CHAPTER 2
INFLUENCES ON MODERN LAND WARFARE

What shapes modern land warfare?

_The fighting of wars is a human enterprise that has no parallel. It is the deliberate use of concentrated and organised violence that principally distinguishes it from all else; and it is this distinction that shapes the field army, directs its business and defines its culture._

Brigadier Andrew Pringle,
Chief of the General Staff’s Exercise, May 1996

INTRODUCTION

Australia is proud of its reputation as a good international citizen and its contribution to the progress of humanity in general and international society in particular. As a matter of course, and as a founder member of the United Nations, Australia seeks to resolve international disputes by peaceful means if possible. Australia does, however, maintain a defence force to protect its sovereignty and meet its continuing responsibilities under the collective security provisions of the United Nations Charter. In the course of its history, Australia’s armed forces have been used on numerous occasions for such purposes, most seriously for either self-defence or defence assistance to allies during war. This situation is unlikely to change for the foreseeable future.

This chapter describes influences on modern land warfare. Some of these influences are enduring, and the Army already has significant experience in coping with them. Other influences and factors are relatively new or emerging and likely to produce significantly different experiences in future conflicts.
CONFLICT AND WAR

The distinction between conflict and war is one of degree and perception rather than substance, as all war is conflict, yet not all conflict is termed ‘war’. For the sake of clarity, LWD 1 uses the term ‘conflict’ unless the subject specifically requires ‘war’ to be discussed.

Conflict can take many forms, ranging from steps taken to enforce sanctions through to violent clashes between opposing forces. It is usually understood as a quarrel between states. Individuals and non-state actors are, however, becoming increasingly important as parties to violent conflict. Despite differences in size, wealth and power, parties to conflict have one common aim: to threaten or use force to impose their will on another in order to achieve a political purpose.

Peace is international society’s ideal condition, and is characterised by the use of non-violent means to resolve competing interests. While peace may include vigorous competition between nation-states or other entities, such competition is usually non-violent and is ideally conducted in accordance with international customs and law. Peaceful competition may, however, lead to disputes that escalate in severity. When non-violent means fail to resolve such disputes, at least one party may decide to pursue an advantage through violence. The unpredictable nature of such decisions is the reason governments raise armed forces and prepare them for conflict.

The Phases of Conflict

Conflict itself generally involves progression through three phases: pre-conflict, conflict and post-conflict. The path to conflict is however, dynamic and unpredictable. Some situations may not develop into full-blown conflict. Alternatively, a conflict may not be fully resolved and relations between parties may revert to the pre-conflict phase. Attempts at conflict resolution generally overlap the pre-conflict, conflict and post-conflict stages. Figure 1 illustrates how the level of competition may vary over time. The need for land forces that are capable of acting in support of national policy is constant across all phases of conflict.
During the pre-conflict phase, parties contemplate or threaten the use of force to achieve their ends. Parties may either communicate this intention, or hide it to preserve surprise. Third parties, such as the United Nations or regional organisations, may become involved in attempts to prevent conflict.

Within the conflict phase, protagonists attempt to impose their will on an enemy using all available elements of national power, particularly military force. The will to fight is the product of three factors: the resolve of the political leadership, the support of the people, and the capacity of the armed forces. The enemy’s will to fight is usually defeated when the perceived cost of pursuing an objective outweighs the likely gain.

During the post-conflict phase, parties cease to resort to violence to attain their objectives. Military force may be used to stabilise a post-conflict situation and create the conditions for state institutions and civil society to re-emerge. Failure to reconcile parties at this stage may create the underlying causes of future conflict. In this stage, new parties may become involved for humanitarian or political reasons.

1. In this context, military force is a broad term that describes the potential to employ organised violence. While military force is usually deployed in a physical domain, it also includes force deployed in non-physical domains, such as the human mind and cyberspace, using electronic warfare, manipulative deception, offensive counterintelligence, and psychological operations as part of information operations.
The Categorisation of Conflicts

While no two conflicts will be the same, many will have similarities that can provide useful comparisons for commanders and planners. Conflicts are categorised using the characteristics of scale, intensity and duration:

- **Scale.** Scale represents the degree of threat to national security, the size and nature of forces committed, and the geographic size of the area of military operations. The scale of conflict is managed through the three levels of command (strategic, operational, tactical) discussed in chapter 3.

- **Intensity.** Intensity refers to the overall tempo, degree of violence and technological sophistication of the violence employed. The rate of consumption of resources is also a measure of intensity. The intensity will be high when the violence occurs frequently or when encounters between combatants are particularly violent. As a measure, intensity may vary during the course of a particular conflict. It will also often vary at the level of individual participants, depending on their particular situation and perspective at any one time. For example, a soldier in contact with an armed assailant during a peacekeeping operation will be in an intense situation. For these reasons, conflicts should never be categorised in terms of their intensity alone, and the concept is generally of most use at the strategic rather than the operational or tactical levels of command. Consequently there is no direct relationship between the intensity and the nature and scale of the forces involved.

- **Duration.** Duration is the length of time spent in, or moving through, the various conflict phases.

Categorising conflict by using these characteristics enables a deeper understanding of the nature of conflict and the resources required to conduct land warfare. Preparation for conflict must anticipate and incorporate the full array of credible threat capabilities even where violence is infrequent. Figure 2 categorises some historical examples using these characteristics.

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2. Tempo is the rate or rhythm of an activity, relative to that of the enemy, within tactical engagements and battles, and between operations. It incorporates the capacity of a force to transition from one operation to another (ADFP 6, Operations).
THE NATURE OF CONFLICT

As indicated in chapter 1, conflict is dynamic, unpredictable, difficult to control, and therefore chaotic. This chaos is the result of the complex interaction of friction, danger and uncertainty—the enduring features of war—and strongly influenced by four variables: human interaction, the physical domain, innovation and chance. Success in battle requires comprehension and exploitation of these features and variables.

Enduring Features

Friction, danger and uncertainty will always be present in conflict:

- **Friction.** The factors that generate friction are enemy action, adverse weather, complex terrain, poor coordination, insufficient or inaccurate information and human error. These factors combine to make even the simplest of actions difficult to accomplish. Initiative, sound leadership, operational experience, thorough and flexible planning, and the confidence gained by realistic training mitigate, but never eliminate, friction.

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3. Complex terrain includes heavily vegetated, mountainous, riverine, coastal, urban and any other terrain that constricts movement and impairs surveillance, target detection and engagement.
• **Danger.** The danger associated with extreme levels of violence causes fear among combatants, and can dramatically degrade the efficiency and effectiveness of soldiers and units. Realistic training and strong leadership reduce the negative effects of fear by generating high morale, confidence and resilience.

• **Uncertainty.** Incomplete, inaccurate and often contradictory information about the enemy, the environment and the friendly situation creates uncertainty in conflict. This uncertainty is often referred to as the ‘fog of war’. For commanders and staffs at all levels, it means accepting the inevitability of uncertainty, planning for such uncertainty, accepting and managing consequent risks, and using judgement and discretion in decision-making.

**Variable Features**

Four variable features make each conflict situation different. These are human interaction, the nature of the physical domain, innovation and chance.

**Human Interaction.** In any conflict there are three distinct parties involved: enemy forces, friendly forces and non-combatant parties. Regardless of nationality or motivation, the enemy will be creative and determined, and will employ different combinations of force, method and technology to achieve his goals.

Armies will often operate as part of a coalition with friendly forces. They may also be required to operate alongside other government and civilian agencies. All partners in a coalition are faced with the problem of reconciling their respective strategic objectives as well as issues of interoperability. These issues include doctrinal compatibility, identification of friendly forces, communication and coordination.

Some non-combatants will act only to ensure physical self-preservation or the protection of their interests at all costs, while others will be willingly present, either trying to help resolve the conflict or attempting to alleviate the suffering of others.

Regardless of their differences, human interaction between parties to a conflict is maked by four characteristics:

• **Free and Creative Will.** Free and creative will is the most important characteristic of human interaction. Free will means that parties have the ability to make choices, and influencing these choices is an essential element of war. Creativity allows protagonists to improvise under
extreme pressure. Creativity is shaped mainly by culture and experience, but it may also be partly intuitive.

- **Political Aims.** The willingness to use or threaten violence to achieve political aims distinguishes conflict from conventional peaceful competition.

- **Resources.** Protagonists must have access to sufficient resources in order to achieve their strategic aims. The allocation, protection, development and sustainment of invariably limited resources will largely govern the capacity to fight.

- **Fallibility.** Humans make mistakes that have unintended and unpredictable consequences.

**The Physical Domain.** Good weather and open terrain enable land forces to move rapidly and to detect and engage targets at longer ranges with greater effect. Adverse weather, climate and complex terrain degrade the effectiveness of sensors and weapon systems, and reduce the physical capacity of soldiers to move and fight. Adverse conditions also provide the opportunity to exploit degraded enemy capabilities.

**Innovation.** The process of technological, organisational and doctrinal adaptation in response to changing conditions constitutes innovation, which provides the Army with the opportunity to create an advantage over the enemy.

**Chance.** In situations of conflict, chance creates random and unpredictable events that present a commander with opportunities and threats. Successful exploitation of unanticipated opportunities can increase the effects of chaos on the enemy. A creative approach is critical to exploiting chance.

**Exploiting the Conflict Environment**

The nature of chaos in war is reflected by Moltke’s axiom ‘no plan of operations survives the first collision with the main body of the enemy.’

Commanders’ plans must give due account to all potential contingencies. Commanders who adapt their plans and capitalise on, or create their own, opportunities will be in the best position to exploit the chaotic conflict environment. In order to lead a flexible and adaptable army, commanders must be competent, resilient and intellectually agile.

FACTORS SHAPING MODERN LAND Warfare

Apart from the enduring features of war, diverse and rapidly changing factors shape and affect modern land warfare. The two key and closely related factors are globalisation and technological change.

Globalisation

The contemporary world is often described as being in an era of globalisation in which there is a close connection between global, regional and national economic and security concerns. In the area of strategy, globalisation has created a trend towards convergence of national and collective security. In a globalised strategic environment, the development of regional threats can distort the complex workings of the world economy and lead to preventive military intervention by the international community.

The need to uphold international order has led to the merging of defence strategy with broader security concerns such as humanitarian and peace operations. Because of globalisation there has been a major conceptual shift in the conditions that govern land warfare. For example, collective intervention in crises has replaced containment, and the ability to compel is now often seen as being more important than deterrence in dealing with states or other groups that threaten international order. Seven factors emanating from globalisation are shaping modern land warfare:

• **Greater Cooperative Defence.** Globalisation has created an increasing trend towards cooperative defence and security arrangements. The costs of interstate war, the requirements of new technology and the need for international order have led to increased military cooperation and coordination, as seen in the Gulf War, in Kosovo and in numerous peace enforcement operations. Increasingly, land warfare is likely to take place in coalitions under a United Nations mandate or in regional coalitions formed to resolve regional crises.

• **The Growing Link between Globalisation and Regionalisation.** The rising density of trade and economic connections among states has increased the costs of regional instability to all. Regionalisation and globalisation are not so much contradictory as mutually reinforcing processes. Hence ethnic disharmony, fragmentation of multinational states and intercommunal conflict often have global significance, and the international community is now more often willing to deploy forces to resolve these problems.
• **Proliferation of Advanced Weapons and Asymmetric Challenges.** The proliferation of advanced weapons (including nuclear, biological and chemical weapons, and ballistic missiles) has regional and global significance. The increasing transnationalisation of military technology empowers rogue states and non-state parties, and challenges armies to respond to potential asymmetric threats. Countering proliferation and asymmetric threats places a premium on international action and multilateral agreements, which may in turn lead to coalition operations by land forces.

• **Human Rights and Sovereignty.** A major consequence of globalisation has been a greater willingness on the part of international society, often led by the United Nations, to intervene in circumstances where sovereign governments are either unwilling or unable to protect the human rights of their peoples. The Australian-led International Force East Timor (INTERFET) operation in East Timor is a recent example.

• **Urbanisation.** Population growth in the 20th century has contributed to the urbanisation of littoral regions worldwide, increasing the numbers of non-combatants in a combat zone and adding significantly to the complexity of military operations. Consequently, the Army must be able to conduct urban operations.

• **Environmental Degradation.** Population increases, uncontrolled industrial development and unsustainable resource usage have stressed vital ecosystems. Shortages of clean water, reduced food production and increased pollution have the potential to cause conflict between those who benefit from resource exploitation and those who are forced to live in degraded environments.

• **Role of the Media.** A pervasive global media ensures that future conflict will be more transparent and creates opportunities for otherwise disenfranchised parties. It may dramatically influence political opinion and public support. It will ensure a global audience for the Army on operations and bring critical opinion to bear on even minor incidents that transgress acceptable behaviour.

Future conflict will thus be more complex than ever before and its causes more diverse. So-called ‘dirty wars’ involving non-state parties may increase in frequency. Humanitarian interventions will be a new category of conflict, although such interventions will be problematic because of the uncertain impact of the modern electronic media. The ability to apply force with discrimination will be critical and the management of the perceptions of the various parties to a conflict will be vital to success.
Technology

Land warfare is often less sensitive to technological developments than maritime or air warfare because of the generally greater environmental and situational complexity involved. However, the commercial sector will continue to drive technological change over the next decade, presenting opportunities and challenges for the development of land force capability. The areas where technological change might have the greatest effect include:

- **Information Technology and Telecommunications.** Digitisation of the battlespace will enhance situational awareness, improve sustainment and facilitate better integration of weapon and sensor systems. Conversely, digitisation creates its own vulnerabilities. It must therefore be managed effectively at all levels in order to minimise these vulnerabilities. These systems increase the tempo by helping commanders to reach better decisions faster.

- **Sensor Systems and Intelligence.** Advances in sensor technologies and the means to access and distribute information derived from them provide an advantage that is not confined to wealthy nations. In particular, commercially available satellite imagery is enhancing the transparency of the future battlespace. At the same time, the Army’s capacity to turn information into intelligence will be of critical importance.

- **Weapon Systems Technology.** With the benefits provided by recent improvements, conventional weapons are achieving increased precision, reach and lethality. Combined with advances in command and control systems, this equips military forces with an increased ability to achieve lethal influence over larger areas, especially in open terrain. Some forces can project influence into distant areas and so not expose themselves to immediate counterattack. To counter this, there is a greater need for dispersion and better measures for physical protection, deception, operational security and countersurveillance. Increasingly, forces will exploit complex terrain to neutralise an enemy’s target acquisition and weapons systems.

The global proliferation of high-technology and relatively low-cost weapons has also added to the potential lethality of conflict. The availability of these weapons, including weapons of mass destruction (WMD) and the associated means of delivery, has increased the capacity of lesser powers, organisations and even individuals to threaten levels of violence previously only available to wealthy nation-states.
On the other hand, non lethal weapons add another dimension to military capabilities by providing the means to tailor responses to specific situations. These technologies focus on incapacitating protagonists and separating them from neutral parties. Non lethal weapons provide the means for a graduated response and can be especially useful in minimising collateral damage.

- **Human Sciences.** The study of the human sciences aids in the understanding of the physiological, and psychological impacts on the soldier in the battlespace. Advances in medicine and health services have increased the rate of prevention of illnesses and improved the treatment and care of casualties. Advances in ergonomics, psychology and physiology continue to enhance the performance of soldiers in high-tempo operations.

- **Mobility and Speed.** Continuing development in the mobility and speed of vehicles has dramatically enhanced the ability of forces to deploy and redeploy. The pace of battle is no longer dictated by the foot soldier, but by the technology that can transport soldiers to combat and move them around the battlespace.

- **Power Source Technology.** Advances in power source technology have been slower than in other areas. The capacity of armies to move throughout the theatre of operations remains limited by the range of vehicles and the large quantity of fuel and batteries required to sustain operations. The limitations of power source technology will continue to impose restrictions on a deployed force’s ability to sustain operations until a technological breakthrough occurs.

The ability of non-state actors to gain access to sophisticated technologies with military applications erodes the ‘technology edge’ of many countries, including Australia. This growing threat increases the importance of proliferation control regimes and the security of international technology-sharing agreements.

Military capabilities will increasingly depend on the adaptation of commercially available technologies and the use of commercial off-the-shelf products.
THE MODERN BATTLESPACE

Globalisation and technological change are shaping the conflict environment and, more narrowly, the modern battlespace. The battlespace refers to two areas of conflict: the area of influence and the area of interest. It includes the traditional domains of land, air and sea; the littoral regions where these three converge; space; and the electromagnetic environment. The battlespace also embraces the social and political contexts in which conflict is waged.

The four attributes of the modern battlespace that distinguish it from the battlefield of earlier times are non-linearity, increased integration, continuous operations and increased connectivity. These attributes are illustrated in figure 3 and are described in the following paragraphs.

Figure 3: Characteristics of the Modern Battlespace
Non-linearity

The term *non-linearity* refers to operations distributed throughout the battlespace. It differs from the historical linear approach where the opposing forces’ fronts and flanks delineated the traditional battlefield. Non-linearity results from technological advances that enable land forces to manoeuvre, acquire and engage targets throughout the battlespace.

Traditionally, non-linearity has been associated with counterinsurgency and unconventional warfare. Its relevance to conventional warfare arises as commanders acquire the means to move forces, gather information, transmit orders, acquire targets and strike at widely dispersed points within the battlespace (figure 4). Non-linearity will also create temporary blind areas, particularly in complex terrain.

![Figure 4: Non-linearity](image)

Some areas in the battlespace will be blind to commanders for varying periods of time.

Increased threats require greater force protection.

Distributed operations throughout the battlespace.

TERRORISM
Long-range, precision-strike and asymmetric threats will substantially increase lethality across the modern battlespace. As a result, forces operating in support areas will often face as much risk as those actively conducting combat operations. In order to match the requirements of the changing threat environment and the challenge of non-linearity, the Army requires sound and focused intelligence, flexible organisations, suitable doctrine, adequate force protection, the ability to concentrate and disperse rapidly, and the ability to concentrate offensive fire and information effects.

**Increased Integration**

Success in the modern battlespace requires a high level of integration within the Army, and between the Army and joint and coalition forces. Integration also includes other government, non-government and international agencies. Integration occurs through:

- **The Combined Arms Team.** Combined arms teams are balanced groupings comprising combat, combat support and combat service support elements. They allow rapid grouping and regrouping in order to optimise combat effects according to the variable conditions created by the enemy, task and terrain.

- **Joint Task Forces.** Fighting in the modern battlespace requires a joint approach to the conduct of operations. This approach is achieved through the integration of compatible command and control systems, and the development of joint doctrine, operating procedures and training practices.

- **Coalition Operations.** Although coalition interoperability depends on doctrinal and technological compatibility, it starts with a common purpose and is sustained by personal relationships based on well-developed cross-cultural skills. Combined exercises, personnel exchanges and standardisation agreements are essential in building effective coalition operations.

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5. Combat refers to infantry, armoured, and/or aviation elements whose primary purpose is the direct engagement of an enemy in close combat. Combat support refers to elements drawn from artillery, field engineering, intelligence, communications and electronic warfare resources. Combat service support refers to logistic, maintenance, health service and construction engineering elements providing sustainment.

6. The term combat effects refers to the outcomes that result from the application of fighting power in the battlespace.
Civil-military Integration. Civil-military integration is essential for successful on-shore and offshore operations. In continental Australia, effective civil-military cooperation will be required to maintain government leadership and minimise the impact of conflict on national life. Civil-military operations offshore will involve integration with numerous civilian agencies including Australian Government representatives from the Department of Foreign Affairs and Trade or the Australian Agency for International Development (AusAid), contractors providing logistic support, and international aid agencies. Offshore operations will also require effective relationships between the host nation and members of the coalition.

Continuous Operations

Technological developments have made continuous operations possible. As technology reduces the limitations of night operations and moderates the effects of weather, both friendly and enemy commanders will seek to manipulate the tempo of battle to their advantage. Continuous operations place great demands on sustainment systems, and severely test the endurance of soldiers and equipment. In order to increase human performance, armies must prepare for continuous operations through organisational change, training, and the exploitation of medical technology.

Increased Connectivity

Using networked communications, increased connectivity has improved access to information from a broad range of sources. It has increased the flow of information between the battlespace and the outside world, adding a layer of complexity for commanders at all levels. Better communications also allow commanders to make and communicate better decisions, thus enabling smaller, dispersed forces to deliver disproportionately greater effects. Increased connectivity underpins the Army’s goal for a sensor-actor architecture. A sensor-actor architecture links battlespace sensors to the delivery of precise and timely physical and non-physical effects within the framework of the commander’s intent.

7. One consequence for soldiers is sleep deprivation, which degrades higher-order complex thinking, such as that involved in planning and the achievement of decision superiority, more than simple mental operations such as weapon-firing drills. The capacity to perform complex tasks diminishes, in terms of speed and accuracy, by three to four times over a 72-hour sleepless period.
CONCLUSION

Understanding the nature of conflict provides commanders and soldiers with valuable insights into the rigours and danger of battle. Although conflict is inherently chaotic and unpredictable, its effects are not exclusive and the enemy faces the same problems. Modern warfare is also being shaped and affected by diverse and rapidly changing factors and circumstances, especially by globalisation and the spread of advanced technology. The future battlespace will be distinguished by its non-linearity, requirements for increased integration, potential for continuous operations and increased connectivity through networked systems.

Changes to the conflict environment and the emergence of an increasingly complex battlespace demand a comprehensive response across all the elements of military capability. Winning future battles will depend on skilled personnel, flexible organisations, robust support infrastructure, excellent training, the right equipment and sound doctrine. More than anything else, professional mastery (discussed in chapter 5) and continuous modernisation (discussed in chapter 6) will underpin the Army’s response to these challenges. Australia’s military strategies, and especially the Army’s responsibilities within such strategies, are the other key factors in shaping the Army’s response to this changing strategic environment. Chapter 3 describes Australia’s military strategy, and the Army’s contribution to the defence of Australia and the protection of Australian interests.