

Change, Vision and Leadership: Surviving RMA

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INTRODUCTION

The purpose of this paper is to discuss the leadership implications of a “Revolution in Military Affairs” (“RMA”) from a private sector perspective. It will also identify key concepts and principles that should be considered in formulating leadership policy and programs in the Canadian Military.

Numerous military scholars have noted that valuable insights into the affect that an RMA will have on future warfare can be realized through examining the impact of similar fundamental paradigm changes in non-military organizations (Ulmer, 1998; Van Fleet and Yukl, 1986; Adams, 2000; Fukuyama and Shulsky, 1999). Although the literature recognizes that the military may be able to benefit from lessons learned in other industries, there is little actual discussion of transferable concepts. Notable articles that do provide excellent insights into military issues through the application or examination of industry concepts include Fukuyama and Shulsky (1999), and Adams (2000). However, most of the articles that focus on what can be learned from industrial applications tend to address limited aspects of the business environment, rather than focusing on the entire context that generates the need for fundamental change. This limited view is the first significant similarity between military and non-military change – many spectacular failures have occurred in business as a result of a limited focus on only one aspect of the social, political or economic environment that is driving change.

The military literature has also explored both general and specific similarities and differences between military and corporate environments. While many authors focus on the similarities (of which there are many) between business and the military, a number of significant differences have also been identified, including sources of motivation (Van Fleet and Yukl, 1986),¹ sources of power and scope of authority,² and recruiting practices (Ulmer, 1998). These similarities and dissimilarities will be discussed, when pertinent, below.

The first section of this paper will provide a common starting point from which the authors, the Canadian Forces Leadership Institute (“CFLI”), and other key stakeholders, can explore RMA and its impact on leadership in the Canadian Military. This starting point is essential when discussing concepts that will have a fundamental impact on the status quo, because it establishes a common language and understanding from which applied discussions of RMA and leadership

¹ For example, Van Fleet and Yukl (1986) have noted that “... heavy stress on moral values, ethics, and responsibility [in the role of military leadership] ... represents a fundamental difference between military organizations and those of business and industry... Business and industrial organizations tend to be heavily utilitarian (members perform for money) in terms of the modes of compliance obtained within them, but military organizations are normative (members perform out of duty) and to a lesser extent coercive (members perform out of fear)(Etzioni, 1975).” (p. 17)

² Companies have the power and authority to answer existential questions about their mission. It is arguable whether the Canadian military has this power, or whether it resides with Parliament and, ultimately, the Canadian public. See also, Ulmer, 1998.

can progress. To create this foundation, this paper will review the relevant literature regarding RMA and the current environment of change in the military.

After the context of RMA has been established, insights about the nature of large-scale organizational change will be explored. Finally, the essential characteristic that drives success in an environment of constant change, *Flexibility*, will be discussed. Throughout the paper, the leadership implications of current changes in the military will be discussed through applying business concepts such as systems thinking, knowledge management and organizational learning.

WHAT IS RMA? – A Review of the Literature.

There is a large body of literature regarding RMA. A significant portion of this work focuses on the technological dimensions of RMA, including specific information and sensor systems, operational and tactical approaches to adopting new technology in the current military context, and how specific technologies may fundamentally change aspects of how war is conducted. The remaining literature discusses the conceptual and strategic dimensions of RMA. Throughout most of this literature, discord, semantic struggle, pessimism and optimism are all typical.

It is not clear from the current literature if we are experiencing an RMA or not. Numerous authors have examined the concept and defining characteristics of RMA and concluded that an RMA is not currently developing (e.g. Gongora, 1998; Marsh, 1998). However, remarkably, more than one author has moved from this position, to believing that an RMA is occurring, or one is at least imminent (e.g. Gongora, 1999; Marsh, 2001).³ Currently, it seems that most authors assume that we are experiencing an RMA, usually based on recent changes in the military rather than any logical argument that has been proffered. However, the form, function and exact nature of the changes being experienced by military organizations are still unclear (Latham, 1999).

Definitions

Defining the characteristics of a Revolution in Military Affairs is a topic that is frequently discussed in the literature. Similar to many other aspects of RMA, authors discussing this topic begin from many different perspectives resulting in many different views of what it “looks like”. The result is analogous to the story of a group of sightless people describing an elephant – the person who only touches the trunk believes that it is like a snake, the person who only touches the leg believes that it is like a tree, while the person who only touches the tail believes that it is like a rope. Each of the observations is not incorrect, and each person’s observations do not necessarily conflict with others, but each person’s conclusions are based on an incomplete view of the whole elephant.

³ Marsh (2001) – “Three years ago I argued in a published essay that RMA was illusory, that it was nothing more than the same principles of war and doctrines in different garb. Although what was written still has merit, I now believe that it is in the extremities that the revolution is forming... Most of the change is occurring in non-military and non-political domains.”

The most common definitions of RMA begin from a strategic military perspective and address RMA's systemic impact (Technological, Doctrinal, Organizational and Operational change) in the military context. The Introduction of the Canadian Forces Strategy 2020 (CDS, 1999) includes an example of this type of definition:

“Reduced to its simplest, RMA is a major change in the nature of warfare brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts fundamentally alters the character and conduct of military operations”

Other authors describe RMA in even broader terms, focusing attention on the existence of change momentous enough to constitute a revolution.⁴ Latham (1999) provides this perspective on RMA:

“The vast majority of military innovations do little more than supply greater (or more efficient) destructive power within a given combination of labor and weaponry. Periodically, however, such innovations have more profound effects, radically transforming the prevailing instruments, ideas and institutions of warfare in ways that take warfighting beyond the established trajectory or paradigm. These radical discontinuities in the nature of warfighting are called ‘Revolutions in Military Affairs’.” (p. 211-212)

Numerous authors, attempting to apply definitions such as those cited above, have found these characterizations difficult to use as a guideline for determining if an RMA is currently unfolding. This has generated numerous criteria-based definitions of RMA that are designed to be objective tests that can be used to determine whether or not military events constitute an RMA. For example, Hundley (1999) proposed that:

- “An RMA involves a paradigm shift in the nature and conduct of military operations:*
- 1. Which either renders obsolete or irrelevant one or more core competencies of a dominant player; or*
 - 2. Creates one or more new core competencies; or*
 - 3. Both.”* (p. 9)

Notably, few of criteria-based definitions have been applied outside of the paper in which they were proposed.

In contrast to macro-level and criteria-based definitions of RMA, some experts have tailored their view of RMA to describe the *current* RMA, rather than define RMAs in general. For example, McKendree (as quoted in Hundley, 1999) declared that:

[The current RMA is] “a military technical revolution combining surveillance, C3I and precision munitions [with new] operational concepts, including information warfare,

⁴ The question of what constitutes a revolution is also a popular topic in the literature. This issue will be discussed in greater detail below.

continuous and rapid joint operations (faster than the adversary), and holding the entire theater at risk (i.e. no sanctuary for the enemy, even deep in his own battlespace).” (p. 8)

The focus of this definition on current technological innovations that may create or enable new ways of conducting war is not unique. Technologically-focused discussions of RMA see the revolution on the battlefield occurring as a result of weapons, communications and sensing systems that “greatly enhance the capacity to integrate the various components of the military effort into a single ‘system of systems’ combining air, sea, land, and very importantly, space operations” (MacFarlane, 1999, p.30). Another commonly cited feature of the technology associated with RMA is its ability to provide battlespace visibility that allows commanders to know positions, disposition, and other tactical dynamics in real time. The dramatic operational accuracy increases that these advances may provide are identified as hallmarks of an RMA (Latham, 1999).

Although each of the above definitions of RMA are not misaligned, they also do not clearly support one another, let alone a common definition that can be measured against observable conditions. However, despite the differences between each of these definitions of RMA, they all recognize that the basic characteristic of an RMA is that it fundamentally changes the way war is fought. A further area of agreement in the literature is that any change significant enough to qualify as an RMA seldom, if ever, occurs purely due to the appearance of new technology.⁵ Most authors acknowledge that adaptations in military doctrine, operations and organizational structure must occur in order to make technological, or other, advances useful operationally.⁶

Except for these characteristics, there is very little agreement in the literature regarding the character, nature or existence of an RMA. It is worthwhile noting that Cooper (1997, p.5) articulated five points of agreement and disagreement related to RMA:

Agreement	Disagreement
<i>RMA's are complex and involve operational and organizational issues as well as technology and systems</i>	<i>Priority of elements and identity of key element</i>
<i>This RMA is the latest in an historical series</i>	<i>Strategic implications and where this RMA fits in the historical context</i>
<i>There is an RMA to pursue</i>	<i>Has it started, is it about to mature, is it about to end</i>
<i>RMA needs to be defined</i>	<i>Definition of RMA and the “Roadmap” for proceeding</i>
<i>Careful implementation is needed</i>	<i>Approach to implementation</i>

⁵ McKittrick, et al (1995) – “... technologies and systems enable but do not cause military revolutions”; Murray (1997) p. 70 – “... given the enthusiasm for describing the coming RMA as technological, the historical record suggests that technological change represents a relatively small part of the equation... The record further suggests that the crucial element in most RMA's is conceptual in nature.”

⁶ For example, Blank (1997) p. 64 – re. Persian Gulf War – “The real innovations were organizational adaptation and new operational concepts. Those changes then let commanders think in new ways about using air power, space, and electronic warfare to achieve decisive results”; Latham (1999) p. 225 – “It may be that the greatest military payoff will come from operational approaches and organizational adaptation – not from [new technical] systems.”

Similar to many of the definitions and perspectives that have been articulated on RMA, Cooper's points of agreement and disagreement have yet to be accepted or validated. Particularly, it is premature to state (as Cooper has above) that there is agreement that "there is an RMA to pursue". What does appear to be common and accepted in the literature is the opinion that there is rapid, significant change occurring in the military, but whether these changes constitute a revolution is still open to debate (Eggleton, 1998).

In addition to proposing the criteria-based definition of RMA, described earlier, Hundley (1999, p. 11-17) identified a number of common, though not defining, characteristics of historic RMAs. Hundley found that RMAs:

1. *Were rarely brought about by a dominant player;*
2. *Frequently bestow an enormous and immediate military advantage on the first nation to exploit them in combat;*
3. *Were often adopted and fully exploited first by someone other than the nation inventing the new technology;*
4. *Were not always technologically driven;*
5. *If successful and technologically-driven, appear to have three components: technology, doctrine and organization;*
6. *As likely to fail as succeed; and*
7. *Often take a long time to come to fruition.*

Each of these factors has significant consequences for any military organization in the midst of an RMA. However, the last three characteristics deserve special attention. The fifth characteristic, that all successful technologically driven RMAs appear to have three components: technology, doctrine and organization, reinforces the multi-disciplinary impact of an RMA, as mentioned above. The sixth characteristic, that there are probably as many failed RMAs as successful RMAs, is strongly reminiscent of the ratio of successful to unsuccessful change initiatives observed in many industrial contexts (Kerzner, 2001; LaMarsh, 1996).⁷ Finally, the last characteristic, that RMAs often take a long time to come to fruition, is frequently stated in the literature, but seldom considered in applied discussions, which often treat RMA as an event or short-term occurrence.

The fact that RMAs take a long time has been clearly recognized (Gongora, 1999; Murray, 1997).⁸ However, the literature often fails to grasp that, despite the urgency that naturally exists during an era of profound change, revolutions are not single events – they take a long time to develop and are often not identifiable until after their tactical advantage has been exhausted. Furthermore, the dynamics surrounding the evaluation, adaptation, and integration required in

⁷ 80% of all technology implementation projects fail to achieve their intended results and 50% of all projects that involve *change of any type* (organizational, procedural, environmental, social, technological, etc.) fail to achieve their intended results; Also, LaMarsh (1996) p. 5 "Failure is possible"; See below for further discussion of Change Management.

⁸ Gongora (1999, p. 39) has stated that "an RMA takes decades to mature ... Military revolutions are phenomena that take time to develop and, therefore, they are not as easily identifiable as the more quickly paced RMAs."; and similarly, Murray (1997, p. 73) has confirmed that "peacetime RMAs even in the 20th Century have taken decades."

order to undergo changes of a revolutionary magnitude are still quite poorly understood.⁹ Finally, the differentiation between evolutionary and revolutionary change blurs as “new RMA elements are treated as add-ons to the existing force structure until the candidate RMA has been proven in battle” (Hundley, 1999, p. 72). Once proven, the element so tested, or an accumulation of such incremental advances over decades, can take warfighting beyond the existing paradigm to constitute a true revolution.

The observation noted above, that new RMA elements are often not taken seriously until proven in battle, normally appears in the context of weapons systems or other technology. However, forecasts and theories regarding military action are also frequently discounted until they are experienced in the world theatre. The attack on the World Trade Center on September 11, 2001 is an excellent example of an event that was foretold at least in concept, but was not accepted as realistic because it reflected a world order outside the context of most people’s current comprehension.

Many authors discussing RMA have foretold the emergence of new threats, including cell-based factions, “mega-terrorists”, fanatical religious/cultural/ideological threats¹⁰ and “rogue states” (Arquilla and Ronfeldt, 1997b; Davis, 1997; Hampson, 1999). The literature has also explored the theoretical effect of the equalizing force of a global economy and the resulting possibility that small and medium global powers may benefit the most from the emerging technologies that embody RMA (Hampson, 1999). This possibility is further enhanced by the fact that most of the technology involved in the current RMA has civilian roots, as well as the global availability due to competitive sourcing practices in the defence industry. It has been, and will continue to be, very difficult for the military to control the development and dispersal of key RMA technologies and keep them within traditional military control structures.

Recent conflicts have demonstrated that some of these forecasts are becoming reality: “rogue state” threats have manifested themselves; American military operations in Afghanistan exemplified many of the concepts discussed regarding RMA (e.g. strategic conventional bombing, predominant use of military specialists, unmanned sensor and surveillance systems, etc.); and many authors have identified Operation Desert Storm as clear evidence for the philosophical and tactical execution of what is espoused by the current RMA (FitzGerald, 1994).

After the World Trade Center attack, there was significant outcry regarding the failure of existing structures to foresee and prevent such an event, and concomitant demand for better forecasting and defense systems. Although the demand for better forecasting is understandable in this context, it is also unrealistic. The inherent uncertainty in forecasting the effects of change in a military context has been well discussed. For example, several authors have commented that:

⁹ McKittrick, et al (1995) – “... the implementation of revolutionary operational and organizational concepts in this RMA may require a long time even though most of the key systems probably are already in development or have even been used in combat.”

¹⁰ Davis (1997) p. 88 – “Such an adversary would seek to destroy not the military power, but rather the underlying fabric of the international system and its core values, especially if those values are fundamentally at odds with deeply held cultural, religious, or ideological beliefs.”

“... the future is unforeseeable – do not put faith in the phrase ‘foreseeable...’ (Gray, 1999, p. 12)

“Its [military forecasting] methods are well assimilated and produce good results in an evolutionary process. With respect to revolutionary changes, science for now has no reliable methodologies of any kind for forecasting.” (FitzGerald, 1994, p. 7)

[Past military revolutions] “brought with them such systemic changes in the political, social, and cultural arenas as to be largely uncontrollable, unpredictable, and above all unforeseeable. Therefore, those who expect the ‘information revolution’ to bring radical social and cultural changes – if they are correct – will find that the direction, consequences, and implications of such a revolution will be largely unpredictable for both society and military organizations.” (Murray, 1997)

“There is no doubt that the dramatic transformation that all elements of the CF are now experiencing conforms to the definition given in a recent article in Parameters: ‘a revolution in the basic sense, a new order of things that is sweeping away the old order whether we want it to or not’.” (Garnett, 2001)

The uncertainty created by the unforeseeability of the future, particularly in an environment of fundamental change, is compounded by the fact that revolutions are hard to identify (Shapiro, 1999). Both of these dynamics are inherent in the nature of revolution: revolution is the product of a basic revolt against the way things have always been done; they discard the underpinnings that provide predictability and recreate existence in a wholly unexpected manner.

Overall, the literature regarding the current RMA can be characterized as chaotic, inconclusive, and genuinely exploratory. However, the current explorations of RMA are important because they help people understand the current and historical military context for these transformations. This context is needed to help the military prepare for, and adapt to, the rapidly changing Western landscape that embodies the technological, social, political, economic, elements of our society. The sensibility of this natural need to understand one’s surroundings, particularly in the face of significant change, is clear:

“Since the future is unforeseeable – do not put faith in the phrase ‘foreseeable future’ – we must use only assets that can be trusted. Specifically, we plan to behave strategically in an uncertain future on the basis of three sources of practical advice: historical experience, the golden rule of prudence (we do not allow hopes to govern plans), and common sense.” (Gray, 1999, p. 12)

The evaluation and continuing re-evaluation of current state and past events that is occurring in the literature about RMAs constantly explores what can be learned from historical experience¹¹. It also attempts to discern between philosophy and reality, and it challenges our sense of what is common in a military context. However, it is important to be aware that useful discussions frequently reach the point where their focus on semantics excludes an understanding of the larger

¹¹ Although trite, the words of George Santayana are pertinent: “Those who cannot remember the past are condemned to repeat it.”

context. When the focus on semantics no longer contributes to an understanding of an entire situation, it ceases to add value to the discourse. This stated, it currently appears that there is still vigorous, spirited, and useful exploration of RMA occurring in the literature.

Visions of Future Warfare

Discourse around what the future of warfare will “look like” vary as widely as the definitions of RMA discussed above. At one end of the spectrum of opinions lies the view of authors that see evolutionary change occurring, rather than an RMA. These authors foresee a military much as it is today, only with new weapons and technology (e.g. Marsh, 1998; Gongora, 1998). At the other end of the spectrum are those authors who speculate only broadly regarding what the future may look like, as the significance of the revolution unfolding transcends the military domain to approach Napoleonic significance (e.g. Cooper, 1997; Blank, 1997). Authors who see an RMA that will fundamentally alter the way war is fought reside towards the middle of the spectrum. These authors often emphasize the dramatic combatant-level changes, particularly the disintegration of traditional command structures, which may occur due to new weapons, communication and information systems¹².

Given the broad range of perspectives regarding the future of warfare, including what may be considered as “science fiction”,¹³ there is understandable and considerable skepticism expressed about predictions made by advocates of the current “Revolution in Military Affairs”. Notably, some of the staunchest skeptics still conclude that an RMA is occurring (Gray, 1999; Shapiro, 1999). The literature contains warnings that proponents of RMA do not comprehend the significance of characterizing change as a revolution,¹⁴ warnings of adopting unproven, and probably illusory military concepts; and warnings about the irrelevance of RMA concepts to adequately address defence force agendas¹⁵. Gray (1996) made the following observations regarding the leading problems with the “I-Age hypothesis”:

¹² Gray (1996) p. 237 – “The future belongs to the ‘Information Warrior’...whose force multiplier is the microchip and whose microprocessing capability leverages military power in all of its diverse forms.”

¹³ Many of the visions of the future expressed in the literature seem fantastic, yet significantly, the literature has also observed that the systems, technology and operational approaches emerging today are remarkably similar to science fiction written decades ago (most notably, Heinlein, 1957 and Card, 1977) (McKittrick et al, 1995). Adams (2000) is an example of a future vision that appears fantastic, but resembles current events (p. 59) - “Imagine an environment of rapidly shifting battlefields, probably in urban areas. Fighters are moving and operating with lightning fluidity responding to changes in the situation at the individual and squad level. Deadly accurate fire support is on call by the basic soldier or marine. Response times are too short for bureaucratic channels and formulaic calls for fire. Instead, the digitized soldiers are able to take instant advantage of fleeting opportunities – a misstep by the enemy, a sudden break. Decision making power is forced downward; there are too many individual situations and too many variations for commanders to control. Deciding how to prioritize resources in such a situation is a real problem. To blindly follow a pre-set operations order – ‘We will attack in this sector, preceded by a diversion here’ – is to abandon most of the advantages gained by the panoply of sensors and information systems.”

¹⁴ Shapiro (1999) p. 116 – “Military professionals who choose to use the word *revolution* to characterize the current changes in warfare need to understand that they are inviting, even impelling, civilian intervention in issues usually left to the military. In the end, the acceptance of the idea that we are in the midst of a revolution will force civilian and military policy makers to insist upon radical adaptations in military organization, doctrine, and even culture. These adaptations will be difficult, costly, and largely irreversible. For this reason... the question of revolution is no mere academic debate but rather a policy issue of the highest order.”

¹⁵ MacFarlane (1999) p. 34 – “The current threat assessment is dominated by issues such as terrorism, drugs and international crime, economic migration, forced migration and related spillovers of small-scale conflict, and the

1. *“Gee Whiz” – The allure of shiny new things is driving much of the interest in RMA*
2. *“Nature of War” – An information revolution does not alter the fundamental nature of war (i.e. organized violence for political purposes)*
3. *“Ethnocentrism” – RMA elements may seem great from one socio-economic context, but not others (affordability, culture, etc.)*
4. *“Silver Bullet Syndrome” – there is no absolute, decisive and final weapon*

Despite the fact that each of these observations is still a valid caveat regarding what may be influencing current views of RMA, the literature has solidly assumed that RMA is not a frivolous topic, and that it warrants exploration. Two significant “threads”, one of which is mentioned above, have emerged in this exploration and are being used to focus the question of whether or not an RMA is occurring include:

- 1) Whether the fundamental nature of war is changing; and
- 2) The different types of military changes that have occurred historically (the Military Change Continuum).

The Fundamental Nature of War

Discussions of the first of these questions, whether the fundamental nature of war is changing, are usually based on the bedrock of western military thought: Clausewitzian theory. Numerous authors have stated that the fundamental underpinnings of war will not change, regardless of the adaptations required to adopt new technology:

“Friction together with fog, ambiguity, chance, and uncertainty will dominate future battlefields as it has in the past.” (Murray, 1997, p. 76)

“The basic Clausewitzian objectives [destroy military forces, capture territory, seize leadership], and the classic economic factor endowments [land, labor and capital], will remain the same.”

“War is still organized violence for political purposes.” (Gray, 1996, p.)

Authors who argue that military theory is moving away from Clausewitz also cite the same elements of Clausewitzian theory. For example, Cooper (1997) illustrates that, until very recently, we have been in a period of “total war” where there was no difference in legitimacy between action against an enemy’s forces directly on the battlefield, or action against the enemy’s forces by destroying their industrial base, as long as the ends were legitimate¹⁶. Now, it seems that the objectives of war may be changing away from Clausewitzian objectives, due to

proliferation of weapons of mass destruction ... Elements of the RMA are useful in attempting to cope with aspects of this agenda, but the package as a whole is not obviously relevant.”

¹⁶ Views regarding the legitimacy of military action are clearly occurring – the concept that unintentional collateral damage to civilian/nonmilitary targets constitutes a criminal offense is clear evidence of this fact (See Butler, 2002 regarding the development of the “unlawful attack” charge). See also Shamir and Ben-Ari, (1999) p. 19 regarding the legitimacy of the use of force from both civilian and military perspectives.

“globalization of commerce ... near-real-time global telecommunications ... integration of ... industrial economies and their financial systems ...”(Cooper, 1997, p. 113-114). The “total war” paradigm relies on Clauswitzian objectives (e.g. destroy military forces, capture territory, and seize leadership), which are based on classic economic factor endowments (e.g. land, labor and capital). However, in the new context, change is being driven by the addition of new factor endowments such as information and knowledge.¹⁷

One of the most alluring aspects of the current vision of RMA is that technological advances made in communications and sensor systems will fundamentally change war because these new technologies promise the opportunity to “use military force without the same risks as before – it suggests we will dissipate the fog of war.” (Admiral William Owens, former Chairman of the Joint Chiefs of Staff (1995) as quoted in Gray, 1999, p. 9). Davis (1997) forecast similarly fundamental change when he commented that:

“In the past, military commanders have not had the C3I capabilities to manage military forces to the limit of their potential effectiveness. They have had to rely on increases in the individual components of combat power – i.e., mass, mobility, reach, and firepower – or the exploitation of an opponent’s failings, to make up for these inadequacies. The associated costs were high not only in resources, but also in organizational distortions and operational constraints. What was often referred to as the ‘fog of war’ is in reality disorder – the inability to maintain unity of action due to shortcomings in the C3I systems.” (p. 86)

Essentially, the argument regarding whether the fundamental nature of war is changing consists of those who state that an RMA is not occurring, based on the fact that the underpinnings of Clauswitzian theory will continue to exist despite whatever changes may occur, and those who contend that warfare is diverging from the Clauswitzian model. Significantly, proponents who contend that an RMA *is* occurring do not state that Clauswitzian theory will cease to be relevant,¹⁸ but rather that its application and context will be changed dramatically. The significance of the non-contradictory stance in this argument is realized when it is combined with the concept of 3rd Wave Warfare (Toffler & Toffler, 1997), where each wave of innovation overlies and obscures, but does not obliterate, previous waves (Jablonsky, 1994). At this point, it becomes difficult to sustain objections to the existence of an RMA on the basis that specific Clauswitzian concepts will continue to exist, since the continuing relevance of these theories are acknowledged and contemplated within the arguments that an RMA is occurring.

The Military Change Continuum: Evolution, MTRs, RMAs & MRs

One of the most interesting topics developing in the literature on RMA is the difference between evolutionary changes, a “Military Technical Revolution” (“MTR”), a “Revolution in Military Affairs” (“RMA”), and a “Military Revolution” (“MR”). Essentially, each of these perspectives represents a point on the continuum of military change.

¹⁷ Equating information and knowledge is inaccurate, as knowledge is best described as actionable information.

¹⁸ The possible exception to this is the contention that it will be possible to “dissipate the fog of war”. However, “dissipation” is a matter of degree, as some “fog” will remain for as long as humans are involved due to the inherent unpredictability of biological systems.

Each of the terms mentioned above, except for evolution, contain the word “revolution”. The difference between evolution and revolution has been thoroughly explored in the literature related to RMA. For example:

“An evolutionary response begins with existing doctrine, organizations and systems and effects incremental changes to them as the new environment requires. A revolutionary response starts with the assumption that the world has changed in some fundamental way that renders old structures irrelevant.” (Shapiro, 1999, p. 142)

“Rather than merely being an evolution of pre-existing methods and instruments, they [RMAs] constitute a transformative discontinuity in how we fight wars and how we think about them.” (MacFarlane, 1999, p. 29)

“...the world is changing in dramatic ways. However, not all changes are revolutions. For the word revolution to have meaning ... it must imply a degree of change that requires radical adaptations in current modes of strategies, doctrines, and forms of organization.” (Shapiro, 1999, p. 114)

“Evolutionary change implies the type of almost reflexive adaptation and flexibility that, however difficult, militaries can and should do most every day. Revolutions, in contrast, are infrequent cataclysmic events that require revisiting all the old assumptions that pass unnoticed in daily life.” (Shapiro, 1999, p. 115-116)

It is also possible to view the difference between evolution and revolution as a matter of degree and perspective – over time, incremental, evolutionary change can “render old structures irrelevant”, thereby constituting revolution. Furthermore, what may be a small evolutionary change from one perspective may be revolutionary from another, depending on the degree of impact on individual daily existence. Despite the potential for blurring the difference between evolutionary and revolutionary, the central characteristic of evolutionary change is that it builds on the existing, while revolutionary change replaces the existing.

MTR was originally a Soviet term describing the changes brought by new technological systems during the late Cold-War era. This term was quickly abandoned in favor of RMA, which also encompasses the accompanying operational, organizational and doctrinal changes necessary to exploit new technology (McKitrick et al., 1995).¹⁹ As analysts began to explore and identify the historical precedents for RMA, they began to realize that there have been numerous times that the nature of warfare has changed fundamentally, but that not all of these changes were equally significant (Murray, 1997).²⁰ The difference between RMAs and MRs is that MRs are much broader in scope and more significant than RMAs. Furthermore, RMAs tend to be driven by

¹⁹ McKitrick, et al (1995) – “The Soviets called these discontinuities ‘Military Technical Revolutions’. Recently, analysts in the United States have started calling them ‘Revolutions in Military Affairs’ (RMA). This change in terminology was meant to capture the non-technical dimensions of military organizations and operations, the sum of which provides a large part of overall military capabilities.”

²⁰ Murray (1997) p. 70-73 – “There appear to be two distinct historical phenomena involved in radical innovation and change. The first can be called military revolutions ... smaller phenomena ... might best be termed RMAs.”

military organizations, while the overwhelming impetus for change underlying an MR is the result of fundamental social, political, and economic upheaval. Perhaps the most confusing aspect of this discourse is the fact that “the term RMA is often used as a synonym for what military historians call military revolutions, which are major changes in the way states prepare and wage war. Military revolutions are much less frequent phenomena than RMAs” (Gongora, 1998).

Cooper (1997) identified 3 types of RMAs that essentially mirror the MTR/RMA/MR continuum discussed above. Cooper focused on the source of change when distinguishing his three types of RMAs:²¹ the first type is initiated by “... new, purely military technology, driven by fundamental scientific or technological inventions or developments”; the second type is “driven by operational and organizational innovation to redress a strategic problem”; and the third type is “driven by fundamental economic, political, and social changes outside the immediate military domain” (p.117-118).

As Cooper (1997) observed, the first type of military change is what most people think of when they hear the term RMA, but it may also be the least frequent type of military transformation (e.g. the re-curved bow and gunpowder). The second type of change is what normally occurs when there is significant modification in the way war is fought (e.g. the Blitzkrieg). The final type of RMA is significantly different, since the impetus for change is external, and therefore, it creates the most uncertainty and difficulty for militaries, because they cannot control the forces driving change. Cooper further noted “these forces enable deep-seated and fundamental transformation of both the nature and the conduct of warfare. However, because these changes begin outside the military domain, they may be the most difficult to recognize and the most complex to adapt to military purposes.” (p.112)

Murray (1997) also observed that past military revolutions “brought with them such systemic changes in the political, social, and cultural arenas as to be largely uncontrollable, unpredictable, and above all unforeseeable” (p.72) and, notably, “during the process of developing RMAs military organizations must come to grips with fundamental changes in the political, social, and military landscape; they innovate and adapt to – in some cases foreshadow – revolutionary changes” (p.73). Interestingly, the relationship between RMA and military revolution was analogized to the connection between an earthquake and its fore/aftershocks.

McKittrick, et al. (1995) provided a military context for a transcendent RMA, which was labeled the “Social-Military Revolution”, when they observed that:

“During the Transportation Revolution, for example, railroads altered the economies of nations as well as allowing them to move military forces farther and faster and to sustain them longer. Moreover, these societal changes created new sets of operational and strategic targets. We currently characterize these kinds of revolutions as ‘Social-Military Revolutions’.”

²¹ This focus is quite appropriate, as inertia exists in organizations just as it exists in the physical world. Change does not occur unless force is applied, and the resultant change is a direct response to the force so applied.

Furthermore, the importance of having external enabling factors aligned with the internal military revolution in order for it to achieve its maximum possible impact has also been recognized by Cooper (1997) as he noted:

“It is essential that strategy at both the grand and military levels be appropriate to the environmental circumstances, as much including the socio-cultural and economic dimensions as the political. The same underlying forces – of nationalism, agricultural revolution, and industrial revolution – that allowed Napoleon to create his RMA also altered the objectives, and thus both the nature of war and the conduct of warfare.”
(p.113-114)

The practical differences between a Revolution in Military Affairs and a Military Revolution are significant, both from conceptual and evidentiary perspectives. As several authors have noted:

“Declaring a revolution opens the field to proposals for wholesale transformations in doctrine, equipment, and even personnel.” (Shapiro, 1999, p. 115-116)

“While discussions of the RMA tend to focus ... on ‘military productivity’, military revolutions also involve linked transformations in size and composition of military forces, the financing of defense, and the shape of the defense industrial base.” (Haglund and MacFarlane, 1999b, p. 4)

“If we are facing a military revolution, the policy debate should transcend issues of technology and operations to embrace such fundamental aspects of defense policy ... Some writers ... argue that military revolutions are phenomena of such scope that we are swept away by them, leaving us no recourse but to try to adapt to the new reality.”
(Gongora, 1999, p. 38)

Perhaps the single most significant difference between a Revolution in Military Affairs and a Military Revolution is the assumption that military organizations have the ability to choose if they want to participate in an RMA or not, but a Military Revolution is “revolution in the basic sense, a new order of things that is sweeping away the old order whether we want it to or not” (Adams 2000, p. 54).

If the current changes being experienced by the military are not an RMA, but rather constitute a larger Military Revolution, then there is no choice regarding participation. The forces causing such a revolution would drive deep changes in the social, political, and economic environment in which the military exists (McKittrick, et al., 1995).

Generally, the differences between evolution, Military Technical Revolution, Revolution in Military Affairs, and Military Revolution can be characterized as differences in the scope of change and the source of change. Both scope and source are a matter of degree, from isolated to system-wide scope, and from internal to external source. Furthermore, scope and source inversely correlate with the control military organizations have over their participation in, and the direction and pace of inevitable change. In other words, as the scope of change increases, and the source of change becomes more external, military organizations have less control over

whether they will or will not change, and what that change entails. This perspective represents a significant departure from most discussions of RMA, which tend to characterize evolutionary and revolutionary change as dichotomous, MTR as outmoded, and RMA and MR as radically different phenomena.

Summary

Although clarity around the concept of RMA is developing, the applied aspects of RMA have been given little focus, except, as previously mentioned, for the development and implementation of technology in a military context. As McKittrick, et al (1995) have noted:

“To date, the bulk of the intellectual and physical development associated with the current RMA has focused on new systems and technologies. What is needed now is a more careful analysis of the new operational concepts and new organizations that might best help us realize the full potential of these new systems and technologies.”

This impression, that the applied aspects of RMA have not been put in a practical context, assumes that the RMA literature published to date reflects what is actually occurring within military organizations. However, the U.S. military is beginning to demonstrate that it is fundamentally changing its operational concepts and organizational structures.²² The fact that the overt effects of RMA are being observed first in the U.S. Military context is expected, since “many Western Analysts assume that for the foreseeable future, only the United States will have the capability to implement the new RMA...to integrate all of its elements into a cohesive whole” (FitzGerald, 1994, p. 1).

The literature is beginning to explore the critical operational and organizational adaptations that are required to achieve the promise of RMA. The importance of these adaptations has been stated in numerous articles. For example, Davis (1997) has stated that:

“... revolutionary change in the conduct of war required the introduction or maturation of new military technologies...their integration into new military systems...the adoption of appropriate operational concepts...and, finally, the requisite organizational adaptation.” (p. 83)

Furthermore, Blank (1997) has noted that:

“...operational concepts are realizable only when practical, substantive organizational transformations or adaptations that optimize the armed forces’ ability to realize those concepts occur. States seeking strategic superiority via technological superiority must undergo substantive organizational transformation that enhances adaptability. Today, states move from technological to strategic superiority by achieving organizational superiority.” (p. 62-63)

²² For example, the operational, organizational and command structures used initially during the Persian Gulf War and further refined and deployed in Afghanistan, as well as the US Army’s slogan: “An Army of One” represent a significant shift in vision that is consistent with a new operational paradigm.

Despite the criticality of the non-technological aspects of RMA, the applied aspects of implementation are in the early stages of exploration. The literature that does focus on the applied aspects of RMA implementation includes excellent examination of: alternative organizational forms including network and cell-based organizations, the underlying dynamics of flocking and swarming behavior, and numerous purely military operational concepts (e.g. Arquilla and Ronfeldt, 1997b; Gray 1999; Hampson, 1999). There is very little literature that discusses how to manage the impact that RMA changes will have on the *people* who will have to work in a new military paradigm, with new tools, new strategies, and new knowledge.

The essential defining fact exposed in all literature on RMA is that it fundamentally changes how wars are fought. The dynamics of rapid systemic change have been well explored in the business context. The body of work that examines change in industry is substantial, and spans a very broad range of topics. Of these topics, perhaps the most salient in the context of RMA is the concept of *Change Management*.

Change Management is discussed in the next section, with particular focus on the three key factors that enable successful change: Context, Vision, and Alignment:

- Context provides a common basis for understanding risk and pursuing change;
- Vision is the unifying, shared message that compels people to change, despite their discomfort of the unknown and aversion to risk; and
- Alignment ensures that all stakeholders work together towards a common goal throughout the lifecycle of change.

Following the discussion of Change Management, the focus of change in an RMA context (Creating Flexibility) will be explored.

CHANGE IS DIFFICULT

“... because of differing perspectives and the constraints of time, organizational leaders are frequently unaware of or are unable to adequately control the consequences of changes. Even when carefully planned, it is not unusual for a change in one part of an organization to affect other parts of the organization in ways which would be difficult for the leader to anticipate. And yet, change has become an inevitable aspect of organizational life. Change in technology, social climate, personal mobility, social values and resource availability are occurring at an unprecedented rate with no sign that this rate of change will lessen. These two factors – the lack of leader awareness of the effects of organizational change and the increasing rate of change – make the management of change a critically important subject for the organizational leader. In fact ... a major factor in an organization’s survivability may be the leader’s ability to effectively steer the organization through the inevitable changes which impact upon it.”

(United States Military Academy, 1988, p. 371)

How organizations change is perhaps one of the most studied topics in the business world, and, as the above quote illustrates, also well understood by the military. The reason for this attention

is likely related to the high incidence of failed organizational change efforts, and the profound impact of failed change. When changes are unsuccessful, tangible costs are often in the millions, sometimes compromising the company's viability, and intangible costs include damaged morale, lessened opportunity for future change success, and organizational turmoil. Furthermore, the viability of an organization that has not been able to adapt to circumstances that demanded change is questionable.²³

The underlying premise of Change Management theory and practice is that both the likelihood of failure and its potential negative impact can be mitigated through understanding, and then actively managing, the dynamics of organizational transitions.

The uncertainty, complexity and unpredictability that characterizes large-scale organizational change is clearly shared by industrial and military organizations:

"The future is a paradox: No one ever gets there: it is an elusive target that keeps slipping out of reach... You can never know enough at the front end of a change to define it thoroughly... The future is never an 'end' – instead it is a guideline..." (LaMarsh, 1995, p.15)

"... while 'digitization of the battlefield may well lead to major changes in the Army's organization, there is probably no way to design an optimal structure now. The information systems that current and evolving information technology will make feasible will have unpredictable effects on how war is fought." (Fukuyama and Shulsky, 1999, p. 345)

"Since no plan survives actual combat, and the art of forecasting is imperfect, efforts to predict with certainty the future of today's revolution in military affairs (RMA) must inevitably fail. Any view of the RMA will necessarily be only a partial one. Indeed, despite the acceptance of the reality of the RMA, there is still a great deal of argument about its nature, extent, implications, and utility for all kinds of armed conflict." (Blank, 1997, p. 61)

One of the main reasons that change is unpredictable and difficult is that people are naturally averse to risk, and significant change offers the opportunity for significant risk. Risk is created whenever uncertainty intersects with the possibility for harm. For example, if an individual is uncertain whether an organizational change will result in the termination of their employment, the degree of perceived risk is high (since uncertainty in change is inherently high, and the possibility for harm, complete loss of income, is also substantial). Similarly, the level of perceived risk is low in familiar circumstances with clearly expected results, such as when an individual continues to perform in the manner that resulted in their current career success.

Significantly, the presence of risk can cause changes to fail, even if the risk event does not occur – fear of the unknown often causes people to preserve their own security, even if such actions are

²³ United States Military Academy (1988) p. 376-377 – "... continued success or failure of an organization is dependent upon the organization's ability to adapt to its changing environment."

not consistent with overall success. This tendency has been observed to occur with individuals, groups, and entire organizations. For example:

“When the status quo in an organization is changed, there is often a natural response by members and groups in the organization to resist the adaptation ... Individual resistance frequently comes about because organizational adaptation is viewed as personally threatening to one’s comfortable routine. ... They generally know what to expect on a day-to-day basis. When the status quo is altered in the organization they may resist merely because this adaptation represents potential unknowns.” (United States Military Academy, 1988, p.377)

“It is certain that careful implementation of the RMA will be needed since revolutions are, by nature of their potential for dramatic operational and organizational changes, antithetical to the cultural norms of existing bureaucratic structures.” (Davis, 1997, p.90)

“... the more successful a company has been, the more difficult and painful this process [change] is apt to be. It will threaten the jobs, status, and opportunities of a good many people in the organization...” (Drucker, 1988, p.12)

Once again, risk increases as uncertainty increases. Thus, the greater the difference between an organization’s current reality and their desired future state, the greater the level of resistance that can be expected because of the greater uncertainty that the future state will be achieved. Often, when organizations need to change fundamentally, internal resources are limited in their ability to make active contributions, not necessarily because they are consciously resisting the change, but rather because the contributions that they can make are based on their experience, and thus, their expertise is anchored in current reality (which needs to be changed).²⁴ Notably, some of the greatest 20th century military failures have occurred because organizations have been unable to overcome the fear of change and take action beyond their current reality.²⁵

In light of the potentially extreme and unpredictable impact that risk has on every change effort, it is important to ensure that risks are actively managed throughout the change process. One of the most effective ways to achieve this goal is to clearly and consistently set expectations with all stakeholders.²⁶ Note that not all stakeholders need to be engaged at the same level of detail, but

²⁴ Shapiro (1999) p. 116 – “... revolutionary changes typically need to be identified and responded to by those outside the mainstream of the organization in question. Insiders concerned with the day-to-day strains of getting the job done often lose sight of the big picture or become so accustomed, even attached emotionally or professionally, to the current modes of operation that they refuse to contemplate dramatic change.”

²⁵ Murray (1997) p. 74 – “[After World War I] the Germans used a thorough review of recent military events as a point of departure for thinking about future war... The French army took no such approach. The examination of the recent past was used to justify current doctrinal trends... The British case was even more depressing... the whole effort was deep-sixed since its critical review of army performance in 1914-18 might have made that service look bad.”

²⁶ Stakeholders include everyone who is affected by, and/or interested in the outcome of a change initiative, including: staff, management, shareholders, vendors, customers, etc. In a military context, stakeholders would include: military personnel, military leaders, civilians who are employed by the military, the government that the military serves, and the public that the government serves. In many circumstances, military stakeholders would also include populations of people who lie outside of the geographical boundary that they defend or serve.

all stakeholders need to be engaged continuously in order to maintain alignment. Through repeatedly ensuring that people have a clear understanding of what is expected of them, and what they can expect in return, focus on the change effort can be maintained and uncertainties can be surfaced and addressed. Often, sources of risk that may significantly impact the outcome of a change effort exist solely in peoples' minds because of miscommunication, misunderstanding, or misinterpretation. The process of proactively sharing expectations, and then frequently checking for understanding and alignment among stakeholders naturally provides opportunities for good communication, fosters focus and commitment, and provides opportunities to raise issues before they become problems.

At this point, it is essential to understand that risk is not inherent in every force that may impact a change effort – if it is known that an event is going to happen, and the effect of that event is also known, then there is no risk.²⁷ Thus, risk exists when there is uncertainty regarding the probability of an event occurring *and/or* how much it will cost if the event occurs.

If there is complete uncertainty regarding the probability of an event occurring (unknown events), then there is very little that can be done to proactively manage the risk of its occurrence. Forces that are unknown must have uncertainty (and thus risk) of response. By nature, these are forces that can frustrate even the best-managed efforts. All attempts to manage unknown risks are not based on objective information, and are thus little more than gambling, conjecture, or educated guesses. The only way to manage the impact of unknown forces is to minimize exposure to their potential impact (financial, organizational, etc.).

Forces that are known, and to which a response can be planned, constitute the majority of issues that are normally cited as causes of the success or failure of change. For example, organizational commitment and financing are issues that are known to exist, are controllable, and have fundamental impact on a company's change effort. These issues are usually objectively quantifiable and directly related to the company's existing metrics and values.

Perhaps the most seldom-discussed, and most critical, issues in any change effort are those that are identifiable, but to which the organization does not know how to respond. These issues are often related to the subjective aspects of change. For example, communication is inherently subjective since all communications must be interpreted by their recipients. Thus, it is common for people coming from different areas of expertise to use the same words yet have fundamentally different understandings of the meaning of the words used. With this in mind, it is not surprising that change efforts often encounter problems due to expectations that are interpreted differently by different stakeholders. Many disputes are the result of different interpretations of the same information due to different technical, cultural, or organizational "languages". Clearly and consistently setting expectations, and then actively checking for understanding, often helps identify circumstances where people do not have a shared understanding, despite the use of common words. Furthermore, a structured campaign of setting clear expectations drives the development of a shared, common language amongst organizational members that naturally increases the speed and accuracy of communication while reducing uncertainty and risk.

²⁷ This statement is well grounded in theory, yet in reality, there is uncertainty (and thus risk) in almost everything.

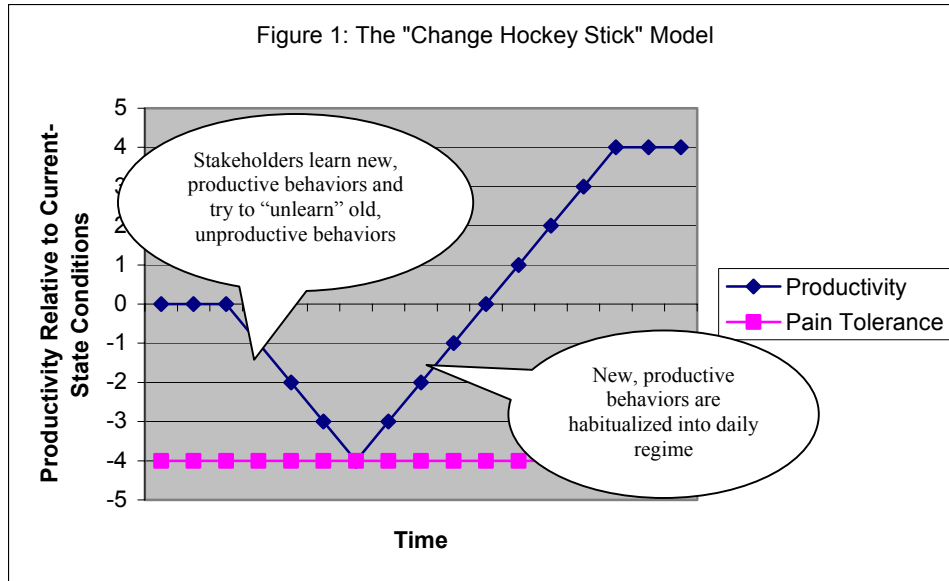
LaMarsh (1995, p. 13) noted, “the future is not a firm, fixed place in time and definition.” In this light, it may appear difficult to set any clear and consistent expectations for future organizational changes, particularly when those changes are occurring in a complex environment. While this may be true regarding specific outcomes of future efforts, it is possible, and essential, to set clear, consistent expectations of what is driving change, where the change is destined to lead (at a particular point in time), that uncertainty exists, and that the final outcome of the change effort may be modified if organizational requirements change. It is also possible to acknowledge that change is painful, that resistance is natural, and that risk is uncomfortable. Mechanisms for maintaining alignment, checking expectations, raising questions, and communicating important information, are essential to create shared expectations and a shared vision of success for all stakeholders. Furthermore, expectations of next steps and specific roles and responsibilities can be established. Although it may not be possible to state with certainty the ultimate outcome of a change effort, it is possible to set expectations regarding how the future will be pursued.

In order to create and maintain clear expectations about any change effort, all stakeholders need to maintain a shared understanding of what the change will *look like in the future*. This involves 3 key steps:

1. Developing a shared understanding of what to expect from large-scale change in general (Context);
2. Developing a shared understanding of current reality and what to expect from *this* change (Vision);
3. Constantly maintaining both general and specific change expectations (Alignment).

Context – What to expect from large-scale change in general...

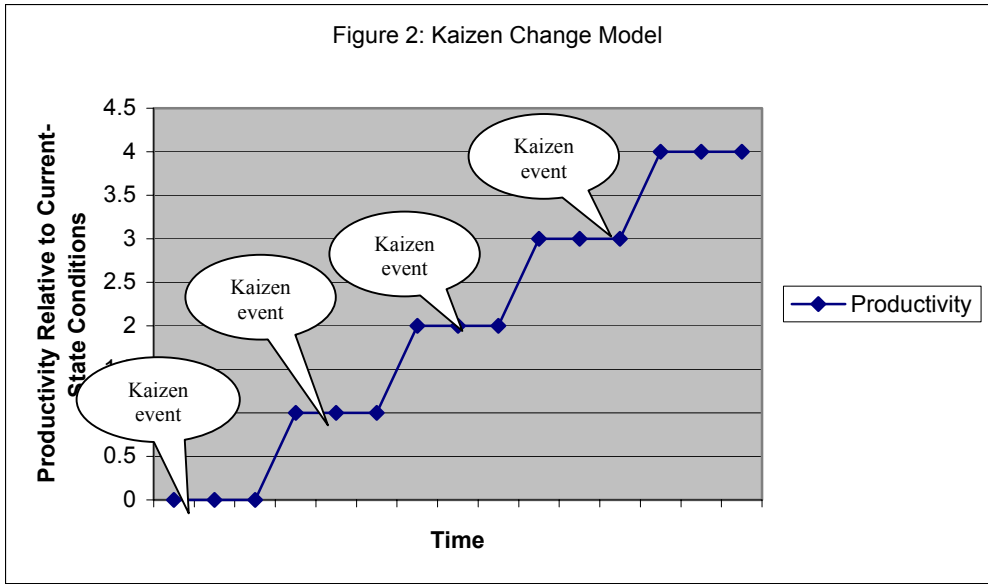
In the commercial sector, numerous conceptual models have been used to explain to people why significant corporate misery should be expected while they change the way they do business. Perhaps the most common model is the “Change Hockey Stick” (figure 1) (Champy & Hammer, 1993; Hammer, 1996; LaMarsh, 1996). This model basically states that, while undergoing change, companies will experience a period of reduced productivity before achieving a future state that is being sought with higher productivity.



The suitability of this model has been demonstrated many times – it makes sense that productivity will decline as people try to maintain daily operations while learning a new way of doing things, giving up old and familiar behavior, and then adopting their learning and new behavior into their daily regimen to increase productivity. The “Pain Tolerance” line in figure 1 represents the point at which productivity declines to the point where the change effort is no longer sustainable. Projects fail when productivity hits a pain tolerance threshold that affects a company’s ability to operate effectively.

Toyota’s productivity model is very different than the “Change Hockey Stick”. Rather than allowing for any productivity declines to occur in the face of change, it predicts consistent, periodic productivity enhancements that proceed toward a future state (figure 2). One technique often used to initiate and achieve this type of improvement is the Kaizen event²⁸ (Imai, 1997). A Kaizen event basically consists of structured work-sessions that are focused on resolving specific, identified productivity issues.

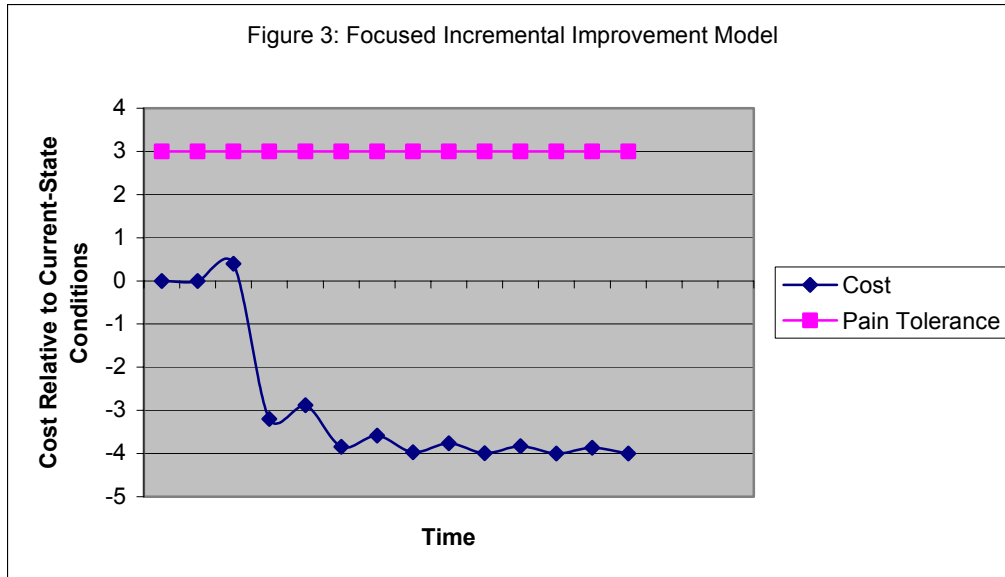
²⁸ “Kaizen” is a Japanese word meaning “continuous improvement”, or doing “little things” better, striving for even higher standards.



Although they reflect fundamentally different expectations, both the Change Hockey Stick and the Kaizen event model focus on *productivity* during change. Productivity is a primary concern for most companies, as it directly affects the key corporate driver, financial profitability. Yet, the productivity focus of the models discussed above may be their primary flaw, as there are many different dimensions to both profitability and cost that are not comprehended.

When the consistent, periodic productivity enhancements of the Kaizen Model are re-drawn to reflect cost dynamics, and then combined with the focusing power of Pareto Analysis²⁹ and a more natural representation of directional transitions, an interesting model of change emerges (figure 3) (Ruddock, 2001):

²⁹ Pareto analyses are based on the Pareto Principle that states that only a “vital few” factors are responsible for producing most of the problems. This principle is often applied to quality improvement initiatives in corporations to the extent that a great majority of problems (80%) are produced by a few key causes (20%). If we correct these few key causes, we will have a greater probability of success.



The Focused Incremental Improvement model states that it is possible to dramatically mitigate the risks of change through reducing financial exposure in the early part of the project, when success is most uncertain³⁰ (certainty increases as the project progresses, until project outcomes are 100% certain upon completion). This can be achieved through:

- 1) Dividing a large-scale change effort into a series of sub-projects (each of which is valuable in itself, but also contributes towards achieving a larger goal);
- 2) Prioritizing the sub-projects using Pareto Analysis (80/20 Rule); then
- 3) Executing each sub-project in priority *with re-analysis of priorities after the completion of each sub-project.*

Perhaps the most significant aspect of the Focused Incremental Improvement model is its recognition that organizational requirements change, and change efforts must be sufficiently agile to redirect their momentum to respond to these inevitable alterations. Through approaching organizational change as a series of linked, focused improvement initiatives, the completion point of each initiative provides a natural opportunity for an organization to:

- Re-evaluate the viability of the change effort, as well as the direction and scope of the effort in light of current circumstances;
- Re-assess the importance of planned phases (or sub-projects) and the sequencing of these planned phases in the change effort; and
- Refocus its attention and energy on the changes that will provide the greatest value to the overall effort.

Through conducting a Pareto analysis of improvement opportunities upon completing each focused increment, it is possible to ensure that resources are directed at pursuing the greatest opportunities for organizational improvement, rather than the next-greatest opportunity

³⁰ Potentially, 64% of project investment can be delayed until after 96% of the project results are achieved; and the project can reach a self-funding state after less than 15% of total project time has elapsed.

according to a past-state analysis. It is possible that, as a result of process interactions, what was initially identified as the second-most important issue in the original Pareto analysis may drop to the 6th most important issue after the first incremental improvement has been made and the primary issue has been resolved. Agility and flexibility are critical in a constantly changing environment.

The Focused Incremental Improvement model is also well aligned with other project and change management approaches that have been developed as responses to commonly experienced problems. A good example of this alignment can be demonstrated through examining some of the alternative approaches to software development, such as Extreme Programming (Beck, 2000) and Agile Software Development (Beck, et al, 2001). In fact, the first 3 Principles of Agile Development are:

1. *Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.*
2. *Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale."*
3. *Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.*

The first two of these principles are clearly aligned with the Focused, Incremental Improvement model, as they support an incremental approach to software development projects through achieving short-as-possible times between deliverables and demonstrating quick successes. Many authors have discussed the importance of demonstrating success early in a project, as success fosters organizational commitment from all levels and maintains interest and focus among project team members (Dannemiller Tyson & Associates, 2001).

The remaining principle, to “welcome changing requirements” is a dramatic departure from the approach that is often used in large projects and large organizations like the Canadian Military. For example, vendor engagement is normally a competitive process based on a defined scope of work with a fixed fee bid (sometimes not to exceed or firm estimates are used). The problem with this approach is that it compounds the negative impact of unknown “states of nature” that cannot be actively managed until they occur. In other words, the future state defined at the project outset (the scope) may no longer be desirable after time passes due to market forces, changing technology, regulatory changes, or corporate evolution. When an organization’s needs change, it often costs a great deal to change a fixed scope of work that has been used by vendors to set pricing expectations. In fact, it has been shown that it costs 10 times as much to add a feature to a scope of work than it would have cost to include that feature as an original scope item (Boehm, 1987).

Accepting that business needs *will* change, organizations are commonly faced with a choice between two unpleasant options: not changing the scope of work, which will mean that the change no longer meets organizational needs; or changing the scope and increasing costs dramatically. Most companies try to manage the impact of scope changes by only altering the

scope when the new feature is “really important”. This results in implementations that are over budget *and* do not meet existing needs. It is not surprising that many change efforts are over budget, do not result in perceptible cost improvements, and are often considered a “failure”.

Successfully minimizing the negative impact of scope changes *and* achieving results that support organizational needs requires a significant shift in change management approach – success is usually defined as conformance to specifications (functional or otherwise), conformance to schedule, and conformance to budget. Resolving the need(s) that triggered the change is conspicuously absent from this definition. The focus on scope conformance is not surprising in the context of the Change Hockey Stick model. Due to the natures of lump-sum sourcing and changing business requirements, needs-based metrics are seen as “moving targets” that are difficult, if not impossible, to use to measure performance. The Focused Incremental Improvement model supports measuring performance based on pre-established objective expectations, yet it achieves this through carefully managed, sequential project increments (scoped, measured and perhaps sourced separately) to achieve a larger scale, longer term change that is defined in terms of resolving current needs. This approach encourages successful, timely completion of each sub-project, while frequently providing opportunities for evaluating whether the overall change effort, and its constituent elements, is still directed towards resolving the right issues.

The Focused Incremental Improvement model is also conducive to maintaining stakeholder focus and alignment through short cycle times, quick and constant demonstration of results, and frequent opportunities to establish expectations that actively and continuously ensure alignment. Furthermore, this model encourages a structured, achievement-based approach to organizational change that minimizes the negative consequences of unforeseen interactions (procedural, technical, and/or organizational).

Finally, approaching change as a series of focused, incremental improvements creates an environment where achieving change does not necessarily require disrupting the entire operations of the organization. The focus of each incremental sub-project may lie in a particular department, manufacturing line, or across an organizational process. However, the scope and impact of the change can be very carefully targeted and managed over a short duration in order to reduce disruption.

While the focused incremental improvement model provides insights into potentially effective change management techniques, fundamental change requires individual commitment and courage. Creating and fostering the single-mindedness required for successful change is achievable only by leaders who demonstrate courage to their organization through constant, vocal support of a *vision* that people can use to focus their energy and guide their behavior, despite threatening uncertainty and change.

Vision – What to expect from THIS change ...

“People want to know where they are going. When the future cannot be defined, people will endure incredible pain to stay in the present simply because they know and understand it.” (LaMarsh, 1997, p.16)

It is difficult to overemphasize the importance of having a vision of the future that individuals embrace, and can be used to guide their behavior. Without a precisely articulated, clear, and commonly understood target to work towards, efforts and attentions are easily redirected and wasted, despite good intentions, diligence and hard work (Bower, 2000; Drucker, 1988).

To develop a shared understanding of why a fundamental change needs to occur, it is essential for an organization to have a clear grasp on its current reality (Haines, 2000; LaMarsh; 1995; Senge, P., Kleiner, A., Roberts, C., Ross, R.B., Roth, G. & Smith, B.J., 1999). Collective understanding of current reality includes both the formal and informal structures and dynamics that exist in an organization. These structures provide a context to understand why things are the way that they are. Furthermore, they provide valuable insight into an organizations’ readiness to change, as well as expose perceptions and beliefs about elements that may hinder, or cause significant pain, during change efforts.

Fundamentally, a vision is an expression of how an organization sees itself providing its customers with what they are willing and happy to pay for *in the future*.³¹ The placement of “in the future” in the previous statement is significant, because it recognizes that a vision statement must comprehend not just what the organization sees in its own future, but also what it sees in its customers’ future.

Vision is important because it helps people understand, tangibly, what the future will mean to *them*. (Senge, 1994; Senge, Kleiner, Roberts, Ross & Smith, 1994; Rubinstein & Firstenberg, 1999; Zander & Zander, 2000). It provides a personal and compelling context upon which individual commitment can be based, as well as an immediate organizational context that people can use to apply concepts and actions. The underlying danger of “flavor of the month” or “pop-psych” management, is that it attempts to replicate change strategies that worked elsewhere *without a vision that helps people understand the changes in the context of their own daily regimen*. Organizations of individuals, like individuals, are unique. Failure to recognize this uniqueness, and how the uniqueness impacts whole-scale implementation of changes, will doom almost any change effort. As Fukuyama and Shulsky (1999) have noted:

“... innovations that are successful in one organization cannot simply be applied to other commercial organizations, let alone to military ones. Rather, they must be thought of as part of the ‘tool kit’ with which one approaches the question of how a given organization should be structured; you would not try to build a house without a hammer, but that does not mean that everything is a nail, or that nails are the appropriate fasteners in each case. The objectives of the organization must be the starting point.” (p. 357)

³¹ A vision statement can be contrasted with a value statement, which is an expression of how an organization sees itself providing its customers with what they are willing and happy to pay for *currently* – vision is focused on the future, while value focuses on the present.

The requirements for organizational change to be successful include not only a clear, concise, powerful vision, but also that all stakeholders (e.g. the people who will make the change happen directly and indirectly) have dissatisfaction with the present, and that they possess a shared understanding and commitment to the vision (Senge, 1994; Dannemiller Tyson & Associates, 2001; Drucker, 1996). In the context of RMA, these conditions have caused some commentators to observe that RMAs have typically arisen following defeat on the battlefield (e.g. Davis, 1997). These same authors often note that the currently discussed RMA is unusual, since there is no apparent defeat that triggered the U.S. military organization to change. These observations are arguably shortsighted, since both Korea and Vietnam were not victories and, particularly from a socio-political perspective, Vietnam was a loss. This is further supported by the underlying policy premise of the new paradigm for warfare – to expend metal, not men, on the battlefield.³²

Numerous tools and techniques have been developed in the private sector to guide the definition, implementation, and management of vision statements. Different authors contend that some techniques actually create mission statements, or value statements, or some other statement than a vision statement, yet all focus on creating a clear, unifying goal that compels all stakeholders to direct their efforts towards a common purpose. One practical tool to examine the gap between an organization's current reality and its desired vision, is Daniel Kim's (1995) *Vision Deployment Matrix*.

The Vision Deployment Matrix helps organizations strategically plan how to cross the "chasm" between current reality and a desired future state by using a systems thinking perspective. One of the particular strengths of this tool is its systemic coverage of defining and then translating a future vision into practical reality (e.g. events and action) – not just from a macro-perspective, but also down to the organizational divisions, teams and individuals who must functionally achieve the vision through events in their day-to-day operations.

Perhaps the greatest shortcoming of most methodologies and tools that profess to guide organizations in their definition and implementation of a future vision is the fact that they often fail to adequately address translating the strategic vision, through the operational and tactical levels, to the point where it can be converted by individuals into specific action. This is significant, since the ultimate purpose of vision is to coordinate individual action so that it contributes to an overall goal. Unless individuals truly understand specifically what contributions they are expected to make, and what role those contributions play in achieving overall organizational goals, activities will be inevitably misdirected and successful change will be compromised.

One of the reasons that it is difficult to translate vision into action is that different people in any organization have different perspectives on what is compelling and worthy of action. Each individual in an organization has particular skills, perspectives and thinking styles that make them suited to effectively fulfilling their role. This mix of features defines each person's sense

³² Davis (1997) p. 84 – "The desire to substitute firepower for manpower, or what General Van Fleet during the Korean War termed the desire 'to expend fire and steel, not men,' has been the focus of U.S. defense policy for many decades... Conceived in the 1970s, this approach was part of what former Secretary of Defense Harold Brown called the 'offset strategy'"

of what is important and relevant *to them*, which may or may not correspond to what their colleagues, superiors, and subordinates see as relevant and imperative. This effect has been observed in both industry vision deployment efforts and military strategy development (Gray, 1999)³³.

Translating vision into action is complicated not only by different opinions of relevance held by different organizational roles; it is also affected by differences in individual information processing styles (Salton, 1996; Soltysik, 2000).³⁴ This is evidenced by the difficulties that are often experienced when communicating a vision, even within organizational workgroups that share professional, organizational and role contexts. Simply stated, a group of people can be considered as an information-processing network, where one person's output is another person's input. In this network people take in information, process that information, and then act upon it in different ways – some individuals prefer information to be very structured and presented in a step-by-step manner, while others prefer to develop understanding through making connections within a mass of unpatterned information. Furthermore, some people prefer to act upon information quickly, while others need time to consider their response before acting. None of these styles is better or worse than another, they are simply different. However, if information processing style differences are not understood, and there is a lack of recognition regarding how to work with different styles, significant communication problems can result. However, by measuring, understanding and effectively combining the different information processing styles that exist within a team, it is possible to engineer individual and team information-processing dynamics to positively affect group performance.

Understanding how different people process information is helpful when attempting to communicate critical information, such as a vision, because it helps the communicator create a message using language and structure that their audience will best process and understand. Furthermore, understanding individual styles can help improve interpersonal dynamics through providing a basis for accepting differences and understanding actions that might otherwise be misinterpreted. For example, when people with radically different information processing styles interact (e.g. an unpatterned, action-oriented individual communicating with a structured, contemplative person), miscommunication is frequently caused because negative motivations (“He is being obstructive”) are attributed to innate information processing preferences (asking many questions and focusing on details).³⁵

Partially as a result of recognizing that different people in any organization have different, yet valuable, perspectives, there is great divergence in opinion regarding the appropriate source and motivation for organizational visions: Some authors believe that visions must be defined and driven by the leadership of the organization (e.g. Conger, 2000; Dunphy, 2000), while others contend that sustainable change can only be based on a Shared Vision, which is co-operatively

³³ Gray, 1999 – Policymakers and top leaders are often poor strategists, as the core characteristics that make them good at what they do are contrary to the characteristics of a good strategist.

³⁴ Salton has conducted significant research in the area of Organizational Engineering and information processing styles which has been used to develop tools and techniques to analyze and explain the dynamics of individual and team interaction.

³⁵ In the absence of clear information, people create their own interpretations of reality based on assumptions that support their understanding of their environment. These interpretations may or may not have any similarity to reality, and are usually the most negative possible interpretation of any data that does exist.

created and fostered by all members of the organization (e.g. Senge et al., 1994; Senge et al., 1999). In reality, the appropriate source and motivating force for an effective vision is as unique as the history and experience of each organization that wishes to move from its current state into a specific future state. As long as the vision, and the organization's leadership, are sufficiently compelling and tangible to drive individuals in the organization to abandon the comfort of their current state, sustainable change is achievable.

The significance of the role of "leadership" in driving successful change has been observed many times. Often, this is interpreted to mean that change will not be successful unless it is vocally and explicitly supported by top leaders. While this is true in most circumstances, it is not necessarily a rule. In fact, some authors have explicitly rejected the level of importance that is often placed on "support from the top" (Senge et al., 1999). Similar to the Clauswitzian debate regarding the existence of an RMA, arguments regarding the criticality of top leadership supporting change discuss perspectives that are not necessarily incompatible, but are definitely not aligned, due to their grounding in different contexts. The underlying message of this debate is that, while active and aggressive leadership is essential for change to occur, the source of leadership does not inevitably lie at the top levels of the organization, due to the fact that true leadership does not necessarily emanate from formal organizational structures.

A central role for any leader in any organization that wishes to change is to help people understand what the change means to them, and how that meaning must affect their behavior each day (Ghoshal & Bartlett, 2000). Nonaka's (1991) discussion of the role of leadership in a Knowledge-Creating Company, despite the hierarchical terminology used, clearly articulates that effective translation of a vision is seldom accomplished by only one layer of leadership, largely due to different contexts:

"As team leaders, middle managers are at the intersection of the vertical and horizontal flows of information in the company. They serve as a bridge between the visionary ideals of the top and the often chaotic market reality of those on the front line of the business... middle managers mediate between 'what is' and 'what should be'. They remake reality according to the company's vision." (p. 44-45)

While researching the concept of RMA and its potential impact on the Canadian Military, it became evident that the Canadian Forces is in the midst of a crisis of vision. Numerous commentators have noticed that the Canadian Forces do not understand, tangibly, what the future means to *them*.³⁶ Furthermore, it is unclear whether this is the result of the absence of vision, conflicting visions,³⁷ misunderstanding of the vision, lack of clarity, lack of consistency, or other factors.

³⁶ Eggleton (1998) – "Questions like what does Canada want its military to do? What does multiple-purpose, combat-capable mean in this new environment? What is our focus going to be?"

³⁷ Sloan (2000) – "Differing views came out sharply during the 1994 hearings before the Special Joint Committee reviewing Canadian Foreign Policy, at the end of which the Committee recommended 'a more specialized configuration for the Canadian Forces to better support peacekeeping operations'. The 1994 Defence White Paper argued instead for a multi-purpose, combat capable force that can respond to a wide range of operations..."

Most authors discussing the Canadian Forces' vision cite the 1994 Defence White Paper as the appropriate starting point for determining what the future should look like. The 1994 Defence White Paper states the government's expectations of the military, including that it be a "multi-purpose combat-capable armed force" with three roles: the protection of Canada, the defence of North America in cooperation with the US, and contributing to international security (Sloan, 2000).

Using the 1994 Defence White Paper as the basis for building a vision for the Canadian Forces makes sense, since fulfilling future customer requirements is an important element in any vision, and the 1994 Defence White Paper is a clear statement of what the Canadian Forces' customer, the Canadian Government, says that it wants in the future. However, assuming that customer requirements alone constitute a vision is mistaken – a vision must also comprehend the organization's view of its own future.

Part of the confusion apparent in the Canadian Forces view of its vision mirrors much of the discussion in corporate literature regarding the appropriate source of an organization's vision (from leadership, Shared Vision, etc.). Some commentators note that the lack of a clear vision for the Canadian forces is due to the government's inability to define consistent expectations, while others cite the significance of the public's opinion of the military in Canada.³⁸ Significantly, there is little discussion that recognizes that the Canadian Forces' Vision *must be created by the Canadian Forces*. Customer requirements must be comprehended (the Canadian Government), and in some cases it is also appropriate to consider the anticipated requirements of a customer's customer (the Canadian Public, the United Nations, etc.), yet a vision must come from within its organization for it to have any meaning.

The characterization of the Canadian Government as the Canadian Forces' customer, and the Canadian Public as the Canadian Government's customer (the Canadian Forces customer's customer) may be somewhat controversial. However, this description is accurate. The sensibility of the Canadian Forces to allow the Government, or the public, to dictate its vision equals the sensibility of Delphi Automotive allowing General Motors, or the car-buying public, to dictate its future. Ultimately, the demands of customers and their customers will determine an organization's relevance and viability based on whether their needs are being fulfilled,³⁹ but these requirements are not determinative of the organizational vision, only the value that it must provide through striving to achieve that vision.

Although there are significant differences between private and government institutions regarding the authority that they have to determine existential questions, all organizations have the ability to create common objectives that can be used to ground and guide their activities. The Canadian Forces' Strategy 2020 is a positive step towards defining an organizational vision. However, it is

³⁸ Dimoff (1997) – "... some argued that the government has not been clear regarding the roles and missions of the CF in the post-Cold War era. Furthermore, it was stated that, 'first Canada must decide whether it wants a military'" and "there exists in the military, the perception that the government, and Canadians, do not appear to value the CF as an essential institution.

³⁹ Eggleton (1998) – "... while this debate may be taking place primarily within the so-called defence community at the moment, its conclusions will ultimately play out in the public arena, where public opinion matters."

explicitly founded on the 1994 Defence White Paper⁴⁰ – a document that is almost a decade old;⁴¹ which arguably no longer represents the needs of the Canadian Government and the Canadian Public;⁴² and which has little credibility within the military, due to the government’s lack of implementation commitment (or even active delay and termination of implementation) since it was published.⁴³

Ultimately, the Canadian Forces must decide how it sees itself providing the Canadian Government with what they are willing and happy to pay for in the future. While this seems difficult, particularly since the government is giving little consistent direction regarding its future needs, it is imperative if the Canadian Forces is to continue being a relevant organization. Few organizations, in business or in government, know with absolute certainty what their customers needs will be in the future, except from a very general perspective (e.g. General Motors knows only that their customers will want vehicles, but not what type, size, etc.). Uncertainty is a definitive characteristic of vision, perhaps its *raison d’être*, as it provides a tangible goal that people can strive towards. Unfortunately, it seems that uncertainty is paralyzing the Canadian Forces from completing what may be the most critical element in ensuring its relevance and viability – a clear and actionable vision for the future.

It is the obligation of the Canadian Forces’ leadership to create an environment where a clear and actionable vision can be developed and shared. This is not to imply that it is up to the leadership to *create* the vision, however, it is their responsibility to establish the circumstances where a vision can be effectively developed and deployed. It is also their responsibility to guide, support, and enable this vision for all personnel within the Canadian Forces.

Maintaining Alignment

Despite the multitude of reasons why change fails, every successful large-scale change effort shares strong, reliable, and dynamic leadership that consistently and frequently reinforced the future vision towards which all efforts are directed.

The tendency of many organizations, including the military, to take new concepts and “try them out” or “graft them on” to existing practices clearly reflects a “prove it to me” attitude regarding change. This is understandable given the high incidence of failure and natural resistance factors. In order to change the momentum of an organization, or to alter its direction, it requires the

⁴⁰ Henault (2001) – “Our corporate strategy, called Shaping the Future of the Canadian Forces: A Strategy for 2020, is firmly rooted in the 1994 Defence White Paper”

⁴¹ Eggleton (1998) – “... Canada’s defence policy framework, the Defence White Paper of 1994, doesn’t even mention RMA, nor does it contemplate many of the developments, both technical and political, that have transformed the security landscape since it was written.”

⁴² Dimoff (1997) – “It was stated that, ‘politics’ was being played with the CF because of a philosophical and ideological debate within cabinet and the government caucus. It is maintained that there are those in government who believe Canada’s armed forces should assume a more constabulary force posture in comparison with those who support the White Paper’s multi-purpose, combat-capable force posture.”

⁴³ Dimoff (1997) – “As a result of this divergence of opinion [regarding the Canadian Forces’ role], many conclude that the government is delaying, or not fully implementing reforms and equipment modernization programs. This general situation fosters the belief that the government does not have a clear purpose of commitment to the armed forces” and “[I]n addition, the lack of commitment to implement the 1994 White Paper and continual budget cuts have affected morale. The notion of a multi-purpose combat-capable armed force is seen as simply rhetoric.”

astounding force of a committed, vocal, courageous leadership with a clear, understandable vision that is sufficiently compelling to persuade individuals to abandon their comfort zones. As Cooper (1997) observed:

“... in light of the real costs of fundamental organizational change needed to accommodate new operational concepts, the third critical problem is to define an implementation concept that allows this fundamental alteration to both the existing warfare as well as the command and control paradigms; this course must maximize the likelihood of the change being adopted and internalized by the military institutionally, not simply grafted onto old stock.” (p. 133)

The importance of vision and leadership to effect change has been clearly recognized in the military environment:

“For real innovation to occur, the doctrinal and operational implications of new capabilities must be translated by senior officers into new critical military tasks and missions for the entire organization. This takes time, typically a generation or more, to effect.” (Davis, 1997, p. 90)

“An organizational leader’s anticipation of change will also determine the organization’s response mode. ... if the leader is unable to or fails to anticipate change, the organization will likely respond in a reactive mode of adaptation. This reactive mode of responding to change generally develops a short-term, crisis style of adaptation to change. On the other hand, if the organizational leader anticipates the change, the organization has an opportunity to respond in a proactive mode of adaptation. ... in the proactive mode of adaptation the leader can preempt the debilitating effects of a change with an adaptation that is more under the leader’s control.” (United States Military Academy, 1988, p. 375)

Setting expectations for individuals is difficult. However, the primary challenge facing leaders of an organization experiencing fundamental change is to maintain the focus, commitment and unity of action required to achieve and maintain the necessary behavioral adaptations that will make the change part of the organization’s daily functional regimen (Ghoshal & Bartlett in Beer and Nohria, 2000). Often, attentions fade and people frequently return to the old habits and behaviors that they have practiced for most of their careers. In order to ensure that appropriate focus is maintained throughout the change effort, it is necessary for leaders to actively and constantly ensure that all stakeholders continue to share suitable expectations.

Through frequently restating, reaffirming, and reinforcing new expectations, and then, through active inquiry, checking that the new expectations are understood by people as they were meant to be understood,⁴⁴ momentum and commitment can be maintained, while also reducing sources of conflict, misunderstanding and diversion.

⁴⁴ Often, change efforts require the involvement of many different areas of expertise. One frequently experienced issue is that common words often have different meanings to different people in different contexts. These meanings are often assumed, and can result in apparent alignment accompanied by significant misalignment. For example, in the business world, different levels of functional planning and execution are divided into strategic, tactical and

Again, many tools and methodologies have been developed in the business world to guide stakeholder alignment efforts. One effective, workshop-based structure titled “*Setting the Right PACE: Project Alignment and Clear Expectations*” (Peckan, 2001), provides a flexible, workshop-based structure that encourages consistent communication and effectively surfaces underlying assumptions, agendas, and other motivators that can create underlying misalignment despite the appearance of alignment.

Maintaining alignment between all of the individuals who contribute or hinder project success is essential to ensure a successful change effort. Many projects launch with fanfare and great energy, only to lapse into oblivion and wasted energy before their goals are reached, due to the lack of ongoing commitment, shared expectations, and overall alignment towards a shared goal.

Summary

Change is extremely difficult – it involves abandoning the comfort of a current state that may be imperfect, but it is at least known. Careful management through setting and maintaining expectations is essential to, but does not guarantee, success. This is particularly true in a context of rapid systemic change caused by unforeseen and largely uncontrollable factors.

In order for any organization to remain viable and relevant in the current environment, it must create organizational systems and structures that encourage agility and responsiveness. Flexibility allows organizations to flourish, in light of the recognition that “the future is not a firm, fixed place in time and definition” (LaMarsh, 1995, p.13).

The next section explores three areas of organizational change in the context of creating structures that will allow the Canadian Forces to survive, and perhaps flourish, despite the uncertain changes brought by a Revolution in Military Affairs. These three areas are:

- 1) Distribution of Authority;
- 2) Organizational Structure; and
- 3) Organizational Culture.

It is clear from both corporate and military literature that recent technological advances and the resulting proliferation of information and knowledge will fundamentally change each of these areas. The nature and implications of these changes are discussed below.

operational dimensions. Strategic planning in business shares a similar meaning to strategic planning in the military, however the tactical and operational dimensions are transposed in the business and military contexts: tactical planning in business equates to military operational planning (the desired achievements at the end of the “day”), and business operational planning equates to military tactical planning (how to reach the goals desired at the end of the “day”).

FLEXIBILITY – Creating an Agile Organization

Success in a changing and complex environment relies on an organization's ability to respond quickly and effectively to emerging circumstances. Like many of the other concepts discussed in this paper, the critical nature of organizational flexibility has been recognized in both the business and military literature:

“We must remain relevant by staying in the knowledge game and by being flexible enough to adapt to the unpredictable demands of the future.” (Garnett, 1999, slide 4)

“Force XXI and AAN [Army After Next] are based on experimentation designed to sharpen the army's competitive edge despite swirling changes and an uncertain future.” (Hunt, et al, 1999b, p. 4)

“The ultimate goal is to create an organization that can adapt more quickly and flexibly to new information.” (Fukuyama and Shulsky, 1999, p. 331)

Many of these, and other, sources have also acknowledged that, in order to be effective, flexibility must coexist at the leadership, structural and individual levels of an organization. In other words, the leadership and command hierarchy, and the institutional composition (recruiting, promotion, succession etc.) must support the ability of individuals to respond to changing circumstances, *and* the people within the organization must be willing and able to adapt (Charan, Drotter & Noel, 2001; Wheatley, 1992). For this reason, creating a responsive organization involves focusing on three dimensions of organizational dynamics – authority, structure, and culture.

Before discussing the specific issues related to forming an agile organization, it is important to state that the goal of this section is to review the current thinking regarding how to adapt to circumstances that are *currently emerging*. Since the future is unforeseeable, it is impossible to determine the best configuration for the future. However, it is possible to explore some of the attributes that seem, at this point in time, to be conducive to future organizational success. As Adams (2000, p. 57) observed, “... there are no truly optimal solutions – the objective is to find workable ones that will maximize success in the face of uncertainty.”

Authors discussing RMA have noted the need for organizational adaptation to occur in order for new technologies to be effectively adopted by military forces. In fact, many of the definitions of RMA explicitly include reference to organizational change (see above). Although organizational change has been mentioned frequently in the military literature, most of these discussions focus on the organizational adaptations required for militaries to adapt to the current technology / information-based RMA (assuming that an RMA is occurring). While much of the content of these articles is relevant to creating an agile organization, the underlying purpose for changing is missed – in addition to being viable in the current environment, flexible organizations must also be created to survive future complexity and potential chaos (Tower, 2002). By focusing only on the requirements of the present, adaptations will likely occur that are appropriate currently, but that also limit future flexibility.

Authority

Perhaps the most commonly discussed and anticipated impact of RMA is the transfer of decision-making authority from the higher levels of command to lower levels of the organization. For example:

“Shortening the time-constraints for decision and action will require the decentralization of command authority, and a concomitant relaxation of control downward from the top of the command pyramid.” (Davis, 1997, p. 93)

“[RMA will involve] more decentralized decision making as a result of increased situational awareness and battlespace control capabilities at lower echelons than was previously the case; and a move towards professional forces and more highly educated service personnel.” (Sloan, 2000)

These quotes acknowledge two commonly cited reasons underlying the forecast that the traditional hierarchy within the military will change dramatically: “increased situational awareness and battlespace control capabilities at lower echelons” and “a move towards professional forces”.

The increased battlefield awareness that the currently discussed RMA is anticipated to bring is a result of technological advances in information gathering, processing and distribution (sensors, satellite communications, computing power, etc.). Essentially, it is argued that the traditional command and control hierarchy in the military will limit the speed of response that is possible from individual, combat-level troops who have access to the same information as their commanders (Adams, 2000).⁴⁵ The number of human decisions that must be made before action can be taken will be the limiting factor in operational response time (Davis, 1997).⁴⁶ This effect has already been observed in combat (Buchan, 1998).⁴⁷

Another characterization of the potential effects of information availability and the resultant pace of combat is that it will become impossible to distinguish between the strategic, operational and tactical layers of warfare:

“Although we cannot definitively predict the precise course a future conflict might take, we can almost certainly expect a significant broadening of the extent of the battlefield with the operational tempo increasing by yet another order of magnitude to the point that

⁴⁵ Adams (2000) p. 56 – “Knowledge and power are both diffused downward throughout the system. Not only do sub-elements down to the individual know more, but also their ability to act on that knowledge is greatly enhanced by the increase in their resources (more capable weapons, on-call fires) and radius of action (increased range and agility).”

⁴⁶ Davis (1997) p. 92 – “The primary impact of the Information Revolution is to push the envelope of the decision-making speed-limit, i.e., the speed of thought. The result of these technological advances is that the time required to take action on the battlefield is becoming increasingly limited by the speed at which the human in the loop can make a tactical decision.”

⁴⁷ Buchan (1998) p. 20 – “Gulf War experience suggests that some high-technology systems were not nearly as effective as they could have been because mummified bureaucracies could not adapt quickly enough.”

the levels of war – the strategic, operational and tactical – essentially merge.” (Davis, 1997, p. 88)

If the distinction between strategy, operations and tactics is no longer valid, then a new basis for the division of authority in the military must ensue. This is further accentuated by the decreasing differentiation between the roles and responsibilities of the various service divisions within the military (e.g. Army, Air Force, Navy, etc.). As Davis (1997) has observed:

“... the rapidly expanding operational capabilities of military forces are also challenging the traditional division of labor – the ‘roles and missions’ – of the military services... The result is that service-specific ‘battlespaces’ increasingly intersect with each other, and will eventually merge.” (p. 94)

The effects that availability and access to information have on organizational structure, authority and agility have been discussed in business literature, often under the rubric of “Knowledge Management”. The field of knowledge management has become frequently maligned, largely due to its transformation from being an examination of the dynamics of information and organizational structure, to a management fad entailing complex, often unusable computer systems. Although the utility of knowledge management as a fad is questionable, its underlying concepts are pertinent to the discussion of RMA.

One of the central concepts of knowledge management is that knowledge is the only truly sustainable source of competitive advantage in an environment of rapid, constant change, since it drives adaptability and innovation (Nonaka, 1991). In other words, the goal of knowledge management is to create flexible organizations.

Defining “knowledge” has been as challenging as defining “RMA”. One theoretical, although insightful definition of knowledge is based on the flow of how knowledge is created:

1. Raw data is useless.
2. Information is created through giving data a context.
3. Knowledge is created when information is coupled with an individual’s unique experience and ability thereby providing a basis for effective action (Actionable Information).

Edward de Bono (1987) once stated: “a thought is not a thought until it has been articulated”. Similarly, information is not knowledge until it has been translated into action or actionable expression. There are two types of knowledge:

1. Explicit – knowledge that has been expressed in a form that is available to everyone (physical documents, computer files, etc.); and
2. Tacit – knowledge that has yet to be converted into explicit knowledge (experiences, talents, learned habits, memories, etc.).

Learning occurs when tacit and explicit knowledge intersect. For example, when one person tells another how they solved a particular problem, tacit knowledge is converted into explicit

knowledge and both parties learn. Furthermore, when the person hearing of the solution applies that knowledge to solve a new issue, the explicit knowledge is converted into tacit knowledge, and once again, learning takes place. This is a continuous, generative loop. (Nonaka, 1991)

The functional implication for learning and knowledge creation in a military context is that, in order for any advances in information-related technology to have meaning, it is critical for the *right people* get the *right information* at the *right time*. Each of these three conditions is significant:

- The “right people” are those who have the authority, ability, and skill to act upon the information when it is received;
- The “right information” acknowledges that information, in itself, is not necessarily valuable. Information must be relevant and actionable to be valuable; and
- The “right time” is when action can be taken, not before and not after.

Failure in any one of the above dimensions significantly reduces the ability to function effectively, either due to a lack of information needed to act, or due to paralyzing “Information Overload”.

The disabling effects of “Information Overload” have been mentioned many times in recent articles. For example:

“Information technology ... has great potential for speeding up the flow of information and ensuring that it gets to the right place at the right time in the right format. At the same time, new means of communication can be counterproductive if they lead to information ‘overload’, the swamping of communication circuits with routine reporting that interferes with the transmission and reception of critical information. Moreover, the additional reporting burden on subordinate units can interfere with their ability to fulfill more-crucial tasks.” (Fukuyama and Shulsky, 1999, p. 335)

“[In] most highly computerized businesses being run today ... people either assume the more data, the more information – which was a perfectly valid assumption yesterday when data were scarce, but leads to data overload and information blackout now that they are plentiful.” (Drucker, 1988, p. 11)

The underlying cause of information overload is that one or more of the critical factors in knowledge transfer are missing. For example, the wrong people may receive information that may or may not be useful and timely; the right people may receive the wrong information at the wrong time; or the “information” being received may simply consist of raw data without any context. In all of these cases, it is incumbent on the individual receiving the information to determine if it is useful, thereby diverting attention from valuable activities. As the quantity of non-value-added information increases, the amount of time spent trying to discern the information that warrants attention increases. When the attention required to sort through data to extract what is necessary reaches the point where it compromises an individual’s ability to perform daily responsibilities, overload and paralysis result.

In order to reduce the occurrence of situations where the “right people” receive either too little or too much information to operate effectively, organizational hierarchies and support structures must be aligned to support and enable the people who perform mission-critical activities. Identifying the “right people” is critical when creating an organization that can use information and knowledge effectively.

The traditional view of a military hierarchy is based on the assumption that the higher in the organization an individual is situated, the more important their knowledge and skill are to operational success. This assumption is valid in the context of “the existing warfare paradigm [which] ... distinguishes among discrete *strategic*, *operational* and *tactical* levels of operation; ... and is based heavily on preplanning; and ... separates the overall operation into discrete phases” (Cooper, 1997, p. 129), since direction and coordination of action are accomplished by people who have the greatest understanding of the overall situation. In contrast with this view, literature focusing on the organizational and leadership implications of RMA contends that, due to the specialized knowledge required to make information actionable and the speed at which decisions must be made, “decentralization of command authority and a concomitant relaxation of control from the higher levels [must occur, and] ... alterations to the existing distinction between strategic, operational, and tactical operations will require that the traditional focus, functions, and roles of the commanders in the existing hierarchical (and authoritarian) structure also be modified so that the nature and character of the decisions and actions correspond to the new paradigm” (Cooper, 1997, p. 129-130). The assumption inherent in this perspective is that many decisions traditionally associated with command levels should be made by lower echelons, due to their unique knowledge, access to previously unavailable information, and ability to respond quickly to emerging circumstances.

The military and business literature that focuses on the effects of knowledge and information both articulate remarkably similar perspectives. For example:

“In the past, decisions were made at a given command level because only that level had the requisite information to make the appropriate decision. But now, everyone in the chain of command can have access to the same information at essentially the same time.” (Davis, 1997 p. 92)

“Back then ... all the knowledge ... lay with the very top people. The rest were helpers or hands, who mostly did the same work and did as they were told. In the information-based organization, the knowledge will be primarily at the bottom, in the minds of the specialists who do different work and direct themselves.” (Drucker, 1988, p. 6)

The key elements of the discussions in both the military and corporate environments are: 1) the increasing role of specialists⁴⁸ and 2) access to information that was not previously available.

⁴⁸ Marsh (2001) – “As well as an anticipated shift of personnel from warriors to technicians, many traditional combat functions are likely to converge as technology enhances weapon performance and offers common solutions.” See also Drucker (1988) p. 5 – “The information-based organization requires far more specialists overall than the command-and-control companies we are accustomed to. Moreover, the specialists are found in operations, not at corporate headquarters.”

The increasing role played by people who have unique technical, professional, or other expertise, is objectively apparent in most organizations. The reason for this is that systems (computer, weapons, operational, etc.) continue to increase in complexity, making the idea of a “single point of knowledge” illusory because there is too much information for any one person to know everything, so people specialize.⁴⁹

When availability of information is combined with the presence of unique expertise, the logical conclusion is that specialists are the best decision makers *in their area of expertise*, since they have the greatest likelihood of making good decisions related to their knowledge base. While it is impossible to prevent people from making bad decisions, it is possible to maximize the opportunity for good decisions to be made through determining decision making authority based not just on information availability, but also requisite expertise.

Recently, there have been numerous circumstances where, arguably, decisions have been made by lower echelons that may have had access to the most immediate information, but may not have been the appropriate decision makers, due to lack of expertise. For example, McCausland and Martin (2001) discuss a situation during the Bosnian conflict where a squad leader was faced with deciding whether to abandon a key strategic position that he was ordered to defend, or to open fire on a group of armed civilians who were advancing on his position and posing an immediate threat to the lives of all squad members. Regardless of the decision made, the question is whether this individual was the right person to make decisions with a high likelihood of causing an international policy problem.

Although expertise is critical in increasing the probability of good decision-making, authority to make decisions must be accompanied by accountability for those decisions. Thus, even if an individual has access to the right information and expertise to make a decision, if that person is unwilling to accept responsibility for their decisions,⁵⁰ then it is inappropriate for them to have decision-making authority. This caveat is particularly salient in the Canadian Military context, due to the findings expressed in the 1997 Dimoff Report that:

“The present structure and procedures of DND do not provide adequate levels of accountability from either the military or civilian perspective.”

and

“... it seems that military and civilian personnel avoid responsibility so that they cannot be held accountable for decisions.”

Based on the foregoing discussion, it seems unadvisable to categorically state that creating a flexible organization necessarily means transferring decision-making power downward from the upper command levels. This may be true in some cases, where appropriate expertise and accountability resides at lower echelons, but it is not a rule that the quality of decisions increases

⁴⁹ See Quinn, et al (1996) for an excellent discussion of professional intellect and the unique dynamics that are presented in an organization of specialists.

⁵⁰ Accountability must be accepted willingly (commitment), rather than imposed (coercion).

as exposure to the battlefield increases. Thus, decision-making authority needs to be distributed based on expertise and the acceptance of accountability and fostered with robust feedback loops, not simply abdicated to lower levels because they have access to the same information. The “diffusion” and “decentralization” of authority predicted by RMA and industry commentators will likely spread throughout the organization – upwards, horizontally, and downwards.

Structure

In order to ensure that the right people get the right information at the right time in an organization of specialists, many authors suggest restructuring the organization to remove traditional structures that impede communication and rapid action. Many different forms of organization have been discussed, each of which provides interesting perspectives on the characteristics that authors believe will improve information flow and responsiveness.

Arquilla and Ronfeldt (1997b) discussed the benefits that can be realized from adopting network and cell-based organizational structures.⁵¹ In addition to communication and response time improvements, these authors contend that network-based organizations are more resilient and flexible than hierarchies. Effectively, it is far more difficult to destroy networks (or even cause substantial damage) than it is to harm centralized command and control organizations. Furthermore, the true *ad hoc* team flexibility provided by these designs may ensure that the “best person”, not just the “right person”, makes decisions and focuses on achieving operational goals.

Quinn, et al (1996) explored the concept of “inverting” the traditional organizational structure. In an inverted organization:

“The former line hierarchy becomes a support structure, intervening only in extreme emergencies – as might the CEO of a hospital or the chief pilot of an airline. The function of former line managers changes: instead of giving orders, they are now removing barriers, expediting resources, conducting studies, and acting as consultants. They support and help articulate the new culture” (p. 197).

In an environment where specialists perform the majority of work, an organizational structure where managers act as enablers, facilitators, and consultants is particularly effective, since it explicitly provides support that expedites the flow of information and removes impediments to rapid action.

Rather than focusing on particular organizational frameworks, Adams (2000) examined some of the functional dynamics that may emerge from the availability of information and the transfer of decision-making authority to lower echelons. Potential, and perhaps unavoidable, leadership and organizational adaptations that may be necessary in an environment where individual troops have

⁵¹ Arquilla and Ronfeldt (1997b) p. 45 – “Informational overload and bottlenecking has long been a vulnerability of centralized, hierarchical structures for command and control. Waging cyberwar may require major innovations in organizational design, in particular a shift from hierarchies to networks... The traditional emphasis on command and control, a key strength of hierarchy, may have to give way to an emphasis on consultation and coordination, the crucial building blocks of network designs.”

more knowledge and capacity of response, were explored through discussing complex adaptive systems and biological analogies, particularly flocking and swarming behaviors.

The implications of complex adaptive systems emerging within the military may fundamentally change the conduct of battle, due to the inherent characteristics of those systems: “complexity, spontaneous self-organization, adaptive behavior (learning and anticipation), and the ability to exist at the ‘edge of chaos’, the point of balance between rigidity and chaos” (Adams, 2000, p. 56).

From a leadership perspective, complex adaptive systems have some particularly significant features. For example:

“Complex, life-like behavior is the result of simple rules, unfolding from the bottom up.”
(Adams, 2000, p. 58)

“Rules for a self-organizing force will arise spontaneously and might begin with something reminiscent of the guidance for the flock [of birds] described earlier:

- 1) Stay in contact with the others.*
- 2) Move as directly as possible toward the objective.*
- 3) Avoid being killed.*

The job of leadership in such a case is to provide clear goals and achievable objectives.”
(Adams, 2000, p. 59-60)

“[T]he system must function at the ‘edge of chaos’, meaning it is able to avoid both disorganization and stasis. To do this, a system must strike a balance by taking risks to permit learning while maintaining enough control to prevent the organization from becoming anarchic.” (Adams, 2000, p. 56)

“The self-organizing capacity of dynamically adaptive systems is amazing. They tend to eliminate redundancy, minimize connections, and establish priorities – all without outside direction.” (Adams, 2000, p. 58)

Simple rules, maintaining coherence while embracing risk, and allowing flexible structures to evolve are all important aspects of creating an agile organization. The complex adaptive system framework provides insight into some of the intended and unintended consequences of such an organization, as well as how and why they might emerge. Notably, the nature of complex adaptive systems has also been discussed in the business literature (Tower, 2002).

Perhaps the most prevalent organizational restructuring methodology discussed in the literature is “Organizational Flattening”. This concept focuses on removing as many layers of hierarchy as possible between leadership and the people who do the work (Fukuyama and Shulsky, 1999;⁵² Cooper, 1997; Drucker, 1988). The underlying factors that make flattening an organization possible are the expanding role and authority of specialists (as discussed above), and the power of information technology to accumulate, filter and communicate information. When these two

⁵² Fukuyama and Shulsky (1999) p. 342 – “... the primary advantage of flattening an organization is to improve the flow of information from those who have it to those who are in a position to act on it.”

conditions are combined, “it becomes clear that both the number of management levels and the number of managers can be sharply cut. The reason is straightforward: it turns out that whole layers of management neither make decisions nor lead. Instead, their main, if not their only, function is to serve as ‘relays’ – human boosters for the faint, unfocused signals that pass for communication in the traditional pre-information organization” (Drucker, 1988, p. 4-5).

In most organizations, it is overly simplistic to state that middle management’s only function is to facilitate communication. As Fukuyama and Shulsky (1999) observed:

“This argument focuses on a single, if very important, function of middle management: the aggregation, filtering, and transmission of information... middle management serves other functions as well: it provides leadership to subordinates, performs various specialized functions, and serves as a training ground for future high-level leaders.” (p. 342)

Due to the fact that middle management performs tasks other than facilitating communication, there are numerous potentially negative implications of flattening that must be mitigated if the overall organizational system is to function effectively. For example, recruiting, promotion and training structures need to be realigned, and leadership for all personnel must be maintained. Drucker identified the critical management problems in information-based organizations as:

- 1) *Developing rewards, recognition, and career opportunities for specialists;*
 - 2) *Creating unified vision in an organization of specialists;*
 - 3) *Ensuring the supply, preparation, and testing of top management people; and*
 - 4) *Devising the management structure for an organization of task forces.*
- (Drucker, 1988, p. 12-13)*

The first of these, developing rewards, recognition, and career opportunities for specialists, recognizes that specialists often identify their personal value with their ability to practice their specialty, and will often refuse promotion “if that means that they would have to give up exercising their special talent and become managers; [furthermore] an excellent computer programmer may in fact make an indifferent manager” (Fukuyama and Shulsky, 1999, p. 352). The recognition inherent in the latter part of this quote, that the skills possessed by an outstanding specialist are not necessarily the skills that make a good manager, reflects an often-observed phenomenon in the business world – employees who display excellence in their work are often promoted into positions that no longer take best advantage of their skills, frequently to the point where they become ineffective. This phenomenon is referred to as the “Peter Principle”.

The effects of specialists’ aversion to management promotion and their unique, focused skills, are a significant concern in the military, particularly in the context of an institutionalized “up or out” promotion system. As Fukuyama and Shulsky (1999, p. 352-3) have observed:

“The critical issue ... is the ‘up or out’ personnel system, which implies ... that an excellent commander at the tactical level must either be promoted to a higher level of responsibility or be separated from the service... This contradicts the notion of the ‘flat’

organization, in which the retention of skills at the bottom of the hierarchy is crucial.” (p. 352-3)

In order to retain specialized expertise in the military, it is essential to re-evaluate the current “up or out” approach and create a system that recognizes, encourages, and rewards excellence without promoting experts out of their specialty. As Drucker (1988, p.13) has observed, “opportunities for specialists... will primarily be opportunities for advancement within the specialty.” Quinn, et al (1996) described the potentially grave effect of neglecting to create appropriate evaluation and promotion systems:

“If such organizations fail, it is usually because – despite much rhetoric about inversion – their senior managers did not support the concept with thoroughly overhauled performance-measurement and reward systems.”(p. 199)

The second critical management problem identified above, creating (and maintaining) unified vision in an organization of specialists, has been discussed earlier in this paper and will continue to develop throughout this discussion. However, at this point it is important to note that creating vision in an organization of specialists is further complicated “because professionals have specialized knowledge and have been trained as an elite, [therefore] they often tend to regard their judgment in other realms as sacrosanct... Professionals generally hesitate to subordinate themselves to others or to support organizational goals not completely congruous with their special viewpoint” (Quinn, et al, 1996, p. 185).

One technique that has been used to successfully unite and inspire the efforts of people with different perspectives is the use of simple metaphors and slogans that encourage people to create their own connections to the common goal through providing a common basis for understanding (Nonaka, 1991). These slogans are normally short, simple, encourage inclusion and commitment, and include internal anachronisms that cause people to think in different ways. Notably, the United States Army’s slogan, “An Army of One” is consistent with these requirements – it is short, simple and compelling because it allows people to build their own meaning through contextualizing their own experience, and it is internally anachronistic (an army is generally perceived as being *de facto* composed of more than one individual...so what is meant by “Army” and “One” in this new usage?).

Two issues that have presented themselves in the military context, and are related to the issue of creating a compelling vision in an organization where individuals are empowered with information, knowledge and decision-making authority, are:

- 1) Increasing challenges to the moral legitimacy of the use of force; and
- 2) The potential for independent behavior to conflict with operational goals.

The first of these issues, challenges to the legitimacy of military action, has been discussed by Shamir and Ben-Ari (1999), who observed that, military leadership is frequently being challenged to manage “...moral qualms among soldiers, among themselves (and within themselves), and to build an internal credibility for their operations. Second, they need to constantly respond to a sensitive civilian environment in their capacity as military leaders in

order to construct an external legitimacy for their actions” (p. 22). Furthermore, “issues of legitimacy and credibility are intensified by the greater exposure of military units both in wars and in other operations to the media, and especially to television (the Vietnam War being the first major example)” (p. 23).

The current increasing incidence of resistance and objection to the use of violence for political and economic goals, from both civilians and military personnel, reinforces the contention that the underlying socio-political motivation for the current changes in the military are a backlash against the “total war” paradigm that existed through the end of the Vietnam War. Many different dimensions, including post-baby-boom decreasing birth rates, the visibility of casualties through media coverage, ambiguous (therefore unattainable) objectives, increasing temporal proximity from global military threats, economic globalization, and the appearance of real-time telecommunications, have all contributed to “the tremendous aversion to casualties which characterizes modern [Western] societies” (Eggleton, 1998).

MacFarlane (1999) has discussed these, and other factors that have shaped current attitudes regarding the use of military force:

“The abandonment of conscription and the professionalization of armed forces have reduced societies’ capacities to deploy massive numbers of cannon fodder in battle. Declines in birth rates and the associated sensitivity to casualties ... have made societies less willing to tolerate large human losses. This effect is amplified by the consequently rising significance of a public opinion bombarded with near real-time media coverage.” (p. 30-31)

“The series of developments that are brought together in the RMA have the connecting theme of separation of the military from the civilian, of combatants from non-combatants, of fire from society, of organized violence from everyday life.” (p. 31)

MacFarlane’s analysis of the global circumstances leading to the changes in the military is insightful, and demonstrates that the changes being experienced by military organizations must be viewed in a larger social, political and economic context to be understood systemically. Practically, the presence of new challenges to the legitimacy of military action is a “state of nature” that military leadership must manage – operations, doctrine and attitudes must now comprehend the fact that in Western civilization, it is no longer acceptable to incur or inflict the casualties or damage inherent in the “total war” paradigm.

The second issue listed above, potential conflicts between individual action and operational goals, is a much more immediate and manageable concern for military organizations. While this has always been an issue, the anticipated empowerment of lower echelons increases its likelihood and potential impact. Adams (2000), quoting Dr. Margaret Wheatley, provided a clear insight into the nature of this potential problem:

“They [the US Army] have the technology to move information down to the lowest level so that it is possible for the men inside tanks to have as much information as their commanders have... But once you give that information to tank crews, and they start

working for their own safety, their own victory, how are they going to respond to commands from above?” (p. 54)

In essence, this is a question of creating bilateral trust: leaders must be able to trust that their troops will act appropriately if they are given information and authority, *and* troops must trust that leaders will allow them to use expertise and trust their judgment. Building this level of trust takes time, commitment and understanding – understanding is imperative, as there will always be occurrences where people act inappropriately. Despite the inevitable inappropriate actions of some individuals, the overall system must determine its effectiveness and the level of trust that is sustainable.

These two issues are related to creating a shared vision within an organization of specialists, as they both reflect dimensions of how the military organization sees itself operating in the future – the relationship may seem tangential, yet all aspects of the system of organizational and personal values and beliefs must be accommodated by the vision in order for it to be embraced and pursued by the individuals who compose the greater organization.

Drucker’s third management problem, ensuring the supply, preparation, and testing of top management people is an issue because, in a flattened organization, middle management layers have been reduced or removed, thus the primary “training ground” for top leaders has also been removed. Furthermore, due to the prevalence of specialists in the organization, it is probable that there will be fewer candidates who are willing and capable to be promoted to leadership positions.

In the corporate environment, this issue is often addressed by recruiting people from outside the organization who already possess the skills and experience to fill high-level offices. This is not possible in the military, as one of the crucial differences between private and military organizations is that the armed forces cannot recruit leaders externally – they must “grow their own” leaders (Fukuyama and Shulsky, 1999; Ulmer, 1998). In order to mitigate this fact, and build organizational responsiveness, it is necessary to have “senior officers with traditional credentials willing to sponsor new ways of doing things [and to create] new promotion pathways for junior officers practicing a new way of war” (Hundley, 1999, p. xix).

These requirements are consistent with the “leader as enabler” paradigm; establish an environment of legitimacy for changing promotion (and other) practices, due to support from leaders with established credentials; and create an explicit career development path that can be followed by people destined for leadership roles. In addition to Hundley’s factors, it may help build credibility and facilitate implementation of new leadership programs if leadership is recognized as a distinct specialty within the organization – similar to any other specialty, leadership excellence requires unique skills, talents and experience.

Creating the environment and structures for new leadership development and promotion systems may help resolve problems posed by the potential dearth of suitable leadership candidates. However, it does not address the removal of a practical “training ground” for leaders due to organizational flattening. In a military context, where formal continuous learning and skill development programs are institutionalized and supported (McCausland & Martin, 2001), this

may not be as significant an issue as it is in corporations. Aspects of the existing promotion philosophy, which is based on experience, training and performance, further support this.

One improvement to current leadership development systems in the military may be to broaden the scope of strategic rotation to provide leadership candidates with wider operational experience. This is particularly appropriate since the differentiation between service divisions is dissolving, and joint operations are increasingly prevalent.⁵³ Corporate literature has often noted the effectiveness of strategic rotation programs in achieving rapid knowledge transfer and skill development. For example, Nonaka (1991) and Garvin (1993) have observed:

“Another way to [transfer knowledge throughout the company] is through strategic rotation, especially between different areas of technology and between functions such as R&D and marketing. Rotation helps employees understand the business from a multiplicity of perspectives. This makes organizational knowledge more ‘fluid’ and easier to put into practice.” (Nonaka, 1991, p. 38)

“For learning to be more than a local affair, knowledge must be spread quickly and efficiently throughout the organization.” and “[citing Schank] ‘It is very difficult to become knowledgeable in a passive way. Actively experiencing something is considerably more valuable than having it described.’ For this reason, personnel rotation programs are one of the most powerful methods of transferring knowledge.” (Garvin, 1993, p.66-70)

The fourth management problem, devising the management structure for an organization of task forces, also may not be as significant a challenge in a military context as it is in commercial organizations, due to the fact that warfare is often conducted by interacting teams. Paradoxically, “while armed forces have always been regarded as the prototypical strictly hierarchical organizations, they in fact have always been ‘flatter’ and more flexible than most corporations... However hierarchical a military organization may appear on paper, the confusion, uncertainty, urgency and stress of combat require ... individual initiative at lower levels, lateral communication, and teamwork” (Fukuyama and Shulsky, 1999, p. 341).

Although it may be easier for the military to create management structures that support an ad hoc team-based approach to operations, it will still present numerous challenges. One of the most significant of these may be determining how to restructure the current service divisions to maximize interoperability. Garnett (2001) recognized the need to reform service structures in the Canadian Forces: “... we must overcome our legacy of hierarchical ‘stovepipe’ organizations and methods if the CF is to become truly netcentric.”

While there are many benefits to breaking down “silos” in organizations, businesses have also learned that internal divisions often provide identity and motivation for employees through

⁵³ Shamir and Ben-Ari (1999) p. 28 – “...military commanders will often find themselves ‘in charge’ of units and people who are not permanently under their command and who have joined their forces for a specific project, including members of other forces and civilians in various roles.”

healthy internal competition and differentiation. Thus, if the service division system is restructured, leadership must provide alternative sources of identity and motivation. Businesses have achieved similar goals through recognizing specialist groups, smaller factions, or teams, and employing targeted project team motivation techniques.

The Canadian Forces have recognized the need to change, and have begun to change, organizational structures. For example, Garnett (1999, slide 9) questioned whether it is appropriate for mobilization to be the Reserves' central task or whether the Canadian Forces should "take advantage of the many unique skill sets – for example public affairs, mechanics, civil engineering, etc. – and re-focus the tasks of the reserves to create specialized units." In the same article, Garnett observed that "despite heavy cuts...there remains a considerable number of headquarters at all levels" and raised the question of whether "fewer numbers of truly joint operational-level headquarters [could] cut this overhead." Notably, two years later this author stated significant progress towards achieving at least one of these goals through reducing "the number of standing headquarters from seventeen to nine" (Garnett, 2001).

Culture

To adequately adapt to the conditions that underlie the current contention that a revolution is occurring in military affairs, it is necessary for the Canadian Forces to adopt changes in their organizational culture to support the redistribution of authority and a modified organizational structure. Hundley (1999, p. xix) described two of the cultural characteristics that are required to build responsiveness. These two characteristics are:

1. [An] organizational climate encouraging vigorous debate regarding the future of the organization; and
2. Mechanisms available within the organization for experimenting with new ideas, even ones that threaten the organization's current core competencies;

The first of these is related to the discussions of vision, above, and will not be further explored in this section.

Hundley's second characteristic, the existence of systems that permit and encourage experimentation despite potentially threatening outcomes, has also been discussed by other authors (although perhaps using different terminology). For example, Fukuyama and Shulsky (1999, p. 349-350) observed that:

"Many voices in the armed forces have spoken out against the 'zero defects' mentality and in favor of instituting the 'freedom to fail'. This is particularly important if one wishes to foster an adaptive and innovative culture, in which individuals are encouraged to try new methods and to attempt unorthodox approaches. Obviously, some of these attempts will fail; if the system is not able to distinguish between failures that are inevitable in the course of reasonable experimentation and those that result from incompetence, innovative behavior will be seen as too risky."

In order for an organization to be flexible, it must allow people to innovate and discover new ways of responding to new circumstances. Innovation is inherently risky, as it involves change

and trying new things. In a military context, the idea of “freedom to fail” is particularly frightening, due to the potential negative consequences of failure – massive loss of human life and/or loss of sovereignty. However, failure to innovate offers the same threats, only in a more familiar and comfortable current state.

None of the authors discussing the concept of “freedom to fail” contends that the battlefield is the appropriate forum for experimentation (although warfare is inherently innovative, as it involves doing things that have never been done before). Rather, these authors focus on creating a cultural environment that supports the generation of new ideas, as well as formal research facilities and programs (e.g. McCausland & Martin, 2001; Robertson, 2000).

In the corporate literature, the field of Organizational Learning focuses on creating the type of culture that is called for by military authors discussing experimentation. This concept has been broadly discussed and tested, thus numerous applied tools and techniques exist that are designed to create learning organizations (e.g. Senge et al., 1994; Senge et al., 1999). One of the most pervasive paradigms is based on Senge’s Fifth Discipline (1994) and subsequent Fieldbooks (1994; 1996). This approach focuses on helping individuals understand and act upon five disciplines:

1. Personal Mastery – the individual capacity to learn and clarify what one wants to create in life, in consonance with personal values;
2. Shared Vision – the collective capacity to identify what a group wants to create together based on a clear understanding of current reality and alignment of aspirations;
3. Team Learning – the capacity to think and work together more effectively and to efficiently employ the collective intelligence of a group, team, or community --- synergy; and
4. Mental Models – the individual and collective capacities to identify and share beliefs, assumptions, experiences, paradigms and perspectives about how the world works, and finally,
5. Systems Thinking – the capacity to see the whole as well as the parts and the interrelationships between the parts.

Senge’s approach is quite effective in helping people understand and implement new paradigms when working within an organization. Consistent with Senge’s model of organizational learning, Garvin (1993) described the overall abilities possessed by learning organizations:

“A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights.” (p. 51)

“Learning organizations are skilled at five main activities: systematic problem solving, experimentation with new approaches, learning from their own experience and past history, learning from the experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization.” (p. 52)

The essence of organizational learning is that the potential innovative capacity of any group of people far exceeds the sum of their individual capacities. However, this potential can only be realized if “a supportive, rational organizational climate” (Ulmer, 1998) exists, *and* each individual in the group understands what makes their contributions unique, is willing to accept and respect the uniqueness of other contributions, and continually tries to understand how their actions and decisions affect the systemic context.

In order to create an organizational environment that is conducive to innovation and flexibility, it is essential to have strong and vocal leadership that is committed to changing the culture, because “changing the culture of any organization is a leadership task” (Ulmer, 1998). The leadership must not only loudly and frequently support the new culture with words (“Talk the Talk”), it must also clearly and consistently demonstrate the characteristics that they are trying to create within the organization (“Walk the Walk”), as “organizational climates are greatly influenced – for better or worse – by the values, insights, skills, and behaviors of the senior leadership of the organization” (Ulmer, 1998).

Summary

Organization survival in an environment of constant and unpredictable change depends on rationalizing authoritarian, structural, and cultural systems with existing circumstances. Specifically in the context of RMA, this realignment must comprehend the increasing roles played by specialists in the military, including their unique perspectives, skills, decision-making abilities, and willingness to accept accountability. Furthermore, organizational culture and structure must be adapted to support the potential increases in responsiveness and quality of judgment that may be obtained from providing the right people with the right information at the right time.

For any organizational changes to realize their intended results, strong leadership must “orient [the] chaos [of independent, creative expertise] toward purposeful knowledge creation [by] ... providing employees with a conceptual framework that helps them make sense of their own experience” (Nonaka, 1991, p. 40).

As the military transitions into an organization of specialists, individual action must be coordinated towards achieving common goals – goals that must be understood and accepted by the people charged with accomplishing operational success, regardless of their unique circumstances. This is a dramatic shift from the “command and control” model that is prototypically associated with military hierarchies, yet, as evidenced by the significance of changing attitudes regarding the legitimacy of military action, it is an aspect of current reality that demands a shift from traditional perspectives.

CONCLUSION

Throughout this paper, a single theme has remained consistent – constant change and the concomitant unpredictability of what is to come in the future. In fact, the current environment is so unstable that military scholars are unable to determine whether armed forces are currently in the midst of a fundamental revolt that will recreate warfighting in a wholly unexpected manner, or whether it is “business as usual”.

In this type of setting, organizations must direct their energies towards creating structures that improve flexibility and agility, and thereby, maximize the possibility of sustained existence.

In seeking to maximize opportunities for organizational success, military organizations must prepare for the unknown while focusing on currently anticipated constants and success factors. Specifically, the inherent benefits of flexibility, vision, consistent leadership, and good people who know what they are doing (specialists), are all assets regardless of what changes may present themselves. As noted military scholars have observed:

“In any army, in any time, the purpose of ‘leadership’ is to get the job done. Competent military leaders develop trust, focus effort, clarify objectives, inspire confidence, build teams, set the example, keep hope alive, and rationalize sacrifice.” (Ulmer, 1998)

“More important than technology, trained and ready soldiers and their leaders are at the heart of this strategy as they have been for more than 220 years” (Hunt, et al, 1999b, p. 4).

Of the success factors mentioned above, developing and effectively sharing a clear and consistent organizational vision is perhaps the most critical issue currently facing the Canadian Forces – without a clear and compelling vision to unify action and provide grounding in an atmosphere of constant change, it is difficult, if not impossible, to maintain the focused effort required to survive in an unpredictable, complex environment.

Today, as in wars a century ago, effective military operations depend on carefully planned, coordinated and targeted action. Although the current state of warfare seems to have changed dramatically over the past 100 years, responsiveness and decisiveness in the presence of unpredictability remain consistent features of both battle and business.

The primary difference between battlefields of the Great War and the battlefields of the 21st Century is that people can, and do, know more. And they acquire this information and act upon it with greater speed. Thus, actions and decisions must be rational, consistent with a greater body of information, and able to withstand the scrutiny of millions. In this environment, increased quality of response would seem natural, yet this assumption is mitigated by the speed of response currently required in order to maintain a dominant, preemptive position.

Perhaps the most appropriate characterization of the circumstances that drive many authors to the conclusion that an RMA, or a greater revolution, is occurring, is the realization that the speed and quality of human thought have finally become the limiting factor in the conduct of warfare. Thus, the “major change in the nature of warfare brought about by the innovative application of

new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts fundamentally alter the character and conduct of military operations” (CDS, 1999), is the realization that technology must enable human action, rather than humans compensating for technological shortcomings with their lives.

This possibility, when combined with the socio-political implications of its common knowledge, and the extant social, political and economic effects of the “Information Revolution”, may present the possibility that a revolution of Napoleonic significance is beginning to unfold. On the other hand, the changes in military affairs may simply reflect the gradual progression of ideas and forces that in the past have taken decades to manifest themselves.

In order for the leadership of the Canadian Military to help their organization remain relevant and vital in an uncertain and complex future, regardless of the cause of that complexity and uncertainty, their attention should be focused on:

- ◆ Resolving the crisis of vision;
- ◆ Comprehending the role of specialists and setting up leadership dynamics that will allow them to succeed; and, finally
- ◆ Approaching the future as a sequence of focused, incremental improvements that will allow the Canadian Forces to foster flexibility through re-evaluation, refocusing and redirection of their vision and their organization.

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