



# Principles of War and Air Power

by Sanu Kainikara

In 2000, the Aerospace Centre (a predecessor to the Air Power Development Centre) published *War: A Matter of Principles* written by former Chief of the Air Staff, Air Marshal David Evans. The publication, the first Australian analysis of the principles of war by an airman, was notable in how it discussed the nature of the principles and their understanding in allied doctrine. Ten years later, Dr Sanu Kainikara, has provided an equally original and valuable Australian analysis of the principles of war. However, this time, Dr Kainikara's analysis provides a distinctly air power perspective to the principles of war.

It is the paper's specific linkage to air power that makes it so valuable to air power and military thinking. The paper stresses that an understanding of the principles of war is an essential component of an airman's professional mastery. Accordingly, an understanding of the principles of war is essential for air commanders and their planning staff in developing air power strategies and doctrine that are effectively integrated into joint operations and that contribute to national security objectives.

The paper also has a broader appeal. Dr Kainikara notes that in recent years some have increasingly questioned the value of the principles of war but he reaffirms their relevance just like in all past wars.

Overall, the paper will be valuable to not only air-minded readers but also those more interested in land, naval and joint aspects. I therefore commend this paper to airmen, sailors and soldiers alike and trust it serves to enhance their understanding of air power and war.

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## ABOUT THE AUTHOR

Sanu Kainikara is a fighter pilot from the Indian Air Force (IAF) who retired as a Wing Commander after 21 years of commissioned service. During his service career, he has flown over 4,500 hours on a number of modern fighter aircraft. He has also held various command and staff appointments. He is a qualified Flying Instructor (A2) and a graduate of the IAF Fighter Weapons School, the Defence Services Staff College, as well as the College of Air Warfare. He is the recipient of the Indian Air Force equivalent of the Air Force Cross.

After retirement from active service, he worked for four years as the senior analyst, specialising in air power strategy, fighter operations, weapons and tactics for a US Training Team in the Middle East. Subsequently he was on the faculty of Aerospace Engineering at the Royal Melbourne Institute of Technology, Melbourne and a consultant to the Air Operations Division of DSTO, also in Melbourne. He is currently the Air Power Strategist at the Air Power Development Centre, Canberra and is also a Visiting Fellow at the University of New South Wales. He has published numerous papers on national security, strategy and air power in various international professional journals. He is the author of five books: *Papers on Air Power* (2006), *Pathways to*

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*Victory* (2007), *Red Air: Politics in Russian Air Power* (Universal Publishers USA, 2007), *Australian Security in the Asian Century* (2008) and *A Fresh Look at Air Power Doctrine* (2008).

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## INTRODUCTION

*Principles of War are only the principles of common sense applied to war.*

Air Chief Marshal J. C. Slessor  
Lecture to Air War College, 1957<sup>1</sup>

Since ancient times, military theorists have continuously attempted to define the principles of war that, when applied appropriately, would lead to success in military campaigns. Over the years various principles have been articulated and they have been different from time to time, between individual nations and also between various theoreticians. However, an overarching look at these principles demonstrates an underlying continuity in the more fundamental ones. In fact, there are only minor and nuanced differences between the principles that Sun Tzu espoused 2500 years ago and the ones that modern military forces adhere to in current conflicts. In a very broad manner, the basic principles of war could therefore be termed 'timeless'.

Principles of war are also valuable as a basis to both analyse previous campaigns in order to distil the relevant lessons from them and also to apply these lessons to the existing force to improve their efficiency and preparedness. Further, the stated principles of war of a particular nation and the priorities assigned to each are also a clear indication of that nation's inherent stance regarding national security. These principles also act as a set of guidelines to focus the planning process, at both the national and the military strategic level, prior to undertaking military operations as well as during their conduct in the pursuit of national security.

Principles of war are not obtuse ideas, but simple and logical tenets that should guide the conduct of all military campaigns. History provides numerous examples of failed campaigns which, when analysed, indicate that the failure stemmed from non-adherence to the basic principles of war. In fact, it is seen that in these instances the difficulty was not so much in the understanding of the principles of war but in ensuring that throughout the campaign the leadership observed the principles in the employment of the force in a realistic manner. This situation is often exacerbated by the large number of variations involved and the complexity of conducting a campaign.

Even though they can be stated in simple terms, principles of war are not easy to study in a purely academic manner. Since they relate directly to the conduct of war, they are best learned and understood within the context of a campaign provided sufficient knowledge is already resident in the individual to understand the intricacies and relevance of their application. 'Principles' are statements and do not normally provide explanations or justifications that would make their understanding easier. Therefore, there is a distinct possibility of misinterpreting a principle because of insufficient understanding of the implications of its application. This situation tends to create the impression of the principles of war being complicated maxims.

Essentially, principles of war are the foundational pillars on which a campaign is built from the planning stage through to its conduct and successful culmination. However, there cannot be a single universal list of such

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<sup>1</sup> Cited in Col Charles M. Westenhoff USAF, Retired, *Military Air Power, A Revised Digest of Air Power Opinions and Thoughts*, Air University Press, Maxwell Air Force Base, Alabama, USA, 2007, p. 161. All quotations in the paper (in boxes) have been obtained from the same publication pp. 161-199.

principles, since they are influenced by contextual factors, the composition and character of the military forces and the national ethos regarding security and war.

This paper examines the principles of war with a view to establishing their relevance to the application of air power. It does not contain any detailed analysis of the principles themselves, other than to provide a brief explanation of the need to have such principles and their timeless nature.

## THE FUNDAMENTALS OF THE PRINCIPLES OF WAR

Although Sun Tzu's treatise *The Art of War* provides a number of maxims that can be listed as 'The Principles of War', they are not stated as such within the text. Therefore, only a detailed study of the book will allow the distillation of such a list of principles. It is generally accepted that the principles originally proposed by Carl von Clausewitz in his essay 'Principles of War'<sup>2</sup> written around 1812 comes closest to their current format. The essay dealt only with strategy and tactics and was meant as a guide to the successful prosecution of wars and military campaigns. However, the changing characteristics and conduct of war gradually made it necessary to have broader principles that could be applied to strategic planning and decision making. These principles were further refined during the early experience of continental mechanised warfare. This was the origin of the development of the principles of war to their current state as applicable to modern warfare.

They remain relevant to modern air warfare, provided they are correctly balanced against each other in a contextual manner. Further, a number of principles have been enumerated over time and it is necessary to select the ones that are most appropriate for a nation, at the military strategic level. This selection must be done taking into account a number of factors such as the national security posture, the status of the military forces within the national security apparatus, civil-military relationship, military capability and accepted concepts of operations.

## WHAT ARE PRINCIPLES OF WAR?

A study of the history of warfare and its almost unchanging nature, when judiciously intermingled with the experience of the conduct of battles, campaigns and wars, produces some fundamental principles regarding the manner in which a particular military force could be optimally employed. These principles are applicable across the entire spectrum of conflict and also from the tactical to the strategic level of its conduct. Since they are fundamental principles they normally do not change and stay relevant even when dramatic alterations are made in the methods, technology and techniques of war. However, they do require constant review to ensure their continued veracity, especially in view of the rapid advances in technology that are changing the conduct of war. Such reviews are also necessary to ensure that the principles are always aligned with the politico-economic objectives and security imperatives of the nation so that the military force operates synergistically with other elements of national power in ensuring the sovereignty of the nation. Such an alignment will also shift the relative importance of individual principles in a contextual manner, thereby also changing the priority allocated to each in the application of the principles as one comprehensive set. It must also be noted that not all the listed principles will be applicable in all situations and at all times during a conflict and it may become necessary to 'trade-off' the application of one principle with another.

Principles of war are therefore the primary guiding elements in the conduct of any conflict. They are enshrined in the philosophical level doctrine of most modern military forces and are not normally changed unless there is compelling reason in terms of a radical shift in national security priorities brought about through political, social or cultural upheavals. However, military forces of different nations adhere to different sets of principles of

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<sup>2</sup> The essay was called 'The most important principles of the art of war to complete my course of instruction for his Royal Highness the Crown Prince' (the Crown Prince was the sixteen-year old Prussian Crown Prince Friedrich Wilhelm, later King Friedrich Wilhelm IV who ruled from 1840-1858) and was written at the end of Clausewitz's tenure as the Prince's military tutor. The essay is largely tactical in nature and is also deficient in situating it in historical terms. It is almost completely based on the Prussian wars with revolutionary France prior to 1812. A translation of the paper, titled *Principles of War* was done in 1942 (The Military Service Publishing Company, September 1942) by Hans W. Gatzke (1915-87), who was a graduate from Harvard and a professor of military studies for many years.

war, although there is normally more commonality than differences between them. Even though the differences are minimal, they do indicate a divergence in the interpretation of the basic principles that guide the conduct of war. This is noteworthy and the differences, even though subtle, must be studied because it provides a clear indication of an individual nation's security imperatives at the highest level. The fundamental test of the veracity of a particular principle is its applicability to ensuring that the employment of military forces within the ambit of that principle optimises the effectiveness of the force in achieving the desired end-state.

The commonly accepted principles of war in modern military forces are: selection and maintenance of the aim, concentration of force, surprise, security, cooperation, offensive action, economy of effort, flexibility, sustainment, morale, simplicity, and unity of command. The ones selected by the Australian Defence Force (ADF) will be analysed subsequently in this paper.

## THE NEED FOR PRINCIPLES OF WAR

In a very broad manner wars can be categorised as global, general or limited. Global war is unrestricted war between two or more global powers and their allies. While all nations may not be directly involved in such a war, the repercussions of such a war would be felt world-wide. A general war is one in which the survival of the participants is in question. Under such circumstances all the resources of a nation would be directed to the prosecution of the war. However, in a general war the impact would not be felt world-wide and in most cases would remain restricted to the region of the conflict. In the prevailing international politico-economic and strategic security environment both these types of wars are unlikely to occur, even in the near to mid-term future.

The term 'limited war' is dated, although it is still used to denote wars in which a nation has placed limitations in terms of its conduct and objectives to be achieved within a dedicated resource allocation and/or timeframe and geographical limits of operations. There have been a number of terms that have been used to denote different characteristics of such conflicts like small wars, low intensity conflict, and military operations other than war. Currently the term 'irregular war' has gained acceptance as the more suitable one for use to denote the unique characteristics of a majority of such conflicts. Irregular wars are normally fought between a non-state entity (or informal groups of them) and the regular forces of a state or coalition of states for political, ideological, religious or socio-economic reasons. The character of the participants itself tend to make such conflicts diffused and long-drawn, typically characterised by small-scale skirmishes and asymmetric attacks.

Irrespective of the type of war or conflict being engaged in and the ultimate political objective to be achieved, wars are fundamentally complex phenomena. They are chaotic and do not progress as per a set of laid down rules. In fact, no two wars are identical. However, the central element in the conduct of all categories of war and conflict is the human factor. Wars are planned, initiated, and conducted by human beings and therefore they are first and foremost a human effort. All human effort needs to be shaped and guided, making leadership a critical factor in achieving success. Therefore, leadership—both political and military—assumes a crucial position in the conduct of war. Successful military commanders need to have balanced judgement that comes with experience, professional study and adequate awareness of a large number of interconnected, but at times disparate, factors that affect the efficient conduct of a war in order to make timely and correct decisions. This decision-making requirement is the foundation from which the planning and successful conduct of a campaign grows.

All military operations are susceptible to the detrimental effects of what Clausewitz termed the 'friction' of war. War is influenced by 'an infinity of petty circumstances'<sup>3</sup> that tend to overwhelm the commander, if not appropriately dealt with at the right time. Further, every campaign and war are distinctly different, demanding consummate skill and presence of mind from military leaders to exercise correct judgement of evolving situations in order to be successful. Mistakes—of judgement and decision or of the physical conduct of the war—can often lead to unnecessary destruction, failures and casualties with no chance of applying corrective action. This is an onerous responsibility thrust on all military leaders.

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<sup>3</sup> Carl von Clausewitz, *On War*, Edited by Anatol Rapoport, Penguin Books Ltd, Middlesex, England, 1968, p. 164.

The principles of war are selected and articulated in order to provide military leaders with a set of firm guidelines to make decisions that will meet these exacting requirements. These principles, built as they are on the experience of successful commanders and campaigns of the past, are meant to assist in analysing emerging conditions at all levels of war and subsequently to make superior decisions that will continue to be competent even when the situation is immersed in further complexity.

The principles of war are not a set of laws or rules that if blindly followed or adhered to will lead to success. Their observance may not always produce a predictable result nor is their non-observance definite to produce adverse effects. They are merely refined pointers, distilled out of historical experience, which have been found to have almost timeless application in contributing to successful prosecution of campaigns and wars. By virtue of their historic background, it can be assumed that non-adherence to these principles in the conduct of a campaign is risky and likely to lead to less than desired end-results.

## THE TIMELESSNESS OF THE PRINCIPLES OF WAR

Clausewitz's essay<sup>4</sup> is a classic study that deals with the strategy of war as well as the tactics of combat. The tactical part of the essay is not of contemporary relevance since they deal with the deployment, command and employment of 18th and 19th Century European armies. However, the strategic thought in the essay and the basic principles that are brought out have universal and timeless applicability.

In the essay, Clausewitz clearly enumerates three main objectives to be achieved in war.

- To conquer and destroy the armed power of the enemy;
- To take possession of his materiel and other sources of strength; and
- To gain public opinion.

While the objectives may not be articulated in the same words in the current paradigm of political correctness, they have only been delicately refined over a period of time. These objectives still resonate in alignment with the contemporary national security objectives of a majority of nations, when they choose to employ military forces. In fact, Clausewitz goes on to expand on these, stating that only by defeating the main body of the adversary's military forces can the other two objectives be pursued successfully.

In the original essay, Clausewitz also enumerated and explained a number of principles to be followed to achieve these objectives. These principles have certain commonality with what modern military forces consider as the essential principles of war to be considered and used as guidelines while employing military forces in conflict. The principles that were elucidated by Clausewitz along with its contemporary interpretation are listed below in a very concise manner.

- Use the entire force with the utmost energy. This is to ensure the adequacy of the force being employed and Clausewitz himself adds that by using overwhelming force, the war can be won at the earliest. Swiftness in victory, assured through 'overwhelming' force, will lessen the long-term resource expenditure of the nation and raise morale.
- Identify the 'weak' areas of the adversary military force and attack at these points. These are the centres of gravity where concentration of force will increase the chances of success.
- Never waste time. Decisive and speedy action will overcome a large number of enemy initiatives and enable the force to control the tempo and direction of the conflict.

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<sup>4</sup> Gatzke, *Principles of War*, op cit.



- Surprise plays a much greater role in strategy than tactics. Surprise is one of the most important elements to achieve victory and is intimately connected to swiftness of action. It can balance disadvantageous situations.
- Concentrating the force on the main points should not divert from the idea of strategic envelopment. This translates to the contemporary concept of manoeuvre warfare.
- Physical and moral superiority. The ability to be physically superior is a function of resource availability and organisation. Therefore, it is easier than maintaining moral superiority at all times, which involves ensuring the correctness of all military actions from a socio-political and legal perspective.
- Provisioning of troops is a necessary condition of warfare. Logistics continues to be a fundamental requirement for the effective functioning of a military force. Logistic support can become the Achilles' heel of modern military forces, especially in expeditionary operations.
- Independent action is important. Even in modern conflict, independent action aligned with the overall higher strategy and operational thrust is critical to achieving subordinate but supporting goals.

A historic study of the principles of war—articulated or identified from an analysis of campaigns—shows an underlying timelessness to them. This fact alone should make it imperative for modern military forces to analyse and select the principles that are pertinent to their doctrine, strategy and concepts of operations. A fundamental alignment of military action, even across different theatres of operations, can be achieved in a comparatively easier manner if the guidelines of the accepted principles of war are adhered to as a general rule. However, it must be noted that even though over a period of time various changes have been made to the understanding of the basic principles, they have to be constantly aligned to the technological and conceptual developments that are taking place. This is essentially a dynamic process and particularly important for their application to air power, which is to a great extent technology-driven.

## **PRINCIPLES OF WAR AND AIR POWER**

The application of air power—independently or within a joint campaign—has to be done taking into account the accepted principles of war within the military forces. This ensures that all the advantages of adhering to the principles of war are retained in the planning and execution of the air campaign. Further, such a process also guarantees the alignment of the air campaign with the broader joint campaign and the circumstances that are unique to a particular conflict.

The principles of war are equally applicable to all forces. Airmen, especially air commanders, must be able to appreciate how these principles apply to the other two Services while having a particularly comprehensive understanding of how they influence the employment of air power. However, such an understanding only forms part of an all-round professional mastery that is necessary to be an effective air commander and cannot be considered a substitute for astute judgement and command ability. In fact, these principles should never be used as 'check-lists' to guarantee success.

Two caveats must be borne in mind while undertaking a study of the principles of war. First is that a fundamental principle of war can never be completely passive. This means that even though the principle is time tested, it continues to evolve in a nuanced manner with the changing concepts of national security and is continuously refined in relation to the role of the military forces in the broader security equation. Secondly, there must be a clear appreciation that while the principles on their own are independent of each other, in their application they are completely intertwined. This means that the application of one principle should only be done after considering the primary and secondary impacts and influence that such application will have on other principles that may or may not have equal priority in a particular context.

The principles of war also have some bearing, directly or indirectly, on military leadership and the exercise of command in conflict. Therefore, although they do not require great erudition or genius to appreciate, their study must be tailored and analytical. Any random attempt at understanding these principles is likely to be confusing. It must be stressed again that the principles of war only provide, at best, holistic guidelines to the

conduct of military operations. An inflexible adherence to them without adequate understanding or agility in thinking can easily lead to failure.

From an air power perspective, it is necessary to understand these principles in a three dimensional but integrated manner for two reasons. Firstly, only a broad understanding of the principles of war as applicable to the military force as a whole will permit the development of appropriate air strategies for the effective application of air power. Secondly, the set of endorsed principles of war is one of the foundations for the development of sound and enduring air power doctrine that permits uninhibited participation of air power within a joint environment.<sup>5</sup>

While it is true that different nations have different sets of principles of war, it is equally true that there is considerable overlap in these sets. Variations do exist, but these are normally minor and mostly semantic. At times these variations also reflect the cultural and political persuasion of a nation towards a particular principle. From the table given below the commonality of the principles of war between the United States Air Force, UK Royal Air Force, Canadian Forces Air Force, the Royal Australian Air Force and the Russian military forces can be easily seen. While these have been taken from the respective air force documents, they are essentially joint principles.

USAF	UK RAF	Canadian Forces AF	RAAF	Russian Military
Objective	Selection and Maintenance of the Aim	Selection and Maintenance of the Aim	Selection and Maintenance of the Aim	
Mass	Concentration of Force	Concentration of Force	Concentration of Force	Concentration of Force
	Cooperation	Cooperation	Cooperation	Combined Arms Coordination
Offensive	Offensive Action	Offensive Action	Offensive Action	Aggressiveness and Decisiveness
Security	Security	Security	Security	
Surprise	Surprise	Surprise	Surprise	Surprise
Manoeuvre	Flexibility	Flexibility	Flexibility	Deep Operations
Economy of Force	Economy of Effort	Economy of Effort	Economy of Effort	
	Sustainability		Sustainment	Persistence and Initiative
	Maintenance of Morale	Maintenance of Morale	Morale	Moral-political factors
Simplicity				
Unity of Command				Command and Control
		Administration		Comprehensive Combat Support

**Table 1: Comparative List of Principles of War<sup>6</sup>**

The principle of ‘selection and maintenance of the aim’ should always be considered the first and overarching principle to be applied, from the initial planning phase of a campaign, through its execution to the culminating phase of standing down operational forces. The relative importance of each of the other principles varies in a contextual manner. Therefore in this paper, the principles are not presented in any order of priority or importance. Further, the principles of war as accepted by a military force should not be considered as

<sup>5</sup> *Air Force Basic Doctrine*, United States Air Force Doctrine Document 1, 17 November 2003, p. 20.

<sup>6</sup> Sources:

*Air Force Basic Doctrine*, United States Air Force Doctrine Document 1, 2003.

UK RAF – *British Air Power Doctrine*, AP 3000 Fourth Edition, 2009.

Canadian Forces – *Canadian Forces Aerospace Doctrine*, 1st edition, 2007.

RAAF – *The Air Power Manual*, AAP 1000-D, 2007.

Russian Military – as interpreted by the *US Army Field Manual* 100-61, 1998.

encompassing and covering all possible aspects of the conduct of a campaign. In fact they should be carefully analysed and matched to the situation at hand before applying them in a contextual manner. At no time must they be considered a substitute for sound judgement based on professional mastery.

The principles of war also act as the conduits that make it easier to amalgamate air power contributions into the broader joint campaign plan. The principles discussed below are the ones identified in the ADF's ADDP-D—*Foundations of Australian Military Doctrine*, which are therefore applicable to the Royal Australian Air Force.

## SELECTION AND MAINTENANCE OF THE AIM

*The single path to success in aerial warfare is unwavering adherence to the Principle of the Objective. The adaptability of air forces to many missions and the ease with which they may be diverted encourage vacillation and defeat.*

‘General Air Force Principles’  
Lecture, Air Corps Tactical School, 1934-35

All military operations are meant to achieve a higher political objective. Therefore, the aim of any military operation should be selected carefully and must be articulated unambiguously. This aim must be clear, achievable within the means available and morally justifiable. There are a number of criteria that must be analysed before selecting the aim of a campaign, the primary one being that the military aim must be aligned with and support the political objective. Further, the strategic military aim should be able to provide decisive guidance for the selection of operational and tactical aims in the conduct of operations. In application, this principle is supported by the concept of unity of effort. Success in operations is dependent on all components of the force being aware of the aim and then ensuring that their efforts are directed towards its achievement. However, the focus on maintaining the aim until it is achieved must essentially be supported by ensuring that the designated end-state must be obtainable within the constraints of the force being utilised.

In the application of air power, the selection and maintenance of the aim is important when considering the necessity for persistence in achieving strategic objectives. Maintenance of the aim is also important because air power is inherently flexible and versatile, characteristics that in combination with the normally limited availability of air power assets could widely spread its application thereby making it ineffective. From an air commander's perspective it is necessary to retain a holistic understanding of the strategic objectives and to focus on balancing the allocation of forces in such a way as to avoid fragmenting the effects that air power creates.

A classic example of the devastating effects of ignoring this cardinal principle was clearly demonstrated in the Battle of Britain in World War II. The German *Luftwaffe* was tasked with eliminating the Royal Air Force (RAF) fighter force as a prerequisite for the invasion of England. The *Luftwaffe* was very close to achieving this objective when, in an emotional and ill-conceived reaction to the bombing of German cities, Adolf Hitler ordered the *Luftwaffe* to change its operational objectives to the bombing of London. The result was that the RAF was given a respite, recovering its fighter strength without much opposition and subsequently defeating the *Luftwaffe* in the air. This was a turning point in the war and commenced the gradual decline of German military capabilities leading to eventual overall defeat of Nazi Germany. The results of not pursuing the aim until all laid down objectives have been achieved could not be illustrated any better.

The objectives to be achieved in military operations are always politically derived. The contemporary political environment is prone to being complex for a number of reasons. In these circumstances there is a distinct possibility of subsidiary political aims that stem from the primary strategic objective being articulated simultaneously. Military forces need to be able to understand the primary political objective and formulate their aims accordingly so that the military effort remains focused and is not diluted. A single strategic objective and prioritised subsidiary aims that are achievable must be identified for the military forces to initiate directed action.



## CONCENTRATION OF FORCE

*The principles of war could, for brevity, be condensed into a single word: concentration.*

B. H. Liddell Hart

Concentration of force is a fundamental consideration in the planning and execution of all operations. It is the ability to apply sufficient military force at the right place, at the right time and in a manner that assures the achievement of the desired and decisive results. However, concentration does not mean massing the force at a given geographic area, but the deployment of forces in such a way to ensure that concentrated combat power can be brought to bear rapidly at the required place as and when necessary. Further, concentration of force is not merely bringing together large numbers or increasing the size of the force but synergising available firepower, mobility, effectiveness in the employment of forces and the coordinated optimisation of timing in the application of force. Concentration of force, when applied in conjunction with other principles of war, can enable even a smaller and seemingly inferior force to prevail over larger and potentially superior forces.

The outcomes of wars, campaigns and battles are determined not so much by the quantity or calibre of forces that one or the other side possesses but by the quantum of force that a side can generate and apply where it counts—where it can be delivered against the decisive centre of gravity of the adversary. By concentrating force at the tactical level it is possible to achieve local superiority that can then be leveraged to unbalance the adversary and create cascading effects that could lead to the achievement of operational and/or strategic victory.

The concept of *Blitzkrieg* employed by the German military in World War II is an example of the effective use of this principle. *Blitzkrieg* was devised around the concentration of force—consisting of large armoured formations supported by substantial infantry forces with the *Luftwaffe* providing uninterrupted and massive close air support. It was applied at a chosen point of attack to create an unstoppable and rapidly advancing thrust capable of smashing through all defences, even of large enemy forces.

Air power has the inherent capability to launch assets from widely dispersed locations and rapidly concentrate combat power at the desired location. The concept of concentration of force has been intrinsically altered by the advent of air power as a military force.

Traditionally concentration of force by air power required the massing of a large number of aircraft over the desired target area to create the necessary strategic effects. However, contemporary air power permits the delivery of the required weight of attack in a concentrated manner with a single aircraft using precision munitions. This is further facilitated by advances in information technology that permit greater fidelity in identifying and accurately locating the adversary's centres of gravity. The speed and range of air forces that allow them to concentrate force and deliver attacks repeatedly much faster than surface forces and the precision and lethality of air-delivered weapons have introduced a new dimension to the principle of concentration of force.

## COOPERATION

*Success is to be obtained only by simultaneous efforts, directed at a given point, sustained with constancy and executed with decision.*

Archduke Charles of Austria

Cooperation entails the coordination of all activities to produce an optimum combined effort that is vital to achieve success in war. This cooperation has to be within a Service, between the Services, between the military forces and other government agencies that constitute national power as well as between the military forces of allies and coalition partners. This will ensure that the resources and capabilities of each element is optimally

utilised to achieve a common strategic objective. Cooperation among the different components of a force maximises its capabilities through the pursuit of a unified aim and the achievement of optimum effectiveness.

The principle of cooperation is clearly linked to concentration of force in order to produce the desired effect with sufficient economy of effort. Further, only through adequate cooperation can the appropriate balance of force be achieved and as a follow-on, available capabilities optimally employed to create the desired effects. This has particular impact on a joint task force wherein different Service elements will be required to operate jointly to achieve stated objectives. Cooperation within a single Service and among all Services involved, based on sufficient good will and mutual understanding, is a primary factor that underpins success.

At the highest levels of government comprehensive and collegiate civil-military relationships must be based on well established procedures, tested crisis management arrangements and most importantly mutual respect between civil and military leadership. This is critical to achieving the necessary cooperation between the military and other government agencies involved in ensuring national security.

Successful air-land/-sea battles are prime examples of cooperation. However, these complex operations can also be indicative of the damage and confusion that can be created when cooperation between Services is not at the desired level. In contemporary conflict the failure to cooperate is almost immediately visible at the tactical and operational levels, whereas the impact of less than optimum cooperation at the strategic level—both within the military and at the governmental level—may manifest only gradually. However, strategic level failure will have a greater and longer lasting effect on the national security equation than failure at the operational level.

A military force must ensure that cooperation is a trait firmly inculcated at all levels of command. In order to achieve this, it is necessary for strategic level Service commanders to not only cooperate with each other, but to visibly demonstrate to their subordinate commanders the acts of genuine cooperation in the planning and executing of joint campaigns. It is also extremely important to foster cooperation between Services during times of relative peace since peacetime training and preparation is foundational to the conduct of conflict activities. A true combined arms approach to the conduct of operations, based on mutual cooperation and trust, provides the optimum response to threats in the battlefield. Similarly, a cooperative approach to national security challenges—encompassing all elements of national power and relevant agencies within the government—has the best chance of success. Such an approach will require careful integration of relevant government agencies, which permits appropriate participation in the planning and execution of a campaign. This is particularly relevant in contemporary scenarios because unilateral and purely military action to ensure national security has become less likely.

## OFFENSIVE ACTION

*Air forces characteristically take the offensive. Even in defence, they defeat an invading enemy by attack.*

AU Manual 1, USAF Basic Doctrine, 1951

The fundamental purpose of offensive action by a military force is to gain, retain and exploit the initiative. In fact, offensive action as a principle is derived from the elementary need to control the initiative to be successful, ie. to be able to act rather than react so that the context of operations—time, place, scope and tempo—can be dictated to the adversary. Achievement of victory, within circumstances that is advantageous to oneself, is predominantly predicated on offensive action.

Offensive action is also necessary to be imbibed as a mindset within the force, especially at the command level, in order to ensure that advantageous opportunities that arise during a conflict can be identified and exploited. This entails harbouring a spirit of boldness, from the tactical to the strategic levels of command, even when maintaining a defensive posture. However, this requirement should not be considered as a licence for brash

or reckless action. Offensive action ensures that a commander is able to directly influence the outcome of an operation rather than being constrained by events that may be beyond his/her control.

This principle has particular importance to air forces because air power is best employed in an offensive capacity. From an air power perspective, even defensive air campaigns comprise offensive actions and have to be conducted in an offensive manner to succeed. For example, the most successful defensive air campaign, Battle of Britain in World War II, owes its success to the fact that it was conducted based on selective offensive engagements. At the tactical level, employment of air power—even in defensive missions—is inherently offensive in its execution. Air power has the capacity to rapidly concentrate force and operate independently and simultaneously to create effects at different levels of war, which is intrinsically an offensive capability. In fact only its offensive employment will result in optimum exploitation of this unique capability.

Air power, if employed appropriately, can seize the initiative at the outset of a joint campaign and then continue to retain it through sustained offensive action. By doing so air power forces the adversary to react to one's own initiatives, thereby ensuring that control of the conflict in terms of its tempo and direction is always retained. The primary role of air forces in any conflict is to obtain and maintain control of the air over the battlespace to the level and duration required. This can only be achieved through concerted offensive action, especially if such control is being contested by the adversary. The principle of offensive action is fundamental to the success of air operations.

## SECURITY

*Always presume that the enemy has dangerous designs and always be forehanded with the remedy.*

Fredrick the Great

Security is a vital component of military operations because it permits freedom of action to one's own forces that will contribute to denying the adversary any advantage. If the adversary is permitted, even unwittingly, to interfere with one's own operations it could provide them with an advantage they could endeavour to exploit further. Therefore, the security of friendly forces takes on an added importance in conflict.

The concealment of capabilities and intentions, while simultaneously gathering information regarding the possible avenues of operation being contemplated by the opposition, are passive means of achieving security from adversary intrusion. Effective security is ensuring that the integrity of the force is not threatened during any phase of the operation or campaign. The principle of security is adaptable and changes contextually with the characteristics and conduct of the conflict being fought. For example, in irregular wars security encompasses the physical security of non-combatants belonging to non-military agencies like NGOs involved in stabilisation and other duties. This could pose a challenge to the efficient conduct of military operations and in extreme cases could also become a drain on military resources.

Air power assets are extremely vulnerable on the ground. Fixed air bases are fundamental to the overall system that generates air power and sustains its application over prolonged periods. Therefore, air bases are critical centres of gravity. By virtue of their fixed nature they are vulnerable to both aerial and ground attacks making air bases weak links in the overall air power generating system. Therefore, an integral force protection capability that can assure the security of air bases is critical to successful air operations. In contemporary conflict the probability of a force being engaged in irregular wars and peace keeping/enforcement missions is high. Such operations will be expeditionary in nature. In these circumstances the security of operating bases assumes added importance because the air component may be small and operating from austere facilities that may not provide sufficient built-in protection to personnel and assets.

Air power has the ability to ensure its security by operating from outside the adversary's reach and yet retain the ability to rapidly apply combat power where and when required. This is unique to air power since other

forms of military power either will have to be in close proximity to the adversary or must have sufficient lead-time available to effectively bring combat power to bear. This ability of air power to penetrate, reach and strike at extended ranges reduces the necessity for force protection and security to a low and manageable level.

## SURPRISE

*I believe that, more or less, all of the Allied operations [in the Southwest Pacific] depended on deception by landing in places where we thought a landing and the building of airfields impossible.*

Lt Col Masaru Shinohara  
Japanese Eighth Area Army

Surprise and security could be considered two sides of the same coin. Surprise can be achieved by attacking the adversary at a time and place where their security level and awareness are at their lowest, thereby creating an advantageous position for oneself. Surprise can be achieved by initiating actions that are not expected by the adversary and optimally leveraging the effects thus created. The speed, penetration and reach of air power—that negates the restrictions of terrain and distance—when combined with its inherent flexibility permits air forces to achieve surprise at the operational and tactical levels relatively more easily than surface forces. In a broader perspective speed, ie. the rapid execution of all functions associated with the conduct of a campaign in which the planning has been kept secret, can bring about surprise at even the strategic level.

Strategic surprise however, is becoming increasingly difficult to achieve because of the pervasive nature of information availability in the contemporary security environment. Simultaneously, political legitimacy is becoming progressively more important to initiate military action which means gathering of political support and creating coalitions. These actions themselves will provide an unfailing indication of strategic objectives, negating the possibility of achieving strategic surprise.

At the operational level, surprise could be a winning factor, especially when other factors are either at parity or even unfavourable. From an air power perspective surprise is becoming comparatively easier to achieve with the development of technologies that enhance stealth, night and all weather attack capabilities and improved precision-guided weapon systems. A number of elements contribute to surprise such as secrecy, deception, concealment, and audacity in action. The Japanese air attack on Pearl Harbour in World War II is a timeless example of the impact of surprise at both the strategic and operational levels.

## FLEXIBILITY

*An air force commander must exploit the extreme flexibility, the high tactical mobility, and the supreme offensive quality inherent in air forces, to mystify and mislead his enemy, and to threaten his various vital centres...*

J. C. Slessor

At the strategic level of a campaign, flexibility is the resident capacity within a force to adapt plans during the course of the campaign to cater for unforeseen circumstances—both to offset unexpected resistance or setbacks as well as to exploit advantageous opportunities that arise during operations. This means that commanders must be able to adapt the ways and means of an operation to overcome unanticipated events in order to achieve the desired end-state. Flexibility underpins the effectiveness of the principles of concentration of force and economy of effort.

A key aspect of achieving strategic flexibility is to ensure that the decision-making process retains the necessary flexibility that is achieved through a well understood devolution of authority. Effective delegation of authority can only be achieved through the development of a command culture based on trust, training and the inculcation of a warfighting ethos that values boldness, initiative and resourcefulness that is employed with a full understanding of the commander's intent.

Flexibility is one of the characteristics of air power that can create advantages in operations. The inherent advantage of a force being flexible can only be capitalised if sufficient and superior decision-making ability exists within the command structure to appreciate and exploit opportunities that arise, most often in a time-critical manner. Air forces can only be flexible to the extent that they have adequate sustainability and can bring to bear sufficient air mobility capabilities. This would ensure that the force retains the ability to be redeployed rapidly—another facet of flexibility—so that the necessary effects can be created at the desired focal point and to the level required. An air force that does not offer sufficient flexibility to the commander will not be able to contribute effectively to the joint campaign and may even be found wanting in the prosecution of an independent air campaign itself.

## ECONOMY OF EFFORT

*To me an unnecessary action, or shot, or casualty, was not only waste but sin.*

T. E. Lawrence

Economy of effort is the principle of employing the correct numbers of forces and combinations of capabilities to produce the quantum of combat power essential to create the effects necessary to achieve the desired end-state. This is a corollary of the principle of concentration of force, since it is almost impossible to be evenly strong in all areas—geographically as well as in capabilities—during a campaign. The need is to be able to concentrate forces at the critical time and place, which requires the harbouring of capabilities through economy of effort. This will ensure that there is no wasteful dissipation of resources.

The principle of economy of effort is influenced by a number of factors that could become contradictory if not properly addressed. On the one hand, it requires a certain amount of redundancy in assets and capabilities to overcome combat attrition while wasteful allocation would run contrary to the principle itself. On the other hand, there is the possibility of excessive use of force in an effort to ensure the allocation of adequate quantum of air power to achieve an allocated task. These disparate requirements need to be balanced at all times. Further, economy of effort has to be effected within the prerequisite of sustainment of the force. Essentially the requirement is for a rational employment of the force achieved through a judicious mix of capabilities with their application being aligned with the primary objectives of the campaign.

Economy of effort was not a major consideration in most conflicts leading up to and during World War II wherein both sides used all available forces to achieve their aims without much thought being given to the consequences of the application of excessive force. In contemporary considerations this is closely linked to the internationally accepted legal tenet of proportionality in the application of force. Further, over the past few decades this principle has gained prominence mainly because of two secondary factors. First is that collateral damage that ensues even from controlled application of force has become almost completely unacceptable to the international community both legally and morally. Second, is the issue of resource availability. Currently almost all nations are facing resource constraints and therefore have limited ability to apply force in an unrestricted manner. Under these circumstances military forces have embraced the principle of economy of effort giving it centre-stage importance.

At the operational level, economy of effort requires commanders to conserve their resources by ensuring secondary objectives are not pursued even if the application of force towards the primary aims has to be held in abeyance temporarily. Within an air force the quantum of air power available at all levels is almost always finite. In these circumstances it is crucial to maintain an appropriate balance in the allocation of air power towards offensive and defensive operations as well as in prioritising operational objectives. It must also be appreciated that these



priorities could shift fairly rapidly with the progress of a campaign and therefore, air forces must retain flexibility at all times. There is a fine balance in applying air power within the two extremes of excessive use of force that could lead to undesired effects and piecemeal application in an attempt at economising the effort that will result in the loss of decisive effects. Economy of effort dictates that air power must be applied with a clear strategy to task matching.

## SUSTAINMENT

*When the enemy assesses our forces, he values only those forces which the logistics community has ready for combat, or can get ready in time, and then sustain for a requisite period of time.*

F. M. Rogers

Sustainment is the ability of a force to successfully complete a campaign that it has undertaken, from commencement to the achievement of strategic objectives and final draw down of forces. This principle includes the administrative, logistical and personnel arrangements that need to be put in place and all aspects of their management to efficiently support and implement endorsed strategies. Further, sustainability is not merely administration and logistics management; it must also take into account a nation's ability in terms of indigenous industry and alliance support to ensure that the force has sufficient in-built capacity to sustain operations at the desired level for the duration required.

Sustainment can be a fundamental deciding factor in determining the feasibility and practicality of embarking on an operation as well as shaping the strategy to achieve campaign objectives. It is the ability of an air force to generate and sustain the necessary air power capabilities—both combat and enabling—of a sufficiently high calibre to achieve military objectives. This involves the physical and moral sustenance of the personnel that includes casualty evacuation and replacement as well as the maintenance and repair of air power systems.

Sustainment is closely related to flexibility, especially in the application of air power. Flexible air power systems enhance a force's capacity to sustain operations with comparatively lesser resources. However, it must also be ensured that unforeseen circumstances—almost always part of a conflict—are factored into the overall plan for sustainment, which could otherwise decrease sustainability and lead to failure. In an indirect manner the principle of economy of effort also contributes to sustainment by conserving resources that could be used either in other areas or at other times. A fielded force, however well equipped and trained, is critically dependent on assured logistical and personnel support in order to sustain the effort necessary.

## MORALE

*Success in war depends more on morale than on physical qualities.*

Quoted by Nathan Twining in  
*Neither Liberty nor Safety*

Success in any conflict is vitally dependent on the morale of the force. Morale therefore is an essential element of combat power and in any given situation military success is likely to depend as much on morale as the availability of appropriate equipment and warfighting systems. However, morale is a factor in the cognitive domain and therefore, intangible. Paradoxically the force's accessibility to adequate technology and necessary equipment as well as their ready availability—both elements in the physical domain—is a major influence on morale. A necessary requirement to ensure high morale is that the strategic objectives of the war and, flowing from it, the operational objectives of campaigns and tactical aims of battles must all be aligned and perceived by the entire force as being reasonable, achievable and more importantly as being legitimate. Morale of the

fighting forces is a direct embodiment of the national will to employ force in ensuring its sovereignty and security.

Sound and effective leadership is a critical element in maintaining high morale and will sustain it even against great odds. Success in battle, the product of considered and good leadership is a great stimulant of high morale. Professional mastery is a fundamental ingredient to good leadership and in a broader sense to the force being able to maintain high morale. Adequate professional mastery at the required level across the entire force ensures that all personnel are aware of the objectives of the campaign and therefore are able to identify their individual contribution to the collective whole. This understanding is essential to have high morale based on the understanding and belief of the correctness—moral, legal, ethical—of one's own actions. Morale as a principle of war is applicable across all Services in equal measure and no aspect of morale is unique to air forces as such.

## MISCELLANEOUS PRINCIPLES

There are some principles that the ADF has not listed as being fundamental to its planning and conduct of operations, but all the same are considered for their contribution to making a campaign successful. They are: simplicity, and command and control. Likewise, military forces of other nations at times use different terms to indicate similar principles and also consider certain principles to be of greater importance than given by the ADF. For example, the United States Air Force does not list cooperation as a principle and subsumes it under unity of command. Essentially the principles of war are amended in an evolutionary manner to suit the circumstances and context within a long-term view of the fundamentals of warfighting. They vary in different nations, with time and with the viewpoint of different strategists and theoreticians. However, when studied at the strategic level of war, there is very little practical difference between the principles articulated by Sun Tzu 2500 years ago and those that are listed by modern military forces.

Simplicity as a principle is about avoiding unnecessary complications in the planning, organising and conducting of military operations. Wars are inherently complex and tend to be unpredictable, especially at the operational level. Therefore, a complex plan will make the conduct even more difficult. The principle of simplicity emphasises the need to make a campaign plan simple—simple to understand, simple to execute and simple to adapt as circumstances change. This principle of simplicity is also applicable to the design of weapon systems and use of technology in their operations. This is particularly important for air power systems since all of them are technology-reliant and the best normally operate at the cutting edge of sophisticated technology. Simplicity in operating these systems and their maintenance will have to be incorporated as the balancing factor in ensuring that these weapon systems can be employed optimally.

Command and control has different connotations in different military forces. In some nations the principle of unity of command is given the same priority and importance as that of selection and maintenance of the aim. It can be said that unity of command facilitates concentration of force and economy of effort while enhancing flexibility. This principle also subscribes directly to the air power tenet of 'centralised control and decentralised execution'. However, unity of command must be kept at a sufficiently high level and must ensure that subordinate commanders adhere to the principle of cooperation at all times. This will also ensure that a visible chain of command and responsibility is maintained. The essence of a successful campaign is a coordinated effort to achieve well defined objectives. This is particularly important in contemporary operations in which a number of agencies are involved at different levels and with differing command structures within themselves. Only unity of command can ensure unity of effort, critical to success.

The ADF's principles of war and their broad applicability within an air power perspective are tabulated below.

Principle of War	Air Power Perspective
Selection and Maintenance of the Aim	<ul style="list-style-type: none"> <li>Ensures that focus on the inherently strategic nature of air power is maintained</li> <li>Avoids air power's inherent flexibility and versatility being unnecessarily leveraged which, if not carefully managed, could lead to dilution of effects being created</li> </ul>
Concentration of Force	<ul style="list-style-type: none"> <li>Air power can concentrate combat power at the desired location employing assets that are operating from widely dispersed locations</li> <li>The speed, range and penetration capabilities of air power has fundamentally altered the way in which military forces concentrate combat power when required</li> </ul>
Cooperation	<ul style="list-style-type: none"> <li>Air power envelops both land and maritime environments, making cooperation between the Services essential for campaign success</li> <li>Air-land and Air-sea integration at all levels of combat is critical to operational success</li> </ul>
Offensive Action	<ul style="list-style-type: none"> <li>Air power is inherently offensive and is best employed in an offensive capacity</li> <li>Offensive action is fundamental to the success of air operations</li> </ul>
Security	<ul style="list-style-type: none"> <li>Air power assets are extremely vulnerable on the ground, needing protection and security</li> <li>The reach of air power allows it to operate outside the adversary's area of influence, thereby reducing the protection and security requirements</li> </ul>
Surprise	<ul style="list-style-type: none"> <li>Air power can be employed to create strategic surprise, even though it is becoming increasingly difficult in contemporary conflict</li> <li>Reach, speed and penetration capabilities of air power can be optimally used to create operational and tactical surprise</li> </ul>
Flexibility	<ul style="list-style-type: none"> <li>The inherent flexibility of air power can provide strategic flexibility to a joint campaign</li> <li>At the operational level, air power's flexibility provides a distinct advantage to all elements of a joint campaign</li> </ul>
Economy of Effort	<ul style="list-style-type: none"> <li>The normally limited availability of air power makes it imperative to be employed in alignment with the commander's priorities to achieve strategic objectives</li> <li>The inherent flexibility of air power can provide a balance to its limited availability, although it must still adhere to this principle</li> </ul>
Sustainment	<ul style="list-style-type: none"> <li>Flexibility of air power can improve sustainability</li> <li>Air power has unique sustainment requirements that must be considered at the planning stage of a campaign</li> </ul>
Morale	<ul style="list-style-type: none"> <li>Technology and its ready availability are contributory factors to morale that has particular resonance in the application of air power</li> <li>Morale is an intangible common factor across all forces</li> </ul>

**Table 2: ADF of Principles of War**

## CONCLUSION

The principles of war that have been discussed have endured in a broad manner since the 18th Century. To a certain extent they could be considered to have remained almost unchanged since the end of World War II. The dichotomous corollary to this situation is the fact that the characteristics and conduct of war have undergone transformatory changes. Further, conceptual and technological changes are altering the organisational structure of military forces that in turn are impacting on the manner in which military forces are employed and operate. In combination with a widened perception of national security and the role of the military forces within it, the fundamental principles of war—the basis of military doctrine—must be examined very closely to ensure their relevance.

Principles of war have been listed, analysed and altered through history. The only constant has been that all students and practitioners of military doctrine and strategy have almost unanimously accepted the need to have fundamental principles of war as well as the need to adhere to them in order to succeed in war.

Some of the principles that have been listed and explained in this paper have very visible overlaps and some of them could seem to be contradictory to others in their expanded explanations. This is mainly because in different circumstances and contexts some principles have increased influence more than others. In adhering to these principles it is essential to ensure that they are aligned in their application and remain tension free at all times. There needs to be an optimum give and take between the principles in a contextual manner so that the planning and execution of a particular campaign is conducted in a seamless manner.

The principles of war are to be considered at the highest levels of command in order for the force to operate in a cohesive manner. Therefore, it must form part of the education and study process of leaders and commanders at all levels. Only this emphasis on understanding these principles as an integral part of professional mastery will create the necessary competence in commanders to apply considered judgement regarding their correct appreciation and efficient application.

There is a viewpoint that is becoming somewhat prevalent that the principles of war as they are currently listed in most military forces need to be redefined. However, the author feels that this may be a pre-emptive step since they are seen to be as valid in contemporary conflicts as they were when they were refined after World War II. The timelessness of the principles at the strategic level has been demonstrated repeatedly. It is felt that what is necessary is not a redefining of the principles, but a greater understanding of their nuances so they can be appropriately applied in a sophisticated, timely and contextual manner to evolving concepts and ideas regarding the conduct and characteristics of war.

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