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**The Implications of the United States Army's  
Army-After-Next Concepts for the Australian Army**

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**by**

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### **About the Author**

Lieutenant Colonel Greg de Somer graduated from the Officer Cadet School, Portsea, in 1984 and was commissioned into the Royal Australian Infantry Corps. His subsequent military career has involved a wide range of regimental, staff and instructional appointments, and extensive experience (three postings) in special forces. His most recent regimental posting was Officer Commanding 3 SAS Squadron, The Special Air Service Regiment in 1993–94. Throughout 1996–97 he was a tactics instructor and team leader at Tactics Wing at the Land Warfare Centre, Canungra. In 1998 he was the Chief of Army Visiting Fellow at the Asia–Australia Institute at the University of New South Wales. Lieutenant Colonel de Somer is currently posted to the Army’s ‘think tank’, the Land Warfare Studies Centre, as a Senior Research Fellow.

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His Masters sub-thesis, ‘China’s Approach to Nuclear Arms Control in the Post–Cold War Era’, attracted significant professional and academic interest. Lieutenant Colonel de Somer

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## ABBREVIATIONS AND ACRONYMS

AAN	Army After Next
ABCS	Army Battle Command System (US)
ADF	Australian Defence Force
ADHQ	Australian Defence Headquarters
ADO	Australian Defence Organisation
AHQ	Army Headquarters
AIB	Army-In-Being
ANZUS	Australia, New Zealand, United States
AOE	Army of Excellence (US)
ASP97	Australia's Strategic Policy 1997
AWE	Advanced Warfighting Experiments (US)
BOS	Battlefield Operating Systems
C4ISR	Command, Control, Communications, Computing, Intelligence, Surveillance and Reconnaissance Systems
CATDC	Combined Arms Training and Doctrine Centre
CDF	Chief of the Defence Force
COMAST	Commander Australian Theatre
COTS	Commercial off-the-shelf
DAA	Defeating Attacks Against Australia
DAWE	Divisional Advanced Warfighting Experiment (US)
DC	Defence Cooperation
DGI	Defence of Global Interests
DGFLW	Director General Future Land Warfare
DRI	Defence of Regional Interests
DSTO	Defence Science and Technology Organisation
ECF	Enhanced Combat Force
FBD	Future Battlefield Directorate (US)
FDD	First Digitised Division (US)
HQAST	Headquarters Australian Theatre
4ID	4 <sup>th</sup> Infantry Division
IW	Information Warfare
LHQ	Land Headquarters
LWSC	Land Warfare Studies Centre

MTR	Military Technical Revolution (Soviet)
NMS	National Military Strategy
OOTW	Operations Other Than War
PNI	Protection of National Interests
RC	Reserve Component (US)
RMA	Revolution in Military Affairs
RTA	Restructuring the Army
SGI	Support to Global Interests
SIE	Shaping the International Environment
SRP	Study and Research Plan
STANREP	Standardisation Representative
TRADOC	Training and Doctrine Command
WGD	Wargaming Directorate (US)

## ABSTRACT

This paper analyses the implications of the concepts derived from the US Army's Army-After-Next (AAN) Project for the Australian Army. The paper is designed as an overview; it is a snapshot of ideas arising from the revolution in military affairs (RMA) and a speculative insight into the future strategic environment, rather than a detailed assessment or exhaustive examination of the AAN Project as a whole. Such an approach is necessarily selective, with issues identified and examined insofar as they impact on the debate central to the Australian Army's force development process.

The AAN Project is now an institutionalised process within the US Army to focus on possible future warfare and emergent technologies that show potential, and which should therefore attract research and development investment to realise that capability. The AAN concept embodies a vision for the future of warfighting. Such warfare is likely to be characterised by rapid non-linear movement and the precise delivery of combat power by highly agile, technically advanced forces. The emphasis is on situational awareness, agility, mobility, firepower and sustainability. The speed at which the Australian Army adapts to these concepts depends on a recognition of what is emerging and a commitment to embrace change. The AAN Project is important, and the Australian Army can derive much from the conceptual nature of the process.

The policy dilemma central to the debate is whether resources should be shifted from some areas, and the forces associated with them, to others. This paper recommends that the Australian Army needs to be aware of Australia's unique strategic policy and particular requirements when reviewing the concepts of the US Army's force development project. A concept that would be relevant for the Australian Army is one that proposes an integrated, digitised force, invariably joint, postured for warfighting in a multinational alliance or coalition context, adaptable to other tasks and threats (both symmetric and asymmetric) to afford the maximum utility throughout the spectrum of conflict. At the same time the Australian Army must maintain an adequate capability as it adapts for the future.



# THE IMPLICATIONS OF THE UNITED STATES ARMY'S ARMY-AFTER-NEXT CONCEPTS FOR THE AUSTRALIAN ARMY

*The battlefield is a scene of constant chaos. The winner will be the one that best controls that chaos, both his own, and that of his enemy.*

Napoleon Bonaparte<sup>1</sup>

*A soldier who is a true 'information warrior' may be so fascinated by what he is seeing on the display on his laptop, that he fails to notice that his virtual battlespace is about to be violated by a real warrior with a machete who has crept up behind him.*

Colin S. Gray<sup>2</sup>

## Introduction

Few large institutions have thought more about the future than the United States (US) Army. There are several reasons for this deliberation<sup>3</sup>. One is the extent and rapidity of the change that is under way in the global security environment and information-age technologies. Another reason is the long lead-time to alter an army, whether in the development of new doctrine, the fielding of new combat systems, or the integration of new technologies. A third reason is the assumption that all institutions, particularly armies, must either progress or decline. Finally, there is a desire on the part of the US Army's leadership and its highly educated officer corps to have a say

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<sup>1</sup> Somerset de Chair (ed.), *Napoleon on Napoleon: An Autobiography of the Emperor*, Cassell, London, 1992.

<sup>2</sup> Colin S. Gray, 'The Revolution in Military Affairs', in *The Nature of Future Conflict: Implications for Force Development*, eds Brian Bond and Mungo Melvin, Strategic and Combat Studies Institute, The Occasional no. 36, Camberley, 1998, p. 65.

<sup>3</sup> These ideas were discussed by the author in an interview with Dr Steven Metz, Strategic Studies Institute, US Army War College, Carlisle Barracks, PA, 30 April 1999.

in the future structure and role of the organisation—to control the change as much as possible rather than simply being reactive.

The result has been an elaborate series of programs designed to develop concepts and assess technologies, force structures and techniques that might be effective in the 21<sup>st</sup> century security environment. The central dilemma for the US Army while it thinks about the future is finding the appropriate balance between its three core functions: traditional warfighting, shaping the security environment, and non-traditional warfighting. The ideal situation would be proficiency in all three. In reality, there is now recognition that trade-offs will be necessary, as the Army must accept risks in some areas to allow proficiency in others. Anyone critically reviewing the US Army's efforts at grappling with the future should praise those efforts, at the same time scrutinising them as the US Army's core functions are undergoing dramatic change.

In the late 1980s the US Army began working on the Force XXI process<sup>4</sup>, which is essentially an attempt to guide the integration of the range of technologies now referred to as C4ISR into the US Army structure.<sup>5</sup> Once Force XXI was well under way, the US Army extended its view to how the new technologies would shape its force structure after 'block obsolescence' became evident in the major equipment projects of the 1980s. The Australian Army confronts the same general

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<sup>4</sup> United States Army Training and Doctrine Command, *Force XXI Operations*, TRADOC Pamphlet 525-5, Fort Monroe, Virginia, August 1994. Force XXI is defined by five characteristics: doctrinal flexibility, strategic mobility, modularity, joint and multinational operations, and versatility in war and peace operations.

<sup>5</sup> C4ISR systems are command, control, communications, computing, intelligence, surveillance and reconnaissance systems.

problems. In the period leading up to 2025, the increasing obsolescence of currently planned equipment affords the opportunity to harness technological advances. However, the long lead-times inherent in procurement and decision-making highlight that the development of the conceptual vision for 2025 is now a priority.

Leading the doctrinal, force development and operational structure changes of the revolution in military affairs (RMA) within the US Army is digitisation of the battlefield.<sup>6</sup> The concept of the digital battlefield portrays information technology as a powerful force multiplier, with only incremental changes to existing force structures. New and near-future technologies are overlaid on current military systems. Fielding of the Army Battle Command System (ABCS) to the First Digitised Division is a significant milestone in the continuum that will evolve through the Advanced Warfighting Experiments to Army XXI and the Army-After-Next (AAN) projects. The approach of the AAN project is that the 'nascent information-based RMA will eventually make possible radical reform of military organisations and tactical doctrines, while still operating within the traditional parameters of warfare dominating an adversary

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<sup>6</sup> Digitisation is the conversion of information into an electronic digital format. The US defines digitisation of the battlefield as 'the application of information technologies to acquire, exchange and employ timely information throughout the battlespace, to shorten the time latency between the sensor and the shooter'. R. Suresh (ed.), *Digitization of the Battlefield II*, Society of Photo-optical Instrumentation Engineers, Washington, 1997, p. vii. See also S. Bourn, 'Encountering the Digital Battlefield', in *Australian Defence Science News*, Number 20, Summer 1998, p. 6; and Steven Boutelle and Charles Pizzutelli, 'First Digitized Division Implementation', *Army Research, Development and Analysis*, September–October 1998, pp. 5–7.

on a physical battlefield'.<sup>7</sup> This approach envisages a restructuring of US ground forces into 'distributed combat cells', their warfighting power multiplied by sensors, robotic systems, precision logistics, and the ability to call in long-range precision firepower.<sup>8</sup>

Australia has already identified the 'knowledge edge' as a key element of Defence Strategy.<sup>9</sup> The development of an AAN concept for the Australian Army is based on the adoption of the 'concept-led and capability-based' philosophy required for continuous improvement through modernisation and the conduct of both warfighting and military support operations.<sup>10</sup> Army's concept-led approach is concentrated on the Army-In-Being (AIB), Enhanced Combat Force (ECF) and the AAN. This approach is designed to optimise current capability by planning realistically for the future.<sup>11</sup> The ECF equates broadly to the US Army's XXI concept, the incorporation of essential new technology into structures still dominated by legacy organisations and equipment. The ECF is focused out to approximately 2015, and the AAN to approximately 2025. While it is the subject of much refinement, the ECF retains the

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<sup>7</sup> Ryan Henry and C. Edward Peartree, 'Military Theory and Information Warfare', *Parameters*, Autumn 1998, p. 128. This approach is also evident in the US Marines Corp's 'Sea Dragon' concept, the US Navy's 'Forward from the Sea', and the US Air Force's 'New World Vistas'.

<sup>8</sup> This is derived from the US Department of Defense, Defense Science Board, *Summer Study on Tactics and Technology for 21<sup>st</sup> Century Military Superiority*, Department of Defense, Washington, 1996 quoted in Ryan Henry and C. Edward Peartree, *ibid.*

<sup>9</sup> Department of Defence, *Australia's Strategic Policy*, Canberra, December 1997, pp. 56–60.

<sup>10</sup> Australian Army, *Land Warfare Doctrine 1: The Fundamentals of Land Warfare*, Doctrine Wing, CATDC, Canberra, 1998, pp. 2–10.

<sup>11</sup> Capability development is defined as the process of conceiving, developing, approving, acquiring, delivering, maintaining and disposing of land force capabilities.

flexibility and versatility to adapt to the changing strategic circumstances. The AAN concentrates on examining key capabilities most likely to enhance future land warfare.<sup>12</sup> The concepts derived from AAN will influence the development and refinement of the ECF through a process termed ‘backcasting’.<sup>13</sup> In this process of conceptual development, it is important that Army remains focused on Australia’s strategic policy and circumstances when reviewing the concepts of the US Army’s force development projects.

The relative unpredictability of the future strategic environment, coupled with budgetary constraints, is a challenge for Army’s force structure planning. An increasing dilemma will be to balance the dual demands of future force development with investment in the readiness and preparedness of the AIB. There is also the conceptual challenge to develop relevant warfighting concepts in order to take full account of Australia’s unique and unpredictable strategic circumstances. As will be discussed in this paper, it is because of the high probability of the ADF’s participation in ad-hoc coalitions that realistic multinational force requirements must be incorporated into the development of any doctrine and force structure concepts. The implications of the US Army’s AAN project for a potential coalition partner such as Australia are considerable given the US Army’s dominant qualitative edge in technological progress.

This paper represents a step in the process of developing a conceptual vision for the Australian Army in the 2025 time frame and is intended to stimulate further debate. The paper

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<sup>12</sup> Australian Army, *Land Warfare Doctrine 1*, *op.cit.*, pp.1–7.

<sup>13</sup> Backcasting is defined as the process of fast-tracking proven multipliers into the ECF, thus cutting lengthy acquisition cycles and maximising commercial-off-the shelf (COTS) technologies.

does not set out a definitive view, but is part of an iterative process to identify guidelines for the future.

The aim of the paper is to analyse the implications of concepts derived from the US Army's AAN project for the Australian Army. This paper is designed as an overview; it is a snapshot of ideas arising from the revolution in military affairs (RMA) and a speculative insight into the future strategic environment, rather than a detailed assessment or exhaustive examination of the AAN project as a whole. Such an approach is necessarily selective, with issues identified and examined insofar as they impact on the debate central to Army's force development process. This paper postulates that, while the fundamental nature of war will not change, Army will need to exploit information-age technologies to create knowledge-based organisations. These organisations will be required to exhibit tremendous flexibility, versatility and agility to provide a range of capabilities across the spectrum of conflict. At the same time, Army must maintain an adequate current capability as it adapts for the future.

### **The Revolution in Military Affairs**

This concept can be traced back to the late 1970s with the development of precision munitions and off-board sensors.<sup>14</sup>

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<sup>14</sup> The RMA is the subject of varying interpretations. For a general overview, see Colin S. Gray, *The American Revolution in Military Affairs: An Interim Assessment*, Strategic and Combat Studies Institute, Occasional Paper no. 28, Camberley, 1997. See also D. Jablonsky, 'US Military Doctrine and the Revolution in Military Affairs', *Parameters*, Autumn 1994, pp. 18–36. The US RMA developed concepts evolved by the Soviet military in the 1970s Military Technical Revolution (MTR). Its genesis is the hypothesis advanced by Marshal of the Soviet Union Nikolai Ogarkov that the new generation of precision weapons, coupled with new sensor and information architectures, created a reconnaissance–strike complex

The principal event spurring the RMA debate was the Gulf War of 1991. The RMA postulates that the current advances in information technology will reshape the way wars are fought by allowing the conduct of information warfare.<sup>15</sup> The RMA rests on two tenets: the ability to put ordnance precisely on targets throughout a battlespace from stand-off distances and the ability to conduct military operations more quickly (and, thus, to operate inside an enemy's decision loop).<sup>16</sup> The trend in precision weapons is towards information-based control. Information warfare, with the precise application of firepower throughout a battlespace, is central to RMA. The RMA is dependent on developments in intelligence, surveillance and reconnaissance; advanced command, control, communications, computer applications and intelligence processing; and precision weapon systems.<sup>17</sup>

There are at least two perspectives from which to view the RMA. On the one hand, the RMA is about a process of transformation of the way wars will be fought. This transformation may be as profound as the development of strategic bombing, armoured warfare, carrier aviation or nuclear weapons capabilities.<sup>18</sup> From another perspective the

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capable of generating discontinuous change in warfare, a revolution in military affairs.

<sup>15</sup> For further analysis on the developing RMA concept, see Eliot Cohen, 'A Revolution in Warfare', *Foreign Affairs*, vol. 75, no. 2, March–April 1996, pp. 37–54.

<sup>16</sup> The battlespace is defined in the Australian Defence Force Publication 19—*Intelligence* as including all aspects of the environment that are encompassed by the area of influence and area of interest. This includes the operational environment and those relevant aspects of society, politics, culture, religion and economy.

<sup>17</sup> For an examination of the various modalities, see Martin C. Libicki, *What is Information Warfare?*, National Defence University Press, Washington, 1995.

<sup>18</sup> See Mackubin Owens, 'Technology, the RMA, and Future War', *Strategic Review*, vol. XXVI, no. 2, Spring 1998, pp. 63–70.

RMA is concerned with the radical restructuring of forces, information warfare capabilities, dramatically improved C4ISR, dominant manoeuvre, and long-range precision strike weapons. Common to both perspectives are proponents of the RMA, who frequently claim that integrating these technologies will create a 'system of systems',<sup>19</sup> enabling the application of military force with greater efficiency than an opponent at reduced risk.<sup>20</sup>

The application of technology by itself does not constitute an RMA. New weapon systems and technologies have sometimes caused military leaders and theorists to make errors in judgment, misreading the significance of the new technologies and ultimately producing disappointing results.<sup>21</sup> Historical analysis of previous revolutions in military affairs indicates that changes in strategy, doctrine, force structures and tactics in the application of technology are also required for there to be a 'revolution'.<sup>22</sup> There is a need to balance not exaggerating the significance of technological innovations, including the potential extraordinary near-term advantages and capabilities

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<sup>19</sup> Joseph S. Nye and William A. Owens, 'America's Information Edge', *Foreign Affairs*, vol. 75, no. 2, March–April 1996, pp. 20–36.

<sup>20</sup> James R. Blaker, 'The American RMA Force: An Alternative to the QDR', *Strategic Review*, vol. XXV, no. 3, Summer 1997.

<sup>21</sup> For an overview of a previously failed technology-driven RMA, see A.J. Bacevich, *The Pentomic Era: The U.S. Army between Korea and Vietnam*, National Defense University Press, Washington, 1986. Examples include the US Army's Pentomic division of the 1950s, the 280mm atomic cannon, the flying jeep, and the jet-pack-powered infantryman. See also Norman F. Dixon, *On the Psychology of Military Incompetence*, Futura Publications, London, 1976.

<sup>22</sup> See discussions throughout Keith Thomas (ed.), *The Revolution in Military Affairs: War in the Information Age*, Australian Defence Studies Centre, Australian Defence Force Academy, Canberra, 1997.

afforded, with the risks and vulnerabilities exposed.<sup>23</sup> There is also a need to recognise that the US military is culturally, as well as by professional training and education, prone to an almost unbridled—though historically unwarranted—faith in technology as the solution to most problems on the battlefield.<sup>24</sup> Although the exploitation of information technologies will markedly improve combat capabilities, it will not be a substitute for good judgment.<sup>25</sup>

The RMA is not without its complications. For example, the high costs associated with the development and procurement of technologically sophisticated weapon systems, equipment, and capabilities will undoubtedly strain any defence budget. Furthermore, a focus on RMA-equipped forces might lead to capability gaps that could be asymmetrically exploited by a potential adversary. It should also not be assumed that forces using high-technology, precision, stand-off weapon systems would meet all demands across the conflict spectrum.<sup>26</sup> Because of their focus on high-technology precision engagement and high-speed manoeuvre, RMA-type forces may not lend themselves to effective employment in many military support operations along the lower portion of the spectrum of conflict. As a consequence, within the future force structure a conventional capability for performing such operations should be retained to provide an appropriate response to all contingencies.

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<sup>23</sup> Stephen Rosen, *Winning the Next War: Innovation and the Modern Military*, Cornell University Press, New York, 1991.

<sup>24</sup> Robert H. Scales, 'Preparing for War in the 21<sup>st</sup> Century', *Parameters*, Autumn, 1997, pp. 4–14.

<sup>25</sup> See for example, Lawrence Freedman, 'The Changing Forms of Military Conflict', *Survival*, vol. 40, no. 4. Winter 1998–99, p. 52.

<sup>26</sup> For a sceptical look at the current fascination, see Michael Dornheim, 'Bombs Still Beat Bytes', *Aviation Week and Space Technology*, 19 January 1998, p. 60.

Critics of the RMA claim that proponents often ignore enduring technical, psychological, cultural and strategic constraints.<sup>27</sup> For instance, in future warfare the Army will still need to retain the capability to seize and hold territory. To do this, ground troops will remain essential. There is no doubt that the Army in 2025 will benefit from new capabilities such as sensors that could make smaller forces more effective. However, all sensors have limitations due to the basic and immutable laws of physics. For example, visible-light and infrared detectors cannot see through heavy clouds. Radar waves can penetrate clouds and rain, but cannot do better than visible and infrared sensors at seeing through metal, water or most kinds of soil. Most X-ray, particle beam, acoustic, and magnetic sensors have very short ranges. There is also the danger that force structures can be ‘overdigitalised’ where information overloading causes confusion and uncertainty. This was evident during the recent Advanced Warfighting Experiments conducted by the US Army.<sup>28</sup>

While Australia places a high priority on the RMA, it cannot match the scale and sophistication of the US dimensions with its qualitative technological superiority.<sup>29</sup> Several implications emerge. Australian planners and strategic analysts must examine the RMA in a national and regional context so that the RMA can be exploited where it is realistic and relevant to

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<sup>27</sup> Colin S. Gray, *The American Revolution in Military Affairs: An Interim Assessment*, Strategic and Combat Studies Institute, The Occasional no. 28, Camberley, 1997.

<sup>28</sup> Discussion with Dr Roger Lough, Land Operations Division, Defence Science and Technology Organisation (DSTO), on 4 March 1999.

<sup>29</sup> George and Meredith Friedman, *The Future of War*, Crown Publishers, New York, 1997. The Friedmans conclude that the RMA will give the United States a virtually insurmountable advantage in future conflicts.

strategic policy.<sup>30</sup> The central challenge to the Australian Army's future force structure and capability development process is to progress in a manner that enables it to respond effectively to whatever operations may eventuate. This strongly suggests a hedging approach to preparing for the future. The obligation on the Australian Army is that it must maintain an adequate capability as it adapts. As more is learnt about the application of combat power, Army can shift the emphasis while curtailing outdated or less useful operational concepts, structures, and equipment.<sup>31</sup> In this way, as time elapses, the Army will learn more about evolving challenges while continuing to adapt forces.

### **The Strategic Environment in 2025**

Some of the information needed to design the Army of 2025 is relatively straightforward. For instance, it is possible to extrapolate from current trends a reasonable forecast of what might be technologically feasible. Strategists and defence planners might also be able to predict the roles and possible tasks of the Army of 2025. However, other aspects of the future Army are far less straightforward. One of the most important of these speculative aspects is the structure and characteristics of the strategic environment.

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<sup>30</sup> The RMA as developed by the US is sometimes perceived as being too expensive and on a scale that has limited relevance. See Paul Dibb, 'The Revolution in Military Affairs and Asian Security', *Survival*, vol. 39, no. 4, Winter 1997–98, p. 95. For a limited discussion on the interest shown in the Asia-Pacific region on the RMA, see Paul Dibb, 'Defence Force Modernisation in Asia: Toward 2000 and Beyond', *Contemporary Southeast Asia*, vol. 18, no. 4, March 1997, pp. 347–60.

<sup>31</sup> See the discussion of this theme in Peter Paret, *Innovation and Reform in Warfare*, United States Air Force Academy, Colorado, 1962.

The orthodox position holds that the strategic environment of 2025 will be much like that of 1999, with only evolutionary change.<sup>32</sup> Sovereign nation states will remain the most important political units. Warfare will continue to be Clausewitzian as states use their militaries to promote or protect national interests. While it is impossible to predict with certainty the future strategic environment, it is possible to identify an array of feasible alternatives and explore the implications of each for force structure planning. However, many feasible future security systems, which are not mutually exclusive, diverge radically from the orthodox position with state-on-state warfare becoming insignificant.<sup>33</sup> Alternative future systems include a trisected global security system and the re-emergence of transnational ideologies.<sup>34</sup> For example, the strategic theorist Martin van Creveld contends that the most significant source of future conflict will not be traditional state-on-state war, but power struggles involving sub-state actors such as terrorists, ethnic militias, insurgents, regional separatists, criminal cartels, militarised gangs, and violent environmentalists.<sup>35</sup>

The prevailing view from Australia's strategic guidance, and confirmed by regional developments since the release of

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<sup>32</sup> This position is drawn from Steven Metz, 'Which Army After Next?: The Strategic Implications of Alternative Futures', *Parameters*, Autumn 1997, pp. 15–26.

<sup>33</sup> George and Meredith Friedman, *The Future of War: Power, Technology, and American World Dominance in the 21<sup>st</sup> Century*, Crown Publishers, New York, 1996.

<sup>34</sup> Mark Jacobson, 'War in the Information Age: International Law, Self-Defense, and the Problem of 'Non-armed' Attacks', *Journal of Strategic Studies*, vol. 21, no. 3, September 1998, pp. 1–23.

<sup>35</sup> Martin van Creveld, *The Transformation of War*, Free Press, New York, 1991. See also Martin van Creveld, 'The Fate of the State', *Parameters*, Spring 1996, pp. 4–18; and Ralph Peters, 'The New Warrior Class', *Parameters*, Summer 1994, p. 24.

ASP97, is that the future security environment will be characterised by uncertainty and will therefore become more complex, ambiguous and unpredictable.<sup>36</sup> However, the fundamental causes of conflict remain enduring. They are largely based on emotion—fear, greed, hatred and ambition—coupled with political, economic, religious, ethnic, nationalistic and environmental interests. The fundamental character of war will also remain unchanged.<sup>37</sup>

The post–Cold War era has witnessed the outbreak of conflict caused by ethnic and nationalist rivalries. Economic and ecological pressures and the proliferation of high-technology weapons have heightened local tensions. They have also increased the destructive potential of minor conflict and placed greater responsibility on the international community to contain, police, pre-empt or deter hostilities. An additional phenomenon has been the emergence of non-state centres of power in forms ranging from religious and ethnic groupings to international business or drug cartels. This phenomenon will increase the relative frequency of asymmetric forms of warfare.<sup>38</sup> Several analysts have highlighted the growing asymmetrical nature of conflict and cautioned against uncritically embracing the theories advocated by RMA proponents.<sup>39</sup> These analysts highlight the concern that the

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<sup>36</sup> Paul Dibb, *The Remaking of Asia's Geopolitics*, Working Paper no. 324, Strategic and Defence Studies Centre, Canberra, April 1998.

<sup>37</sup> See Australian Army, *Land Warfare Doctrine 1*, *op. cit.*, Chapter 2.

<sup>38</sup> See David Tucker, 'Fighting Barbarians', *Parameters*, vol. 28, no. 2, Summer 1998, p. 70. See also Charles J. Dunlap Jr, '21<sup>st</sup> Century Land Warfare: Four Dangerous Myths', *Parameters*, vol. 27, no. 3, Autumn 1997.

<sup>39</sup> See Lawrence Freedman, 'The Changing Forms of Military Conflict', *Survival*, vol. 40, no. 4, Winter 1998–99, pp. 39–56. For an analysis of the developing RMA concept from this

employment of asymmetric warfare will enable potential adversaries to challenge more technically advanced militaries.<sup>40</sup>

From the Australian perspective, the Army will need to restructure the AIB to meet the range of security challenges prevailing at the time of the ECF and AAN, without taking undue risks in the interim. Implementing such a transformation will require a delicate balance. The easiest option would be to have an increase in the defence budget annually to fund the necessary transformation while simultaneously maintaining a structure and strategy to respond to near-term challenges. However, in an era of fiscal austerity, budget increases are unlikely. Army must accept that it is not possible to know the full extent and nature of future challenges, emerging threats, or even the pace of change in technology.

The type of conflict in which the Australian Army may be involved in the future requires flexible, but nonetheless capable, systems to respond appropriately.<sup>41</sup> The Army will need to structure according to a broader range of threats rather than focusing merely on conventional military operations or warfighting. The Army's challenge will be to design a force structure centred around the primary role of defending or deterring attacks against Australia, while possessing the capability to respond and operate quickly elsewhere within the spectrum of conflict. The Army must be prepared to

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perspective, see Lawrence Freedman, *The Revolution in Strategic Affairs*, Adelphi Paper 318, Oxford University Press for the IISS, Oxford, 1998.

<sup>40</sup> Deputy Chief of Staff for Doctrine, 'The Army After Next Project: AAN Winter Wargame', United States Army Training and Doctrine Command, 1999, p. 29.

<sup>41</sup> Admiral C.A. Barrie, 'Change, People and Australia's Defence Capability for the New Century', *Australian Defence Force Journal*, no. 134, January/February 1999, pp. 1–10.

contribute to a whole-of-government approach to deal with a broad range of non-traditional threats. Therefore the Army must be sufficiently flexible, and versatile, to provide a range of capabilities across the threat spectrum.

### **The United States Army's Army-After-Next Project**

The US Army instituted the AAN project in mid-1996 to help its leadership focus on future Army requirements in the period beyond 2010.<sup>42</sup> The project has attempted to avoid an attitude of supporting incremental change to achieve a comprehensive and holistic focus of the future as it might exist in 2025. The AAN project builds on the foundation provided by Army XXI to investigate how to achieve global manoeuvre, strategic focus and overall technical dominance. The linkage between Army XXI and AAN has been continually stressed to ensure that the characteristics of both are well understood in order that one project does not become disconnected from the other. The AAN project has drawn input from a number of research agencies in order to provide a solid intellectual basis for the experimentation, wargaming and other relevant studies. The nature of the geo-strategic environment perceived by the US Army's Training and Doctrine Command (TRADOC) provides the foundation for the AAN project.<sup>43</sup> The AAN is a mainstream US Army activity that is owned and directed at the

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<sup>42</sup> The US Army's AAN project exists in order to 'conduct broad studies of warfare to about the year 2025 to frame issues vital to the development of the US Army after about 2010 and provide those issues to senior Army leadership in a format suitable for integration into force development programmes'. United States Army Training and Doctrine Command, *Army After Next FY99 Study and Research Plan*, Fort Monroe, Virginia, Version 1.2, March 1999.

<sup>43</sup> It must be stressed that the conclusions drawn on the geo-strategic scene in 2025 represent the US perspective. Independent strategic analysis from the Australian regional perspective will probably derive different results.

highest level—by the Chief of Staff of the Army, who has directed the Commanding General of TRADOC to run the project and report on an annual basis.

The AAN project is coordinated by a central strategy, the AAN Study and Research Plan (SRP) which provides a disciplined approach for focusing the study and research efforts.<sup>44</sup> The TRADOC Deputy Chief of Staff for Doctrine is responsible for the management of the plan. The two major directorates relevant to the AAN project are the Future Battlefield Directorate (FBD) and the Wargaming Directorate (WGD). FBD is organised to support the major study and research requirements, while WGD is organised to support the AAN wargaming requirements.<sup>45</sup> There are four main study and research areas within the SRP: geopolitical, military art, human and organisational behaviour, and technology.<sup>46</sup> The two main events in the AAN year are the Spring Wargame and the presentation of a comprehensive paper, known as the ‘Fall Paper’, to the Chief of Staff of the Army in the autumn of each year.<sup>47</sup>

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<sup>44</sup> For example, the latest SRP, *The Army After Next FY99 Study and Research Plan (FY99SRP)*, serves as the framework for guiding AAN study and research for TRADOC AAN staff, and for integrating relevant study and research efforts. See United States Army Training and Doctrine Command, *Army After Next FY99 Study and Research Plan*, Fort Monroe, Virginia, Version 1.2, March 1999.

<sup>45</sup> The WGD also coordinates annual study and research efforts of AAN franchises. These franchise study and research areas are space, information operations, special operations, and logistics.

<sup>46</sup> There are also six US Army AAN Imperatives that focus on Quality People, Leader Development, Doctrine, Training, Force Mix, and Modern Equipment.

<sup>47</sup> The Spring Wargame takes place at the US Army War College in Carlisle, Pennsylvania. The ‘Fall Paper’ marks the end of the annual cycle and is the progress report to the Chief of Staff of the Army.

The Spring Wargame constitutes the core of the AAN process.<sup>48</sup> The wargame determines the nature of the remainder of the annual cycle and the analysis of the wargame is incorporated into the Fall Paper. The wargame is at the military strategic and operational levels. The 1999 Spring Wargame examined the nature of warfare and the possible roles for US and coalition land forces in the year 2022.<sup>49</sup> The implications for a potential coalition partner are considerable, with coalition issues being an important aspect of each wargame. Interestingly, while the US Army's AAN project is uniquely American, within the wargames the US never undertakes any military actions other than as part of a multinational or coalition force. The US Army recognises that its AAN must be sufficiently versatile to operate across a wide range of missions as part of a joint force or multinational coalition. The 1999 Spring Wargame provided a forum for gaining insights into, and promoting a common understanding of, the challenges and opportunities of possible partnerships that AAN-era forces would establish as part of a coalition in the 2022 time frame.

To place the AAN project, Army XXI and Advanced Warfighting Experiments (AWEs) in context, it is worth briefly overviewing the linkage between these concepts. The AWEs have provided the foundation for the formation of the first US digitised division and digital corps.<sup>50</sup> Ultimately the resultant

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<sup>48</sup> One major wargame, with over 500 participants, is scheduled for April each year.

<sup>49</sup> *1999 AAN Spring Wargame Game Book*, Doctrine Directorate, US Army Training and Doctrine Command, Fort Monroe, Virginia, March 1999, p. 2.

<sup>50</sup> III Corps is currently transitioning 4<sup>th</sup> Infantry Division (4ID) to become the first Digitised Division in the US Army by September 2000. It is proposed that in 2003, 4ID's sister unit, the 1<sup>st</sup> Cavalry Division will also be digitised. In 2004, III Corps will have digitised command and control systems.

Army XXI will be a force equipped with current battle systems to which new technology has been applied. The force will be characterised by extraordinary situational awareness but will not be able to react much faster than existing formations. To achieve speed as well as knowledge will require a new and different force, designed to capture the benefits of new technology across the whole spectrum of conflict.<sup>51</sup> The AAN project is the mechanism through which the US Army will research, wargame and design such a force.

The AAN project utilises the term ‘spiral development’, which has become a part of the force development vocabulary.<sup>52</sup> Spiral development is the process within the AAN project by which improvements in capability are made over time and describes the progressive linkage between the Army of Excellence (AOE—today’s Army), Army XXI (2004) and the AAN (2025). Spiral development stresses that every cyclic process needs to demonstrate an advance in capability. The US Army intends to achieve this advance in capability by the coordination of all aspects of the project, including research and development, science and technology, experimentation, and a strategic plan relating to human resources.

### **The Concepts of Army After Next**

The Army XXI process revolves around validating a central hypothesis, followed by a series of experiments with prototype digital technologies applied to units of an experimental division to determine the capability requirement. The central hypothesis is that, if information-age battle command capabilities and connectivity exist across all BOS functions,

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<sup>51</sup> Biannual Report from British Army Staff (Washington), Report 98/2, *Army After Next 2025*, July 1998.

<sup>52</sup> For an analysis of the term ‘spiral development’, see Elke Hutto, ‘Reaping the battlefield digitization harvest’, *Jane’s IDR Quarterly Report*, Number 2, 1998, p. 16.

then increases in lethality, survivability and tempo will be achieved. Essentially, under Army XXI, computers and communications technology will collect, analyse and automate the information process, allowing commanders and staffs to focus on a quicker cycle of manoeuvre and action. The aim is to allow the commander and his staff to receive common situational awareness. Communications may enable the location of a headquarters to be geographically irrelevant, with direct data feeds from a multitude of sensors, vehicles and platforms.<sup>53</sup> The US Army also envisages to have direct linkages between strategic, operational and tactical sensors.

The notion of ‘system wearout’ or ‘block obsolescence’ provides the conceptual foundation of the US Army’s AAN project. This notion is based on the assessment that the main equipment of the AOE—for example, the M1A2 tank, the Bradley Infantry Fighting Vehicle and the AH64 attack helicopter—will begin to come to the end of its useful life around 2015; thus the capability of the Army XXI will begin to depreciate. The conceptual argument is that, if new equipment is to be procured to take the place of the existing equipment, the decisions for acquisition will have to be made by about 2004 if a seamless transition from Army XXI to AAN is to be achieved. The need for a new type of force to confront the strategic environment of 2025, combined with system wearout of the AOE, provides the intellectual rationale for AAN.

The US Army’s AAN project examines future warfighting and is shielded from legacy equipment systems and budget limitations to concentrate on what is feasible. Accelerating rates of change, due to the rapid advances in information-age technologies, will make the future environment more unpredictable and less stable, presenting the Army with a range of plausible futures. From a military perspective, the change

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<sup>53</sup> This is drawn from discussions with Lieutenant Colonel R. Vickers, STRANREP TRADOC, at AHQ, March 1999.

is being characterised by a rapidly growing potential to detect, identify, and react to a greater number of targets, over a larger area and for a longer time, and to move this information much more quickly and effectively than ever before. The change is also being characterised by the potential to engage a far greater number of targets with much greater lethality, precision and discrimination. Combined with information superiority, such a capability is claimed by proponents to afford a decisive advantage. The role envisaged by Major General Scales from the US Army War College for the combat elements in the AAN is to:

incorporate the effects of knowledge and speed to gain positional advantage while protecting the force within an environment of near total strategic, operational and tactical battlespace awareness . . . the 21<sup>st</sup> Century Army will combine the effects of battlespace awareness and precision fires to derive the full potential of strategic speed and dominant manoeuvre.<sup>54</sup>

Conceptually, the AAN is the logical extension of Army XXI. However, resource constraints and the numerous capabilities required across the spectrum of conflict will most likely prevent the entire Army from achieving AAN design.<sup>55</sup> The Army will probably be a hybrid of designs of about one-third each of AOE, Army XXI and AAN. The US Army intends the AAN design component to be the ‘tip of the spear’, capable of

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<sup>54</sup> Major General Robert H. Scales, ‘America’s Army: Preparing for Tomorrow’s Security Challenges’, Army Issue Paper no. 2, US Army War College, unpublished as at December 1998.

<sup>55</sup> One of the consequences of the RMA may be a structural change with tiered capabilities. An upper tier may consist of a small number of technically advanced units, while the bulk of the force will still consist of more-or-less conventional, industrial-age formations. See argument advanced by Thomas Adams, ‘Radical Destabilizing Effects of New Technologies’, *Parameters*, Autumn 1998, pp. 99–111.

dominant land combat within a joint expeditionary force.<sup>56</sup> The incorporation of technological innovation will allow the AAN component to be a highly survivable, lethal and mobile force, capable of extended operations in time and space. The force will most likely be light, self-sustaining for seven to ten days, strategically and operationally self-deployable, knowledge-based, layered and focused logistically.<sup>57</sup> AAN design survivability will be characterised as a function of speed, knowledge, and signature reduction with embedded active self-protection.

The concept for the AAN is to achieve formerly unattainable levels of mobility, system reliability, and precision in target engagement. To achieve this concept vision would mean satisfying three technological imperatives: improved information management, improved deployment speed and reduced footprint. Driven by technology, the AAN will be shaped by advanced weapon systems not yet developed as well as the integration of warfighting and logistical doctrine yet to be fully appreciated.

The AAN project will continue to explore the effect of technology on land warfare in the future with a view to informing future combat developments. Undeniably, the future operational environment portends radical changes for the Army of the future. AAN-era personnel will be confronted with executing operational concepts of unprecedented scope, complexity and sophistication. Technological developments will significantly alter the way the future Army organises,

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<sup>56</sup> United States Army Training and Doctrine Command, *Power Projection—The Impact of Technology on the Army After Next*, Land Power Essay Series, Fort Monroe, Virginia, 1997, p. 3.

<sup>57</sup> Unlike the experience of the Desert Storm, where power projection took months, the US AAN is required to possess strategic agility, which is the term used to describe the ability to insert overwhelming combat power into the battlespace.

trains, moves, fights, sustains and operates across the spectrum of conflict. Personnel will need to be more technologically sophisticated with a fundamental level of proficiency upon initial entry.<sup>58</sup> The future battlespace will require leaders to possess the ability to accept change readily and be adaptive to, and proficient in, the use of a wide range of information technologies. The growing sophistication and rising technical complexity will drive the Army towards greater specialisation. This trend towards specialisation will demand greater precision and efficiency in personnel recruitment, advanced training processes, continuous education, and management.

Further research is required to provide insights into the organisational and command hierarchies of the future force as well as its recruitment, selection, training, retention and continuous education.<sup>59</sup> Nevertheless, some core characteristics are already evident. Modularity will enable discrete building blocks of combat and sustainment power to be combined to meet the specific requirements of any given contingency scenario. However, it must be appreciated that modularity must also rest on habitual relationships in order to build trust, confidence and cohesion. Autonomy will be a fundamental characteristic for AAN units trained and organised to execute high-tempo, decentralised operations, strengthened by an improved capability for self-sustainment. Adaptability will permit the AAN force to attempt to meet the changing conditions of the battlespace, to respond to technological and methodological surprise, and to operate with combined or coalition forces of differing capabilities.

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<sup>58</sup> Interestingly, professional organisations, industry and employer groups all agree with this view.

<sup>59</sup> Research for an LWSC Working Paper on Professional Mastery in the Army After Next commenced in April 1999 and is scheduled to be published in July 1999.

One of the most significant challenges with the transition to the AAN will be the need to reconcile the development and inculcation of doctrine with the accelerating pace of technological change. Doctrine must also emerge quickly enough to prepare units to operate effectively. A central concept of the AAN project is to integrate technological capabilities with doctrine and organisation, the aim being to achieve situational awareness based on information exploitation.<sup>60</sup> Doctrine will also need to reflect much greater integration of the Army within combined and coalition operations as well as interaction in the battlespace with civilian societies, contractors and non-governmental organisations.

A prototype for the US Army's AAN is the Strike Force, which is a concept used to fill a perceived void in capabilities between light and heavy forces.<sup>61</sup> The US Army's intention is to have, by 2003, a mobile command and control headquarters capable of deploying with whatever mix of light and heavy divisions that is required to achieve operational requirements.<sup>62</sup> The requirement, identified after intensive simulation, is for a rapidly deployable force that has the lethality to initiate offensive operations while retaining the

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<sup>60</sup> This aspect of the centrality of doctrine is discussed by General Gordon R. Sullivan and Lieutenant Colonel Anthony M. Coroalles, *The Army in the Information Age*, Strategic Studies Institute, US Army War College, Carlisle, Pennsylvania, March 1995, pp. 4–5.

<sup>61</sup> George Seffers, 'Rapid Mobility: New Strike Force to Fill U.S. Army Gap Between Heavy and Light Forces', *Defense News*, March 8 1999, p. 12.

<sup>62</sup> The US Army expects to have established by the end of 1999 a 100 to 200-person headquarters ready to develop operational tactics, techniques and procedures. In late 2000, the Strike Force headquarters will participate in the Joint Contingency Force Advanced Warfighting Experiment. Strike Force should be operational in 2003. *Ibid.*, p. 12.

ability to respond to military support operations. The Strike Force and other light force experiments are of particular interest and relevance to the Australian Army due to scale, financial and strategic circumstances.<sup>63</sup>

One of the most crucial parts of the US Army's AAN project has been the identification of the most likely or dangerous type of enemy. *Speed and Knowledge*, which is a comprehensive statement of the thinking behind the AAN project, identifies what is termed a 'major military competitor'.<sup>64</sup> This would be a nation state that threatens the United States or its national interests but cannot or does not emulate the digitised American military. Such an enemy would attempt to offset technological inferiority with relatively cheap counters such as land- and sea-mines, distributed air defence, coastal sea-craft, submarines, inexpensive cruise and ballistic missiles, and unsophisticated weapons of mass destruction. Quantity would substitute for quality. The AAN project seeks to design an Army that could counter the asymmetric methods of such an enemy by using superior operational and decision-making capabilities, strategic mobility and battlefield awareness.

As the body of knowledge has grown about the US Army of 2025 there has been a widespread realisation that the future Army will be a hybrid force, which will be forged from a range of functions, force structures, and capabilities spanning 20 to 25 years. These range from current organisations to AAN-era battle forces, each optimised for a specific set of missions and circumstances, but adaptable to meet a broad range of conditions. The overarching goal of the 1999 AAN Study and Research Plan, to which the 1999 Spring Wargame was a key

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<sup>63</sup> 10<sup>th</sup> Mtn Div is the US Army formation identified to undertake the light force experiments.

<sup>64</sup> *Speed and Knowledge*, the annual report on the Army-After-Next Project to the Chief of Staff of the Army, July, 1997, pp. 9–10.

contributor, reflects this realisation and aims to develop and refine an operational theory for the hybrid Army of 2025.

### **Concerns with the US Army's AAN Project**

Critics of the US Army's AAN project maintain that the closest analogy is with the Pentomic Army concept of the 1950s. Then, as now, the leadership at the strategic level was confronted by an uncertain strategic situation and confounding technological advances. In examining the challenges involved in a nuclear battlefield, the strategic leaders chose to disperse units, flatten organisations and to field such innovations as the nuclear mortar.<sup>65</sup> The US Army's AAN project and the US Marine Corps' *Hunter Warrior* experimentation appear to have made analogous decisions. Due to the potential that technology gives to improving situational awareness and weapons lethality, the recommendations from both projects have been to disperse forces and flatten organisations.<sup>66</sup>

The US Army AAN concept appears to be largely predicated on fighting conventionally and symmetrically using what the proponents assume to be superior weaponry and technologies. However, such a linear Newtonian–Clausewitzian approach will be less effective against the complex concepts and technologies that can be brought to bear in a five-dimensional battlespace.<sup>67</sup> Given this approach, critics of the AAN contend that the US Army risks facing adversaries for whom it will not be prepared.<sup>68</sup> Moreover, the US Army runs the risk

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<sup>65</sup> N. Williams, 'The Limitations of Hunter Warrior', *Marine Corps Gazette*, November 1998, p. 68.

<sup>66</sup> *Ibid.*

<sup>67</sup> This is defined as the traditional three-dimensional battlespace fused to time and cyberspace.

<sup>68</sup> Robert J. Bunker, *Five-Dimensional (Cyber) Warfighting; Can the Army After Next be Defeated Through Complex Concepts and Technologies?*, Strategic Studies Institute, US Army War College, 1998.

of repeating the lessons of Vietnam and Somalia if it operates under the assumptions that a small force will be sufficient to carry out a military strategy by being well trained and having high-technology weapons; that the force will have information dominance; and that war will be relatively bloodless.

Critics of the AAN project maintain that the US Army is focusing too heavily on space-based command, control and communications assets to plan force structure beyond 2010. While the AAN will necessarily rely on space-based communications to ensure future force mobility, it must not be forgotten that satellite connections and capability may not always be available in the volume needed. The critics believe that there is a danger in ignoring more traditional, terrestrial-based communications systems.<sup>69</sup> The implication for the Australian Army is that it should rely on more than one means of communication for the AAN.

The AAN project has also been criticised not only for provoking inter-Service competition, but for having the potential to drain scarce resources from other areas within the US Army. In the constrained budgetary environment with competing priorities, the Army will have to forgo something to fund the Service-unique capabilities identified.<sup>70</sup> Aside from fiscal pressures, technical problems have caused the Pentagon's Director of Operational Test and Evaluation to delay by two years the computer and software package central to the digitisation effort.<sup>71</sup> The digitised force was delayed

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<sup>69</sup> This point was made at the 1999 Defence Communications Development Seminar, 'Shaping the Knowledge Edge', 9–11 March 1999. For example, see address given by Peter Kerr, DSTO 'Future Satellite Communications Technology and Defence'.

<sup>70</sup> The US Army's progression to Army XXI and through to AAN will depend on consistent funding and congressional support.

<sup>71</sup> George I. Seffers, 'U.S. Army Expects Approval To Delay Digitization Test', *Defense News*, March 15 1999, p. 6.

because it could not clearly demonstrate that it was operationally effective, suitable and able to provide an enhanced military capability. Other technical problems exist because, rather than equipping a brigade with one new system at a time, the US Army is trying simultaneously to field upgraded, digitised Abrams, Bradleys and the ABCS, while developing operational doctrine and training standards to accompany the new equipment.<sup>72</sup> Such concerns of inter-Service competition, competing priorities, technical problems and change management strategies have implications for the Australian Army as it considers the AAN.

### **Implications for the Australian Army**

In supporting Australia's military strategy, the Army provides the Government with options for warfighting and military support operations across the spectrum of conflict. Australia's military strategy is based on a maritime concept.<sup>73</sup> This concept involves contributing to joint and coalition operations in a littoral environment, conducting protective and security operations throughout Australia, and contributing to coalition operations outside the region. Australia requires a broad-based maritime concept of strategy aimed at producing agility and demonstrating reassurance.<sup>74</sup> An agile force is required to permit littoral manoeuvre in the northern archipelagos in support of regional stability, with a residual capacity for international security operations as part of a coalition force. To meet this challenge, priorities must be based on Australia's strategic circumstances and the imperative for increased readiness and preparedness. Priorities will also need to reflect the growing recognition of emergent security challenges that

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<sup>72</sup> *Ibid.*

<sup>73</sup> Australian Army, *Land Warfare Doctrine 1*, *op. cit.*, p. 3–15.

<sup>74</sup> Michael Evans, *Conventional Deterrence in the Australian Strategic Context*, Working Paper no. 103, Land Warfare Studies Centre, Canberra, 1999.

are complex, non-linear and asymmetrical.<sup>75</sup> Mindful of all this, the Australian Army cannot afford to pursue high-technology equipment solutions that promise much but do not offer a real capability improvement.<sup>76</sup>

The Australian Army can expect significant changes in its characteristics given the future battlespace; the result of the RMA; geopolitical, socioeconomic and demographic trends; and emerging asymmetrical threats. Arguably, then, it is difficult to predict future capabilities based on current requirements. It is difficult to base future force requirements on preconceived assumptions. Current and planned organisational structures and weapon systems will be required in some groupings to maintain capability, but alone they do not prepare the Army for future challenges. The AAN for Australia should not be dominated by efforts to modernise legacy systems that will have significantly less utility in the future. Instead, the Army requires robust, well-equipped and sustainable land-force capabilities that will be enhanced by the innovative application of emerging technologies.

The Australian Army's future force structure must provide the capabilities necessary to operate across the spectrum of conflict; to operate effectively throughout the full range of military response options; and perform successfully at the tactical, operational and strategic levels of war. This broad range of capabilities must also ensure that Australia is not susceptible to asymmetrical threats that circumvent

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<sup>75</sup> Non-linearity refers to distributed operations throughout the battlespace. Non-linearity results from technological advances enabling forces to manoeuvre, acquire and engage targets throughout the battlespace.

<sup>76</sup> This theme is drawn from Admiral C. A. Barrie, 'Change, People and Australia's Defence Capability for the New Century', *Australian Defence Force Journal*, no. 134, January/February 1999, pp. 1–10.

capabilities or attack perceived vulnerabilities. While the Army should opt for flexible forces that can be tasked for multiple missions, it should not go to extremes. It may be neither possible, nor desirable, to design the ultimate ‘Swiss Army Knife’ force structure. The Australian Army needs to be cautious about the adoption of any technology to the exclusion of all others and will have to establish priorities on how it apportions its capabilities in the future.<sup>77</sup> The fascination with technology and the haste to get technologically ready for the future must be tempered with the acceptance of strategic, practical and financial realities. An achievable and realistic policy for the Australian Army may well be to advocate selective digitisation and endorsement of only those technological innovations that offer significant increases in fighting power.

There is a strong argument that the Army should focus on the management of uncertainty, rather than rely solely on the construction of new capabilities tailored to predictions of what future wars would look like.<sup>78</sup> Army needs to be able to innovate rapidly to meet the requirements of managing uncertainty. To manage uncertainty better, the Army needs to appreciate strategic perspectives, as well as the political and cultural history, of regional countries more thoroughly. At the same time, Australia needs to be cautious about upgrading legacy systems that eventually could be leapfrogged technologically by regional capabilities.<sup>79</sup>

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<sup>77</sup> Stephen Rosen, *op. cit.*, p. 252.

<sup>78</sup> *Ibid.*, p. 260.

<sup>79</sup> See David Shukman, *Tomorrow's War: The Threat of High-Technology Weapons*, Harcourt-Brace, San Diego, 1996, p. viii: ‘There is now a free-for-all to acquire weapons which may allow even relatively weak countries the chance to leap-frog their way to battlefield superiority—at what could hardly be a more uncertain or unstable time’.

The lesson to be drawn from history is that it may be flawed to assume a linear progression of either technology or society.<sup>80</sup> Such a progression assumes that the future will be similar to today, only with more advanced computers. In fact the future may, and probably will, be affected by new technologies or combinations of technologies. The future will also be affected by social and political developments that may be regarded far too radical for serious consideration, or not even imagined by mainstream consciousness. The deduction may therefore be to examine the future in a way that incorporates non-linear progression, that is, to avoid adopting a position from which Army cannot emerge if the future turns out to be different from the one both forecasted and backcasted.

The process of ‘spiral development’ and the US Army’s progressive linkage between the AOE, Army XXI and AAN assume a linear progression to the future. This is also the methodology adopted in the Australian Army with the backcasting from the AAN to the ECF. An alternative approach, which should not be too readily discounted, is to accept the limits of prediction and work effectively within them. The limit of technological prediction is arguably between five to ten years—the development and application period for new technology.<sup>81</sup> The critical skill will be to predict the implications of the interaction of technologies with social and political developments. The decision-making and acquisition processes would then need to be flexible enough to change direction, or at least emphasis, when a new development is identified.

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<sup>80</sup> This theme is drawn from Paddy Griffith, *Battle Tactics of the Western front: The British Army’s Art of Attack 1916–18*, Yale University Press, New Haven, 1994, pp. 21–2.

<sup>81</sup> Brian Sullivan, ‘The Future of Conflict: A critique of “The American Revolution in Military Affairs” in the Era of Jointery’, *Defence Analysis*, vol. 14, no. 2, 1998, pp. 91–100.

The development of the ECF and forecasts for the AAN highlight another dilemma confronting the Australian Army. The Army must have sufficient high technology and cultural flexibility to integrate into a US-led force, which increasingly means a command support system capable of becoming part of an operational and tactical seamless data exchange. At the same time the Australian Army must have the ability to work with regional armies possessing a wide range of technological standards, all well below the capabilities of the US Army. The Australian Army needs to develop a more detailed agenda outlining what is required to achieve interoperability with allies or potential coalition partners. This agenda needs to cover all aspects in terms of concepts, doctrine and equipment. Effective interoperability will continue to depend on a common purpose, doctrine and technological compatibility as well as personal relationships based on well-developed cross-cultural skills.<sup>82</sup> Army also needs to appreciate that attaining technological interoperability will always be difficult for coalitions, due to the number of potential partners and the cost of acquiring common or interoperable equipment.<sup>83</sup>

The Australian Government has proposed an active and focused embracing of RMA technologies through the establishment of a joint Office of the Revolution of Military Affairs.<sup>84</sup> Its main functions will be to review technological developments, develop a strategy for adopting RMA technology and for cooperating with the United States in this area.<sup>85</sup> The Office of the Revolution of Military Affairs, in

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<sup>82</sup> Australian Army, *Land Warfare Doctrine 1*, *op. cit.*, pp. 4–13.

<sup>83</sup> Robert H. Scales, 'Trust, Not Technology, Sustains Coalition', US Army War College, *Parameters*, Winter 1998, pp. 4–10.

<sup>84</sup> The Office of the RMA is to report directly to the Secretary and Chief of Defence Force (CDF) and through them to the Minister.

<sup>85</sup> Trevor J. Thomas, 'Taking up the DER Inheritance', *Australian Defence Business Review*, vol. 17, no. 16, 18 October 1998, pp. 8–11.

conjunction with the DSTO, will undertake research into the 'knowledge edge' technological development in fields relating to the RMA, combined programs with the US, and the development of technology solutions to unique Australian requirements.<sup>86</sup> Ensuring that the ANZUS alliance remains relevant to the needs of both Australia and the US has resulted in an increase in combined exercises and exchanges,<sup>87</sup> establishing a focus on high technology and the RMA, and increased intelligence cooperation.<sup>88</sup>

The Australian Army needs a developed methodology to refine AAN concepts relevant to Australia's unique regional strategic circumstances. Similar to the US Army's version, this could be a continuous process of annual review, as well as the conduct of seminars, workshops and wargames to deal with emergent warfighting concepts.<sup>89</sup> The Australian Army needs to articulate more fully, in published form, future warfighting concepts and not just focus on identifying technology and equipment. A fundamental issue for the Army is also whether it is prepared to make conceptual capability-based leaps in operational procedures. Central to this debate is whether to shift resources from some programs, and the forces associated with them, to others. The rationale for such decisions must be the maintenance of an adequate current capability while

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<sup>86</sup> *Ibid.*, p. 9. The Office of RMA will release a paper in 1999 on the ADF, the RMA and information warfare, setting out policy options and issues.

<sup>87</sup> Australian Army company-sized sub-units will continue to be detached to train with US units participating in RMA–Battlelab activities at both the US Army's National Training Centre and the US Army's Joint Readiness Training Centre.

<sup>88</sup> The Office of the RMA will be expected to investigate new avenues to focus the ability to exploit information-age technologies in the alliance relationship.

<sup>89</sup> This continuous process within Army could be the responsibility of the Director-General Future Land Warfare (DGFLW).

modernising; what the Australian Government and people will support; and what the economy can sustain over the period.

## **Conclusion**

The conclusions drawn in this paper are intended to spur further debate on force development and capabilities for the Australian Army. There is no inconsistency between, on the one hand, accepting much that has been derived from the US Army's AAN project and, on the other, analysing from a skeptical point of view what actually emerges from the debate. Points made in response will, it is hoped, contribute to a reasoned, longer-term critique of the Army's warfighting concepts as they emerge.

The AAN is best thought of as a vision of what the force will look like beyond the ECF. It is expected to be smaller, faster, more mobile and more lethal, as well as being heavily armed with advanced information technologies. The AAN force will need to be light, agile, effective and interoperable. The culture of that force will also be flexible, informed, proactive, innovative, responsive and integrated. The achievement of these AAN characteristics will present enormous challenges to the Australian Army, as well as to any potential coalition partner. It is encouraging that the Australian Army's approach has been consistent with the approaches to force structure and combat capability development adopted by principal allies.

The timelessness of classical theorists such as Sun Tzu, Machiavelli and Clausewitz owes much to the fact that they focused less on military technology, or contemporary intellectual fads, and more on the examination of war as an eternal human phenomenon. Their theories were not based on specific technologies or scientific developments peculiar to the

prevailing thinking at the time.<sup>90</sup> Army needs to be mindful that, historically, predictions about the effects of technology have often been erroneous. Asymmetric tactics, strategy and technological countermeasures have also often defeated technology-based plans.

As discussed in this paper, the RMA is concerned with the application of the revolution in information processing to military forces. Previous RMAs indicate that the mere acquisition of equipment to possess new technology is insufficient without appropriate tactical and operational doctrines and force structures. While there is no doubt that information warfare has enormous potential and is the key to the RMA, doubts exist due to problematic issues of integration and the degree of change required. Possibilities range from incremental levels of change and optimisation through radical reform of organisations and doctrines. The most practical policy for Army may well be selective digitisation in a joint context, interoperable with allies or potential coalition partners, and the endorsement of technological innovations that offer a significant increase in combat power.

The US Army's AAN project has created the momentum for exploring a long-term future and instituting a rigorous, analytical process for developing and advocating issues that will field the US Army after Army XXI. The emphasis of the project is on lateral thinking and on conceptual work designed to engage industry and to provoke research. This is paralleled in Australia in the continuum of land force capability. The AAN project is important and the Australian Army can derive much from the conceptual nature of the process.

The AAN project is now institutionalised within the US Army to focus on possible future warfare and emerging technologies

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<sup>90</sup> Ryan Henry and C. Edward Peartree, 'Military Theory and Information Warfare', *Parameters*, Autumn 1998, p. 124.

that show potential, and should therefore attract research and development investment to realise that capability. The AAN concept embodies a vision for the future of warfighting. Such warfare is likely to be characterised by rapid non-linear movement and the precise delivery of combat power by highly agile, technically advanced forces. The emphasis is on situational awareness, agility, mobility, firepower and sustainability. The speed at which the Australian Army adapts to these concepts depends on the recognition of what is emerging and a commitment to embrace change. To a large extent, the Australian Army is already adopting digitisation and new technologies in an effective manner. The policy dilemma central to the debate is whether resources should be shifted from some areas, and the forces associated with them, to others.

However, the Army needs to be aware of Australia's unique strategic policy and particular requirements when reviewing the concepts of the US Army's force development projects. A concept that would be relevant for the Australian Army is for an integrated, digitised force, invariably joint, postured for warfighting in a multinational alliance or coalition context, adaptable to other tasks and threats (both symmetric and asymmetric) to afford the maximum utility throughout the spectrum of conflict.

This paper postulates that, while the fundamental nature of war will not change, the Australian Army will need to exploit information-age technologies to create knowledge-based organisations. This exploitation will involve the continued development of dynamic warfighting concepts that take full account of Australia's unique strategic circumstances.

## **Recommendations**

The Australian Army must develop a concept for the future before starting investment in techniques associated with the

AAN project. Strategic planners and analysts will need to determine, and then clearly articulate, whether the priorities for Army are in readiness and preparedness, acquisition, or research and development. What is important is that there must be recognition that any restructuring of the Army must not be dominated by efforts to modernise legacy systems that will have much less utility in the future.

The Army must capitalise on information-age technologies that maximise interoperability with the US and other potential multinational force coalition partners. Opportunities for further development of interoperability may include areas such as the facilitation of cooperative C4ISR development. The Army must remain a firm advocate of a joint modernisation strategy with more focus on joint field exercises and experimentation with concepts from all three Services. Lastly, it is recommended that AHQ should institute a central AAN strategy, drawing on the experiences of the US Army's AAN project, where applicable, to provide a disciplined approach for focusing research and staff activities.