

Progressing the Human Dimension of NCW in the ADF

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There is nothing more difficult to carry out nor more doubtful of success, nor more dangerous to handle, than a new order of things

Machiavelli

Abstract

Network Centric Warfare (NCW) will challenge Defence's assumptions about the individual and collective employment of people in delivering effects. The success of NCW rests on the idea that information is only useful if it enables more effective action. The key to the success of NCW is not the technology, therefore, but the people who will use it – *the Human Dimension*.

The human dimension is based on professional mastery and mission command, and requires high standards of training, education, doctrine, organisation, and leadership. The dimension is about the way people collaborate to share their awareness of the situation, so that they can fight more effectively. It requires trust between warfighters across different levels, and trust between warfighters and their supporting agencies.

The Human Dimension of NCW is complex and difficult to conceptualise. Most other defence forces around the world are struggling with the issue and have yet to achieve any real break throughs. Understandably, little progress has been made in the Australian defence Force. In an attempt to harness disparate efforts and to generate some forward movement, the Chief of the defence Force recently appointed Head Defence Personnel Executive responsible for the control and coordination of the NCW Human Dimension.

HDPE is to explore the human dimensions of the networked force and develop for the ADF a detailed understanding of how to achieve the greatest synergy between our systems and our people, HDPE is to then use this information to initiate changes that will optimise education, training and development; information sharing and collaboration; organisational structures and command and control.

1 Introduction

The ADF, like many of its allies, recognises that NCW is about enhancing its war fighting capability. The operational benefits of NCW are widely accepted within the ADF and much work has already been completed to establish the network that will ultimately link the organisation's sensors, decision-makers and weapon systems. This work is guided by the ADF's NCW roadmap, which outlines the key actions needed to exploit the extensive opportunities that NCW offers the ADF.

There remains, however, a significant challenge that must be overcome before the NCW concept becomes a reality in the ADF. This challenge relates to the very core of the concept; the potential NCW offers to improve collaboration, planning and decision-making in order to generate a superior understanding of the battlespace. In the end, NCW is people centric, using technology to enable our people to do things faster and better. There is little value in generating quicker and better information if it does not lead to more effective action. The ultimate success to integrating NCW in the ADF is centered on a mature understanding of how our people think, make decisions and interact with others in a networked environment. Understanding the human dimension of NCW and preparing our people for their key role is a significant challenge.

MAJGEN Mark Evans, the Head of the Personnel Executive, has been given the essential task of exploring the human dimension of the networked force and to develop for the ADF a detailed understanding of how to achieve the greatest synergy between our systems and our people. MAJGEN Evans understands that in order to achieve the synergy needed he must educate, train and develop our people to become efficient networkers¹ and rapid decision makers. Moreover, he must help the ADF organise and command and control the force differently to that which it has done in the past. He also understands he has a key role in preparing the ADF for the resultant change to its social order; its values and norms, its power and authority, and its groups and networks. This paper outlines how MAJGEN Evans intends to achieve this and therefore enable the ADF to generate the superior operational effect promised by NCW.

2 Background

In 2004, the ADF embraced the concept of NCW through the release of ADDP D.3.1- *Enabling Warfighting: Network Centric Warfare*². The release of this paper led to the creation of the NCW Project Office (NCWPO) within the Capability Development Group (CDG), to oversee the development of NCW capabilities.

With ADDP D.3.1 as its foundation, the NCWPO released the NCW Roadmap in 2003; followed by a revised addition of the Roadmap in 2005³. The NCW Roadmap outlines the steps by which the ADF will become further network enabled and is a guide to the ADF discovering and exploiting the opportunities of NCW. The Roadmap established four key actions to set the ADF on the road to becoming an NCW force. These actions are:

- a. Set the NCW-related targets and milestones for the ADF,
- b. Establish the Network,
- c. Accelerate the process of change and innovation, and
- d. Explore the human dimensions of the networked force.⁴

3 Principal lines of operation

The importance of the human dimension to developing an NCW capability is well accepted, but unfortunately it remains the least understood and researched domain of NCW. The difficulty conceptualising the human dimension, and its complexity, is arguably the reason it has fallen behind NCW related materiel enhancements here in Australia and also amongst our allies. The fact that materiel enhancements alone will not generate the desired mission effects is well understood, but coordinated work to link effectively doctrine, organisation, training, materiel, leadership, and personnel enhancements, for example, has been slow here in Australia, and it has proved difficult to find useful models overseas.

A good example of the challenges that materiel enhancements alone provide the force can be found in the ADF's recent experience where an artillery regiment was provided a new target designation system (TDS). TDS uses position and navigation subsystems to combine inputs from a laser rangefinder, inertial navigation unit, GPS receiver and a motion sensor to provide self-location, navigation and far target location data. The TDS enables the data to be automatically formatted within a fire support tactical data system and sent directly to a gun resulting in automated gun laying. The TDS is typical of the sensor-shooter network that characterises the NCW environment.

The technology challenges a number of paradigms within the artillery unit. First, most obviously, the unit must develop new individual training, education and development (ET&D) packages to introduce the system. It will also need to prepare its members to operate at higher levels of tempo. Second, it challenges the unit's relationships. The automated sensor-shooter link bypasses command posts within the unit and enables the integration of a broader range of sensors to that which the unit has previously utilised for target data. Third, it challenges the unit's fire control mechanisms with options now being presented to remove layers within the organisation. Finally, the

1 HDoFW Research Team, 2005, *The Transition from Network-Centric Warfare to Networker Centric Warfare: Outcomes of the Human Dimension of Future Warfighting Task.*, p4, piii

2 http://www.defence.gov.au/strategy/fwc/documents/NCW_Concept.pdf

3 http://intranet.defence.gov.au/CDGWeb/sites/_pubs/docs/ncw_roadmap%20%28released%206%20oct%2005%29.pdf

4 Department of Defence, 2005, *NCW Roadmap*, Foreword p v.

organisational structure itself is challenged, with the identification of redundant fire control and data computation elements, and with the realisation that TDS enables greater options for task organising individual guns.

The ADF will therefore explore the human dimension through four lines of operation:

- a. Education, Training and Development;
- b. Relationships;
- c. Command and Control; and
- d. Organisations.

4 The HD NCW campaign plan

ADFP 9 *Joint Planning*⁵ defines a campaign as a controlled series of simultaneous or sequential operations designed to achieve an operational commander’s objective, normally within a given time or space. This matches the requirements of progressing the HD NCW, which is a series of interrelated activities, being conducted concurrently or sequentially, with multiple agencies efforts requiring synchronisation to ensure a successful outcome. The outcome desired is that defined by CDF in his Mission Statement (provided at enclosure 1.)

The HD NCW Campaign Plan will address the following CDF directed and implied tasks:

Directed Tasks	Implied Tasks
Explore the human dimension of a Networked Force	ADF must understand NCW concepts
Develop understanding of how to achieve synergy between people and systems	Personnel must have skills and values for:
Initiate changes to optimise	a. Information sharing
a. Information sharing	b. Collaboration
b. Collaboration	c. Rapid decision making
c. Organisational structures	d. Processing information rapidly
d. Command and Control	e. Outcomes must produce superior operational effect

The campaign plan is not being developed in isolation of other ADF NCW related developments with its development linked to the NCW Roadmap Development Path⁶ and the NCW Implementation Plan⁷.

The campaign plan has also been influenced by related research recently conducted in the UK, US and Australia.

United Kingdom. The UK has conducted an extensive amount of work into the development of a Network Enabled Capability Competency Framework⁸. This work details individual and group competencies pertinent to operating in a Network Enabled Environment.

United States. The Office of Force Transformation (OFT) has conducted a series of Case Studies on recent operations, which for us highlight the benefits of NCW and provide useful insights into how better to integrate people and systems. These case studies include the Multinational Interdiction Force and the 3rd Infantry Division’s deployment to Iraq. Transformation case studies are conducted to ascertain whether an organisation utilised practices that maximised the tenets of Network Centric Operations (NCO) and whether the application of these practices lead to an increase in mission effectiveness. The case studies use a standard methodology that has been established in the American Institutes of Research Report “Force Transformation Case Study Methodology”⁹

⁵ Department of Defence, 1999, *ADFP 9 Joint Planning*,

⁶ Department of Defence, 2005, *NCW Roadmap*, p18

⁷ http://intranet.defence.gov.au/CDGWeb/sites/NCWPO/docs/NCW_Integration_Plan_v1.8%2012%20Dec%2005.doc

⁸ UK DoD, 2005, *Competencies for Defence Networked Information Environments*, Ver2,

⁹ SPARTA Analysis Group, 2005, *Multinational Interdiction Force Naval Operations in the North Arabian Gulf Littoral 2002-03*, pg1

OFT also commissioned the RAND organisation to conduct an NCO Case Study on the Stryker Brigade Combat Team (SBCT). This case study differs from the previous mentioned studies because it was conducted in a closed environment. Using a broad range of measures of effectiveness, the authors compared the performance of a SBCT with that of a non-digitised light infantry brigade in certification exercises at the Joint Readiness Training Centre and found that the SBCT's superior networking capabilities, superior shared situational awareness, speed of command, and ability to control the speed of command vastly improved the brigade's performance in these exercises. Using NCO measures of effectiveness, this analysis shed light on the NCO capabilities that made the SBCT a more agile and effective combat force¹⁰.

Australia. The ADF has already sponsored useful research on the HD NCW. DSTO has released several research papers including:

- a. DSTO-CR-XXX *The Transition from Network-Centric Warfare to Networker-Centric Warfare: Outcomes of the Human Dimension of Future Warfighting Task*
- b. DSTO-CR-0373 *The Network Centric Warrior: The Human Dimension of Network Centric Warfare*, and
- c. STR 03/242 *Human Dimension of Future Warfighting: The Challenge of the Seamless Force: Views from the Battlespace*.

5 Concept of operations

The campaign plan will progress our understanding within four lines of operation. A Human Dimensions Research Steering Group (HDRSG) will be formed to direct discrete HD research tasks and transformational cases studies. The research outcomes will be packaged into tailored reports that will provide a knowledge foundation for the ADF to utilise in developing its NCW capabilities. In the later phases of the plan, the HDRSG will coordinate research and analysis of PMSA activities and the conduct of operational case studies, to provide development feedback to the services for further HD NCW development.

Concurrently, a Human Dimensions Fundamental Input to Capability Working Group (HDFIC WG) will develop a HD NCW Compliance Checklist to be used throughout the Capability Development Process. This will ensure that the ADF's new capabilities maximise the Human Systems Interfaces and exploit Human Dimension benefits.

An Education, Training and Development strategy will be implemented to raise ADF personnel's awareness of NCW and to educate future leaders on NCW concepts. The strategy will be informed by ongoing research so that later phases that deal with leadership development and individual and group competencies can be designed.

Underpinning the above is also a change management strategy, which will ensure that the ADF embraces the cultural, social and organisational changes that need to occur to enable a transition to an NCW Seamless Force.

6 Summary

The ultimate success to integrating NCW in the ADF is centered on a mature understanding of how our people think, make decisions and interact with others in a networked environment. Understanding the human dimension of NCW and preparing our people for their key role is a significant challenge. MAJGEN Evans has been given the essential task of exploring the human dimension of the networked force and to develop for the ADF a detailed understanding of how to achieve the greatest synergy between our systems and our people. He is in the process of crafting a campaign plan that will ultimately result in significant change within the ADF.

By 2020, the campaign plan will have delivered an alignment between our people and our systems to achieve a superior operational effect. The ADF will have created optimal organisational structures and C2 frameworks to deliver the full potential of NCW. ADF personnel will understand the concept of NCW and they will possess the requisite knowledge, skills and values needed to enable collaboration, information sharing and rapid decision-making. They will be able to process information rapidly within a network. The ADF will have maximised the potential of its people within the NCW construct.¹¹

10 Gonzales. D [et al.]. 2005, *Network-centric operations case study : the Stryker Brigade Combat Team*, p18-19

11 Air Chief Marshal Angus Houston, AO, AFC, 2005, *CDF's Intent Statement for the Human Dimension of NCW*.

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