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MASTER OF DEFENCE STUDIES RESEARCH PROJECT

**HOW NETWORK CENTRIC OPERATIONS COULD IMPROVE UNITED NATIONS
PEACEKEEPING OPERATIONS**

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ABSTRACT

Since its first mission in 1948, the United Nations has lost over two thousand personnel in its sixty three different peacekeeping operations. Leveraging technology, specifically the communication, sensor, and computer technology of Network Centric Operations, could make peacekeeping operations much more effective, efficient, and safe.

Network Centric Operations, which provides armed forces with a common operating picture by integrating information from multiple sensors, has already been successful in conventional military situations. Network Centric Operations speeds up an organization's response time when dealing with emerging challenges. It also delegates authority lower into the chain of command, where "Strategic Corporals" armed with the big picture can take decisive action in support of their commanders' intent. The advantages gained from Network Centric Operations could permit greater synchronization and improve unity of command in UN peacekeeping operations.

It is this paper's thesis that Network Centric Operations could improve UN peacekeeping operations. This paper will highlight the problems with traditional UN peacekeeping operations command and control and conduct a case study in order to show specific examples of how Network Centric Operations could have improved the results of an actual peacekeeping operation. This paper will make recommendations regarding equipment procurement and the requisite training of personnel.

United Nations Peacekeeping Forces must improve the command and control capabilities of their field operations so that they can better conduct their most important function – maintaining international peace and security.

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CHAPTER 1: INTRODUCTION

The League of Nations . . . should be the eye of the nations to keep watch upon the common interest, an eye that does not slumber, an eye that is everywhere watchful and attentive.¹

— US President Woodrow Wilson, Paris Peace Conference, 25 January 1919

President Wilson hoped that the League of Nations would be an international organization capable of promoting peace and security throughout the world. The United Nations (UN) has since replaced the League of Nations, and it now has the burden of carrying out this crucial task. Beginning in 1948, the UN has deployed international military and civilian personnel to a total of sixty three areas of conflict in order to stop or contain hostilities or to supervise peace agreements.² While the efforts of the UN peacekeeping operations have achieved heroic results throughout the globe, its military units still have a long way to go if they truly want to live up to President Wilson's goal of being an ever watchful eye capable of deterring conflicts throughout the world.³

Since the first peacekeeping mission 1948, UN peacekeeping requirements have constantly evolved to meet differing conflicts and changing political landscapes. During

¹Woodrow Wilson, *Papers of Woodrow Wilson*, vol. 54, ed. Arthur Link (Princeton: Princeton University Press, 1986), 265.

²United Nations, *United Nations Peacekeeping*, [website on-line]; available from <http://www.un.org/en/peacekeeping/>; Internet; accessed 15 March 2010.

³A. Walter Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping," *United Nations Library* (2007)[Journal on-line]; available from http://www.peacekeepingbestpractices.unlb.org/PBPS/Library/ToolsOfTheTrade_DPKO_Dorn_10Sept2007.pdf; Internet; accessed 14 March 2010, 77.

the Cold War, which lasted from 1947 to 1991, UN Peacekeepers conducted what is now called “traditional” peacekeeping operations. Their responsibilities were “. . . primarily limited to maintaining ceasefires and stabilizing situations on the ground, so that efforts could be made at the political level to resolve the conflict by peaceful means.” Their missions consisted of United Nations Military Observers and lightly armed troops with monitoring, reporting, and confidence-building roles related to inter-state conflicts.⁴

After the end of the Cold War, the responsibilities of the UN peacekeeping forces changed dramatically. The bi-polar stalemate between the United States and the Soviet Union, which effectively held intra-state and ethnic conflicts in check, was no more.⁵ UN Peacekeepers were forced to expand their operations from “traditional” missions to complex “multidimensional” missions.⁶ Today’s peacekeepers conduct a wide variety of tasks designed to ensure peace agreements and lay the foundations for sustainable peace. Examples of these expanded roles include building sustainable institutions of governance, monitoring human rights violations, assisting in security sector reform, assisting in elections, and disarming, demobilizing and reintegrating former combatants.⁷

⁴United Nations, *United Nations Peacekeeping*.

⁵John R. Bolton, “The United Nations and Ethnic Conflicts,” *Global Economic Review*, vol. 27, no. 4 (Winter 1998) [journal on-line]; available from http://pdfserve.informaworld.com/181992_731515095_791976851.pdf; Internet; accessed 15 March 2010., 82.

⁶United Nations, *United Nations Peacekeeping*.

⁷*Ibid.*

The UN fields its peacekeeping forces from individual troop-contributing nations who volunteer their personnel and equipment for these important missions. In 1956, the UN established the First United Nations Emergency Force (UNEF I) in response to the Suez crisis. The mandate of UNEF I was to supervise the ending of hostilities, including the withdrawal of the armed forces of France, Israel, and the United Kingdom from Egyptian territory and, after the withdrawal, to serve as a buffer between the Egyptian and Israeli forces. UNEF I was the first multinational peacekeeping operation, with over six thousand soldiers provided by the countries of Brazil, Canada, Colombia, Denmark, Finland, India, Indonesia, Norway, Sweden and Yugoslavia.⁸

Since UNEF I, the vast majority of UN peacekeeping operations have been made up by multinational forces. The multinational make up of these forces has resulted in consistent challenges to the command and control of these units throughout the years. Typical UN peacekeeping operations are “. . . more-or-less *ad hoc*, one-time creation(s).”⁹ Each individual UN operation is molded to fit the nature of the crisis into which it is to be deployed. The troop-contributing nations vary from operation to operation. Troops are routinely rotated out every six months. Differing languages, cultures, and constraints placed upon the troops by their troop-contributing nations all affect command and control. Similarly, the equipment and capabilities of participating soldiers varies greatly from nation to nation. While developed nations such as the United States bring some of the most robust military assets in the world to these operations,

⁸*Ibid.*

⁹Bolton, “The United Nations and Ethnic Conflicts.”, 88.

troops from undeveloped nations such as Bangladesh are poorly equipped, lack basic training, and find communication with their coalition partners difficult.¹⁰

Since 1948, the complexity of international peacekeeping requirements has greatly increased. As new challenges and political realities arrive, UN peacekeeping must continue to evolve. Despite this fact, UN peacekeeping coalitions have been incredibly slow in leveraging new advances in technology. Modern communications and sensor technologies used by developed nations' militaries such as the United States would greatly improve UN forces effectiveness.¹¹ "Faced with the rising demand for increasingly complex peace operations, the United Nations in the past few years has been overstretched and challenged as never before."¹²

The United Nations does not currently leverage the capabilities of modern monitoring technology. They still rely ". . . mainly on primitive or obsolete methods and devices."¹³ In the 1989 Report of the Special Committee on Peacekeeping, the United Nations acknowledged the need to further explore the utilization of high technology in peacekeeping.¹⁴

¹⁰Carol Off, "Do the Right Thing! Lieutenant-General Romeo Dallaire in the 1990s," in *Warrior Chiefs: Perspectives on Senior Canadian Military Leaders*, ed. by LtCol Bernd Horn and Stephen Harris, 335-346. (Toronto: Dundurn Press, 2001), 336.

¹¹Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.", 1.

¹²United Nations, *United Nations Peacekeeping*.

¹³Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.", 78.

Throughout their wide range of monitoring tasks, United Nations forces use a host of traditional methods. These methods include “. . . observation posts, checkpoints, foot and vehicle patrols, as well as aerial reconnaissance and occasionally some technological means.”¹⁵ Dr. Walter Dorn has done extensive research on improving monitoring technologies in United Nations peacekeeping operations. In an independent study conducted for the UN entitled, *Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping*, Dr. Dorn identified the gap between monitoring requirements and the actual capabilities in the field. While the United Nations has “. . . used **some monitoring technologies in some missions**, (it has been) mostly in an *ad hoc* and *unsystematic* fashion.”¹⁶

Dr. Dorn believes that leveraging technology can increase the effectiveness of United Nations Peacekeeping Missions and can increase the safety and security of the peacekeepers. Specific examples that he provides include utilizing night vision goggles, unmanned aerial vehicles (UAVs), satellite and aerial reconnaissance, cameras, motion sensors, radars, acoustic and seismic sensors, blue force tracking systems, and modern geographic mapping systems.¹⁷

All of the militaries from the developed nations use most, if not all, of these recommended technologies. The fact that the United Nations cannot consistently provide

¹⁴*Cited in Ibid.*, 5.

¹⁵Walter A. Dorn, *Blue Sensors: Technology and Cooperative Monitoring in UN Peacekeeping* (Albuquerque: Cooperative Monitoring Center, 2004), 14.

¹⁶Dorn, “Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.”, 78.

¹⁷*Ibid.*, 89.

this type of equipment for its peacekeeping missions speaks to an inability to properly protect UN personnel and a resulting ineffectiveness in protecting the populations as prescribed in their peacekeeping mandates.

Some militaries became disenchanted with peacekeeping as practiced by the United Nations, in part because their soldiers were placed in harm's way without the "full kit" deemed necessary under national standards. Needing a better situational awareness and responsive capacity, many Western nations, including former top contributors, turned to organizations more robust and more technologically capable to carry out tough peacekeeping tasks.¹⁸

Dr. Dorn is correct in his assessment that United Nations peacekeeping operations need to equip peacekeepers with better "kit." Developed nations have an adequate supply of this equipment and could bring enough kit for their coalition partners to borrow during peacekeeping operations. Training as to the proper ways to utilize the equipment could also be provided by peacekeepers from developed nations. The United States, as the world's pre-eminent military power and the proprietor of the world's most sophisticated military technology, should play the biggest role in lending equipment and training its peacekeeping partners.

In his article "The United Nations and Ethnic Conflicts," John R. Bolton concludes that in order ". . . to be successful in ethnic conflicts, the United Nations requires strong and consistent American leadership, a leadership which in some cases will contradict the UN's dominant culture of negotiation and compromise."¹⁹ He believes that one of the United Nations major problems stems from its universalist desire to come

¹⁸*Ibid.*, 2.

¹⁹Bolton, "The United Nations and Ethnic Conflicts.", 82.

to compromise and consensus amongst all member states in all debates. The United Nations reaches agreements at the lowest-common-denominator.

American leadership is a necessary (albeit certainly not sufficient) condition for U.N. success. The blunt fact is that no other Permanent Member of the Security Council, and most certainly no other member, can supply even vaguely comparable leadership. Unfortunately, in recent years, the U.S. role has been anything but strong and constant.²⁰

As stated by Dr. Dorn, the United Nations needs modern surveillance technology provided by its stronger troop contributing nations to improve peacekeeping operations. John R. Bolton is asking for US leadership. This paper proposes an additional request for assistance from the US in order to aid the United Nations in its peacekeeping missions: training and equipping United Nations peacekeepers in order to use the US military's capability of Network Centric Operations.

It is this paper's thesis that Network Centric Operations could improve UN peacekeeping operations. In order to support this thesis, this paper will explain the concept of Network Centric Operations and demonstrate its effectiveness in previous coalition operations such as Operation Iraqi Freedom (OIF.) The paper will then delve deeper into the challenges faced by current methods of UN Peacekeeping command and control. The paper will then provide a framework for analyzing command and control and use this framework to conduct a case study of a previous UN peacekeeping operation. The case study to be used is the debacle experienced in 1993 by the United Nations Assistance Mission for Rwanda (UNAMIR.) This operation will be used to demonstrate how Network Centric Operations might have improved the command and

²⁰*Ibid.*, 92.

control of UN forces operating in the face of great obstacles. Lastly, this paper will make some further recommendations regarding the use of Network Centric Operations to improve UN peacekeeping command and control.

CHAPTER 2: NETWORK CENTRIC OPERATIONS

Network Centric Operations, as practiced by the United States military, is an organizational concept, approach, or system that continues to evolve. The final stage in its evolutionary process has not been met. In fact, proponents of Network Centric Operations say that we have not even begun to scratch the surface of what this concept can provide to military operations.²¹

Rather than calling this concept Network Centric Operations, the US military calls this concept Network Centric Warfare (NCW.) When discussing US practices, this term will be used. However, when discussing its use regarding UN peacekeeping, this paper will use the term Network Centric Operations, as its use here is not in making war but in keeping peace.

In this chapter, the concepts of NCW will be thoroughly explained. It is this paper's belief that NCW is in fact a Revolution in Military Affairs (RMA) and should be adopted by UN forces. Concerns that critics have regarding NCW will be listed and answered. These concerns include the potential for information overload by NCW

²¹ Vice Admiral Arthur K. Cebrowski and John J. Garstka, "Network-Centric Warfare: Its Origin and Future," *U.S. Naval Institute Proceedings* (January 1998) [journal on-line]; available from <http://all.net/books/iw/iwarstuff/www.usni.org/Proceedings/Articles98/PROcebrowski.htm#top>; Internet; accessed 15 January 2010.

operators, the impact of the networks being destroyed or compromised, and the doubt regarding NCW's applicability in Military Operations Other Than War (MOOTW) and Counter-Insurgency (COIN) operations. As this essay supports NCW, each of these concerns will be addressed. This paper will then hold up the success of the United States led coalition during OIF as a sterling example of the impact NCW can play in military operations. Lastly, the positive effect that NCW can have on society, governments, and the United Nations voting members will be discussed in this chapter.

NETWORK CENTRIC WARFARE

Network Centric Warfare is the military response to the information age.²² NCW is defined by the US Department of Defense as “. . . an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization.”²³ Rather than just being a new way to use information technology, NCW is about the adoption of a new way of thinking. NCW requires the adaptation of human and organizational behaviour, and applying these new methods to military

²²David S. Alberts, John J. Garstka, and Frederick P. Stein. *Network Centric Warfare: Developing and Leveraging Information Superiority*, 2nd ed. (Washington: Command and Control Research Program, 1999), 88.

²³*Ibid.*, 2.

operations.²⁴ NCW provides a networked force with a “decisive warfighting advantage” over its adversaries.²⁵

Vice Admiral Arthur K. Cebrowski, US Navy, is considered to be the originator of Network Centric Warfare. He believes that the US military is in the midst of the largest RMA since Napoleon’s use of levee en masse [the leveraging of industrialization in order to bring the majority of a nation’s male population into war.] Vice Admiral Cebrowski believes that NCW will prove to be the most important Revolution in Military Affairs in the past 200 years.²⁶

Network-Centric Warfare derives its power from the strong networking of a well-informed but geographically dispersed force. The enabling elements are a high-performance information grid, access to all appropriate information sources, weapons reach and maneuver with precision and speed of response, value-adding command-and-control (C2) processes--to include high-speed automated assignment of resources to need--and integrated sensor grids closely coupled in time to shooters and C2 processes. Network-centric warfare is applicable to all levels of warfare and contributes to the coalescence of strategy, operations, and tactics. It is transparent to mission, force size and composition, and geography.²⁷

Dr. David S. Alberts is the Director of Research and Strategic Planning for the Office of the Assistant Secretary of Defense for Networks and Information Integration.

²⁴ Alberts, Gartska, and Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority*, 89.

²⁵ John J. Garstka, “Network-Centric Warfare Offers Warfighting Advantage,” *The Information Warfare Site* (2003) [journal on-line]; available from <http://www.iwar.org.uk/rma/resources/ncw/ncw-forum.htm>; Internet; accessed 13 January 2010.

²⁶ Cebrowski and Garstka, “Network-Centric Warfare: Its Origin and Future.”

²⁷ *Ibid.*

He has taken Vice Admiral Cebrowski's Network Centric Warfare and used it to provide the intellectual foundation for the Information Age transformation of the entire United States military. In 2003, David Alberts and Richard Hayes wrote *Power to the Edge: Command . . . Control . . . in the Information Age* in which they discussed how the United States military could use information superiority provided by modern technology and communications to improve the effectiveness and efficiency of command and control in the 21st century.²⁸

Alberts continued to develop these ideas in his article for *The International C2 Journal* entitled "Agility, Focus, and Convergence: The Future of Command and Control." In this article, Alberts stated that the ability to command and to control future missions will be significantly assisted by information technology such as web enabled internet communication, Global Positioning Systems (GPS), satellite imagery, and satellite phones. Due to these breakthroughs in information technology, Alberts believed that the classic paradigm of command and control is no longer the best model for coalition operations and should be replaced by a new conceptual framework (Agility, Focus, and Convergence) in order to achieve mission success.²⁹ This framework will be applied to a UN peacekeeping operation case study in Chapter 3 in order to show how Network Centric Operations could improve peacekeeping operations.

²⁸David S. Alberts and Richard E. Hayes, *Power to the Edge: Command . . . Control . . . in the Information Age* (Washington: Command and Control Research Program, 2003), 2.

²⁹David S. Alberts, "Agility, Focus, and Convergence: The Future of Command and Control," *The International C2 Journal* 1, no. 1 (2007), 4.

NCW is a conceptual framework or “. . . ‘basket’ of ideas and theories” that are still evolving.³⁰ As new technologies and improved methods for using these technologies are developed, the NCW concept will continue to evolve. Partly because the concepts of NCW are still in flux and evolving, many analysts and military professionals have concerns with the viability of NCW.

CONCERNS WITH NETWORK CENTRIC WARFARE

The skeptics of NCW have many legitimate concerns.³¹ This paper will address three of the most critical issues raised against NCW. These issues include the potential for information overload by NCW operators, the impact of the networks being destroyed or compromised, and the doubt regarding NCW’s applicability in MOOTW and COIN operations. As this essay supports the premise that NCW is a true Revolution in Military Affairs, each of these concerns will be addressed.

Information Overload

³⁰Commander Erik J. Dahl, “Network Centric Warfare and the Death of Operational Art,” *Defense Studies*, vol. 4 (Autumn 2004) [Journal on-line]; available from http://pdfserve.informaworld.com/900523_731255110_783083097.pdf; Internet; accessed 10 January 2010, 2.

³¹Edward A. Smith, “Network Centric Warfare: Where’s the Beef?” *Naval War College Review* (2000) [Journal on-line]; available from <http://www.iwar.org.uk/rma/resources/ncw/smith.htm>; Internet; accessed 13 January 2010.

Critics fear that NCW could bog down commanders, planners, and operators with too much information.³² An example of this would be a fighter pilot using datalink information to show him where other air assets and surface-to-air missile sites are located. In addition to this information, what if he were forced to sift through the entire enemy's ground force locations?

This concern has already been answered. The datalink system in use today is designed to give the pilot only the information he needs when he needs it. He does not have to sift through all of the enemy's ground force locations if he does not need to at that point of a mission, but he can readily access this information as desired. NCW benefits the pilot by providing him with real-time information from multiple sensors integrated to provide a comprehensive picture. In the specific case of fighter aircraft using datalink capabilities, the benefit of using this NCW capability has been proven beyond a doubt by both testing during training evolutions and during real world operations.³³ Technology can make some things in life more difficult, but in other aspects of life it can simplify things. People fear change, but once they adjust to it, they wonder how they ever got along without the new device before it came along.

Just as a civilian researcher can become adept at efficiently finding information on the internet by focusing his search on the most relevant information, military operators can use NCW capabilities to quickly find information they want when they need it. In the Information Age, when it comes to "too much information," personnel will learn and

³² Thomas P.M. Barnett, "The Seven Deadly Sins of Network-Centric Warfare," *The U.S. Naval Institute* (January 1999) [Article on-line]; available from <http://www.thomaspmbarnett.com/published/7d.htm>; Internet; accessed 17 March 2010.

³³ John J. Garstka, "Network-Centric Warfare Offers Warfighting Advantage."

adapt to master their new devices. Operators must be trained to use information technology in order to be proficient at their trade, whether they are a pilot on a reconnaissance mission, an intelligence officer studying satellite images, or a peacekeeper talking on a radio network with his fellow soldiers.

When looking at the problem of information overload from the point of view of UN peacekeeping operations, it is evident that the operators in the field are in fact getting too little information. “As the United Nations has readily admitted, too often it has found itself in the dark about spoiler intrigue (an agent hoping to undermine the peacekeeping process), arms and militia movements and a host of other dangerous activities.”³⁴ In the case study to be analyzed in the next chapter, the inability to share information by traditional UN command and control will be thoroughly demonstrated. In that example, too much information would have been better than the little that these peacekeepers had when hostilities commenced.

Loss of Networks

Another concern related to NCW is what would happen if the network was destroyed or was compromised? To answer this concern, one must remember that the internet was initially designed by the U.S. Department of Defense in order to ensure the

³⁴Dorn, “Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.”, 15.

survivability of communications during nuclear war.³⁵ The theory goes that the more spread out the nodes of information are, the more likely it is that the flow of information will survive an attack. Under the pre-NCW command and control paradigm, it was believed that if one side could take out the other side's head (command center), the body would stop fighting. In the NCW context, if the head is destroyed, a new head will take charge at a different node, and the coordinated fight can continue.

If the enemy finds a way to simply shut down the network using a virus or some form of jamming, then the command and control system is reduced to what it was pre-NCW. This is a realistic possibility. Both the United States and its adversaries are striving to find ways to compromise their enemy's networks while protecting their own. These attempts at technological one-upmanship over the enemy are as old as war itself, and fundamental to all RMAs.

If the communications network is indeed lost, UN peacekeepers, just as traditional military forces, must be trained to continue on with their missions. In traditional military command and control, information comes up the hierarchical chain of command, while orders come down. This method of command and control slows the flow of information and limits an organization's agility.³⁶ The concept of NCW flattens hierarchical command structures, as “. . . the speed, power, and system-oriented focus of Network Centric Operations blur the traditional distinctions between, strategic, operational, and

³⁵Paul T. Mitchell, *Network Centric Warfare and Coalition Operations: The New Military Operating System* (New York: Routledge, 2009), 2.

³⁶Alberts, Gartska, and Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority*, 81.

tactical levels of war.”³⁷ Everyone is connected to the network and sharing the same information. This in turn frees information flow and increases the speed of command.

Individual soldiers are empowered with greater responsibility using NCW in the multidimensional 21st-century battlespace. They are what the US Army calls Strategic Corporals. “The term Strategic Corporal refers to the devolution of command responsibility to lower rank levels in an era of instant communications and pervasive media images.”³⁸ The Strategic Corporal knows the big picture, thinks about the ramifications of his actions, and is able to self-synchronize. “A smart force with a high level of situational awareness and a good understanding of commander’s intent will be able to take the initiative and ‘self-synchronize’ to the commander’s concept of operations without waiting for specific orders.”³⁹ Only with proper training, properly communicating the commander’s intent down to all levels of the chain of command, and then having the trust in all soldiers (to include soldiers derived from developing nations) can Network Centric Operations truly be successful.

NCW in MOOTW and COIN

³⁷Dahl, “Network Centric Warfare and the Death of Operational Art,” 8.

³⁸Major Lynda Liddy, “The Strategic Corporal: Some Requirements in Training and Education,” *Small Wars Journal*, vol. 2, no. 2, (2004) [journal on-line]; available from <http://smallwarsjournal.com/documents/liddy.pdf>; Internet; accessed 17 March 2010.

³⁹Thomas Carroll, “Network Centric Warfare Primer,” *Wings of Gold* (Winter 2000) [journal on-line]; available from http://findarticles.com/p/articles/mi_qa3834/is_200001/ai_n8879991/; Internet; accessed 16 April 2010.

Many analysts who see the benefit of NCW in traditional peer-on-peer conflicts express concern as to NCW's utility for COIN or MOOTW operations.⁴⁰ While it is true that NCW was designed for and has already been proven in conventional wars, it does not mean that NCW cannot succeed in COIN and MOOTW. If the application of NCW concepts improves a force's ability to achieve battlespace awareness, speed of command, and force responsiveness in conventional warfare, why would it not be expected for NCW to contribute positively to asymmetric combat?

The United States' current information collection systems are designed for conventional wars.⁴¹ As NCW is still an evolving concept, the US military is aware of this current lack of capability and is looking for new technological components and procedures for the collection and analysis of information pertaining to insurgents in COIN situations or spoilers in peacekeeping scenarios. Even in the case where information is less than perfect, ". . . it could reasonably be argued that being able to have a shared understanding of what is known and what is not known would be preferable to a situation in which units operated in isolated ignorance."⁴²

In UN Peacekeeping Operations, peacekeepers are often overwhelmed by the sheer magnitude of their task. The numbers of people to be monitored and the large geographical area making up their area of operations is often staggering. Leveraging

⁴⁰Barnett, "The Seven Deadly Sins of Network-Centric Warfare."

⁴¹Alberts, Gartska, and Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority*, 8.

⁴²*Ibid.*, 8.

technology to assist in their monitoring requirement, as discussed in Dr. Dorn's *Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping*, could act as a force multiplier and bridge the gap between monitoring requirements and abilities of the peacekeeping contingent in theatre.⁴³

Dr. Dorn envisions UN mobile patrols connected via satellite communication to a UN command and control station. They could be dispatched in real-time in order to respond to emerging peacekeeping requirements, forming a kind of “network-centric peacekeeping.”⁴⁴ Providing UN peacekeepers with NCW capabilities will help employ field personnel more efficiently, help them prevent or mitigate escalating crises, reduce the risks to these soldiers, and act as a force-multiplier.

REVOLUTION IN MILITARY AFFAIRS

There is a debate concerning Network Centric Warfare and whether it is truly a Revolution in Military Affairs. Proponents of NCW argue that “. . . their vision will offer military forces revolutionary tools and capabilities, and even change the fundamental nature of war.”⁴⁵ Detractors argue that NCW is “. . . nothing new at all, since militaries have been using networks and communications of one sort or another for centuries.”⁴⁶

⁴³Dorn, “Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.”, 20.

⁴⁴*Ibid.*, 26.

⁴⁵Dahl, “Network Centric Warfare and the Death of Operational Art,” 1.

⁴⁶*Ibid.*, 1.

This paper will use accepted scholarly definitions of RMA in order to demonstrate that NCW does in fact fit the description of a Revolution in Military Affairs. After making these definitions, it will compare the methods of combat used during World War I (WWI), which has generally been accepted as the first “modern war,”⁴⁷ to the methods used during Operation Iraqi Freedom (OIF), which used NCW to integrate its coalition forces. The telling differences between these two wars, as well as the fact that NCW is an unfinished concept that is still improving and evolving, will show that present day militaries are in the midst of a new Revolution in Military Affairs.

In his article, *Calvary to Computer; The Pattern of Military Revolutions*, Andrew Krepinevich defines Revolutions in Military Affairs:

. . . [A Revolution in Military Affairs] occurs when the application of new technologies into a significant number of military systems combines with innovative operational concepts and organizational adaptation in a way that fundamentally alters the character and conduct of conflict. It does so by producing a dramatic increase--often an order of magnitude or greater--in the combat potential and military effectiveness of armed forces.⁴⁸

Krepinevich places three requirements that a military advancement must meet in order to be a RMA. For an advancement in military effectiveness to meet these criteria, it

⁴⁷Jonathon Bailey, “The First World War and the Birth of Modern Warfare,” in *The Dynamics of Military Revolution, 1300-2050*, ed. by MacGregor Knox and Williamson Murray, 132-153 (Cambridge: Cambridge University Press, 2001), 132.

⁴⁸Andrew F. Krepinevich, “Calvary to Computer; The Pattern of Military Revolutions,” *The National Interest* (Fall 1994) [journal on-line]; available from http://findarticles.com/p/articles/mi_m2751/is_n37/ai_16315042/?tag=content;coll; Internet; accessed 13 January 2010.

must include a technological advancement, create new operational concepts, and build new organizations.⁴⁹

In their book, *The Dynamics of Military Revolution, 1300-2050*, MacGregor Knox and Williamson Murray state that “Military revolutions recast society and the state as well as military organizations.”⁵⁰ Some examples of Revolutions in Military Affairs that they provide in their book include the use of the longbow, gunpowder, fortress architecture, Napoleonic battlefield warfare, railroads, steamships, automatic weapons, carrier aviation, radars and nuclear weapons. Knox and Murray included “computerization and computer networking of command and control” in this list of RMAs.⁵¹

This chapter will use the definitions of RMA provided by Krepinevich, Knox and Murray to demonstrate that NCW is an RMA.

Revolution versus Evolution

While many critics acknowledge that NCW is a positive improvement to military capability, some are not ready to proclaim it a Revolution in Military Affairs. They might prefer to call NCW an evolution in military affairs. In his paper *The First World War and the Birth of Modern Warfare*, Jonathon Bailey argues that:

Three dimensional conflict was so revolutionary that the tumultuous development of armour and air power in 1939-45 and the advent of the

⁴⁹*Ibid.*

⁵⁰MacGregor Knox and Williamson Murray, *The Dynamics of Military Revolution, 1300-2050* (Cambridge: Cambridge University Press, 2001), 7.

⁵¹*Ibid*, 13.

information age in the decades that followed amounted to no more than complementary and incremental improvements upon the conceptual model laid down in 1917-1918.⁵²

Bailey is correct in his assertion that, by the end of WWI, the general platforms and capabilities of modern warfare that we use now were already on the battlefield. Tanks, air-to-air combat, strategic bombing, aerial reconnaissance, air defense, electronic communication, and artillery all played major roles in WWI.⁵³ It is also fair to say that these same platforms are just as important in today's conventional battles. While Bailey is merely debating the semantics between what should be defined as revolutionary rather than evolutionary, it is obvious that he undervalues the magnitude of the impact that NCW is capable of providing to modern militaries. Fortunately, there is a real world example which readily demonstrates the impact that NCW can provide to our modern weapons platforms: Operation Iraqi Freedom.

OPERATION IRAQI FREEDOM

The success of the United States and its allies during OIF stands as a sterling example of the impact NCW can play in battle. Regarding his force's success in OIF, General Dick Myers, Chairman of the Joint Chiefs of Staff, stated that “. . . ‘the application of force, using forces in an integrated way, and having the eyes, ears, and

⁵²Bailey, “The First World War and the Birth of Modern Warfare”, 132.

⁵³*Ibid.*, 149-150.

command and control to carry it off . . .’ [were] . . . the most important factors of Operation Iraqi Freedom.”⁵⁴

By integrating legacy weapons platforms with NCW, the US-led coalition was able to swiftly and decisively defeat a much larger Iraqi force. Using eighty dedicated intelligence, surveillance and reconnaissance (ISR) aircraft, coalition forces generated forty two thousand battlefield images over the course of the war.⁵⁵ Whereas the US had no more than fifteen percent information on military-significant targets during Operation Desert Storm, the high degree of battlefield transparency due to sensor-shooter integration resulted in a sixty-five percent knowledge of significant targets during OIF.⁵⁶ This improvement was due to NCW.

The smart weapons used in OIF fall under the umbrella of NCW. “Smart munitions delivered from a single aircraft or a ship are more likely to accomplish certain missions, which perhaps could be achieved by employing an air-force squadron during the Second World War.”⁵⁷ Referring back to what Krepinevich defines as an RMA, this

⁵⁴Lt. Gen. Harry D Raduege Jr., “Net-Centric Warfare is Changing the Battlefield Environment,” *The Journal of Defense Software Engineering* (January 2004)[journal on-line]; available from <http://www.stsc.hill.af.mil/crosstalk/2004/01/0401Raduege.html>; Internet; accessed 15 December 2009.

⁵⁵Shitanshu Mishra, “Network Centric Warfare in the Context of ‘Operation Iraqi Freedom’,” *Strategic Analysis*, (2003) [journal on-line]; available from http://www.pdfserve.informaworld.com/435673_731515095_791918180.pdf; Internet; accessed 13 January 2010, 555.

⁵⁶*Ibid.*, 557.

⁵⁷*Ibid.*, 550.

dramatic increase in military effectiveness certainly meets the threshold of being greater than one order of magnitude [improvement by ten times the previous resultant effect.]

Knowing where the targets are and hitting them with precision is only the tip of the iceberg for NCW. The truly revolutionary improvements resulted from the speed with which strikes could be conducted. Using instant communication systems, Global Positioning Systems (GPS) and laser-targeting systems, US Special Forces could call in an immediate airstrike. Coalition bombers would loiter, waiting for a call. In one case, some real time intelligence came in that a high value target was expected to be at a restaurant. A precision munition dropped from a B-1B bomber took out that restaurant twelve minutes after the call came in.⁵⁸ This innovative operational concept does not seem like merely an “incremental improvement” over WWI capabilities. It was a fundamental change to how combat was conducted.

Some critics challenge the role that NCW played during OIF, contending that it is “. . . impossible to validate the concept against what turned out to be a somewhat unsophisticated enemy.”⁵⁹ Furthermore, the command and control methodologies used during OIF did not meet the full definition of NCW. Approval to shoot at a target from an aircraft, ship, UAV, or tank still came down from above. The Joint Task Force

⁵⁸*Ibid.*, 556.

⁵⁹Dan Caterinicchia and Mathew French, “Network-Centric Warfare: Not There Yet,” *Federal Computer Week* (June 2003) [Article on-line]; available from <http://fcw.com/articles/2003/06/09/networkcentric-warfare-not-there-yet.aspx>; Internet; accessed 17 April 2010.

Commanders enjoyed the advertised benefits of NCW, but the true capabilities of this concept did not make it all the way down to the warfighters on the tactical level.⁶⁰

As mentioned before, NCW is a concept that continues to evolve. As technology improves, the organizational approaches used by a unit can improve. The military forces using NCW during OIF were not yet able to use this capability to the extent theorized by Admiral Cebrowski, but in the “pockets” where mature NCW capabilities were evident, the increases in agility and speed of command were evident as well.⁶¹

Referring once again to Krepinevich’ definition of an RMA, we can see that NCW meets the requirements of an RMA in terms of being a dramatic increase in military effectiveness using new technologies, innovative operational concepts, and new organizational methods. Just as bombers loiter, ready to execute a mission at a moment’s notice, so too could peacekeepers already on patrol be called upon to perform a mission in response to real-time information. The revolutionary improvements that NCW gives to post WWI modern militaries could be just as beneficial to the soldiers conducting modern peacekeeping operations.

NCW’S EFFECT ON SOCIETY AND THE UNITED NATIONS

As mentioned before, MacGregor Knox and Williamson Murray state that “Military revolutions recast society and the state as well as military organizations.”⁶²

⁶⁰*Ibid.*

⁶¹*Ibid.*

⁶²Knox and Murray, *The Dynamics of Military Revolution, 1300-2050*, 7.

NCW does in fact meet this stringent criterion. In modern Western society, our culture has grown more and more accustomed to warfare without high casualty rates. The citizens of the Western nations do not want their sons and daughters returning home from combat in body bags.⁶³ Similarly, Western society has grown accustomed to watching battles unfold in real time on CNN. When things go successfully or poorly in combat, society finds out about it almost immediately. NCW addresses both of these societal situations in a positive manner.

NCW helps to prevent casualties. Increased situational awareness lets our soldiers know where their allies are located. Tools such as Blue Force Tracker help to prevent blue-on-blue (friendly fire) mishaps. NCW supports the traditional American tenet of using technology rather than manpower in combat. The US military can be “. . . defined less by size and more by mobility and swiftness . . . relying heavily on stealth, precision weaponry and information technologies.”⁶⁴ NCW did not create modern society’s distaste for casualties, but it meshes well with this reality.

Battles are not won only on the battlefield. The use of media to shape public opinion can have enormous political and strategic impacts on a war. The communications infrastructure created for NCW greatly assisted Perception Management for the coalition forces during OIF.⁶⁵ Military operations have become spectator events

⁶³Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (London: Penguin Books, 2005), 292.

⁶⁴Mishra, “Network Centric Warfare in the Context of ‘Operation Iraqi Freedom’,” 550.

⁶⁵*Ibid.*, 558.

viewed via modern information technology. With this type of media coverage, it could be argued that the rates of casualties resulting from the trench warfare of WWI would no longer be condoned by today's Western viewing public unless the very survival of their nation were at stake. If the US wants to conduct "soft" military missions in today's information age, victory must be swift, decisive and with minimal casualties to both our forces and the enemy's civilian population.⁶⁶ NCW supports these societal requirements.

The sensor platforms used by NCW operations can be leveraged to affect world opinion and the voting members of the United Nations. A video recording of a heinous crime against humanity or war crime could be taken from a military sensor and provided to the international media. The "CNN Effect," a situation where video images, photographs, and reports on television essentially drive a government's foreign policy decisions, can change world opinion regarding a crisis nearly overnight.⁶⁷ The UN peacekeeping forces could leverage this powerful political capability. Using modern sensor technology, the UN could be capable of identifying ". . . significant violators of peace accords and the perpetrators of human rights abuses . . . [so that peacekeepers could] . . . 'name and shame' such individuals and groups."⁶⁸ The knowledge that their inappropriate actions could be detected and transmitted to the world's court of public opinion could act as a great deterrent to would-be spoilers of peace.

⁶⁶Smith, *The Utility of Force: The Art of War in the Modern World*, 293.

⁶⁷Piers Robinson, "The CNN Effect Revisited," *Critical Studies in Media Communication* vol. 22, No. 4 (October 2005)[journal on-line]; available from http://pdfserve.informaworld.com/683574_731515095_727242945.pdf; Internet; accessed 17 March 2010.

⁶⁸Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.", 68.

Instantaneous communications have shrunk the world and accelerated decision making.⁶⁹ Network centric communications could be used to speed up what USAF Colonel John Boyd calls the “OODA Loop.” This strategy for information warfare is based on the military advantage of conducting operations faster than your adversary. OODA stands for Observe, Orient, Decide, and Act.⁷⁰ By speeding up the process by which information gets to and from UN Headquarters and the Secretary General, peacekeeping operations can be better coordinated and more responsive to real-time crises.

CONCLUSION

Modern military operations are in the midst of a Revolution in Military Affairs. Network Centric Warfare applies new technologies into a significant number of military systems, combined with innovative operational concepts and organizational adaptations in a way that fundamentally alters the character and conduct of conflict management. NCW does this by producing a dramatic increase in the combat potential and military effectiveness of an armed force. Furthermore, NCW has an impact beyond the battlefield, affecting the media, world opinion, governments, and the United Nations’ leadership body.

⁶⁹Alberts, Garstka, and Stein. *Network Centric Warfare*, 20.

⁷⁰Colonel John. R. Boyd, “The Essence of Winning and Losing.” *Modern Business Strategies* (Summer 1995)[website on-line]; available from http://www.chetrichards.com/modern_business_strategy/boyd/essence/eowl_frameset.htm; Internet; accessed 17 March 2010.

This chapter used the definitions of RMA provided by Krepinevich, Knox and Murray to prove that NCW is in fact a Revolution in Military Affairs. Concerns raised by critics of NCW were addressed. Finally, this chapter compared the methods of combat used during WWI, the first “modern war,” to the methods used during OIF. OIF proved to be an ideal example for demonstrating the positive qualities of NCW.

NCW is not a finished product. It is a concept or development which continues to evolve. Improvements to this approach will impact how all military operations are conducted in the future. Furthermore, NCW can be used not only in traditional war-fighting situations, but in MOOTW, COIN, and peacekeeping situations as well. A more detailed explanation of how Network Centric Operations could be used in peacekeeping operations will be explored in Chapter 4 of this paper. This paper will now look at a case study of a traditional peacekeeping mission in order to show why improvements in UN peacekeeping operations command and control are needed.

CHAPTER 3: THE UNAMIR CASE STUDY

INTRODUCTION

In this chapter, a framework used to study command and control will be cited in order to demonstrate how the UNAMIR peacekeeping operation may have been much more successful had the principles of Network Centric Operations been used. In the UNAMIR scenario there were multiple challenges to coalition command and control. These challenges are not isolated simply to this scenario, but are representative of the challenges experienced in many UN peacekeeping operations. Some of these universal challenges include the cobbling together of a military contingent derived from a wide-ranging group of troop-contributing nations, communication challenges due to language, culture, and lack of proper equipment, inter-operability challenges, and a disparate level of training and capabilities among the peacekeeping soldiers. A further challenge results

from caveats and constraints being placed on the peacekeepers by their nations, as well as host nations. Still another challenge was the slow or sometimes missing leadership from UN headquarters due to political pressures for compromise and consensus as discussed in Chapter 2. Last, and possibly most importantly, the failure of individual nations to provide increased assistance when it was evident that the current UN force was not equipped to handle the deteriorating situation is a possibility which could happen again in future operations.

Previously in this paper, the operations conducted by the United States military during Operation Iraqi Freedom were used as a model of command and control done right. The debacle experienced in 1993 by UNAMIR, under the military leadership of Canadian General Romeo Dallaire, is the worst case scenario for command and control of UN peacekeeping operations. Under General Dallaire's military command, UNAMIR was criticized for being powerless and incapable of slowing down the civil war and genocide that killed over 800,000 Rwandans when the Hutu tribe began systematically murdering members of the Tutsi tribe with their machetes. This case study will use Alberts' framework of Agility, Focus, and Convergence (AF&C), as introduced in Chapter 2, in order to demonstrate how Network Centric Warfare, rather than the traditional command and control model followed by the United Nations at that time, might have altered history and saved thousands of Rwandan lives.

Alberts believes that the classic paradigm of military command and control is no longer the best model for coalition operations and should be replaced by his new conceptual framework, AF&C, in order to achieve mission success.⁷¹ The classic

paradigm of command and control consists of orders coming down from the strategic level, being interpreted at the operational level, and put into action at the tactical level. Reports go up the chain, orders come down. In simple military scenarios, this organizational model has worked for centuries. Alberts believes that as complexity increases, traditional command and control cannot keep up. Information Technology is the enabler for the AF&C evolution in military organizational structure. The exact definitions of each component of AF&C will be covered later in this chapter.

In modern peacekeeping operations, complexity and uncertainty have increased, but peacekeeping command structures have not evolved sufficiently to keep pace. In the UNAMIR example, General Dallaire had to deal with a wide number of actors adding to Rwanda's complexity. The political and cultural landscape of Rwanda, with its tribal conflicts, political power struggles, moderate and extremist factions, and its dormant civil war represented the complexity to be understood and monitored on one side. World politics, national caveats, public opinion, national military capabilities, and United Nations command structure had to be mastered on the other. Ex-patriots, NGOs, and the international media were other actors involved adding to the diversity of this complex picture.

General Dallaire's desire to do what he felt was right cannot be questioned. He served in this horrific situation honourably and truly did what he thought was best for his men and the people of Rwanda. He currently suffers from post-traumatic stress disorder, and has come close to committing suicide as he places so much blame on himself for the

⁷¹David S. Alberts, "Agility, Focus, and Convergence: The Future of Command and Control," *The International C2 Journal* 1, no. 1 (2007): 4.

genocide which occurred in Rwanda.⁷² The blame does not rest only on his shoulders. The blame must be shared throughout all levels of the United Nations organization, including its headquarters, its member nations, and the Security Council. Dallaire himself put it best when he said during a filmed interview that his greatest regrets were his failure to adequately communicate the gravity of the situation with the international community and his failure to shame the world into taking action.⁷³

In an interview given by Dallaire in 2005, he stated that he placed the majority of the blame for this catastrophe on the governments of the United States, the United Kingdom, and France. These powerful nations had the ability to intervene, were aware of the problem, “. . . but decided not to get involved.”⁷⁴ Because of the political fallout resulting from an operation in Somalia earlier that year where eighteen American soldiers had lost their lives, President Bill Clinton and US Ambassador Madeleine Albright “. . . rejected calls for a modestly expanded UN operation to defeat, contain, or avert the genocidal killings.”⁷⁵

⁷²Richard Cobbold, “Interview with Roméo Dallaire,” *RUSI Journal* 150, no. 5, (October 2005) [article on-line]; available from <http://proquest.umi.com/pqdweb?did=914833851&sid=1&Fmt=4&clientId=1711&RQT=309&VName=PQD&cfc=1>; Internet; accessed 16 December 2009.

⁷³*Shake Hands with the Devil: the Journey of Roméo Dallaire*. Toronto: Microfilms, 2004, 91 min.

⁷⁴Cobbold, “Interview with Roméo Dallaire.”

The fact that Dallaire and his small staff heroically toiled throughout the horrific three month genocide, in imminent mortal danger, proves without question that Dallaire's integrity and military ethos were above reproach. However, the disorganization among his men when the Rwandan genocide began, as well as the trouble he experienced in getting his needs and opinions heard by the United Nations Headquarters, reveal that Dallaire's major failings as a leader in this situation resulted from his inability to communicate both up and down the chain of command.

AGILITY

“Agility is the critical capability that organizations need to meet the challenges of complexity and uncertainty.”⁷⁶ It is an organization's ability to adapt to the requirements of a given situation. As defined in *Power to the Edge*, the key dimensions to agility are robustness, resilience, responsiveness, flexibility, innovation, and adaptation.⁷⁷ The United Nations and the UNAMIR mission were not agile at either the strategic, operational, nor tactical levels.

As discussed previously, the United Nations' strategic leadership is known for moving very slowly, always looking for compromise and consensus. Specific examples of failures in strategic agility in the UNAMIR situation include the slow reaction time in

⁷⁵Ramesh Thakur, *The United Nations, Peace and Security: From Collective Security to the Responsibility to Protect* (Cambridge: Cambridge University Press, 2006), 58.

⁷⁶Alberts, “Agility, Focus, and Convergence: The Future of Command and Control,” 1.

⁷⁷Alberts and Hayes, *Power to the Edge . . .*, 128.

responding to Dallaire's urgent and time sensitive messages detailing a potential coup and the UN Headquarters' inability to adapt to the evolving scenario in a timely manner at the strategic level. The denial of Dallaire's plan to raid the Hutu arms caches by the UN Headquarters in New York was a costly failure which could have possibly prevented the coup and resulting genocide.

Once the killing had begun, Dallaire proposed a military plan to stop the genocide. Dallaire requested five thousand well trained and equipped soldiers that he would use to break through the Hutu barricades, retake the capital, and dismantle the Hutu radio station which was broadcasting racist propaganda and inciting the Hutu citizens to eliminate all Tutsis. As mentioned before, political factors played a role in UNAMIR's lack of agility, as no troop-contributing nations were forthcoming with assistance. Dallaire's lack of experience dealing with political leaders and the media, as well as his relative timidity in communicating his needs to the UN Headquarters and his superior, Major General Baril, led to the UN Security Council denying his plan. "Long after the war, a panel of experts, assembled by the Carnegie Commission, would determine that Dallaire's plan would have worked and probably could have saved hundreds of thousands of lives."⁷⁸ The UN's lack of agility at the political/strategic level thus bears much of the responsibility for the Rwandan genocide.

⁷⁸Off, "Do the Right Thing! Lieutenant-General Romeo Dallaire in the 1990s," 340.

In the *Report of the Independent Inquiry into the Actions of the United Nations during the 1994 Genocide in Rwanda*, the Inquiry correctly identified the failure of the UN to adapt to the new situation:

While the presence of United Nations peacekeepers in Rwanda may have begun as a traditional peacekeeping operation to monitor the implementation of an existing peace agreement, the onslaught of the genocide should have led decision-makers in the United Nations – from the Secretary General and the Security Council to the Secretariat officials and the leadership of UNAMIR – to realize that the original mandate, and indeed the neutral mediating role of the United Nations, was no longer adequate and required a different, more assertive response, combined with the means necessary to take such action.⁷⁹

At the operational level, Dallaire’s failure as a communicator and as a networker was a cause of UNAMIR’s failure in agility. Far from being a modern communications hub, his headquarters had only one telephone line, which proved to be the opposite of “robust” when it was knocked out for nineteen hours by a mortar blast.⁸⁰ Rather than focusing his energy on the strategic or operational levels, Dallaire got bogged down with tactical details. He estimates that he spent seventy percent of his time working on logistic and administrative issues.⁸¹ What he should have been working on was building a better intelligence and communication network so that he could quickly gain information and

⁷⁹Independent Inquiry into the Actions of the United Nations during the 1994 Genocide in Rwanda, *Report of the Independent Inquiry into the Actions of the United Nations during the 1994 Genocide in Rwanda* (New York: The Inquiry, 1999), III, Conclusions, 19, Final conclusions.

⁸⁰Roméo A. Dallaire, “End of Innocence: Rwanda 1994,” in *Hard Choices: Moral Dilemmas in Humanitarian Intervention* (Boulder, CO: Rowman & Littlefield Publishers, 1998), 82.

⁸¹*Ibid.*, 73.

reach out to communicate with other external entities in times of crisis. An agile organisation needs proper equipment and the personnel who know how to effectively use them.

An example of UNAMIR's failure in agility due to a lack of responsiveness occurred when his 450 Belgian soldiers were ordered out of Rwanda by the Belgian government. The Belgian government did not want their soldiers put in danger. The Belgian commandos had been protecting 2,500 Rwandan Tutsis inside their compound. When the Belgians left, the un-protected Tutsis were slaughtered. General Dallaire stated that, if he had known that there were Tutsis in the compound, he would have placed soldiers from his remaining national contingents there.⁸² The fact that Dallaire did not have this information demonstrates his command's lack of situational awareness regarding his area of responsibility. NCW, with its shared operational picture, would have ensured that the UNAMIR headquarters had this information and could have taken proper action in order to defend these people.

At the tactical level, Dallaire dealt with further challenges to command and control. The 2,500 military members under his command were made up of Belgian, Bangladeshi, Tunisian, and Ghanaian soldiers. Dallaire believed that the ill-equipped Bangladeshis, who were led by a professor from their military school, were incapable of defending themselves, let alone anyone else. The Bangladeshi professor would only accept written orders submitted well in advance.⁸³

⁸²*Shake Hands with the Devil: the Journey of Roméo Dallaire*. Toronto: Microfilms, 2004, 91 min.

Further challenges to UNAMIR's tactical agility were its communication and transportation capabilities. UNAMIR had only ten trucks, so re-positioning their troops was difficult. It took ten days to bring the 225 Ghanaian troops into the city. Due to their preponderant immobility, the UNAMIR forces were forced to man static guard posts and checkpoints. UNAMIR communications were passed via an unreliable and un-encrypted radio net. At times, forward observers would borrow Rwandan cell phones to call their positions back to the headquarters.⁸⁴ Not having the proper equipment resulted in UNAMIR's inability to adapt to the requirements of a given situation.

Despite intelligence that should have placed Dallaire and his UNAMIR staff in a heightened posture, the UN forces seemed unprepared when the Rwandan President's plane was shot down and the genocide of Tutsis and moderate Hutus commenced. Because they were spread out at different posts without transportation and reliable communications, command and control was nearly nonexistent. Dallaire did not help matters when he ventured off on foot, with only a hand-held Motorola radio, in order to search out a meeting of Hutu military leaders.

Dallaire's failures in tactical agility could be readily addressed with today's modern technology and Network Centric Warfare. First, UNAMIR needed a tactical command center with strong communication capabilities so that all assets outside the wire could be connected. Information from outposts, check points, roving patrols, cameras, aerial video feeds, and host-nation human intelligence could be coming into the

⁸³Off, "Do the Right Thing! Lieutenant-General Romeo Dallaire in the 1990s," 336.

⁸⁴Roméo A. Dallaire and Brent Beardsley, *Shake Hands With the Devil: The Failure of Humanity in Rwanda* (Toronto: Random House, 2003), 203.

headquarters in order to gain situational awareness for immediate decision making and in order to feed information back to the UN Headquarters in New York. In the tactical command center, an empowered operations team already familiar with the primary actors in the scenario should have quickly communicated to all the moderate Hutu allies the need to immediately seek shelter at pre-determined UN defended locations. If Dallaire was not present in order to call the shots from this headquarters, then an assigned deputy should have been controlling the movements and operations of the UN forces. Rather than being proactive, the UNAMIR team was reactive, always showing up at a scene after the people they were attempting to help had already been killed.

When the genocide began, a UN force using network centric capabilities could have rapidly consolidated its forces with the goal of protecting themselves and defending high value targets such as the moderate government leaders targeted by the Hutu extremists. If these people were still alive, they could have helped regain order and de-escalate the violence. Dallaire roaming the streets on foot with only a hand held radio, looking for the Hutu leaders, and then finding out that all the moderate leaders that he had wanted to protect had been killed, is not the right way to display agile command and control.⁸⁵

FOCUS

⁸⁵*Ibid.*, 222.

According to Alberts, “Focus provides the context and defines the purposes of the endeavour.”⁸⁶ If everyone in an organization understands what needs to be done, they have a Focus. Providing Focus brings an organization together, leverages information, and creates synergies that are otherwise not attainable.⁸⁷ In the UNAMIR situation, there was a lack of Focus originating at the United Nations political/strategic level. Western governments did not want to commit their troops to an African conflict so soon after the Somalia crisis. The UN at that time lacked the ability to send in a rapid reaction force (a capability it now has) and was unable to mobilize any kind of relevant support amongst its 191 national constituents. For whatever reason this lack of Focus from the top occurred, the resulting effect was that the hands of the peacekeeping soldiers were tied by an inability to take action.

In the *Report of the Independent Inquiry into the Actions of the United Nations during the 1994 Genocide in Rwanda*, Focus was determined to be one of the causal failures of the UNAMIR mission at the strategic level:

At Headquarters there was no sufficient focus or institutional resources for early warning and risk analysis. Much could have been gained by more active preventive policy aimed at identifying the risks for conflict or tension, including through an institutional cooperation with academics, NGOs and better coordination within different parts of the United Nations system dealing with Rwanda. . . . The failure to formulate a determined response to these warnings is due in part to the lack of correct analysis, both in UNAMIR and within the Secretariat, but also by key Member States.⁸⁸

⁸⁶Alberts, “Agility, Focus, and Convergence: The Future of Command and Control,” 1.

⁸⁷Cobbold, “Interview with Roméo Dallaire.”

⁸⁸*Report of the Independent Inquiry . . .*, III, Conclusions, 9, Lack of analytical capacity.

At the operational level, the lack of strategic direction left the UNAMIR force adrift without a rudder. The uncertainty as to how the soldiers should proceed in the wake of the genocide left UNAMIR without a focused purpose. When Dallaire sent a draft set of UNAMIR Rules of Engagement (ROE) up for approval, the UN Headquarters never formally responded.⁸⁹ Try as he might, General Dallaire was unable to get firm instruction on how to proceed on his mission after the genocide began. The *Report of the Independent Inquiry into the Actions of the United Nations during the 1994 Genocide in Rwanda* puts it best when it states, “It is disturbing, however, that there was such a lack of clarity in communications between UNAMIR and Headquarters regarding which rules were in force.”⁹⁰

Lack of Focus at the operational level affected tactical operations. General Lewis MacKenzie criticizes this situation when he states that when Dallaire tried to meet with Hutu leaders, he called back to “. . . his HQ and was told that a number of Rwandan VIPs ‘protected’ by UNAMIR (a bit hard to do, if you can’t use deadly force) had been murdered, as had their families.”⁹¹ The fact that Dallaire’s men were still constrained by the “observe and report” rules of engagement and could not fire unless fired upon

⁸⁹Klaus Buschmann, *Powerlessness in the Face of Responsibility: LtGen Romeo Dallaire’s Military Leadership during UNAMIR* (Toronto: Canadian Forces College, 2000), 10.

⁹⁰*Report of the Independent Inquiry . . .*, III, Conclusions, 4, Confusion over roles of engagement.

⁹¹MacKenzie, “Roméo Dallaire: A Leadership Disagreement,” 222.

prevented them from countering the crimes against humanity being conducted all around them.⁹²

In a situation such as this, Network Centric Operations, where all involved units are connected and sharing information and orders in real time, could have prevented the deaths of the targeted Hutu leaders. If the UNAMIR force could have reacted faster, the targeted Hutu leaders could have been placed in safe positions. The increased tempo of operations resulting from Network Centric Operations might have provided the critical time that was required.

Quick and direct communications were also needed to empower the UN peacekeepers to take action. The increased speed of command provided by Network Centric Operations, where strategic leaders are receiving real time information and are able to rapidly give out new orders, might have been able to transmit to their peacekeepers that their mandate had changed and that they were no longer restricted by their “observe and report” ROE. Unfortunately, this was not the case. The peacekeepers acted as if their hands were tied as they awaited approval for action from their hierarchical superiors.

CONVERGENCE

“Convergence is the goal-seeking process that guides actions and effects.”⁹³

Alberts sees convergence as a coordinated movement to a desired outcome. Convergence

⁹²Cobbold, “Interview with Roméo Dallaire.”

is the emerging result of the actions by individual entities towards this Focus. Getting all the required individual entities to move towards this goal is the key to mission success. In multinational operations such as United Nations peacekeeping missions, getting all the disparate parts to work together is required.

Dallaire's role in the Rwandan genocide was crucial. His most important step should have been to communicate to the external world and the UN Headquarters the gravity of the Rwandan situation. His filed reports and phone calls were not enough. Dallaire could have better used international media to report the situation and influence world opinion, leveraging "the CNN Effect." He could also have teamed up with influential NGOs to support his message back in New York. Perhaps if he had put more emphasis towards team building and internal integration with his Belgian troops, they would not have been so quick to desert him. Dallaire had the right ideas on how to handle the genocide; he was just not able to get the United Nations' strategic level and world opinion on board with his plan.

In *Power to the Edge*, Alberts and Hayes created a three dimensional model that represents a command and control (C2) approach space (See Figure 1). Three variables

⁹³Alberts, "Agility, Focus, and Convergence: The Future of Command and Control," 1.

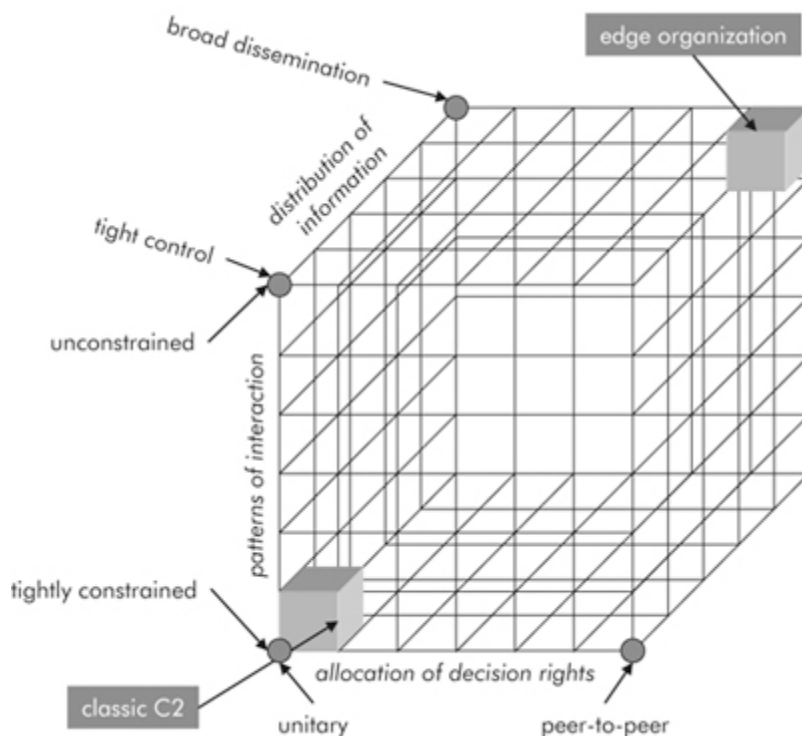


Figure 1 – C2 Approach Space

Source: Alberts, “Agility, Focus, and Convergence: The Future of Command and Control.”

(allocation of decision rights, patterns of constrained or unconstrained interaction, and distribution of information) create the command and control space. Classic command and control rests in the corner of the diagram with the least allocated authority, tightest contained interaction, and tightest control of information. The command and control model of the UN during the UNAMIR situation reflects this classic model.

Alberts contends that the corner of the C2 space on the opposite corner, which he calls “the edge” is the space where optimal command and control for complex situations can occur. The UNAMIR debacle supports this theory. With Dallaire and his UNAMIR forces, the UN had operators in theatre who knew their purpose was to represent the

ideals of the United Nations and do what was best for the people of Rwanda. If Dallaire had more decision rights, he would have acted on his impulse to raid the arms cache and could have possibly averted or at least delayed the coup attempt and lessened the genocide. If his troops had more decision rights, they would have done the right thing and used military force to prevent the crimes against humanity that they were witnessing. While the casualty rate of the UNAMIR forces would surely have increased if they took kinetic action, so too might the numbers of Rwandans murdered in the genocide been reduced.

In terms of interaction, it seems that Dallaire alone interacted with the other players in this situation. It would have been much more effective to empower his people to be more involved. In terms of interaction, releasing restraint and delegating more authority to subordinates would have worked as a force multiplier. NCW flattens hierarchical structures, empowering personnel at lower levels to make real time decisions. This speeds up a command structure's OODA loop. In the UNAMIR situation, reacting quickly and decisively to late-breaking information was required, but did not occur. All actions were bottle-necked under Dallaire's control. The efforts of his staff were never acknowledged in any of the readings describing the UNAMIR situation.

NCW is based on sharing information. In the UNAMIR situation, allowing broader dissemination of information could only have helped the peacekeeper's cause. Information was not flowing well inside the United Nations or to the outside world. Having more external agencies aware of the catastrophe could help get the word out to the court of public opinion. As said before, Dallaire's team should have been using every avenue at their disposal. They should have been reaching out to the media, NGOs,

international agencies, contacts in their own Armed Forces, and their own nations' political leadership.

CONCLUSION

This case study has given an example of how Network Centric Warfare, as a method of command and control, could improve United Nations peacekeeping operations. If General Dallaire's peacekeeping force had practiced the tenets of NCW, they might have disrupted the Hutu coup, altered history, and possibly saved many of the eight hundred thousand lives lost during the Rwandan genocide.

This case study used Alberts' framework of Agility, Focus, and Convergence in order to break down the challenges to command and control and show how NCW could have improved the situation. Due to a poor communication plan, both internally at his unit and externally to the outside world, the Agility of the UNAMIR force was severely hampered. A lack of focus provided at the United Nations strategic level tied the hands of the peacekeeping soldiers whose relative inaction in the face of the catastrophe were later questioned. Convergence, which is the coordinated movement to a desired outcome, did not occur in the UNAMIR situation because personnel were not empowered to take action and different groups operated disjointedly rather than in a synchronized fashion. Network Centric Warfare, which unifies personnel by empowering them with big picture information and the opportunity to take action when and how they deem required, could have greatly enhanced the UNAMIR force's chances of success during the Rwandan genocide.

This case study may come across as harsh in regards to General Dallaire's leadership. There were obviously things that he could have done better as a leader and as an operator. As mentioned before, the blame does not rest only on his shoulders. The blame must be shared throughout all levels of the UN organization, including its headquarters, its member nations, and the Security Council. The UN sent Dallaire out to execute a mission without a clear mandate, with poorly trained troops from different nations, and without proper equipment. The command and control structure failed, both at the strategic and the tactical levels. Dallaire and his small staff heroically laboured throughout the horrific three month genocide, in imminent mortal danger, trying to save as many lives as they could. Unfortunately, they were set up for failure by a C2 structure poorly equipped to handle rapidly changing crises in a decisive and timely manner.

It must also be mentioned that the UNAMIR mission was chosen for this case study due to the fact that it is widely considered to be the most ill fated failure in UN peacekeeping operations. It is obviously easier to demonstrate ways to improve a failed operation than a more successful one. UN peacekeeping operations have undergone vast improvements since UNAMIR was conducted in 1993. Many of these improvements came as a response to address the problems uncovered during the UNAMIR debacle. In 2000, the UN commissioned a review of peacekeeping practices with the hopes of strengthening and revitalizing UN peacekeeping operations. The *Report of the Panel on United Nations Peace Operations*, called the "Brahimi Report" after the chairman of the committee that produced it, recommended ". . . sweeping changes in the way that UN peacekeeping [operations] . . . are conceived, planned, and executed."⁹⁴

Improvements to UN peacekeeping operations since the Brahimi Report include the adoption of clearer mandates for peacekeepers, stronger force compositions for deterrence, more robust rules of engagement, authorizing the use of force to protect UN personnel and civilians, heightened requirements for troops and equipment, and the establishment of rapid deployment forces.⁹⁵ The Brahimi Report also urged the UN to improve its practices regarding information technology (IT) for peace operations.

More effective use of IT, the Panel argued, would be crucial to efficient implementation of the Report's other recommendations. Key elements included the creation of IT responsibility centers within the Department of Peacekeeping Operations and in the missions; common headquarters and field access to information (such as databases, analyses, and lessons learned) through a global Peace Operations Extranet; more extensive use of geographic information systems technology, and co-management of mission websites by headquarters and field missions.⁹⁶

Many of the Brahimi Report's suggestions to improve IT have already been implemented. This is a great step in the right direction to correct the problems experienced in Rwanda. If the UN is to continue its evolution towards the improved command and control of NCW, still more work is required. It is time for the UN peacekeeping operations to enter into the Information Age, to use Network Centric Warfare principles, to properly equip its personnel for success, and to delegate command and control authority to the peacekeepers out at the edge of the C2 approach space.

⁹⁴William Durch, *et al*, *The Brahimi Report and the Future of UN Peace Operations* (The Henry L. Stimson Center, 2005), 1.

⁹⁵Alex J. Bellamy, Paul Williams, and Stuart Griffin. *Understanding Peacekeeping* (Cambridge: Blackwell Publishing Ltd., 2004), 53.

⁹⁶Durch, *The Brahimi Report and the Future of UN Peace Operations*, 41.

In the next chapter, ways to equip and train the peacekeepers in Network Centric Operations will be explored.

CHAPTER 4: MOVING FORWARD WITH NETWORK CENTRIC OPERATIONS IN UNITED NATIONS PEACEKEEPING OPERATIONS

INTRODUCTION

In the previous two chapters, the concepts of Network Centric Operations were defined and a case study showing deficiencies in traditional peacekeeping command and control was conducted. It is now time to lay out a 'game plan' so that Network Centric concepts can be infused into future United Nations peacekeeping operations. The following challenges must be overcome before success can be achieved: proper equipment must be acquired and proper training must be completed. Contributions from developed nations (especially the United States) would greatly help this process. Even without the help of developed nations, it is still possible for the UN to use its own assets in order to move forward into a future of network centric peacekeeping operations.

EQUIPMENT

The United Nations responsibility is to ensure that the peacekeeping mission has the personnel and equipment required to fulfill its mandate, that the troop/police contributors provide personnel, equipment and services as detailed in the specific MOU, and that the contingents perform

according to the established standards.⁹⁷

— United Nations Contingent-Owned Equipment Manual, February 2008

When the United Nations mandates a peacekeeping operation, various troop-contributing countries will pledge to send personnel to support the mission. The military units usually bring their own equipment and each unit's equipment is usually not interoperable with the equipment brought from other countries' forces. Up until 2002, the UN did not have a stockpile of modern equipment that it could send out with peacekeeping operations. As a result of the Brahimi Report, Strategic Deployment Stocks (SDS) have been placed in climate controlled storage facilities in Brindisi, Italy. Enough equipment to support a headquarters in a traditional peacekeeping operation has been acquired, and the UN hopes to purchase enough equipment to support a complete complex mission.⁹⁸

Just as decisions in the United Nations are often made “by the lowest common denominator,” so too can the forces come from the lowest common denominator. There are two reasons for this. One is the financial incentive provided for military forces from

⁹⁷United Nations, *Manual on Policies and Procedures Concerning the Reimbursement and Control of Contingent-Owned Equipment of Troop/Police Contributors Participating in Peacekeeping Missions (COE Manual)*. (February 2008). Document on-line; available from http://www.coter.eb.mil.br/html/cepaeb/CEPAEB%20WEB%20SITE/Docs/manuais/COE_Manual_09_Jun_2008.pdf; Internet; accessed 17 March 2010.

⁹⁸Durch, *The Brahimi Report and the Future of UN Peace Operations*, 93.

undeveloped nations to participate, and the other is the antipathy of developed nations towards placing their highly trained and valuable troops in harm's way.

For military forces from lesser developed countries, providing peacekeeping troops and equipment is a moneymaking proposition. The UN pays these countries a set rate per soldier and per vehicle. The amount paid per soldier by the UN is often more than it costs for the country to pay the soldier his salary, so the country can turn a profit. Similarly, if a country brings its own equipment, even if it is of poor quality and minimal use, the country will receive a valuable reimbursement for its use.⁹⁹ While there are arrival inspections and operational readiness inspections conducted by the UN, their standards are not high. For example, the standard for internet access is that a battalion of eight hundred personnel come equipped with seven computers (only three of which need internet access), three printers, and “. . . appropriate levels of maintenance, spare parts and bandwidth for the equipment mentioned above.”¹⁰⁰ With standards such as these, it is no wonder why past peacekeeping operations have had poor information flow both internally and externally.

Over the years, developed nations have been less and less willing to contribute their troops to UN peacekeeping missions. Just as the reimbursement for personnel and equipment is a moneymaker for poorer nations, it is a net deficit for more developed nations. What the US military pays its soldiers in salary would not be covered by the UN stipends. Besides the financial detractors, modern nations do not want to put their

⁹⁹Bellamy, *Understanding Peacekeeping*, 52.

¹⁰⁰United Nations, *COE Manual*.

personnel into dangerous situations without the proper equipment and capabilities to defend themselves. In the words of Walter Dorn:

Because of the UN's "relative backwardness" in military deployments, many developed nations prefer to deploy their forces under other organizations and alliances (e.g., NATO and coalitions of the willing). In order to encourage these nations to re-engage in UN peacekeeping, the United Nations and its Member States should provide or permit the deployment of at least some of the advanced tools that have long been a standard part of modern militaries.¹⁰¹

The Brahimi Report has made recommendations to improve this payment system which allows "... operations to become profit-making exercises for those states least prepared to undertake them." The goal of reforming this financial problem has not yet been solved by the UN.¹⁰²

TRAINING

To be able to do more than react to daily events, United Nations offices in the peace and security field need the ability to

¹⁰¹Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.", 78.

¹⁰²Bellamy, *Understanding Peacekeeping*, 52-54.

scan their environment; absorb, analyze, and share information; anticipate the direction of new work; and collaborate in the planning and execution of tasks that span the expertise of more than one department or agency. There have to be enough well-managed, well-trained people to get the job done when the work surges, and effective use of information and communication technologies.¹⁰³

The authors of the above quote, which was taken from the book entitled *The Brahimi Report and the Future of UN Peace Operations*, might not know it, but they are calling for peacekeepers trained in the skills of Network Centric Operations. Extensive training will be required in order for peacekeepers to be able to operate network centric technologies, especially for the soldiers from undeveloped troop-contributing nations. This training will have to be provided by the soldiers of the developed nations, who have experience working with these technologies.

As mentioned previously in this chapter, there are several reasons why the current method of conducting UN peacekeeping operations might not appeal to the militaries of developed nations. These factors do not change the fact that the developed nations still look favorably on the basic premises of peacekeeping operations. They just might think the actual risk to their personnel is not worth the political or altruistic rewards. A solution to this problem could be to have developed nations pledge to support UN mandates with network centric capable equipment, a small number of operators, and personnel skilled in training others in their use. This action would keep these nations' soldiers out of harm's way while still greatly supporting the mission.

¹⁰³Durch, *The Brahimi Report and the Future of UN Peace Operations*, 51.

This suggestion is not a new idea. The US has historically held a distaste for putting American troops in harm's way for UN peacekeeping missions, but has shown itself to be more willing to provide unique capabilities like sea and air lift, communications, and intelligence capabilities.¹⁰⁴ Idealists at the UN might wish to avoid the double standard of having the soldiers of poor countries forced to take risks that would not be asked of an American soldier, but one must remember that for every UN peacekeeping operation, it is the individual troop-contributing nation who decide whether or not to volunteer their personnel and whether or not to place caveats on how their personnel can be used. In the past, the specialized technical support of the Americans has been “. . . irreplaceable and welcome.”¹⁰⁵ Finding willing soldiers to man the missions has not been the UN's challenge, but finding soldiers that can function in a network centric manner will be. This solution could work for both the UN and its developed member states such as the US.

UNITED STATES CONTRIBUTIONS

In the conclusions and recommendations portion of his article “The United Nations and Ethnic Conflicts,” John R. Bolton stated that for the UN to be effective in deterring ethnic conflicts, not only US participation, but US leadership, was required.

¹⁰⁴Thakur, *The United Nations, Peace and Security*, 52.

¹⁰⁵*Ibid.*, 50.

Unfortunately, ever since the Somalia operation in 1993, the United States has played a smaller role in UN peacekeeping operations.¹⁰⁶

It is clear that the United Nations has much to benefit from increased US participation in UN peacekeeping operations. The US has much to gain from the United Nations in return. “As technologically advanced and well funded as the US military is, it simply lacks the manpower to be in all places at all times.”¹⁰⁷ Additionally, the economic, political, and social costs of deploying US forces abroad are increasing.¹⁰⁸ The United States needs the help of coalitions in order to achieve its foreign policy goals.

The US has shared its NCW capabilities with trusted members of various coalitions.¹⁰⁹ However, the United States military is not keen on sharing its technologies with any military force that shows up at a peacekeeping operation. Understandably, American technological advantage must be protected. However, a solution still exists. Even if the US delivered outdated equipment and training to UN peacekeeping operations, it would still stand as a marked improvement on the current state of UN peacekeeping command and control.

As the world’s military super power, there is much to be gained by the US if the UN can become an increasingly powerful and stabilizing force throughout the world. Even if the US is not contributing troops or equipment, it is still underwriting thirty

¹⁰⁶*Ibid.*, 48.

¹⁰⁷Mitchell, *Network Centric Warfare and Coalition Operations*, 46.

¹⁰⁸*Ibid.*, 39.

¹⁰⁹*Ibid.*, 5.

percent of the UN's peacekeeping bills.¹¹⁰ When looked at another way, this means that someone other than the United States is paying for and manning a large portion of beneficial peacekeeping activities throughout the world. In 2004, the UN was conducting seventeen different missions. This means “. . . that there were at least seventeen other places where Washington did not face calls to intervene because the UN was already doing the job.”¹¹¹

After Somalia, the US avoided entanglements with the UN, preferring to work more unilaterally. The United States had been frustrated with the UN's political inertia and its relatively primitive manner of operating militarily. Operation Iraqi Freedom, under President George W. Bush, was an example of the US operating without the multilateral approval and assistance of the UN.

The disengagement of the USA from UN peacekeeping has had a spillover effect in eroding partially the legitimacy of UN operations, and therefore the effectiveness of the UN as the primary manager of international security. In turn, this has reduced US leverage in spreading the burden of providing international security and lessening the demands and expectations on the USA to take up the slack.¹¹²

As the US continues to decrease its role, the UN loses even more capability and direction. However, this lull in US/UN relations may be improving now that President Barack Obama has been elected. Since taking office in 2009, President Obama has pledged to work more closely with the UN and other international institutions. President

¹¹⁰ Thakur, *The United Nations, Peace and Security*, 51.

¹¹¹ *Ibid.*, 62.

¹¹² *Ibid.*, 64.

Obama has already received a Nobel Peace Prize for his multilateral diplomacy.¹¹³

Under President Obama's leadership, there is the expectation that the US military will provide more support to the United Nations. This paper would suggest that the best way to start this support would be to have the US military provide technologically advanced equipment, training, and leadership to its UN peacekeeping partners. When other developed nations see the improvements in effectiveness and safety in the resulting peacekeeping operations, they will be more willing to pledge their support in the future.

OTHER SOLUTIONS

The previous section may have given the impression that for the United Nations peacekeeping operations to operate in a network centric fashion, the United States would have to be the catalyst. This is not the case. In fact, any developed nations could take a leadership role in this process. Ideally the United States would fill this role, as it has the most to gain and the best capabilities in the network centric field of operations. Even if no developed nation stepped up to the plate, the United Nations could start the process itself.

In 2006-7, the United Nations spent \$5.2 billion dollars on peacekeeping. Less than one percent of this budget went toward monitoring equipment, despite the fact that

¹¹³ "Nobel Peace Prize For 2009 – Press Release." *Nobel Peace Prize* (9 October 2009) [Press release on-line]; available from http://nobelprize.org/nobel_prizes/peace/laureates/2009/press.html; Internet; accessed 24 November 2009.

monitoring is a primary component of peacekeeping operations.¹¹⁴ Computers, communications and sensor equipment are becoming less and less expensive. The cost for the UN to procure its own equipment could be covered, without greatly altering peacekeeping budgets. Equipment could also be leased.

Personnel already trained in the use of this equipment could be put under contract to operate the equipment, or better yet, training could be put in place so that UN personnel and international soldiers could learn to operate them.

A United Nations version of Network Centric Operations does not have to be as robust as the United States version as used during Operation Iraqi Freedom. Merely using modern communication and sensor equipment in order to gain an integrated picture of the area of responsibility would greatly add to UN peacekeeping mission effectiveness. Greater steps forward, such as purchasing or leasing UAVs in order to get better situational awareness, would only improve this process. Once again, the cost of UAVs is coming down and is within most UN peacekeeping operations' budgets. Three miniature UAVs cost less than the annual lease of one manned aircraft.¹¹⁵ As mentioned before, trained operators for these technologies would also be required.

¹¹⁴Dorn, "Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.", 75.

¹¹⁵*Ibid.*, 51.

CONCLUSION

Network centric concepts, which would greatly improve peacekeeping effectiveness and command and control, could be brought to bear in future UN peacekeeping operations. In order for this goal to be accomplished, the UN must overcome several challenges. These challenges include procuring the proper equipment and training personnel in the use of this new equipment. Contributions from developed nations experienced in Network Centric Operations such as the United States could greatly help this process. Even without the help of developed nations, it is still possible for the UN to use its own budget to purchase the equipment required in order to move forward into a future of network centric peacekeeping operations.

CHAPTER 5: CONCLUSION

Knowledge is power, and used wisely by the United Nations, it can be a power for peace.

— Dr. A. Walter Dorn, *Tools of the Trade*, 2007

The United Nations has lost over two thousand personnel in peacekeeping operations. The UN has subjected its peacekeepers to “. . . unnecessary risks by not utilizing modern technologies that can monitor the most dangerous areas from a safe distance and help gain a broader awareness of safety and security threats.”¹¹⁶ The current way of doing business must be improved. When troop-contributing nations volunteer their sons and daughters to help maintain peace in a foreign land, it is with the expectation that their soldiers will return home safely. Leveraging technology, specifically the communication technology of Network Centric Operations, could make peacekeeping operations more effective, efficient, and safe.

In order to show how Network Centric Operations could improve UN peacekeeping operations, this paper explained the concept of Network Centric Warfare and demonstrated its effectiveness in coalition operations such as Operation Iraqi Freedom. The paper then delved deeper into the challenges faced by current methods of UN peacekeeping command and control. The paper provided a framework for analyzing command and control, (Alberts’ Agility, Focus, and Convergence) in order to conduct a case study of the UNAMIR Peacekeeping Operation. This peacekeeping operation,

¹¹⁶Dorn, “Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping.”, 9.

which was representative of many of the challenges facing modern UN peacekeeping operations, was used to highlight the problems with traditional UN peacekeeping operations' command and control and to demonstrate how Network Centric Operations could have greatly improved these processes. Lastly, this paper made further recommendations regarding the procurement of equipment and the necessary training of personnel in order to conduct Network Centric Operations.

The common operating picture derived from Network Centric Operations will permit greater synchronization and unity of command in UN peacekeeping operations. Knowing the big picture “. . . avoids duplication of effort, enhances early warning (and thus greater force protection), and allows resources to be used more economically.”¹¹⁷ Network Centric Operations speeds up an organization's “OODA Loop” resulting in quicker responses to emerging challenges. It also delegates authority lower into the chain of command, where “Strategic Corporals” armed with the big picture can take decisive action in support of their commander's intent.

As the United Nations has readily admitted, too often it has found itself in the dark about spoiler intrigue, arms and militia movements and a host of other dangerous activities. Then it can only react to tragedies after they have occurred rather than work to prevent them in the first place.¹¹⁸

The importance of UN peacekeeping operations cannot be overstated. These operations protect human life and prevent acts of war between hostile rivals.

¹¹⁷Mitchell, *Network Centric Warfare and Coalition Operations*, 37.

¹¹⁸Dorn, “Tools of the Trade? Monitoring and Surveillance Technologies in UN Peacekeeping,” 15.

Peacekeepers work to find a way for these rivals to reach an agreement that will lead to stability and peace. These peacekeepers are heroes. They volunteer to place themselves between two warring sides, in order to protect the lives on each side. They remain neutral, even when they themselves take on casualties. To do their job, UN peacekeepers must be strong, with enough military might to deter the aggressions of the hostile antagonists in their area of responsibility. For too long, UN peacekeeping forces have been putting themselves in harm's way without the requisite equipment, training, and organizations to succeed in their mission. Developed nations have stopped volunteering their soldiers for these missions, not wanting to risk the lives of their soldiers. Changes in how UN nations peacekeeping operations are conducted must be made.

It is time for the United Nations to follow the United States military into the Information Age. It is time to use Network Centric Operational principles and delegate command and control authority out to the edge of the C2 approach space. It is time for peacekeepers to use satellites, UAVs, and radars instead of binoculars or their naked eyes. United Nations peacekeeping forces must improve the command and control capabilities of their field operations so that they can better conduct their most important function – maintaining international peace and security.

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