



National
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PURPOSE DEFINED

The Force Employment

Concept for the Army

One Army
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One Vision

ARMY



Canada 

PREFACE

Our Army must be prepared to fight and win in the 21st Century land battle. Indications are that the future security environment will continue to be volatile, lethal and ambiguous, with more operations being conducted in an urban environment. Political and societal expectations are for operations that inflict the minimum number of friendly, civilian and even enemy casualties. There is a growing expectation that operations can be accomplished relatively quickly and with little tolerance for error.

We must also be prepared to simultaneously conduct domestic operations that span the realm from natural disasters to counter terrorism. In any case, domestically or internationally, we cannot fail. In order to achieve strategic relevance, the Army must at all times provide the nation with decisive land-power as a vital element of the joint team. It must make a meaningful, timely and recognized contribution to Canadians as well as to like-minded allies and coalition partners. Above all, the Army must be tactically decisive.

As demanding as this goal may

appear, it is achievable. The Canadian Army has an enviable record of success and excellence. This legacy has been built upon the abilities and achievements of our soldiers, who continue to be our credentials no matter where they are deployed.

To secure continued success, we must ensure that Canadian soldiers have the proper knowledge, leadership, equipment and skills. The enclosed force employment concept articulates how Canada's Army will undertake operations over the next few years. Specifically, it describes the evolving capabilities of the Army and how they will be applied. It explains how the Army will fight.

This force employment concept provides a conceptual foundation for the Interim Army. It highlights the significant changes in capability or concepts from those of today's Army and provides the basis for "unity of thought" across the Army and its supporting elements. In addition, it provides a tool for communication, professional military education and training. Finally, the concept reflects the vision of our Army as being knowledge-based,

command-centric and soldier-focussed.

Although some elements of the concept will take longer to mature, we must begin to embrace change immediately. Our timeline is compressed. Battle group level doctrine, based on this conceptual approach, will be published in draft in June 2004. Supporting doctrine across all five operational functions will follow shortly. By late 2005, the concepts discussed in this publication will have undergone experimentation and shortly thereafter will be validated in field trials at the Canadian Manoeuvre Training Centre. As the concepts are validated they will be incorporated into our doctrine— including tactics, techniques and procedures— directly affecting how we conduct operations and what is taught in our training and educational institutions.

Clearly, there are many changes taking place now and in the very near future. We must take full advantage of these changes. Transformation has begun.

Chief of the Land Staff

31 March 2004

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PART I— INTRODUCTION

“...the best weapon in Canada's army doesn't travel on tracks, and doesn't have wheels. It moves around on combat boots. And the best weapon of all is the Canadian soldier. Well led, well trained and well equipped and ready to go off and do the job”

—CLS

Background

The world remains a dangerous place. Trends indicate that future conflict will be persistent, violent and increasingly unpredictable. It has been widely accepted that intra-state rather than inter-state war will be the norm. Failed states will continue to flounder in anarchy and violence fuelled by conflict based on ethnicity, nationalism and religious fundamentalism. This is not to say that inter-state conflict will disappear. Territorial concerns, sponsorship of terrorism,

weapons programs and conflict over social issues such as human rights, over-population, mass migration and the depletion of natural resources will continue to provide potential catalysts for war. Moreover, transnational crime and global terrorism will remain a 21st Century fact of life. Disenfranchised groups and failed states within the global order will continue to turn to asymmetric means and increasingly violent terrorist tactics to advance their causes and to strike at those states and societies perceived as being opposed, or a threat to, their beliefs and way of life.

Canada is not immune to these trends and threats. Conflict and inequity around the world will necessitate Canada's economic, political and potentially military assistance to help stabilize the global order. Inevitably, as a result of our geographic location, cultural mosaic, and participation in coalition operations, conflict may be brought to or emerge within



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Canada. Furthermore, globalization and rapid scientific and technological innovation are spawning the proliferation of cheap, accessible and highly effective weapons that could provide even the smallest of terrorist movements with a potent arsenal. This has made domestic security more challenging than ever.

The Changing Face of Warfare

Equally significant, the changes in the geo-political security environment are compounded by significant corollary adjustments to the methodology of warfare. Conflict scenarios are expected to vary in severity and intensity, with the level of violence likely to remain toward the lower end of the scale. However, the probability of large-scale conventional conflict, while low, remains. Conflict will become increasingly complex due to the asymmetric nature of the threat, the use of complex

terrain and the expansion of areas of operation. This demanding battlespace will encompass the realms of land, sea, air and space, as well as the electro-magnetic spectrum and the cybernetic domain.


Urban terrain will increasingly become the setting for conflict. Operations will often be characterized by what has become known as the “three-block war,” where forces can expect to be providing humanitarian assistance in one part of a city, conducting peace support operations in another and fighting a lethal battle in yet a third. Moreover, the requirement to transition from one type of activity to the next could be measured in minutes.

In sum, the traditional, attritional approach to warfare that focused on



physical mass and firepower against a predictable, symmetrical enemy on an open, linear battlefield seems highly improbable. In its stead, the conduct of war has changed to emphasize precision engagement and manoeuvre, with an increasing emphasis on urban operations. However, the transformation is not yet complete. War fighting is further evolving into network-enabled and effects-based operations.

Network-enabled warfare will shift



the traditional emphasis on platforms to focus on a system of highly integrated networks. Such a shift will allow for the application of the full range of non-lethal and lethal effects, including joint, inter-agency and multinational. These networks will fuse the available information using leading-edge technology to provide commanders with the best possible situational awareness so that specific effects can be brought to bear in a precise and discriminate manner. This will continue to drive changes in how the Army fights at all levels of command.

Complementary to network-enabled warfare is a shift to effects-based operations (EBO). This shift continues the departure from the attritional-based approach of attacking physical targets to meet military objectives and amass quantifiable results to one of attacking an opponent's will and capacity to wage war. Reliance will not necessarily be on physical means of destruction, although such

means must remain in the arsenal. Information operations will become a powerful enabler, wielded not only in war but also in crisis and peace, both defensively and offensively. Such an approach demands the integration of a wide variety of capabilities such as public affairs and psychological operations within a consistent and coordinated approach.

To operate in this demanding environment requires a reorientation of how we think and operate. A clear understanding of the national interest and policy is key. During operations, it will be essential for commanders to use all tools at their disposal. To wage combat operations, they will need to develop situations out of contact, engage targets with long-range, stand-off precision effects, overmatch the enemy and stand ready to engage in the close fight, if and when necessary. In some situations, integral capabilities may be sufficient. Others situations may demand a coordinated effort of integral and coalition assets to provide for those

capabilities not in the inventory—for example, heavy armour, multiple launch rocket strikes or attack aviation.

Strategic Context

Without question, the Government will continue to use the military as a key foreign policy tool. The employment of military forces abroad will ensure Canada has a “seat at the table” of international affairs, organizations and coalitions. This is key to Canada as a trading nation and as a responsible global citizen. It will also be critical to maintaining Canadian influence on the world stage and fundamental to sustaining relevance in our military and political alliances. Global stability will remain a vital national interest to Canada both economically and politically.

The Government's defence policy, articulated in the form of White Papers on Defence, promulgates

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the overarching guidance for the Department of National Defence. This direction is then distilled through a departmental policy process to provide the necessary specific guidance to the individual services. For example, long-term departmental strategy documents, as well as the annual Defence Plan, provide the necessary strategic direction and specific tasks to fulfill the Department's mandate to defend Canada and Canadian interests and values while contributing to interna-

tional peace and security.

It is within this structure that the Army derives its mission, which is to generate and maintain combat-capable, multi-purpose land forces to meet Canada's defence objectives. These objectives span the range of protecting vital national interests, contributing to international peace and security and promoting national unity, democracy, the rule of law and individual rights and freedoms. They also include promoting peace, order and good government as well as the pursuit of economic well-being. Therefore, the Army must be prepared for domestic and expeditionary missions and be capable of selected tasks across the spectrum of conflict and continuum of operations. To achieve strategic relevance, the Army must be sustainable, strategically mobile, tactically decisive and able to operate in joint, interagency and

multinational environments.

Methodology

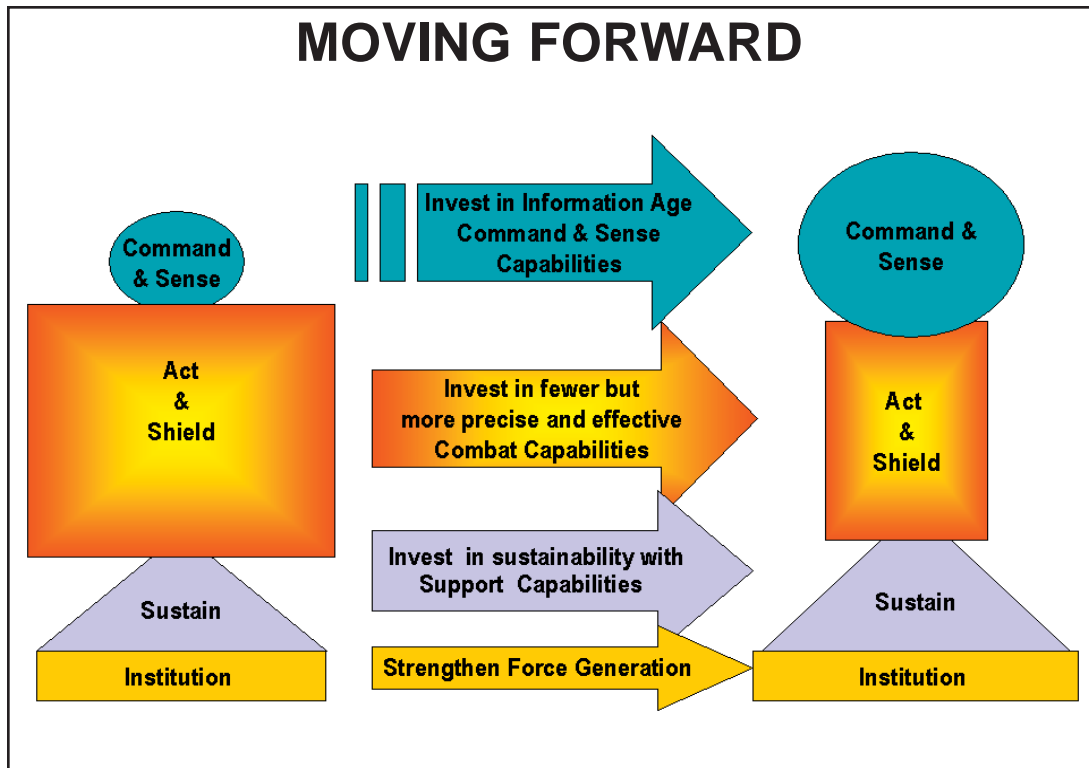
The challenge is clear. A comprehensible force employment (FE) concept for the Army is needed. As such, this document articulates how the Army's way of fighting will evolve over the next few years. Specifically, it describes the projected capabilities of the Army and how they will be applied. It explains how the Army will fight.

An FE concept provides a doctrinal foundation for the Army as well as serving as a tool to educate political decision makers and fellow



Canadians. Equally important, it acts as a guide for capability development that will enhance the Army's ability to contribute to future operations. In essence, it serves to define a broad axis of advance consistent with government direction and Canadian Forces and Army future strategies. It provides the base from which specific doctrine—including tactics, techniques and procedures (TTP) and standing operating procedures (SOP)—will flow. To this end, this FE concept:

- ◆ describes in general how the Army will fight;
- ◆ highlights significant changes in capability or concepts from those of today's Army;
- ◆ provides the basis for unity of thought across the Army and supporting elements; and
- ◆ provides a tool for communication, professional mili-



tary education and training.

PART II— A CONCEPTUAL FRAMEWORK

Overview

An army needs a vision. Without one, it runs the risk of being a reactive organization that is out of synch with a changing world. Our Army's vision is clearly stated in *Advancing with Purpose: The Army Strategy*. A deliberately ambitious and supporting FE concept will permit the capability development process to avoid artificial constraints and allow the Army to seek its full potential. At the same time, expectations and interim goals must be realistic. Subordinate concepts and characteristics such as command-centric, network-enabled and effects-based reflect a range of potential capability and achievability. It would be short sighted to dismiss a concept simply because it

may not be attained immediately in its fullest sense. For example, the Army will not soon, if ever, enjoy perfect situational awareness—the fog, friction and uncertainty of war will remain. As a result, precision strikes will never fully negate the necessity for close combat. That said, the Army must continue to transform. Crucial to this transformation is the effort to embrace the use of knowledge to reduce uncertainty to the fullest extent possible.

The Army will contribute forces to the land component of a coalition as well as filling staff and command appointments throughout the coalition architecture. Although Canada would rarely field a joint task force for combat operations, the ability to operate as a purely Canadian joint force will be needed for domestic and non-combatant evacuation operations and could be part of a future strategic operating concept. Nonetheless, every effort will be made to integrate capabilities from



the other services. For instance, the capabilities of the maritime patrol aircraft and ship-borne helicopters or the effects of close air support are but a few examples of assets that could be integrated into operations.



The Pillars of Stability – Manoeuvre Warfare and Mission Command

The Army has always met adversity with adaptability and courage, and it will meet future challenges with

no less. In the absence of a significant catalyst, changing the way an army fights is normally an evolutionary process. Full advantage must be taken of new concepts as well as developments in technology, doctrine, training and education. However, we must not lose sight of those pillars that form the bedrock of our current doctrine—manoeuvre warfare and mission command. Between them they form a solid base upon which evolving concepts can be tried and tested.

Manoeuvre warfare is a way of thinking that stresses positive thought and proactive action. It postulates a balance between the use of moral and physical means to attack an enemy's will. At the tactical level, the concept is most useful when viewed as the means through which the battle is joined at a time and place of our choosing, allowing the initiative to be seized and retained and to increase the operational tempo. Manoeuvre warfare is an approach to the applica-

tion of combat capability that seeks to create uncertainty, shock and fear in the minds of the enemy through agile problem solving and decentralized decision-making. The concept seeks to attack weaknesses and vulnerabilities through bold action, the exploitation of opportunities and the avoidance of set rules and patterns. Key to success is the elevation of combat beyond simple attrition coupled with the recognition that speed, stealth and precision have become increasingly important and can replace the effects once achieved by mass and firepower.

The essential companion to manoeuvre warfare is decentralized decision-making, more popularly known as mission command. Like manoeuvre warfare, mission command reflects a philosophy and a way of thinking rather than a set of precepts to be learned by rote. Mission command is a pragmatic and fitting solution to the chaos and uncertainty of land warfare. Despite the increased situational

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awareness produced by the intelligence, surveillance, target acquisition and reconnaissance (ISTAR) system, commanders must remain flexible to deal with the fog and friction of war. Mission command allows for and accepts that the successful application of surprise, shock and high operational tempo against an enemy is best executed through rapid and timely decision-making at all levels of command. Mission command has three enduring tenets: the importance of clarity of a superior commander's intent, in both expression and understanding; a clear responsibility to fulfil that intent; and, timely decision-making. The underlying

requirement is the fundamental responsibility to act within the framework of the higher commander's intentions.

A point of note is that the Army espouses a mission command philosophy in a national command environment that often demands detailed information on the daily activities of tactical operations. The senior Canadian commander must be aware of this pressure and maintain the balance between the requirement to keep National Defence Headquarters and the Government aware of the details of rapidly unfolding operations and the devolved sense of decision-making intrinsic to mission command.

Knowledge to the Fore

One of the defining characteristics of many of the new concepts that we are beginning to embrace is the increasing use of information and knowledge to create situational

awareness and understanding. This in turn allows for a far greater integration of combat systems and capabilities over much greater distances. The changing nature of gathering, processing and using information in decision-making and the execution of operations is perhaps the single most important advance to affect military operations in the near future. ISTAR assets will be leveraged to ensure an understanding of the enemy. Opponents will be shaped and engaged using long-range precision assets—physical and non-physical, integral and coalition. Movement and manoeuvre will be executed with significantly enhanced understanding in order to apply the effects necessary to complete a task—a “manoeuvre to strike” approach. Under most conditions, it will be the norm to lead with sensors, follow-up with effects and exploit with soldiers. The latter will continue to demand close combat skills, without which the Army cannot prevail. Digitization permits a network-



enabled focus, allowing for a great improvement in the decision-action cycle at all levels of command. Digitization will enable the automation of many processes and will allow a vast amount of data and information to be entered into the system to be processed in a timely manner. The challenge of achieving such a level of sophistication becomes obvious as we begin to appreciate that every soldier is a potential sensor system. The impact of being able to move vast amounts of information to virtually every level of command at the same time

is only now being realized. The requirement for formal collation and dissemination at each level will be progressively reduced over time.

The ability to use information and knowledge to create situational awareness and understanding is an ongoing process that can never be considered perfect. The key is to develop a way of fighting that is agile enough to adapt to adversaries who will attempt to neutralize our technological advantage. Our success depends not only upon technology but also upon soldiers who are capable of adapting the technology to the existing conditions to achieve tactical success. Since it is improbable that situational awareness will ever be perfect or extend to all levels, the Army must be prepared to exploit what information is available but remain confident and comfortable when operating in situations of uncertainty.

Force Structure

The Army must be adaptable and responsive. Rigid force structures reminiscent of the Cold War are no longer suitable. The Army will base its structure on modular, task-tailored forces that will provide commanders with a selective mix of capabilities to meet their needs to accomplish a specific mission. Task-tailored forces will have the ability to operate independently of a larger Canadian formation, to “plug into” the land component of a coalition, to work in a joint environment and to take other coalition assets under tactical command or control. Task-tailored forces will normally be built around a unit or brigade headquarters. The terms “battle group” and “brigade group” will remain in use to identify a unit or brigade level task force respectively but without the previous connotation of fixed size and capabilities. Simply put, modularity allows for the injection of cohesive sub-units with generic

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or discreet capabilities that can reinforce a task-tailored force, or replace components thereof, as the tactical situation dictates.

Soldiers and Leaders

The Army in 21st Century conflict will continue to depend upon soldiers and leaders with the military ethos, values and skills to prevail in the ambiguous and violent situations they will face. Fortunately, the strength of Canada's Army has

always been, and remains, its highly professional soldiers and leaders organized into cohesive and robust fighting teams. The success of this FE concept depends upon reinforcing this traditional strength and ensuring that our personnel system serves the soldier as well as being responsive to the Army's

operational imperatives. All of our capability must be built outwards from the individual soldier. To accomplish this, the following themes will guide capability and force development efforts:

- ◆ Given the nature of conflict and the battlespace, all soldiers must be prepared for the stark realities of war. All soldiers, regardless of occupation or component, must have the skills to fight, survive and prevail in the

complex battlespace of the 21st Century. Soldiers infused with the military ethos as described in *Duty with Honour* and *Canada's Army* are the key ingredient of the Army's fighting spirit. Developing this spirit must be the basic objective in all training and professional development.

- ◆ Developing soldiers for the challenges of land warfare is a core competency of army leadership, as is the preparation of officers and NCOs for the challenges of leading in complex environments. Given that many of those who serve with the Army on operations come from the other services, the Army needs the support of the leadership of those other services and of the Canadian Forces in this endeavour.

- ◆ Strategic relevance demands that soldiers and units have a very high degree of agility and are able to embrace a culture of readiness. Through a combination of managed readiness and effective fami-

ly support programmes, they and their families must be prepared to face the challenges of a high operational tempo.

◆ Military personnel systems, policies and practices must be optimized to develop a military culture and leadership climate that is founded upon the military ethos. It must also be supported by a career structure that is focused on the development of cohesive fighting units while, at the same time, providing all individuals with the opportunity to achieve their full potential.

The Operational Functions

The Army uses five operational functions as a framework for concept and combat development. The functions were initially introduced to serve discussion about the Future Army; however, they

soon proved to be an improvement on the six-combat-function model that was in use at the time. The strength of the operational functions stems from the indivisible integration of capabilities and on the incorporation of both the moral and physical planes. The functions retain their viability at the strategic, operational and tactical levels. The operational func-

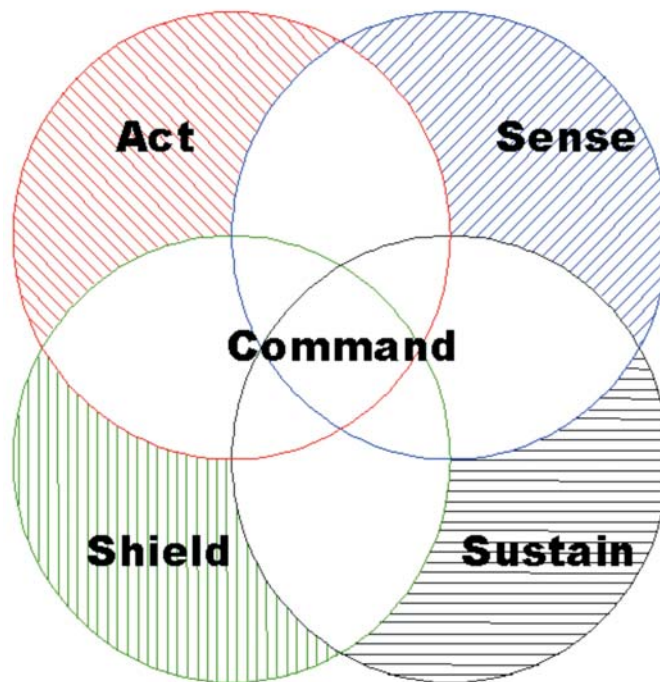
tions are now in wide use across the Army and have been formally adopted into doctrine. Addressed in greater detail in Part III, the five functions are:

Command integrates all the operational functions into a single, comprehensive strategic, operational or tactical level concept. It is the nexus of all activities, integrating all functions towards the attainment of specific operational goals.

Act integrates manoeuvre, firepower and offensive information operations to achieve a desired effect and end-state through the synchronized application of the entire array of available capabilities, both lethal and non-lethal. The concept is relevant across the continuum of operations, from domestic and humanitarian missions to combat.

Sense integrates sensor and sensor analysis capabilities into a single concept. This initiative breaks previous

THE FIVE OPERATIONAL FUNCTIONS



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sensor and information stovepipes, allowing for comprehensive sensor fusion and all source analysis within a single system. This concept moves beyond the simple collection of data or information to provide commanders with timely and relevant knowledge.

Shield provides for the protection of a force's survivability and freedom of action. Shield is a layered, integrated and full dimensional operational function that seeks to prevent any impact on friendly forces across the physical, moral, electromagnetic or cyber planes that could affect survivability or freedom of action.

Sustain integrates strategic, opera-

tional and tactical levels of support to generate and maintain force capability. This function addresses issues of sustainment on the physical and moral planes. It integrates the provision of materiel and personnel support to ensure the sustainment of combat power. It fully integrates all levels towards the attainment of this objective, linking combat activities to the national base.

Summary

Capability development is a complex process that takes place on many fronts. Emerging concepts must be examined and, if appropriate, adapted for our Army. Key to success is the use of information and knowledge to create awareness and understanding. Properly exploited, increased network connectivity will provide the means to integrate capabilities across the five operational functions and, in turn, enhance the application of combat power. Situational awareness and

understanding will allow the Army to attack enemy weaknesses from a position of strength. The emphasis will be on effects not methodology. However, notwithstanding increased awareness, the fog and friction of war will not entirely dissipate. All soldiers, regardless of occupation or component, must have the skills to fight, survive and prevail. A flexible organizational structure will enable forces to be tailored to specific missions, including, from across the five operational functions, integral and coalition capabilities as required. And finally, mission command and manoeuvre warfare will remain the bedrock upon which these changes will take place.



PART III - BUILDING COMBAT POWER

Introduction

Combat power is the total means of destructive or disruptive force that a military unit or formation can apply against an opponent at a given time. The Principles of War guide the application of combat power to achieve tactical success. The aim is to convert the potential of forces, resources and opportunities into synchronized capabilities that are greater than the sum of their parts. Integration, coordination and unity of effort are used to produce violent, synchronized action at a decisive time and place.

More than ever, complex terrain, specifically urban, will predominate in our operations. Land forces must be capable of dominating the situation in populated centres, where enemy forces will attempt to neutralize our technological advantages by blending in with

the populace. Their intent will be to limit the utility of sensor-based information systems and to use the population as shields against fire-power and effects. The Army must develop soldiers, leaders and units that can deal with this level of complexity by combining the advantages of network-enabled warfare with actual “boots on the ground” and the skills to separate combatants from non-combatants.

Needless to say, this is a difficult task. The Army will achieve success by adhering to a doctrine that seeks to optimize the balance between non-lethal and lethal effects and one that strikes a balance between the use of physical destruction and attacking the enemy's will to fight. However, when left with no other option, lethal force shall be applied using combat power that is focused, synchronized and sustained. Combat power will be generated through the integration of the capabilities inherent to the five operational functions of Command,



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Sense, Act, Shield and Sustain. Elements of each function are found at every level, in varying degrees, from the individual soldier to the national effort. The operational functions offer a broad and flexible approach for determining what capabilities are required and the coordination necessary to conduct operations. Although presented as individual functions, it is the indivisible nature of their integration that gives this construct its strength.

COMMAND

Command is defined as the creative expression of human will necessary to accomplish a mission through the exercise of the authority vested by the national government and the chain of command for the direction, coordination and control of military forces. As noted above, the Army will continue to embrace mission command as its underlying command philosophy. Mission command is the empowerment of sol-

diers and leaders to use their initiative, will and professional expertise to carry out all tasks and to operate independently within the commander's intent. It is a way of thinking that is to be pursued and practiced with vigour.

Personnel, facilities and processes support the exercise of command. This grouping is known collectively as the command support system, a system that eclipses the previous commander-staff relationship. Furthermore, the traditional division between staff and signals is now being blurred through the effects of digitization.


Of increasing relevance to command is the ability to exercise "reach-back" capabilities. The small size of the Canadian Forces makes this a particularly effective and efficient way for commanders to gain access to specialist and strategic-level advice and capabilities. Our short national chain of



command creates an advantage over larger forces in this regard, enabling battle group or brigade group commanders to draw upon strategic resources to influence tactical decisions.

The Staff

Digitization is defined as the application of information technology for the acquisition, processing and distribution of digital information to enhance situational awareness and operational



effectiveness. Traditionally, the staff was responsible for the production of orders, while signals were responsible for the means of distribution. Information technology is now the primary instrument in the planning of orders and the control of execution.

Command support divides the responsibility into information management and systems management. While information management incorporates the traditional responsibilities of the staff, the change to command support recognizes that these responsibilities can no longer be clearly separated from signals support. Both components must provide a seamless capability to enable effective command. The headquarters is the most evident representation of the command support capability. The personnel and facilities that comprise a headquarters provide both information and systems management components.

At the brigade group level, the

Army will continue to rely upon the continental staff system of six branches: Personnel (G1), Intelligence (G2), Operations (G3), Sustainment (G4), Civil-Military Cooperation (G5) and Communications and Information Systems (G6). The branches operate under the supervision of a chief of staff, who has the responsibility for translating the commander's intent into staff action and focuses branch efforts accordingly. The primary elements of the headquarters are the cells that comprise the staff branches. Each has its own responsibility, but co-operation between the branches is the key to success. While the staff branches are considered equal under the chief of staff, the tenet of operations primacy weights the influence of the G3 Branch. It is the G3 that "fights" the headquarters, a task performed in the Current Operations Cell.

In addition to the staff branches, there are a number of specialist components that create the link

between the staff and units involved in supporting tasks. They include: the Fire Support Coordination Centre; the Electronic Warfare Coordination Centre; the Intelligence, Surveillance, Target Acquisition and Reconnaissance Coordination Centre; the Engineer Support Coordination Centre; and, the Airspace Coordination Centre. Each of these centres provides a measure of staff coordination for units executing supporting functions.

The Current Operations Cell is responsible to fuse the common operating picture and to provide updates to the commander's situational awareness. While this cell belongs to the G3, it must have strong links to the operations cells of the other staff branches. In this regard, isolated operations-only decisions made in the absence of sustainment, intelligence and personnel considerations will not be sustainable. The Plans Cell is led by the G3 Plans under the guidance of the chief of staff, with

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representation from all other branches as well as the other coordination centres. A major player is the G2 Plans, who must be integral to the planning effort.

The All Source Cell (ASC) provides the analytical capability of the G2 Branch, managing and analyzing the ISTAR data and information. It is the heart of the ISTAR system and where the input from the sensor suite is analysed and fused into an intelligence product. As discussed under Sense, the analysis capability at both brigade and battle group level will be augmented in order to optimize the presentation of knowledge to the respective commanders.

At the battle group level, the six branches are still represented, but two of them are combined with line functions. The sustainment function is planned and executed within the combat service support sub-unit and the communication and information system (CIS) function by the signals platoon.

The other branches, centres and cells are represented but operate with fewer personnel.

The Headquarters


The headquarters has become a very complex organization. This has been partly due to the influence of digitization, but it is largely the result of the increasing complexity of operations. The constant factor in this evolution has been the central role of the commander. The headquarters remains focussed on providing the means by which the commander gains situational awareness, issues orders and controls the

execution of those orders.

The physical environment of any headquarters is critical to its effective functioning. The Army is in the process of determining how to best structure, equip and man our headquarters at both battle group and brigade group level. It will be critical to determine the correct balance between our desire to optimize information and work flow and the need to provide adequate mobility and protection so that we can operate in virtually any environment. Considerations in this redesign include: CIS; mobility; protection; ergonomics; and workspace relationships. Our future command posts will be designed to fully support commander-centric operations.

In seeking efficiencies, the force will use a “reach-back” capability, a capability particularly useful in the intelligence field where linguistic or specialist technical skills may be scarce. Reach-back allows the use of resources nor-





mally employed in Canada. In order to make this work, the force will need a large capacity, reliable communications link to Canada. The force will also rely on resources allocated from the coalition. In order to have access to these resources, the headquarters must have technical and procedural interoperability. This is an ongoing effort and remains a critical enabler.

Any deployed Canadian force has two command relationships. The first is the operational chain of command that subordinates the force to a coalition commander who directs the tactical employment of the force. The second is the national chain of command extending from the in-theatre national command element (NCE) to the Chief of the Defence Staff (through the Deputy Chief of the Defence Staff). This latter chain of command will always take precedence and is particularly focussed on rules of engagement and target approval. The national command element also provides the link to national level objectives,

which is of particular importance during information operations.

Communications

The CIS supporting the headquarters must have the same mobility as the headquarters. While national CIS is the responsibility of the Deputy Chief of the Defence Staff, the Army is completely reliant on this connectivity in order to optimize the ISTAR function. The national command, control and information system detachments, currently generated by the Joint Signals Regiment, will not be capable of matching the envisioned mobility of the brigade headquarters. High bandwidth national connectivity will be lost for periods of time. In these cases, the Army will use multiple and highly mobile systems with reduced bandwidth to extend signals intelligence, electronic intelligence, imagery, open source intelligence and any critical joint or combined system.

Inside a land force formation, CIS will continue to be based upon existing systems except where the increase in ISTAR analysis capabilities requires higher bandwidth systems. The ability of a battle group to increase its analysis capability is directly linked to the personnel available to process data/information and the ability of the supporting CIS to move data/information. The Command Support Pilot Project (CSPP) will determine the optimum balance between the two.

In order to allow mission command to function, the command and control system and its underlying CIS must support collaborative planning from sub-unit to National Defence Headquarters. Time-sensitive tactical opportunities may require national authority in order to act, and therefore the Army and Canadian Forces command and control systems must be both seamless and rapid. As well, the NCE must be kept aware of emerging situations as it could be involved in collaborative planning.

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Battle Staff

Digitization will put a strain on headquarters staffing. Historically, officers have filled staff and duty officer appointments. Warrant officers and non-commissioned members represent an untapped source of experience in this regard—a source of expertise that the Army will begin to use. Preparation to work in this environment will become embedded within the training and education of non-commissioned members. Staff training for the officers, warrant officers and NCOs employed on the staff must be centred on “battle staff” training—focussed on managing the battle within the constraints imposed by time and resources. Similarly, commanders must understand and practice “battle command.”

SENSE

Sense, as the inextricable companion to Command, provides the commander with knowledge. The Sense operational function is designed to ensure that relevant data from all sources is collected and analyzed in order to enable mission success. The understanding



that a commander has of the situation is directly related to the ability to collect the relevant information and have it presented in a manner that is both timely and suitable.

Changes in Sense are having a profound influence on the way the Army fights. Advances in reconnaissance and surveillance technologies have significantly changed information gathering operations. Emerging ISTAR capabilities will play a significant role on the dispersed and non-linear battlefield, in particular in influencing the sensor-shooter linkage.

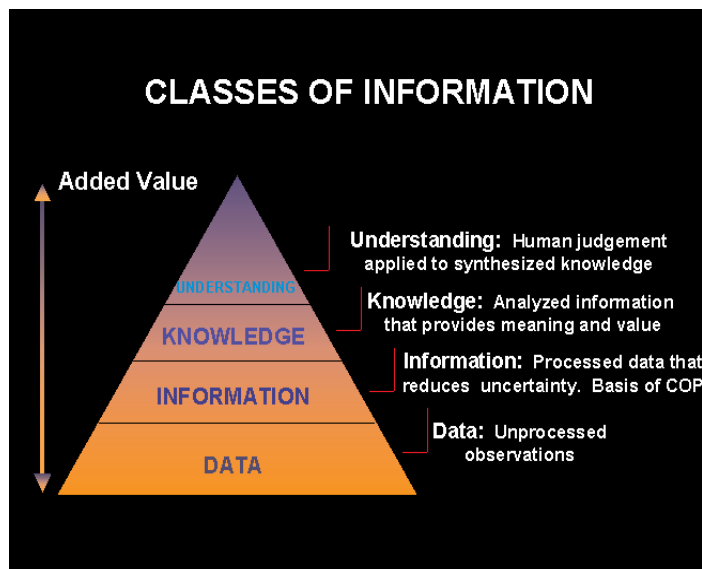
Clearly, commanders do not have the time to watch entire unmanned aerial vehicle videos or read patrol and electronic warfare reports. There is simply too much data and information available for one person to absorb in an unprocessed state. As such, the available data and information must be fused and analyzed in such a manner as to enable the commander to gain an understanding of the situation and then act in a timely and decisive manner.

For Sense to be optimized, it is critical that relevant sensor data be

moved from the sensor to the appropriate analysis cell or cells as quickly as possible. For example, a patrol report may be useful to several levels of headquarters simultaneously, while a signals intercept recorded on another continent may be important to the patrol commander. Since neither the patrol commander nor the mission commander will have the time to read or view the outputs of all sensors, the staff cells at brigade and battle group must be enabled to conduct the analysis function at a level beyond their current capabilities. The aim is to produce a knowledge base from which commanders can achieve understanding.

Data to Knowledge

A commander's understanding of a situation is achieved through processing data into information,



information into knowledge and knowledge into understanding. Data includes unprocessed observations and inputs or raw signals from the operational environment. These include incoming combat orders and signals detected by sensors or collectors of any type. Information is processed data that reduces uncertainty. Processing includes filtering, fusing, formatting, organizing, collating, correlating, plotting, translating, categorizing and arranging data in such a way

as to give it meaning. Knowledge is analyzed information generated through the cognition of the commander and staff. Understanding is the synthesized knowledge to which human judgement has been applied. Judgement is a purely human skill and is based upon the individual's experience, training and intuition. Understanding occurs inside the commander's head; it cannot be put there.

While the operational function of Command addresses certain training requirements for commanders, the Sense function focuses on how to present knowledge in such a manner that commanders can quickly gain situational understanding.

ISTAR

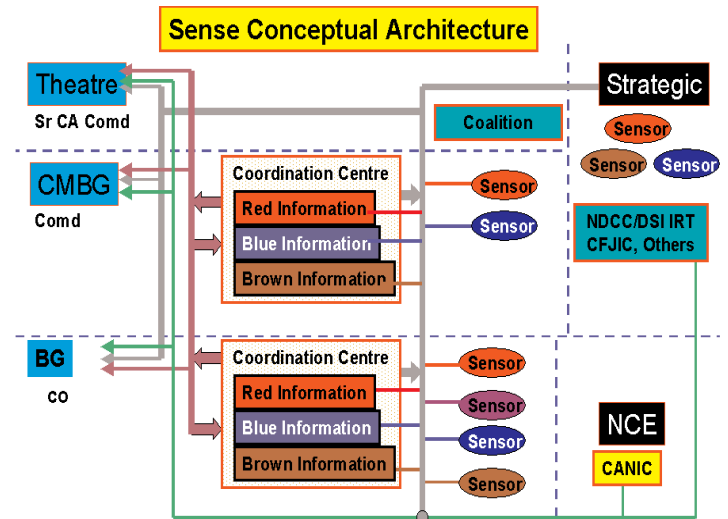
Intelligence, surveillance, target acquisition and reconnaissance

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(ISTAR) integrates the intelligence function with surveillance, target acquisition, reconnaissance and other information-generating assets in order to improve a commander's situational awareness and streamline decision-making processes, thereby enabling commanders to act. ISTAR is the capability that links Sense to the other operational functions. Sense is the concept; ISTAR is the action. Progress, in terms of producing knowledge for the commander, is directly tied to the ability of the CIS to support the flow of data/information.

The ISTAR Coordination Centre (ISTAR CC) of the near future will be responsible for coordinating, processing and displaying all red and brown information about the battlespace to allow the cueing of manoeuvre, strike or other ISTAR assets. An officer from the G3 branch will normally direct the ISTAR CC; however, the G2 Operations could perform this function. The Army will examine this organization and its intra and inter-

relationships in more detail through the CSPP. The ASC will continue to be directed by the G2 Operations officer. For the purposes of this paper, the ASC is the "I" in ISTAR and is considered part of the ISTAR CC pending results from CSPP. In order to optimize its ability to provide knowledge, the ISTAR CC must have access to the widest possible variety of sensors. Practically speaking, this means that many liaison personnel will be required to be part of the CC, while others may simply be linked by appropriate communications. Sensor systems under direct control of the battle or brigade group would typically have a liaison person in the ISTAR CC, while those outside would be linked. Exceptions are organizations like the Canadian Forces Information Operations Group (CFIOG), which normally provides



a detachment to link the ISTAR CC with wider sensor and analysis capabilities.

The first practical step in the creation of an ISTAR capability is the fielding of ISTAR CCs at both brigade and battle group headquarters. The ISTAR CC must be much more than simply a new name for the existing intelligence sections. Provisions must be made to include liaison officers representing other service capabilities, such as a ship's sensors. Given the increased

technical sophistication and responsibility of the G2 in overall ISTAR synchronization, the brigade G2 will be upgraded to the rank of major and the G2 operations and plans to captain rank. Another incremental step will be to leverage the value that the CFIOG brings to the fight. The establishment of Signals Intelligence Support Elements (SSE) in each of the brigades will allow practical insight into the capabilities of this organization.

The concept of data/information being sent simultaneously to several levels of headquarters will be incorporated into procedures and will streamline information flow. This is not to say that all data/information should have multiple addressees; however, certain information can be of use in different ways to different headquarters. This is consistent with increasing horizontal integration across the force. Based upon the commander's critical information requirements (CCIRs) and the subordinate priority intelligence

requirements (PIRs), the collection, coordination and information requirements management cell (CCIRM) is the logical choice to execute this concept.

Sensors

Despite the infusion of advanced technology, it must never be forgotten that there are other capabilities that must be exploited. As the Chief of the Land Staff recently observed, "There are currently 1200 sensors in Afghanistan, and they're all wearing combat boots." When it comes to identifying sensors that can contribute data for analysis, the imagination should be unrestrained and the appetite insatiable. The Army does not need to own a sensor to task it or to derive data/information from it. Sensors can be inter-national, coalition or national assets and can include government, military and open source.

Commanders and staff must be aware of the types of data/information generated by each of these sensors. Understanding what is available will generate the requests and tasks for appropriate support. The ISTAR CC does the business of actually tasking and controlling sensor activity.

Sensor assets will not normally be grouped tactically. For example, a Sense squadron will not be formed as a permanent structure. The guiding principle for deciding whether or not to group sensors rests on the optimum information



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flow. Information flow refers to collection, sensor tasking and product dissemination. The specific factors that should be considered are data/information transfer capabilities, mobility of sensor



assets, unity of command, span of control, affiliations and criticality of the sensor to the operation.

ACT

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Act is the application of effects to achieve a desired end state. While Command serves to integrate the operational functions, it is Act that

provides the means to transform desires into results. Act capabilities are many and varied. Many of the weapons and weapon systems that support these means—the LAV III, howitzers and helicopters—will remain either unchanged or only slightly improved in the near future. What is changing is the planning, coordinating and executing of the employment of these systems. Increasing situational awareness will yield more precise, effective and efficient manoeuvre and fires as well as the precision employment of dynamic obstacles and other combat multipliers. This will enable the massing of effects without massing forces—a huge step toward achieving effects-based operations. Information will enhance tactical surprise, enabling the fight to be taken to an enemy at the time, place and under conditions of our choosing.

The aim is to dominate the battlespace. Quick and decisive results can be achieved through the conduct of simultaneous and

continuous operations throughout the breadth of the battlespace. The close battlespace will be extended through the early acquisition of enemy forces. Overmatch in combat power, using integral or a combination of integral and coalition capabilities, will be essential to maintain the edge against potential adversaries. This dictates the acceptance of lethality, mobility and agility as fundamental characteristics. However, it need not rely on massing forces but rather on their collective effects.

Effects-Based Operations

Act is moving from a platform-based, firepower orientation to EBO, an approach focused on effects. Effects-based operations involve the synergistic application of the full range of a nation's capabilities at the tactical, operational and strategic levels. One major dictate of this change is the expansion of current targeting procedures to a more complex and inclusive

synchronization of all the means, both lethal and non-lethal, that can create an effect, or series of effects, on the physical or moral planes. These effects include physical and psychological outcomes and events or consequences that result from specific military or non-military (e.g., diplomatic) actions. Effects can be characterized as direct, indirect, undesired and unexpected. Synchronization, which involves the simultaneous, sequential integration and coordination of both means and effects, strives to avoid the latter two.

Act is particularly reliant on the operational functions of Sense and Command. Sense provides sufficiently detailed information and situational awareness to enable a commander to achieve situational understanding. The commander's intent forms the base from which the coordination of all means can be synchronized to provide the necessary effects. However, "perfection" remains elusive. The fog and friction of war will remain,

perhaps most significantly, at the tactical level.

Synchronization

The challenge of synchronizing the available means to achieve the desired effects rests on understanding what each can do and how it can be applied on both the physical and moral planes, while avoiding undesired or unexpected effects. This requires input from not only



the controller of the means but also from the processors of the intelligence leading to the decision to act. This analysis must be synchronized so that every means used to create an effect is carefully managed with a view to achieving the end state.

In practical terms, the adoption of EBO and the evolution of the Army into a medium-weight force will have significant impact on the means used to create effects. Current doctrine could be described as being platform-based, with victory being achieved through attrition and the use of mass and firepower. A medium-weight force needs to fight differently. Specifically, it must use synchronization and precision and be able to integrate the effects available from internal and external sources. A substantial move towards this end would be to embrace effects synchronization, which will incorporate all means available and will ensure that no means creates an effect in isolation.

Tactics techniques and procedures

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will change. For instance, the integral direct fire system (DFS), light artillery and the ability to access reach-back means from joint and coalition forces will, for the most part, replace the mass and shock value of the integral tank and medium artillery. In cases where tanks are assessed as being required, coalition assets will be relied upon. Should coalition assets not be available, the Army will either not undertake the task or do so at great risk. Training must encompass the use of those assets that may be provided from a coalition partner. The networking of fighting systems, even down to soldier level, will enhance the potential tempo of operations through a greater volume of information and faster access to it at each level. The initial focus of the Integrated Soldier System Platform (ISSP), such as individual radios and enhanced combat optics is already enhancing the overall effectiveness of our deployed soldiers.

The DFS will consist of the Mobile

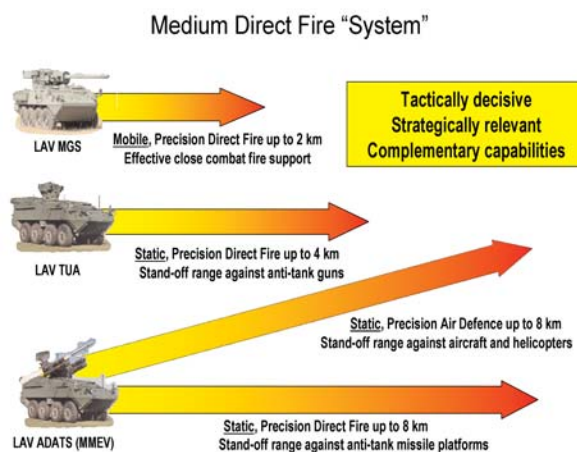
Gun System (MGS), LAV TOW Under Armour (LAV TUA), and the Multi-Mission Effects Vehicle (MMEV). The DFS will fight as a system of systems, synchronized with the abilities of the LAV III, engineers and artillery. The evolving ability of the MMEV to engage targets from beyond line of sight marks a significant enhancement to direct fire capabilities, providing the ability to engage the enemy with precision at greater distance. Unlike the US Army, which has chosen to permanently group platoons of MGS with infantry companies, the Canadian direct fire capabilities will be grouped centrally under the force commander. Employment and re-grouping during operations will be tailored to the type of mission to be conducted.

To use this approach for maximum benefit, the ability to synchronize effects must exist at all levels. Sub units will employ an Effects

Synchronization Officer/NCO (ESO) who will assist the sub-unit commander to synchronize the means available to produce local effects.

Force Structure

The Army currently deploys two main types of complementary forces: medium and light. The current and foreseeable threat posture dictates that light forces must become more specialized, which in turn will enhance the Army's ability to provide task-tailored forces with-





in each domain. A clear distinction between the two capabilities must be made. Medium and light forces will each have their own distinct roles, with some overlap. Light forces will not be expected to convert to mechanized operations, and, conversely, medium forces will not be expected to train for, or conduct, specialized tasks normally conducted by light forces such as jungle, airmobile or airborne operations. This distinction will be put to advantage in task-tailoring forces, providing the potential for a much broader range of capabilities. A purely light force must be given equivalent capabilities from each operational function as a mechanized force but “lightened” to meet

the mobility requirements. Finally, aviation will continue to be a key combat multiplier across all five operational functions. Aviation contributes to the land battle through the provision of firepower, surveillance, mobility and sustainment. The Army must be able to employ all the aviation assets of a modern coalition; however, the ability to support operations is directly linked to the capabilities of the airframe. With respect to Canadian aviation, tasks must therefore conform to these capabilities.

The roles envisaged for Canadian aviation include reconnaissance and surveillance, firepower coordination, command and liaison, re-supply, medical evacuation and support to domestic operations. Canadian aviation can also be used to train the Army in the use of helicopters to support a range of combat missions such as airmobile, insertion and extraction, forward air controlling and observation. The Army considers it essential to develop the reconnaissance and

surveillance capabilities of Canadian aviation in conjunction with overall CF sensor development initiatives. Complex terrain presents a sensor challenge, and our aviation should be optimized in this area. The remaining capabilities should be developed from both a doctrine and training perspective and incorporated in Army exercises. As a member of the Army team, aviation must continue to strengthen its link to the Army in terms of training and readiness.



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SHIELD

Force protection remains a fundamental concern despite the anticipated overall military dominance of any coalition in which Canada might participate. Our soldiers must be able to survive, both physically and mentally, in any environment or circumstance. Consequently, Shield is an integrated and full dimensional operational function that serves to prevent any influence that could affect the survivability or freedom of action of friendly forces. This includes the physical, moral and cyber planes. The latter includes the physical and cognitive aspects of gathering and processing information into knowledge and the overall trust in that system. In short, Shield is an operational enabler, conserving the force so that it may succeed in its mission.

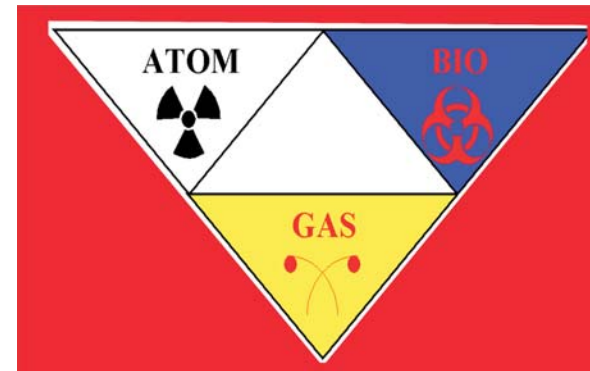
ical reasons for developing effective protection capabilities. On purely moral grounds, the value of human life demands that modern armies employ all available measures to prevent or mitigate the impact of foreseeable threats. In general, Western democratic societies have a relatively low tolerance for casualties or collateral damage. The potentially significant and adverse strategic impact of failing to adequately Shield our troops, in even the lowest of tactical level activities, makes for new realities in protection. This protection must balance the need for functionality, combat readiness and defence against terrorists. Overwhelming success in force protection will not necessarily “win a war”—but minor tactical level failures could lose one.

The Threat

Asymmetric attack is the most likely threat. The pervasive menace of attack, particularly within the non-linear and non-contiguous

battlespace, combined with an inability to effectively differentiate between combatants and non-combatants, creates a dangerous environment. The use of rocket-propelled grenades, landmines,

A Constant Threat



mortars, rockets and sophisticated improvised explosive devices, particularly in complex terrain, as well as attacks on vulnerable lines of communication or combat service support assets are real threats. The potential use of thermobaric, chemical or biological weapons compounds the problem. The rapidly developing area of information operations and emerg-

Further to the operational imperatives for Shield, there are equally compelling moral and polit-

ing cybernetic or command/knowledge-based vulnerabilities add a further dimension. And finally, the “homeland” has become an increasingly vulnerable target. In particular, the potential release of chemical, biological, radiological or nuclear weapons in a domestic terrorist attack has never been greater.

The Approach

Forces are shielded to protect centres of gravity, preserve the force and maintain freedom of action. The principles of layering, modularity, scalability, integration and tactical self-sufficiency at the lowest practical level will be mastered to protect the soldier, the platform, the organization and all vital assets, both military and civilian. While all operations across the spectrum must be considered, the primary focus within the Army is on the deployed force, whether on domestic or international operations. Nevertheless, aspects of Shield transcend these boundaries, stretching as far back as

the families of deployed members. Increased media coverage and the use of personal communications devices have greatly increased the awareness and sensitivity of soldiers and their families to events both at home and abroad.

Planning

Shield has a doctrinal foundation and is integral to the operations planning and estimate processes. Risk management (not avoidance) is a principle tenet. Shield relies upon situational awareness and on the ability to create desirable effects, through Act, at close or extended ranges—the best defence being a good offence. Essential Shield planning incorporates deception and signature management, both electronic and non-electronic, and employs active, passive and physical survivability means.

A typical Shield planning cycle



begins by determining hostile actions and circumstances that could threaten the force prior to an operation and then taking appropriate actions through equipping and training. Shield then makes use of ISTAR assets for the early detection of known and emerging threats and to establish surveillance over key enemy assets. Through Act, steps must then be initiated to prevent known threats from maturing or to reduce the impact by adopting proper protective measures such as dispersion or interdiction. Finally,

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if and when they cannot be avoided, strikes must be dealt with in a manner to mitigate the impact.

Physical Protection

Protective measures are numerous and diverse. They include such items as uniforms, medical prophylaxes, vehicle armour, the use of robotics, the ability to identify friend or foe and combat identification. Although everyone is responsible for force protection, there are some entities and concepts that warrant specific attention due to their importance within Shield. These are:

Combat Engineers. In support of Shield, combat engineers will continue to deliver counter-mobility, survivability (with increasing emphasis on security engineering) and general engineer support capabilities to deployed forces. Increased exposure to mines and other unexploded ordnance hazards, coupled with the demands of austere regions, will place an ever-

increasing demand upon combat engineers. In order to be effective and able to provide support in an integrated and responsive manner, engineers must be equipped with the same degree of mobility, communications, digitization and protection as the supported force.

Air Defence Artillery. The Army's ground based air defence (GBAD) capability will be fundamentally affected. The likelihood of achieving coalition air supremacy is considered a certainty. In the worst case, individual fixed or rotary wing aircraft and tactical unmanned aerial vehicles may pose a limited hazard to troops on the ground. A missile attack is a more likely threat, possibly armed with a chemical warhead and targeted against relatively fixed organizations or infrastructure. Accordingly, the GBAD capability will be modified. The MMEV will exist as the main GBAD platform but only as a sec-



ondary capability to its primary role of direct fire against ground targets. The capability to field an Air support coordination centre (ASCC) will remain a key requirement to exploit the situational awareness offered by an integrated coalition air defence net and to control our airspace. Achieving the force generation model necessary to professionally crew and command MMEV platforms in their dual role, and to generate the expertise necessary to produce an operational ASCC will be dealt with in the very near future as a training and organizational priority.

Military Police. The Military Police (MP) must strike a balance between traditional field MP tasks, responding to emerging force protection realities, and maintaining a professional police entity capable of administering and enforcing military law. However, the nature of the non-contiguous and increasingly urbanized battlespace increases the difficulties associated with maintaining a basic level of security against a variety of sources—from hostile or criminal, to those of non-combatants simply seeking food or protection. The MP must remain capable of providing advice on security measures to all members of the Army as well as putting actual capability on the ground. Traditional MP tasks such as traffic control and the operation of detainee collection facilities will not change; however, the nature and circumstances of their conduct will certainly evolve. The structure of the MP will become modular and therefore better able to support any

deployed force.

NBCD. Nuclear, biological and chemical defence capabilities must be reassessed in light of the modern battlespace. NBCD is primarily a joint capability that is delivered in an interdependent manner between all elements of a deployed force. The Army will continue to build upon the expertise and capabilities available in the wider CF.

Maintenance of Morale: The Moral Plane

Effective leadership is the key to maintaining morale. Our soldiers must have confidence in themselves, their leaders and their equipment. They must be convinced that their training, skills and abilities are world class and that they are valued members of a respected and successful institution. Moreover, they must feel that their

fellow Canadians and their government fully support them. Finally, they must be convinced that both they and their families are well cared for and protected. This is

Consequences



achieved through sound ethical leadership that puts the soldier first and maintains the highest level of integrity.

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The Cybernetic Realm

The information age in which we live is creating a new layer of both capability and vulnerability. The term cybernetics has been used to capture the essence of Shield as it relates to knowledge. This includes the physical aspects of hardware and software, the electromagnetic spectrum and the cognitive aspects of process and procedure, training and human limitations. This realm is divided into the physical and the moral planes. Increasingly, dependency on communication networks will make protection of the cybernetic domain critical. Our system, and the knowledge it produces, must be robust and reliable.

SUSTAIN

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Sustain is an enabling function that provides the Army with its means of support. Operating in a non-linear, non-contiguous battlespace presents

significant challenges, particularly in force protection. Complex terrain, most significantly urban, adds a further complicating dimension. The lack of secure lines of communication (LOC) and the absence of a “rear area” dictate that every soldier must be combat capable and that support vehicles must be armed and armoured. The amount of time, effort and resources that must be devoted to self-protection will be substantial. Even then, significant losses are more than possible. Recent experiences in conflicts around the world provide ample insights into the difficulties of conducting sustainment operations when seemingly “secure” sectors quickly transform into killing fields. Combat service support (CSS) soldiers must have the weapons, sensors, communications and combat skills to protect themselves and their resources. Convoy ambush drills, the ability

to call for supporting fire and the conduct of offensive operations need particular emphasis. In short, CSS units must learn to think and train like combat units. Although not the best use of combat capability, the assignment of combat elements to augment integral CSS capabilities, both static and mobile, may become increasingly common.

Materiel Distribution

The Army's materiel management and distribution system (MMDS)



will remain largely a “pull” system. This dictates the maintenance of significant stocks within all echelons to ensure that a buffer exists in case of distribution failure and to allow time for demands to be processed. The goal is to create a more flexible distribution system coupled with information that will provide real-time asset visibility across the system, including combat usage. Such a system would allow sustainment, including combat-configured loads, to be “pushed” forward on a proactive and precise basis. Movement along this desired developmental path is planned to occur commensurate with improvements in sustainment information management and distribution capabilities. The Land Force Command Control and Information System provides a significant improvement in situational awareness, an awareness that has the potential to impact on sustainment planning and execution. The CF is making inroads into asset visibility, although the impact

will not directly affect tactical level sustainment in the near future.

For other than very small quantities delivered by air, distribution will remain largely land-based. With the introduction of the medium support vehicle system (MSVS), the Army will increase the use of standard containers, partial containers and palletized loading systems. The use of combat configured loads will increase proportionately to improvements in CSS situational awareness. The threat will dictate how far forward and to what level containers, or partial containers, will be delivered. However, notwithstanding improved technical features, the MSVS and the in-service heavy and light utility vehicles remain soft skinned and vulnerable. Some compensation will be provided for by the inclusion of weapons stations. At the same time, although limited in capacity, the Army will continue to rely on aviation to pro-



vide responsive support to units manoeuvring in depth through contested areas. Exploration of aerial delivery techniques will continue.

For the near future, stockpiling and linearity will remain. However, the Army will break away from its reliance on the standard 24-hour cycle. Innovative concepts such as mission self-sufficiency and pulsed replenishment will be pursued and developed in doctrine. Although material, services and coordination

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authorities will still be organized along an echeloned structure, what is held at each echelon will depend upon the situation. In some cases, the stocks held at any given echelon could be far greater than current practice. Conversely, the ability to reduce loads to man-portable size must be available to support dismounted close combat in an urban environment.

From an organizational perspective, sustainment rests on a continuum that stretches across the strategic, operational and tactical levels. For a brigade deployment, the brigade service battalion provides tactical level sustainment to the brigade group and plugs into national and coalition support assets through the Forward Mobile Support Battalion, a unit generated by the Army but employed as the forward deployed element of the national support element. The increased employment of unit-sized task forces, in particular those that fight as part of a coalition brigade, will create a different

organizational template for theatre support. A task tailored Forward Support Group (FSG) will provide a formed and trained capability that will provide tactical level support to the battle group to achieve a degree of self-sufficiency as defined by the mission parameters and influenced by the operational environment. The FSG will support the battle group in the same manner as a service battalion supports a brigade group, including the provision of the link to the national support element and coalition assets. Training in CSS interoperability will be required at increasingly lower rank levels. The command relationship of the FSG will suit the mission. Options include being placed under operational command of the Joint Support Group Commander, the battle group commander or the coalition direct support organization. Where appropriate, echelons of support can be co-located or



combined under a single commander. This can include unit, formation and national resources and capabilities.

Maintenance

With the successful implementation of the Materiel Acquisition and Support Information System, the Army will have a modern maintenance management information system that will provide the commander with vastly increased awareness of equipment serviceability, availability and repair capabilities, including spare parts. The commander will use this

information as one measure of combat capability and as a factor in assigning troops to tasks. This system will enhance the information concerning repair and recovery. However, neither the LAV III nor the MGS programme includes support variants. This void is being filled by the reconfiguration of a number of LAV II vehicles and may be further improved through the reconfiguration of LAV III or by using the tracked MTV repair and recovery variants. The concept of forward repair remains as a mainstay of repair and recovery; however, the ability to do so is under stress, particularly in an extended battlespace.

Health Service Support

Medical assets will continue to be provided to deployed forces by the Canadian Forces Medical Group. Improvements to care will be evolutionary in nature and will come primarily from improved forward care and more effective evacuation

resulting from improved situational awareness. The impact of a non-linear battlespace and fighting in complex terrain has led the Health Services to move from fixed structures to a far more flexible approach based upon allocating capabilities as required and on providing complex levels of care as far forward as practicable and on a more dispersed basis. Moving scarce resources forward is not without risk. The security posture of the contemporary operating environment is a growing



concern as the Geneva Convention offers little protection in many parts of the world. Medical evacuation assets and facilities may require armed escorts and increased security forces. The current Bison ambulance provides a modicum of protection, but relying strictly on land-based systems is risky. There is growing argument to create a dedicated air medevac capability that would operate well forward.

Summary

Significant change is occurring across the five operational functions. Within Command, the acquisition, processing and application of information is changing to provide greatly enhanced situational awareness. Command support is replacing the previous commander, staff and signals relationship. However, in this sea of change, the Army will continue to embrace and foster mission command. Changes within Sense are equally significant. The impact of the evolving ability to

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gather and assess inputs from every soldier and every system is profound. The amount of data and information that can be made available to a commander is overwhelming. Thus, the ability to process and use this information remains a continuing challenge. The development of an ISTAR capability is already paying significant dividends that will only continue to increase. Exploiting information is fast becoming a hallmark of our Army—a feature that will permeate our entire way of fighting.

As with the other operational functions, Act is evolving to operate in a changing battlespace and threat environment. The decision to focus on a medium-weight capability dictates a change in the conduct of operations. The range of tasks that can be accomplished is changing. Many tasks must now be done differently and, in some cases, will demand a coordinated effort of integral and coalition assets. The use of information and knowledge—cou-

pled with speed, agility, precision fire and manoeuvre—will characterize this approach. Effects-based operations demand the use of all assets, both lethal and non-lethal. Future engagements will be based upon developing the situation both in and out of contact and the use of standoff fires, skilful manoeuvre and tactical assault to achieve simultaneous decisions at multiple locations. Situational awareness will minimize the need to advance to contact and reduce, but not eliminate, the meeting engagement. Responsive, extended range fires provided by integral and joint/combined assets will contribute to the dislocation, disruption and destruction of the enemy and enable rapid, agile manoeuvre to positions of advantage. However, the ability to conduct close combat—to complete, if

necessary, the physical destruction of the enemy—will remain a fundamental requirement.

Shield is vital to creating and preserving combat power. Asymmetric threats ensure that no amount of technology or overwhelming force will completely remove the funda-



mental requirement for force protection. Similarly, development of Sustain, the other enabling function, must keep pace with the other functions. Some issues, like improving the combat capabilities of the sup-

port echelons, are simply a matter of will and can be accomplished through training and weapons redistribution or acquisition. The vulnerability of the soft-skinned fleet can be reduced through arming and armouring. Other issues, such as achieving full total asset visibility within a distribution-based sustainment system in order to deliver resources where and when required, are far more challenging.



PART IV - ACHIEVING TACTICAL DECISIVENESS

General


Canadians expect their Army to be successful. In the worst case, they fully anticipate that their Army will be prepared to fight and win in war and to effectively apply military force to defend national interests.

As an army, our record is a proud one. To remain successful, however, we must transform. Understandably, Army transformation is an evolutionary process. Current systems will be with us for some time, as will other platforms and capabilities that are coming on-line in the near term. The crux of the issue will be to integrate these platforms and systems into our way of fighting to optimize the overall Army contribution to a land component of a joint and com-

bined team. It is through this synergy that tactical decisiveness will be achieved.

We must continue to move from being a mass- and firepower-centric Army to an effects-based force. Domestically, our medium and light forces provide the necessary manpower, command and control, mobility and technologically advanced communication and surveillance suites to undertake missions from disaster relief to security operations. In an expeditionary framework, these same agile, flexible and rapidly transportable forces will provide a valuable contribution to our allies. Light forces optimized for complex terrain and unique operations such as airborne, airmobile, amphibious and support to special operations will enhance any national task force or coalition by providing a wide range of generic as well as specialty capabilities.





Our LAV based, medium-weight forces are mobile and lethal. Capable of humanitarian and peace support operations in any environment, they are also highly suited for selected tasks in combat, in either open or urban terrain. Manoeuvre forces that combine the range and precision of direct and indirect strike platforms such as LAV III, MGS, TUA and MMEV can fulfill many manoeuvre, strike or exploitation tasks independently or as part of a coalition effort.

Network-Enabled Warfare

Key to our success will be command and control. Increasingly, we will be a digitized force to the lowest level possible. Interconnectivity, achieved through headquarters that are linked to an array of sensors, surveillance, reconnaissance and strike platforms, units and individual soldiers will provide commanders and staffs at all levels and echelons with an increasingly near real-time com-

mon operating picture. The ability of commanders to access an information network that allows the timely sharing of information and data from various sources and one that connects all sensors and weapons of the joint force will exponentially increase performance, reducing sensor-to-effects time. The result will be an expanded visibility and comprehension of the battlespace and the capability to act within it.

To augment this increasing capability, we will continue to focus on mission command. Headquarters will facilitate mission command by providing subordinate commanders with the necessary direction, guidance, information and resources. Quite simply, higher commanders will provide the “what,” and subordinate commanders will have the freedom to exercise disciplined, reasoned initiative to provide the “how.” Throughout, commanders and their headquarters at all levels will be charged with creating and

nurturing an environment of trust, mutual understanding and risk acceptance.

Effects-Based Operations

As our capabilities increase with time, so too will the necessity to shift our methodology of operations. We will begin to embrace EBO. This is not as radical as it may at first appear. EBO is the natural extension of our departure from the attritional approach of attacking physical targets. It is a strategy that does not necessarily depend upon physical force for attaining a desired outcome or effect on an enemy. EBO are focused on actions and their influence on behaviour (i.e., stimulus and response instead of targets and destruction). Specifically, the intent is to attack an opponent's will and capacity to wage war.

The desired end state is to render an opponent either physically or morally incapable of pursuing an

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objective. This will be accomplished by achieving a full range of effects, both non-lethal and lethal. The means applied range from information and psychological operations to civil-military cooperation (CIMIC) and from special operations to more conventional strike or manoeuvre. In sum, the focused use of national assets, independently or as part of a coalition, will produce cascading, systemic effects at the tactical, operational and strategic levels.

Joint and Interdependent Operations



As noted throughout this publication, the Army is but one player in a complex, multi-dimensional battlespace. It is the power of the larger combination of joint precision firepower, intelligence, surveillance, reconnaissance and manoeuvre that guarantee ultimate success in operations. The Army will provide timely, sustained and decisive land combat power to a coalition. However, this capability only reaches its full potential when it acts in concert with aerospace and maritime power. Together, the joint force achieves capability beyond the sum of its parts.

Readiness

Although this concept is focussed on how we will fight, there is a direct correlation between force employment and force generation. The inextricable nature of this relationship

makes it worthwhile to make mention of a few of the more salient issues that directly impact on readiness. For example, in force employment, there is no distinction between Regular and Reserve, yet the very nature of Regular or Reserve service is a major factor in force generation. The inclusion of formed sub-units from the Reserves demands that the Army Training and Operational Framework be extended to the Reserve component, with the attendant impact on individual and collective readiness. Another often-misconstrued issue is the garrison and training force structure framework that is often based on the so-called “rule of three.” This structure provides sufficient depth for most training and to sustain the units when not preparing for a specific mission. However, as stated in this document, force packages will be developed on the needs of the mission and not on a template. This increases flexibility but at the same time places great emphasis on being able to develop cohesive sub-units.

Finally, the Army is moving towards whole fleet management. The impact of this shift will enhance overall fleet readiness, but at the same time an asymmetric approach to equipment allocation will impact significantly on unit life.

Core Strength of the Army

Without question, technological development will enhance the Army's capabilities in the near term and even more so in the future. Advancements in command support, information management, data fusion and processing, surveillance systems, sensor-to-shooter links, nanotechnology, robotics and fighting platforms will provide substantial improvements in military performance. Nonetheless, combat will remain a distinctly human endeavour. As such, the fog and friction of war will remain, as will the requirement for the soldier on the ground—combining human reason, compassion and humanity as the ultimate solution to chaos.

Consistent with our history and tradition, Canadian soldiers will remain the core strength of our Army. Undeniably, they will be the key to success or failure—the foundation upon which Canadians will base their trust and support.



PART V - CONCLUSION

The Way Forward

Transformation involves all aspects of the Army, from force generation through to force employment. *Advancing with Purpose: The Army Strategy* details the qualities and characteristics required for the Army to be strategically relevant and tactically decisive—specifically, knowledge-based, command-centric and soldier-focussed. The way forward encompasses sweeping change across many fronts, including education, training, doctrine, technology and equipment as well as the way we think. The way our Army fights is a function of all of these factors and more. In the midst of change, the Army will continue to rely on manoeuvre warfare and mission command as pillars of stability around which new concepts can be explored, developed and adapted for our Army. Network-enabled and EBO are relatively new concepts that will complement our

existing approach. However, these concepts will neither erase the fog and friction of war nor the need for close combat. What they do provide is a way of thinking and a methodology that strives to make the best use of all-available information and capabilities—a worthy endeavour under any circumstances. The move to an effects-based synchronization approach at battle group and brigade is an important first step in leveraging such ideas.

At the same time as we explore new concepts, we will be making some very tangible changes across all five operational functions. These range from the development of command support and ISTAR capabilities, the acquisition of the MGS, the refinement of light infantry capabilities and the creation of a direct fire system based on the LAV III, MGS, TUA and MMEV. Likewise, digitization is a critical enabler and a very visible indicator of our progress. The stand-up of the Canadian Manoeuvre Training

How the Conduct of Military Operations is Evolving

Past (where we were)

Emerging (where we need to go)

- De-conflicted operations
- Interoperable service-based
- Interagency coordination
- Complementary multi-national
- Information/data generation
- Target effects
- Platform based
- Engagement centric
- Massive force application
- Sequential and segmented
- Threat based

- Fully integrated joint operation
- Integrated joint-based
- Interagency integration
- Coordinated multi-national
- Knowledge management
- Effects-based
- Networked
- Effects centric
- Precise force application
- Simultaneous and parallel
- Capabilities-based

Centre (CMTC) in late 2005 will be another essential step. It will furnish the Army with the ability to collectively train all elements across the five operational functions, ensuring coherent synchronization of capabilities to a common standard. Furthermore, it will enable the Army to test and refine new ideas as they are developed.

Clearly, change in a successful organization is not easy, and it will not take place overnight. It is a continuous process that must be embraced and pursued with imagination and vigour. New concepts and solutions will be examined and exploited. This publication provides a conceptual framework and a broad axis of advance. By late 2005, the concepts discussed in this publication will have undergone experimentation and shortly thereafter will be validated in field trials at CMTC. As the concepts are validated, they will be incorporated into our doctrine, including tactics, techniques and procedures, directly

affecting how we conduct operations and what is taught in our training and educational institutions.

Canadians expect their Army to be successful. Ultimately, the Army must be prepared to fight and win in war. This is our *raison d'être*—to be tactically decisive in land operations. As an Army, our record is a proud one—we have been successful. To remain so, we must transform. But, when all is said and done, we must remember that the Army's most valuable and potent

weapon has always been, and remains, the soldier.



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