

## Lt(N) WC (Bill) England, Royal Military College of Canada

Lt(N) England joined the Naval Reserve at HMCS Queen in Regina in 1985. Two years later he transferred into the Regular Force and has sailed the seas ever since. He has served as a Shipboard Air Controller, Command Control and Information Systems Officer, and Deck Officer onboard Her Majesty's Canadian Ships OTTAWA, TORONTO, and VILLE DE QUEBEC. Lt(N) England's most recent appointment was as Combat Officer onboard HMCS CALGARY. Through part-time studies while going to sea and raising a family of four children he completed his undergrad degree from Saint Mary's University in Halifax in 2001 where he majored in Political Science. Lt(N) England is currently in his 2<sup>nd</sup> year of the M.A. War Studies Program at RMC and on completion will test the waters of NDHQ from behind a desk of his sponsor, Director of Defence Analysis.

### Abstract

The contemporary Revolution in Military Affairs (RMA), being championed by the armed forces of the USA, has had a tremendous impact on the ongoing transformation of many of the world's armed forces. It is commonly accepted by RMA scholars that it is composed of revolutionary, evolutionary, and/or transformational changes in the three key areas of technology, organization, and doctrine. It is also agreed that these areas are not independent of each other, but must be integrated with each other for an RMA to successfully occur.

In Canada prior to 1999 the RMA had not held a prominent position in the strategic vision of the Canadian Forces (CF) and the Department of National Defence (DND). At the same time as the US and other allies such as Australia were well on their way to transforming their military forces based primarily on RMA incentives, Canada appeared to be paying little attention to the maturing stages of the contemporary RMA. For the CF and DND, much needed direction was received in June of 1999 when the Chief of the Defence Staff (CDS) and the Deputy Minister for National Defence released *Shaping the Future of Canadian Defence: A Strategy for 2020* (Strategy 2020). This visionary document concerning the future strategic

direction of the Canadian military called for many RMA initiatives

When the broad subject of the RMA is examined up close one can readily determine that there is an imbalance in the coverage that each of the three components of the RMA has received. A majority of the international RMA literature has focused almost exclusively on its technological component. Canadian RMA sources are no exception. This technological emphasis is prevalent in Canadian military journal contributors and also in military documents, such as Strategy 2020 and the more recent annual CDS reports.

What has not been examined in any great detail is what exactly are the organizational changes called for by the RMA? What is needed is a much more clear understanding of what is meant in RMA literature regarding organizational change so that the concept can take its proper place within with discussion of the RMA.

My paper will undertake that examination and attempt to determine what is meant by organizational change within the context of the RMA. It is hypothesized that the information revolution, as the driving factor behind the contemporary RMA, is demanding that organizational change reflect network based organizational models, away from the traditional military and bureaucratic hierarchical structures. A secondary objective will be to determine if this network based organizational change has influenced the existing CF view of the RMA. It is also hypothesized that on the broad operational level, the CF has not seriously considered this form of organization change.

The paper's first section will be a brief review of current RMA literature to determine how organizational change has been presented. It will then examine organizational change within the historical perspective of prior RMA's. The next section will provide an interpretation of what organizational change means within the context of the contemporary

RMA. This viewpoint is based on network based organizational concepts as presented in the works of David Ronfeldt and John Arquilla. This network based organizational approach will then be applied to the CF to determine whether the prevalent view of organizational change is within this paper's interpretation of RMA induced organizational change.

## IN SEARCH OF ORGANIZATIONAL CHANGE WITHIN THE CONTEXT OF THE CONTEMPORARY RMA

Presented by Lt(N) William (Bill) England  
M.A. Candidate (War Studies)  
Royal Military College of Canada

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The contemporary Revolution in Military Affairs (RMA), undertaken by the USA, has had a tremendous impact on the ongoing transformation of many of the world's armed forces. It is commonly accepted by scholars who write on the subject, that the RMA is composed of 'revolutionary/evolutionary/transformational' changes in three key areas, that of technology, organization, and doctrine. It is also agreed that these areas are not independent of each other, but must be integrated with each other for an RMA to successfully occur.

In Canada before 1998 the RMA had not held a prominent position in the strategic vision of the Canadian Forces (CF) and the Department of National Defence (DND). At the same time as the United States, and Australia (Evans, 2002 and 2001), were well on their way to transforming their military forces primarily based on RMA incentives, Canada appeared to be paying little attention to the maturing stages of the contemporary RMA. For the CF, much needed direction was received in June of 1999 when the Chief of the Defence Staff released a visionary strategic direction called *Shaping the Future of Canadian Defence: A Strategy for 2020* (Strategy 2020). The introduction to Strategy 2020 indicates that it is to provide a roadmap on how best to implement Canada's Defence Policy in light of the "current emerging defence challenges" (Ottawa, CDS/DMND, 1999, 1). Being a very broad-based document it does not go on to extrapolate what these 'defence challenges' might be, but in light of the RMA it could be inferred that some of these challenges facing the CF are: how best to implement RMA induced innovations, how to identify new asymmetrical threats to Canada's national security and

national interests, and also how to implement new programs when faced with existing budgetary constraints, lethargic capital acquisition processes, and issues of recruitment and retention.

### **OUTLINE & THESIS (RESEARCH QUESTION)**

When the broad subject of the RMA is examined one can easily determine that there is an imbalance in the amount of coverage that each of the three components of the RMA has received. The vast majority of the literature regarding the RMA has focused almost exclusively on its technological components. Precision guided munitions (PGM), C4ISR[1] and other modern information tools designed to aid operational commanders in reducing the 'fog of war' and increasing their battlefield awareness are dominant subjects. Canadian literature is no exception, as this technological emphasis is prevalent in internal strategic documentation, such as Strategy 2020 and CDS Annual Reports. It could be said that technology is the Alpha male of the RMA pack, with its two siblings, doctrine and organization, playing a much less dominant, even a subservient role.

The subject of doctrine has been typically dealt with as a separate discussion, simply due to its nature. The near continuous introduction of new capabilities and equipment, no matter how large or small, ensures that there is a constant cycle of examination and updating of existing doctrine to reflect the new acquisitions. However, what has not been examined in any great detail is what exactly are the organizational changes called for by the RMA? When discussing the RMA many authors follow the more prevalent technological route, and pay very little attention to organization. What tends to occur is that the distinction between doctrinal changes, such as calling for globally deployable forces or for lighter, more lethal armoured forces, and organizational change are simply merged and are often treated as one and the same subject. What is needed is a clear understanding of what is meant in the RMA literature regarding organizational change. Without this vital understanding it is difficult to properly place the concept of organizational change within the contemporary discussion of the RMA.

This paper will examine what is meant by organizational change within the context of the broader RMA, and more specifically the contemporary RMA. It is hypothesized that the information revolution, as the driving factor behind the contemporary RMA, is demanding that organizational change reflect network based organizational models, away from traditional military and bureaucratic hierarchical structures. A secondary objective of this paper will be to determine if this network based organizational change has influenced the existing CF view of the RMA. It is hypothesized that the CF has not seriously considered this form of organizational change.

The first section of this paper will conduct a brief review of the prominent RMA literature to determine how organizational change has been and is being portrayed. Then it will place organizational change within a historical context of previous RMA's. The third section

will then propose an interpretation of what organizational change means within the context of the contemporary RMA. This interpretation will then be applied to CF strategic level documentation to determine what the prevalent view of organizational change is within the context of the RMA and whether this view is consistent with the stated interpretation.

## **SECTION I – AN RMA PRIMER**

The literature discussing the RMA and its derivatives is lengthy and as with most military subjects it is dominated by American contributions. Most sources point to a handful of authors who have ‘developed’ the current perspectives of the RMA, such as Alvin and Heidi Toffler, Andrew Krepinevich, and Eliot Cohen (Toffler 1993, Krepinevich 1994, Cohen 1996). Each author provides a significant contribution to the subject, and each agree that military revolutions are primarily about a change in the relationship between the military and society, “military revolutions recast the nature of society and state as well as of military organizations” (Murray, 71). With this perspective we see that a military force being globally deployable or based on rapidly deployable light forces do not, by themselves, justify defining a military revolution. A much more complex framework is required to ‘recast the nature of society and state.’

The fact that the US is leading the RMA is not in dispute. In fact the difficulty for America’s allies is to determine in what areas they can maintain some form of interoperability with US forces. Trying to maintain compatibility with US forces across the military spectrum is not possible, because it is well known that no one can compete with them militarily or economically.

However, this Westphalian view of state versus state is in crisis. The September 11<sup>th</sup>, 2001 terrorist attacks against the US show that every giant has its weaknesses, no matter how powerful a military it has or how much of a global economic power it is. As shall be presented later in this paper, non state actors and their organizational concepts are proving a challenge to contain. As allies strive to maintain technological and doctrinal interoperability with the US, I suggest they need to closely examine their organizational interoperability, perhaps this is one area of the RMA where close interoperability based on similar organizational structures is not the objective.

There are many references to a Revolution in Business Affairs, which includes issues such as privatizing traditional military capabilities or contracting out, just in time delivery, and business planning techniques. True, the information revolution which is driving the RMA, applies equally to business practices, but I suggest it goes too far to say that the RMA is an offshoot of the RBA. This view was suggested in the CF’s *Military Assessment 2002*. Though the report does go on to say that there must also be concomitant changes as well to organizational concepts, it highlights the general lack of understanding of the RMA as a

competent entity. It also shows that the CF lacks a coordinated approach to the RMA, as this document is one of the key planning guides for future DND/CF force development (Ottawa, DDA, 2002, 1).

## **SECTION II – HISTORICAL CONTEXT OF RMA ORGANIZATIONAL CHANGE**

Andrew Krepinevich provides an excellent starting point in which to look at patterns of military revolutions, including their organizational aspects, over the past millennium. From a historical perspective, his view of organizational change is that it has been shaped by adaptation. Military organizations that did not adapt to their respective rapidly changing, highly competitive environments were forced into decline, often quite quickly, as they were overtaken by their competitors.

Some examples are beneficial to highlight the key organizational factor of adaptability. The first of the 10 revolutionary periods that Krepinevich describes is that of the infantry revolution of the 14<sup>th</sup> century (Krepinevich, 31). Over a number of decades, organized formations of infantry and long bowmen had replaced heavy cavalry formations as the prime method of conflict on the battlefield. Instead of protecting the cavalry as they prepared for a charge, the infantry formations, and their integrated units of archers, became the dominant force. The role of the military in society was altered in this case because the infantry formations, being much cheaper for a monarch or Lord to field than knights and cavalry. Battles from this point onward would see much more carnage and a much greater loss of life. So we can see from this description that the introduction of newer technology, in the form of six-foot yew longbow, forced a doctrinal change on the battlefield that eventually led to a significant change in how land warfare was fought.

The Napoleonic revolution of the late 18<sup>th</sup>/early 19<sup>th</sup> centuries introduced the concepts of 'levee en masse,' or what today is considered national mobilization, and total warfare (Krepinevich, 34). The industrial revolution as it gained maturity resulted in many technological improvements in weaponry, such as lighter and therefore more mobile artillery, led to doctrinal changes in how battles were waged. The rise of nationalism in the French Revolution resulted in war becoming the business of the people, not something to be left to the professional soldier or mercenary to determine when and when not to fight. It took more than a decade for the rest of Europe to adapt to Napoleon's integration of technological innovations, new doctrines on how to wage massive wars, and new forms of military organizations, all in the form of his Grande Armée.

Across the military revolutions that Krepinevich discusses, it is evident that there is a window of opportunity for a military to successfully adapt to the revolutionary aspects being implemented. In the most recent military revolution that he comments on, he indicates that it took 15 years for the organizational structures of the United States itself, let alone the Soviet Union, and those American allies that chose to become members of the nuclear club, to adapt

to the emergence of nuclear weapons.[2]

Elliot Cohen expresses a similar approach to that of Krepinevich regarding organizational change. He says that the “RMA transformation would open the way for a fundamental reordering of American defence posture, casting aside old forms of organization and creation of new ones (Cohen, 37). In each case, the factors which contributed to the RMA’s as presented by Krepinevich had a significant effect on the organizational structure of not just military forces, but also had a corresponding effect on the societal norms of the time.

Cohen, as have Krepinevich and countless others, uses the example of the *blitzkrieg* to highlight the how supporting technologies, operational concepts, and new organizational forms, are able to cause a dramatic shift in the very nature of warfare. The blitzkrieg example provides a very useful example of how the three factors of a RMA must be integrated together to be effective. Without the system of technologies that together led to the dominance of the Panzer Corps, integrated with highly developed manoeuvre doctrine, and a combined arms organization of tanks, infantry and engineers that operated in an effective ‘climate of command,’ the *Wehrmacht* would never have succeeded in being able to launch such a massive armoured campaign on a level never seen in the history of warfare to that date (Cohen, 46).[3]

This historical look at a number of predecessors of the contemporary RMA has identified the importance of organizational change or adaptation alongside its technological and doctrinal partners. What will be examined next is the form of organizational change that is being called for in the current RMA.

## **SECTION III – ORGANIZATIONAL CHANGE: AN INTERPRETATION**

Martin Van Creveld in his book on the transformation of war indicates that the spread of sporadic small-scale war, away from conventional war models, will cause regular armed forces themselves to change form (van Creveld, 208). In these small-scale wars, commonly referred to as low intensity conflicts, new forms military forces will need to intermingle with enemy forces and mix with the civilian population in order to achieve their objectives. This increased use of these ‘special forces’ has been widely commented on, and is highlighted in US Defence Secretary Donald Rumsfeld’s view of transforming the military (Rusted, 20). The adaptation abilities of these Special Forces have most recently been witnessed first hand through a variety of the media outlets that provided unprecedented coverage of the recent Iraq war. Be it working alongside the Kurdish forces in the north or in the level of target identification in downtown Baghdad that attempted a decapitation strike against the Iraqi leader Saddam Hussein in the early moments of the war, these small non-traditional military forces had perhaps the most significant effect on the conduct of the war. Rusted also

emphasizes the need for new ways of thinking, and stresses that the ability of modern military forces to adapt to the rapidly changing challenging situations that they encounter will be critical in a world defined by surprise and uncertainty (Rusted, 22).

Although these demonstrations of the adaptability of modern military forces are significant, they are but a small part of what best describes the organizational change of the current RMA. Few works provide the insight into what must be considered the baseline for organizational change within the concept of the RMA better than that of David Ronfeldt and John Arquilla. Their thesis is that *network* forms of organization are the basis for future organizational change. They state that *netwar* is an emerging mode of conflict (and crime) at societal levels, short of traditional military warfare. It is a mode of conflict in which the protagonists use network forms of organization and related doctrine, strategies, and technologies applicable to the information age (Arquilla and Ronfeldt 2001, 6). These two authors have been researching and expanding their concept of netwar and network based organizational change through much of the previous decade. An earlier rendition of previously published works appeared in a 1997 edited study *In Athena's Camp: Preparing for Conflict in the Information Age*.

The key distinction of networked groups is that they operate without precise centralized command. In our current form of hierarchical military organization, centralization of command is the *modus operandi*. Without centralized command our military is simply incapable of conducting operations. Our technology and doctrine at all levels is based on dealing other hierarchical organizations, typically in the form of other military forces that also operate on a hierarchical or pyramid basis of command and control. But, militarily many, if not most, netwar actors will be non-state, even stateless (Arquilla and Ronfeldt 2001, 7). And the greatest danger to our current hierarchical organization is that hierarchies have a difficult time fighting networks. It takes networks to fight networks (Arquilla and Ronfeldt 2001, 15).

Their book, appropriately named, *Networks and Netwars*, was compiled in 2001 before the September 11 attacks. The terrorist attacks carried out by Osama bin Laden and his al-Qaeda network were a destructive example of the growing threat posed by network-based organizations, "theory has struck home with a vengeance" (Arquilla and Ronfeldt 2001, 363). In their edited work, the authors have included a number of case studies whose authors have examine different forms of network based organizations, such as Danitz and Strobel's look at cyber activists in Burma, Arquilla and Ronfeldt's own look at the emergence of the Zapatista social netwar in Mexico, and Paul de Armond's analysis of the 1999 Seattle World Trade Organization netwar protest.

One additional study that describes the network based organizational approach and has also been hailed as a key achievement for Canadian foreign policy is the international campaign to ban personnel landmines. The international Convention on the Prohibition of the Use, Stockpiling Production and Transfer of Anti-Personnel Mines and on Their Destruction[4],

commonly referred to as the Ottawa Convention, dated September 18<sup>th</sup>, 1997 provides an excellent example of a social network developed by non-governmental agency (NGO) activists (Arquilla and Ronfeldt 2001, 326). The campaign was not centrally organized or overly bureaucratic, instead it was of a network design, 'a pattern of constant, open communications and coordination among a network of national campaigns that worked independently but coordinated constantly with each other on behalf of their common goal.' The actions of this globalized network demonstrate the power of dedicated and focused networked organizations to compel national hierarchical government structures in addition to the pyramid structure of the United Nations to act on behalf of international social norms.

It is not the intention of this paper to further examine in detail the theory of network organizational models, as many others have done that. Suffice it to say that Arquilla and Ronfeldt provide a compelling argument to support that the transformation from hierarchical to network forms of organization should be accepted as what is meant by organizational change in the context of the current RMA. The underlying concepts of network can be difficult to completely understand and perhaps this is why it has not been prominent in RMA discussions. The authors admit that the meaning of network must be further clarified if it is to be better understood by policy makers and strategists (Arquilla and Ronfeldt 2001, 316).

So, it is in keeping with the information age as the driving force behind the current RMA, that organizational change must be centred on a network form, or more accurately a network hybrid form, vice the current restrictive hierarchical forms. This change supports the casting aside of the old forms of military organization referred to by Cohen. In addition, network forms of organization conform to Krepinevich's emphasis on adaptability.

Now that the foundation for what is meant by organizational change in the context of the contemporary RMA has been described, it will be shown in the next section that the current CF strategic vision and supporting documentation rarely, if ever, portrays the network form of organization in the context of the current RMA as presented by Arquilla and Ronfeldt

## **SECTION IV- ORGANIZATIONAL CHANGE AND THE CF**

That there has been little or no transformation of the CF into a network based organization is readily apparent from examination of documents that together form the strategic vision of the CF. From 1998, when the RMA became an issue of in-depth study in Canadian military planning circles until just recently, network based organizational change was often mentioned but seldom fully explained in the context of the RMA.

The first high-level report that would lead to a mandate of further study of the RMA was a concept paper delivered in 1999 that was a result of a CF symposium held the previous year whose purpose was to examine 'Canadian Defence Beyond 2010.' *Canadian Defence Beyond 2010 – The Way Ahead*[5] addressed the concept of organizational change, but from the consideration that is sought to capitalize on the technological advances that would effectively change the way militaries would apply force. It also identified that technology pursued independent of alterations to doctrine or organization would not allow DND and the CF to fully exploit the far-reaching changes that were occurring in the war-fighting. And it identified that the US armed forces will evolve into an organization with a far flatter structure, and a more flexible command and control system. In its recommendations, none of them dealt directly with organizational change, but did allude to the vulnerability of national infrastructure to deal with [network based] asymmetric threats. This work provided a foundation for organizational change and also alluded to network based organizational structures, but without specific recommendations, no firm direction would make its way into the work headquarters planning staffs.

This lack of further positive direction was highlighted in the 1998/99 annual report of the CDS[6]. In *Into the New Millennium*, General Baril indicated that the concept of a revolution in military affairs refers to a combination of technological, organizational and doctrinal changes that significantly redefine how military operations are conducted. The path to succeed in the battle-space of the 21st century will require military forces to be: modern, forward-thinking, globally deployable, interoperable with strategic allies and coalition partners, able to operate in both joint and combined operations. Here, as seen in the previous documents, there is a reference to organizational change as being significant but it is not followed up with clear direction. In fact General Baril maintains the traditional military view that *only* the CF has the people, training, equipment, and leadership necessary to engage in modern defence operations. He also reiterates the standard hierarchical military response to future conflict by reaffirming existing government policy that the CF be able to field a vanguard contingency force of up to 4,000 personnel within three weeks, and a main contingency force, including the vanguard, of up to 10,000 personnel within 90 days, as called for in the 1994 Defence White Paper (Ottawa, 1994).

The landmark document for the future of the CF was released in 1999. *Shaping the Future for Canadian Defence: A Strategy for 2020* (Strategy 2020) lays out our vision and guidelines for the implementation of strategic change" (Garnett, 9). This document addresses the RMA as a 'major change in the nature of warfare brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts fundamentally alters the character and conduct of military operations.' Unlike the previous two documents, Strategy 2020 pays some attention to organizational change aspect. 'Organizationally, adaptable and innovative institutions will outperform those unable to integrate new information technologies and management practices into their business processes.' However, this brief reference seems to be orientated

to improving business practices than the organization of the CF as an institution.

Internal CF documents were not the only ones to address the organizational aspects of the RMA. In 1999, the Canadian Defence Associations Institute published *A Strategic Assessment: Canada's Response to the New Challenges of International Security*. This document provided a much more relevant discussion of RMA organizational changes. It identified that the RMA challenges conventional hierarchical approaches to military structures, which will require 'close attention to ... innovation and lateral thinking" (CDA, 16). As a special interest group the CDA was able to be more direct in the tone of its message "Unless steps are taken towards meeting the challenges presented by the RMA, conventional armed forces will fare no better than the Iraqis did in 1991 (CDA, 17).

Whereas there was significant attention paid to the RMA and references to organizational change in 1999, there seemed to be a pause in RMA commentary for a couple of years. The temp picked up again in 2001 with a recommendation from the Debrief the Leaders (Officers 2001) project that identified that the 'nature of the profession of arms in Canada needs to change and adapt" (Ottawa, DGPA, 2001). It alluded to adaptation of network organization elements when it identified that modern militaries must be fully integrated with political, diplomatic and economic measures. Also, the Vice Chief of the Defence Staff (VCDS), Vice Admiral G. Garnett published an article in the Canadian Military Journal in which he further advanced network based organizations when he stated, "we must overcome our legacy of hierarchical 'stovepipe' organizations and methods if the CF is to become truly net-centric" (Garnett, 7). He further went on to say that CF organizational structures and doctrine must still be developed to successfully incorporate RMA technologies (Garnett, 9). This position of the VCDS was, at the time, the most advanced in addressing necessary organizational change based on network concepts, although it still lack sufficient detail in how existing hierarchical organizations were to be adapted.

In the 2001/02 CDS annual report, *At a Cross Roads*[7], General R. Henault actually seems to be taking a step backwards in the drive for RMA organizational changes. In his discussion of the RMA he indicates that technology will have a downstream impact on the organization and conduct of military forces (Ottawa, CDS, 2002, 14). This reference seems to be a return to the tech-centric view of the RMA that dominated earlier discussions regarding Canada and the RMA. However, General Henault took a dramatic shift in focus in his 2002/03 annual report. In *A Time for Transformation*,[8] General Henault calls for a 'progressive transformation agenda he indicates that we must transform the way we perceive and think.' This report, for the first time in CF strategic level documentation, stresses organizational change along the lines of Arquilla and Ronfeldt's organizational networks. He is specific in his call for moving away from 'industrial, hierarchical means of thinking linear and vertical towards being a node in a collaborative human network of lateral, horizontal thinking.' This clear direction also includes changing our management structures and decision making processes, and to be a more adaptable and flexible organization. Time will tell if the direction provided by

the CDS is translated into action amongst headquarters planning staffs.

The organizational transformation of the CF that General Henault is calling for will be a big, if not the biggest challenge facing Canada and the RMA. Technological innovations are primarily derived through expenditures on research and development, and if further monies are expended to acquire and deploy new technologies, existing doctrine will be modified as a result. But as Cohen says “the radical revision of the classical pyramid organization will be the last manifestation of a RMA, and the most difficult to implement” (Cohen, 48). Colonel Howard Marsh indicates that the hierarchical command structure that applies to today’s commanders has changed very little over the eighty years from the post World War I German General von Seeckt to the more recent American Army General Tommy Franks (Marsh, 64). Entrenched military traditions and bureaucratic interests are threatened by organizational reforms, and this will likely prove to be the most difficult hurdle to overcome. This will not only take leadership from General Henault, his successors and other senior military leaders, but also from government, for changes of this nature will require new government legislation, policy, and also commitment.

## CONCLUSION

This paper has examined what is understood by organizational change within the context of the RMA, and specifically within the discussion of the contemporary RMA. It has attempted to show that there is has been a general lack of a clear understanding of what organization change means within the discussion of the RMA. The fact that a common understanding of this component of the RMA triad is lacking has led the discussion if the RMA to be tech-centric.

Indeed, the information revolution, as the driving factor behind the contemporary RMA, is demanding that organizational change reflect network based organizational models, and must move away from the traditional military and bureaucratic hierarchical structures that have endured over the past century. The interpretation of and networked based organizational change, based around the concept of netwar, put forth by John Arquilla and David Ronfeldt clearly support the historical concepts of organizational change as presented by Andrew Krepinevich and Eliot Cohen.

Furthermore, this paper concluded that the CF has traditionally concentrated its strategic level documentation on tech-centric view of the contemporary RMA. Typically, the CF has agreed that organizational change is as important to RMA transformation as is technological and doctrinal change, but has provided no direction on what form organizational adaptation is to follow. This position took a dramatic shift in the 2002/03 CDS Annual Report, when network based organizational change replaced the ‘industrial, hierarchical means of thinking linear and vertical.’ The CF and DND must be afraid of RMA induced organizational

change. As an institution it must be willing to investigate more network based structures, more horizontal concepts of command and control arrangements, less linear rank structures, new force structures, and new security arrangements. These areas will require a great deal more research to provide viable and effective options. However, it remains to be seen how much further positive direction will be given in this element of RMA transformation in the CF, in DND, and throughout all those departments charged with the security of Canada. Existing concepts of networked democracy, networked corporations, global civil society, and network-centric warfare are expanding to include the network society, the network age, and the redefinition of nations as networks (Arquilla and Ronfeldt, 2001, 312). How will the role of the state, the Canadian state, *transform* to include these issues?

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[1] Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

[2] For additional clarification on the issue of the development of nuclear strategy see David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960," *International Security*, Spring 1983 (Vol. 7, No. 4) pp. 3-71. Even though the first atomic weapon was dropped on Hiroshima, Japan on August 6<sup>th</sup>, 1945 it was not until 1961 that the first integrated US military policy for atomic weapons was implemented through SIOP-62 (Single Integrated Operational Plan).

[3] For a detailed insight that supports how it fits into the understanding of the RMA see chapter 8 (Toward the New Era) of Robert M. Citino, *The Path to Blitzkrieg: Doctrine and Training in the German Army, 1920-1939* (London: Lynne Rienner Publishers, 1999). For a insightful comparison of the transformation, or lack of transformation of militaries of the great powers in the interwar years see Harold R. Winton and David R. Mets (eds), *The Challenge of Change: Military Institutions and New Realities, 1918-1941*, (Lincoln, University of Nebraska Press, 2000).

[4] The convention can be viewed at:  
[http://www.un.org/Depts/dpko/mine/UNDocs/ban\\_trty.htm](http://www.un.org/Depts/dpko/mine/UNDocs/ban_trty.htm)

[5] This document can be accessed at:  
[http://www.vcds.dnd.ca/dgsp/dda/rma/wayahead/RMAFOR\\_e.asp](http://www.vcds.dnd.ca/dgsp/dda/rma/wayahead/RMAFOR_e.asp)

[6] This document can be accessed at:  
[http://www.forces.gc.ca/site/reports/cds\\_report/english/cdsrtoc\\_e.htm](http://www.forces.gc.ca/site/reports/cds_report/english/cdsrtoc_e.htm)

[7] This document can be accessed at: [http://www.cds.forces.gc.ca/00native/pdf/CDS-R\\_e.pdf](http://www.cds.forces.gc.ca/00native/pdf/CDS-R_e.pdf)

[8] This document can be accessed at: [http://www.cds.forces.gc.ca/00native/pdf/CDS-R2003\\_e.pdf](http://www.cds.forces.gc.ca/00native/pdf/CDS-R2003_e.pdf)

