy to be employed by the Alliance during the Cold War was clearly defined and the potential threat well known, making it relatively easy to achieve consensus on planning. However, the characteristics of the Kosovo war were quite different. Even though there were some shared objectives of ending the ethnic conflict, there were no signed agreements which caused considerable differences in opinion on how this could be achieved, and reflected the various national interests and cultural differences within the coalition. In contrast to an alliance, which plans to meet contingencies, a coalition reacts to contingencies on an ad-hoc basis. In addition, participation is voluntary, which makes planning and C² much more difficult.⁶⁵ The doctrine does not seem to recognise these differences and it would be appropriate to include a more thorough discussion on coalition warfare in the doctrine. An increased awareness of the specific challenges of operating in a coalition is necessary and would better prepare the RNoAF for future conflicts.

⁶⁴ Arent Arntzen, "Erfaringer fra Kosovo - konseptuelle og doktrinære utfordringer", p. 81.

⁶⁵ Tony Mason, "Air Power in Coalition", in John Andreas Olsen (ed.), *A Second Aerospace Century* [Militærteoretisk skriftserie, volum 3], (Trondheim: Luftkrigsskolen, 2001), pp. 207-216.

Conclusion

The Norwegian Air Power Doctrine does not make the necessary choices on which operations the RNoAF should carry out, and thereby the doctrine does not appear authoritative which is its intention. The result of this is an unrealistic gap between the air power roles defined in the doctrine, and the current capabilities of the RNoAF. Consequently, the doctrine needs to discuss the air power roles both in a national as well as an international context. This paper has attempted to identify possible causes for this lack of guidance, and has highlighted some consequences of not setting priorities.

When exploring the conceptual weaknesses of the doctrine it appears that the manoeuvrist approach does not provide for a comprehensive air power theory. Such a theoretical framework needs to be present in order to appreciate the unique characteristics of air power. The focus on centralised command and decentralised execution is a high ambition that is hardly as easy to accomplish as it sounds. The principle lies at the heart of the manoeuvrist approach and as such needs to be considered in some detail. Relating command and control matters to a comprehensive air power theory, which is consonant with the overarching philosophy of manoeuvre warfare, might mitigate the detected conceptual flaws. Historical experiences are another important element, which do not seem to be accounted for. A systematic and holistic approach to the study of history would provide better comprehension of military theory and perhaps break down some cultural barriers between the army, navy and air force. Further it would make it easier to provide guidelines on how air power is intended to be used when these factors are accounted for.

The focus on integrated operations is missing in the doctrine and this could have been linked more together. Evidently, the use of Norwegian air power will be part of a joint or combined operation framework and the focus on such operations should be emphasised in the doctrine.

To make the Norwegian Air Power Doctrine educational and ensure complete utilisation of the doctrine, it must be implemented in the organisation and among the politicians as well.⁶⁶ The document must be engaging and pedagogically sound to become deeply rooted in the organisation, and it must take into consideration the actual political and military situation. Few guidelines in how to perform air power and even fewer historical examples provide a highly theoretical, artificial and low value pedagogical document. The reader could easily end up having problems both understanding and believing what is stated. The Norwegian Air Power Doctrine is low on important pedagogical principles, and this will most likely make the implementation process difficult.

The doctrine should also be integrated into the education system so the officers become familiar with it at the beginning of their careers. Without an emphasis on the educational element the doctrine will be useless regardless of how complete it seems.

⁶⁶ Anders Silwer, *Svensk luftkrigsdoktrin och doktrinprocess*, del II, p. 118.

Doctrine development has to be regarded as an ongoing process with no definite end, always looking for ways to improve the current edition and ensuring that it is adapted to the realities. This requires dedicated work for a prolonged period by people that are given both the opportunity and time to do so. Consequently, it would be wise of the RNoAF to establish a permanent “cell” focusing exclusively on doctrine development. This cell has to have thorough knowledge of strategy as well as keeping up to date on air power theory and air power history. Furthermore, a system that makes use of the lessons learned from various national and NATO exercises as well as the personal experiences from the considerable number of service personnel who have participated in international operations, should be implemented. In that way one ensures that important experiences can be used as part of the process in writing a doctrine that is adapted to realities.

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Abbreviations

ATO	Air Tasking Order
CA	Counter Air Operations
CAOC	Combined Air Operation Center
CoG	Center of Gravity
C ²	Command and Control
DCA	Defensive Counter Air Operations
EW	Electronic Warfare
FSTS	Forsvarets Stabsskole
GBAD	Ground Based Air Defence
JFOD	Joint Forces Operational Doctrine
KFOR	Kosovo Force
NASAMS	Norwegian Advanced Surface-to-Air Missiles System
NATO	North Atlantic Treaty Organisation
OCA	Offensive Counter Air Operations
OODA	Observe Orientate Decide Act
RNoAF	The Royal Norwegian Air Force
SEAD	Suppression of Enemy Air Defence

